

Dominik Siegrist, Christophe Clivaz, Marcel Hunziker, Sophia Iten (eds.)

Visitor Management in Nature-based Tourism

**Strategies and Success Factors for Parks and
Recreational Areas**

Series of the Institute for Landscape and Open Space, HSR
University of Applied Sciences Rapperswil (Schriftenreihe des
Instituts für Landschaft und Freiraum, HSR Hochschule für
Technik Rapperswil)

ISSN 1662-5684

EDITORS

Dominik Siegrist, University of Applied Sciences Rapperswil

Christophe Clivaz, University of Applied Sciences Western
Switzerland

Marcel Hunziker, Swiss Institute of Forest, Snow and Land-
scape Research

Sophia Iten, University of Applied Sciences Rapperswil

CITATION

Siegrist, D.; Clivaz, C.; Hunziker, M.; Iten, S. (eds.) (2008). Visitor Management in Nature-based Tourism. Strategies and Success Factors for Recreational and Protected Areas. Series of the Institute for Landscape and Open Space, HSR University of Applied Sciences Rapperswil 2, Rapperswil. 129p.

COPYEDITING

Sophia Iten, Steffi Schüppel, Oliver DeCaro

LAYOUT

Sophia Iten, Clemens Bornhauser

PRINT

Mails & More ©, A-Baumgarten

ORDERING COPIES

ILF – HSR, P.O. Box, CH-8640 Rapperswil
www.ilf.hsr.ch, ilf@hsr.ch

Contents

INTRODUCTION	5
LONGITUDINAL MONITORING OF PUBLIC REACTIONS TO THE U.S. FOREST SERVICE RECREATION FEE PROGRAM	9
James Absher, Alan Graefe & Robert Burns	
MONITORING TRAMPLING IMPACTS FROM THE DISPOSAL OF HUMAN WASTE AT CAMPSITES	17
Tetsuya Aikoh	
ANALYSIS OF THE SUSTAINABILITY OF NATURE-BASED TOURISM IN THE SUMAVA NATIONAL PARK, CZECH REPUBLIC: 1997-2004	25
Martin Cihar & Viktor Trebicky	
THE LOOK OF AND ON SUSTAINABLE DEVELOPMENT: THE ROLE OF IMAGES IN PARTICIPATION PROCESSES TO ESTABLISH PROTECTED AREAS	33
Norman Backhaus, Urs Müller & Ulrike Müller-Böker	
LANDSCAPE PREFERENCES AND PERCEPTION OF BOTH RESIDENTS AND TOURISTS: A CASE STUDY IN MÜRITZ NATIONAL PARK (GERMANY)	47
Gerd Lupp & Werner Konold	
NATURA 2000 AND TOURISM: OPPORTUNITIES AND LIMITATIONS IN DESTINATION MARKETING AND BRANDING	59
Veronika Wirth, Petra Sterl & Ulrike Pröbstl	
INFORMATION NEEDS AND CHANNEL PREFERENCES OF HIKERS	73
Yu-Lan Yuan & Chi-Chuan Lue	
KEY SUCCESS FACTORS FOR NATURE-BASED TOURISM IN PROTECTED AREAS OF THE ALPS	93
Florian Lintzmeyer & Dominik Siegrist	
LOCAL RECREATIONAL AREAS: ACCOUNTING FOR PEOPLES' NEEDS IN THE DEVELOPMENT AND SELECTION OF PLANNING INSTRUMENTS	107
Harry Spiess, Margit Mönnecke, Karin Wasem & David Kümin	
OUTDOOR ACTIVITIES IN NATURE AND LANDSCAPE – PRACTICE-ORIENTED SOLUTIONS ..	119
Margit Mönnecke, Karin Wasem & Dominik Siegrist	

Introduction

Dominik Siegrist, Christophe Clivaz, Marcel Hunziker & Sophia Iten

Management and monitoring of visitor flows in recreational and protected areas are topics of growing importance worldwide. Today more than 100,000 protected areas exist globally, and the trend shows that their number is increasing, as the IUCN statistics demonstrate. To these we must add numerous smaller areas that also have special natural or cultural heritage values but do not have a special protection status. Many of these areas do not only serve the protection of natural and cultural values or biodiversity, they are also important points of attraction for tourism and recreation. These sites must be professionally maintained and managed if they are to conserve their natural and landscape values in the future.

With the rise of nature-based tourism in protected areas one is confronted with the increasing need for effective visitor management. Visitor management is a key matter, especially when one considers that tourism's basic resources, nature, landscape, and cultural heritage, are increasingly under pressure. Therefore, applied tourism research wishes to contribute to ease conflicts between these resources and tourism use. This goal is pursued by the development of new monitoring methods and the data they provide as well as the comprehensive presentation of results and their application in practice.

From this scientific and practical background four central questions arise:

1. Which impacts do tourist use and recreational activities have on recreational and protected areas and how can these be presented?
2. Which images of landscape, nature, and wildlife are the basis for the use and management of recreational and protected areas?
3. What requirements must be met for regional development and nature-based tourism to take place in relation to recreational and protected areas?
4. How relevant is research for actual practice and how are research results integrated into planning and management?

The present compilation presents the results of ten studies that contribute to answering these four central questions. By publishing this work, the editors wish to display the results of applied research from different parts of the world and make them accessible to interested managers and administrators.

To guarantee scientific quality, each submitted paper was given a double-blind reviewing by two international experts who read the contributions critically and commented them anonymously. To reinforce the link between research and practice, each study was judged by a management and a research expert.

The contributions of ABSHER *et al.*, AIKOH and CIHAR & TREBICKY discuss long-term visitor monitoring as a basis for sustainable development of protected areas. Thus, general trends can quickly be identified and negative consequences can be limited by the management:

- The matter of how imposing fees for nature-based tourism offers are perceived by the public and which social mechanisms influence this perception is approached in a study from the northwest of the United States.
- How the spreading area of impacts due to lack of sanitary infrastructure can be analyzed using aerial photographs is explored in a case study from Daisetsuzan National Park in Japan.

- Which trends are impeding the sustainable development of parks and by which means they can be overcome is investigated in a study from the Czech Sumava National Park.

The contributions of BACKHAUS *et al.*, LUPP & KONOLD, WIRTH *et al.* and YUAN & LUE address the central questions of how knowledge of visitor needs and their preferred communication channels can help planning processes to be more focused on user requirements and market the tourism offers more effectively.

- How certain images of landscapes are linked to the perception of sustainable development is investigated in two protected areas in Switzerland.
- How knowledge of the environment can lead to a different perception of landscapes and a change of visitor behavior is described in a case study on the Müritzer National Park in Germany.
- The preferred communication channels of different visitor types and their information needs are analyzed in a study from Taiwan.
- The importance of protected areas in the marketing of tourism destinations is presented based on the example of the pan-European concept Natura 2000.

The contributions of LINTZMEYER & SIEGRIST, SPIESS *et al.* and MÖNNECKE *et al.* discuss success factors of protected area tourism and analyze the application of different planning instruments in the fields of nature-based recreation and nature sports.

- A study of parks in several Alpine countries discusses success factors for protected area tourism.
- A case study in Switzerland serves as a basis to investigate which planning instruments are most suitable for the development of local recreation areas with high visitor requirements.
- How approaches to solutions in the conflicting areas between nature-based sports and protection of nature can be made accessible to a wide audience is presented from a case study in Switzerland.

The papers gathered here were first presented at the Third International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas (MMV3), which took place in Rapperswil, Switzerland, from September 13 to 17, 2006. Researchers and managers from different parts of the world exchanged results from their current research and practical experience and discussed their practical applications. Alongside the conference proceedings, gathering the extended abstracts, and the special edition of the *Journal Forest Snow and Landscape Research* of the Federal Institute of Forest, Snow and Landscape Research (WSL), containing basic research oriented studies, the present publication dedicates itself to applied research oriented results. Thus, the editors wish to help close the gap between practice oriented research and its successful implementation.

References

- HUNZIKER, M.; CLIVAZ, C.; SIEGRIST, D. (eds.) 2006. Monitoring and management of visitor flows in recreational and protected areas. *For. Snow Landsc. Res.* 81, 1/2. Haupt Verlag, Berne. 238p.
- SIEGRIST, D.; CLIVAZ, C.; HUNZIKER, M.; ITEN, S. (eds.) 2006. Exploring the Nature of Management. Proceedings of the Third International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas (MMV3), 13th-17th September, 2006, Rapperswil, Switzerland. 511p.

Longitudinal Monitoring of Public Reactions to the U.S. Forest Service Recreation Fee Program

James Absher¹, Alan Graefe² & Robert Burns³

¹ US Forest Service, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507 USA. Email: jabsher@fs.fed.us

² The Pennsylvania State University, State College, PA USA. Email: gyu@psu.edu

³ West Virginia University, Morgantown, WV USA. Email: robert.burns@mail.wvu.edu

Keywords: Forest recreation, fees, public perceptions, monitoring, evaluation

Abstract: Natural resource managers need to better understand the impact of fees on outdoor recreationists. The debate about recreation fees involves both operational issues such as revenue use and social issues such as justice and fairness. The recreation fee program of the US Forest Service is over ten years old and it is now possible to gauge some of the longitudinal effects of fees and fee communication programs. This paper presents ongoing research to provide monitoring of the recreation fee program in the Pacific Northwest region of the United States. Surveys of residents in Washington and Oregon were conducted in 1999, 2001, and 2003. This paper highlights findings that describe public perceptions about the fee program over a six year period. The key issues are: Shifts in public attitudes about fees, perceptions about the balance between taxes and fees, equity and implementation concerns, and revenue uses. Results suggest that public attitudes have remained relatively stable and that in some important ways negative reactions have been reduced. The paper concludes with some implications from these results, notably the practicality and relevance to managers of using user assessments.

Zusammenfassung: Für Manager natürlicher Ressourcen ist es wichtig, die Auswirkungen von Gebühren auf Erholungssuchende besser zu verstehen. Die Debatte über Gebühren für Serviceleistungen/ Angebote im Erholungsbereich beinhaltet zwei Aspekte: einen betriebswirtschaftlichen, etwa hinsichtlich der Verwendung der Einnahmen, und einen sozialen, wie Gerechtigkeits- und Fairnessfragen bei ihrer Erhebung. Das Gebührenprogramm des US Forest Service existiert seit über 10 Jahren. Dieser Zeitraum erlaubt eine Zwischenbilanz über die Langzeitwirkungen von Gebühren auf Erholungssuchende und der begleitenden Kommunikationsprogramme zu ziehen. Dieser Bericht beschreibt aktuelle Forschungsaktivitäten über erholungsrelevante Gebührenprogramme im pazifischen Nordwesten der Vereinigten Staaten. Für einen Zeitraum von sechs Jahren wird dargestellt, wie solche Gebührenprogramme öffentlich wahrgenommen werden. Befragungen von Einwohnern der Staaten Washington und Oregon wurden in den Jahren 1999, 2001 und 2003 durchgeführt. Schlüsselthemen waren: Wandel der öffentlichen Einstellung gegenüber Gebühren, Wahrnehmung eines Gleichgewichts zwischen Steuern und Gebühren, Gleichheits- und Implementierungsaspekte sowie Fragen über die Verwendung der Einnahmen. Die Ergebnisse deuten darauf hin, dass die Einstellung der Bevölkerung zu Gebührenprogrammen im Erholungsbereich über die Zeit relativ stabil blieb und negative Reaktionen durch Kommunikationsprogramme vermindert werden konnten. Abschließend wird auf die Relevanz und Praktikabilität solcher Meinungsumfragen für Ressourcen-Manager hingewiesen.

INTRODUCTION

Charging fees for recreational access is not entirely a new idea. Places such as National Parks have charged entrance fees for almost a hundred years. Various other agencies have instituted fees for a range of services such as parking, site entry or use permits, especially for developed sites such as campgrounds, beaches, boating access and at times less developed areas such as wilderness areas. Some of these are not “recreation fees” per se, but often the public does not make distinctions among the categories and rationales agencies use to justify fees and other charges for recreational use. Our focus here is on the access fees implemented by the US Forest Service (USFS) in the Pacific Northwest. Initially this was part of a three year pilot “fee demonstration” program legislatively established in 1996. After several extensions, it was made a permanent authority under the Federal Lands Recreation Enhancement Act (FREAA) in 2004 (Public Law 108-447). The dual purposes of this Act were to improve the situation on the ground through the use of revenues to reduce maintenance backlogs, especially for infrastructure such as roads, toilets, etc., and to establish a balance between free provision of recreation opportunities and a system where those who directly benefit pay some of the cost of provision. This program attempts to strike a balance between a pure public lands doctrine that includes free access and a more business-oriented model that emphasizes the exchange of goods or services. This has not been without controversy. Some have argued that fees are a necessary part of modern land management systems (MCCARVILLE 1995; WARREN & REA 1998) while others have seen them as simply antithetical to agency purposes (DUSTIN *et al.* 2000; BENGSTON & FAN 2001). There have been other controversial aspects as well, notably surrounding questions of equity in public services provision (NYAUPANE 2004; MORE & STEVENS 2000), how taxes and fees should be balanced and used (VASKE *et al.* 1999; USGAO 2003), public response to a shift in managerial emphasis (SCHNEIDER & BUDRUK 1999), and whether managers incorporate public monitoring or evaluation such as we present in this paper (ABSHER *et al.* 1997). There is much more literature available on these topics and the reader is directed to more comprehensive reviews for greater detail (NYAUPANE 2004; USGAO 1998; REY 2005)

The US Forest Service authority to charge recreation fees has been in place for over ten years, although some places were added or deleted in the early years as the program grew. New fees were initiated at many sites in 1997 or slightly later as decisions about how to implement the authority were made. Some sites, e.g. scenic overlooks, were deleted from the program over time as the criteria for implementation evolved. Recreation fees are charged for a variety of uses, such as parking at trail heads, camping at developed camp sites, or launching a boat at a developed ramp. Typically, daily fees range between \$5 for parking or using a launch, to a higher and more variable fee (e.g., \$8 to \$20) for camping that depends on the level of development at a specific campground or campsite. As the fee program developed it has generated substantial revenue that has been used locally to improve the recreation infrastructure and reduce maintenance backlogs (USDA 2006). However, some of the controversial aspects may still remain as concerns in the minds of the users and little research has been done to better understand preferences in relation to recreation fees over time.

The purpose of this investigation is to determine the extent to which the public recognizes and supports USFS efforts to establish a recreation fee program. In particular, we want to know if support and preferences for the USFS fee program have changed over the first six years of implementation in one USFS region, the Pacific Northwest. Because fees involve social issues related to taxation, fairness, management options, revenue use, and equity, we address the following six issues:

1. General acceptability of recreation fees,
2. The role of user fees in relation to general appropriations, i.e., fees versus taxes,
3. General preferences for management under budget constraints,
4. Equity of access concerns, especially for low income groups,

5. Management (implementation) options to ensure fairness,
6. Preferences for fee revenue use (environment, facilities, etc.).

METHODS

One key aim of this research was to enable longitudinal evaluation of the recreation fee program. Accordingly, some survey questions were replicated in each wave of the survey in order to track changes in the public’s attitudes. The data are from three independent telephone surveys. Each survey was conducted in the fall and spaced two years apart. Adults from the general population in the states of Washington (WA) and Oregon (OR) were targeted. Random digit dialing was conducted each time by professionally trained survey staff, who were monitored for consistency and compliance to accepted phone survey sampling protocol (DILLMAN 2000). Adult residents were screened for an interest in outdoor recreation and visitation to public lands (parks or forests) in the past 12 months. For the purposes of this study, the response rate was defined as the number of completed or useable interviews divided by the number of eligible reporting units in the sample. Accordingly, the response rate for the 1999 survey was 52% (3199 households contacted, 1676 useable), the response rate for the 2001 study was 53% (3775 households contacted, 2005 completed interviews, 1989 useable), and the response rate for the 2003 survey was 32% (2200 contacted, 847 completed telephone interviews, 710 useable). Fewer were targeted in the final wave due to budget constraints and the inclusion of another state, which lowered the number of respondents for WA and OR. Thus the entire database has 4,375 respondents. Because the analysis below keeps each wave separate, and each sample was internally consistent and representative of the target population, there was no need to use case weights.

RESULTS

First we report on the general socio-demographic breakout of the samples (TABLE 1). The samples do have some differences; notably, the respondents were older in the 2003 survey and more evenly balanced in gender in the 1999 sample. In all years the ethnic makeup of the sample was dominated by White/Caucasian. This profile is similar to the adult population in the states of WA and OR, but cannot be directly compared because of the screening questions that focused on only those with an interest in and use of public lands. No attempt was made to adjust the results to account for the effect of these differences on the variables of interest.

	1999	2001	2003
Age (>40)	54.4	61.1	66.3
Gender (M)	51.3	57.1	56.3
White/Caucasian	84.7	88.5	86.4

TABLE 1: Socio-demographic comparison by survey year, in percent.

Next we present results on overall fee acceptability and revenue use (TABLE 2). The items were worded: “There is nothing wrong with charging fees to recreate on National Forests” and “Charging fees helps the Forest Service to protect the land and provide recreation opportunities”. Each employed a five-point Likert type scale that ranged from strongly disagree (1) to strongly agree (5). The first question measures the acceptability of charging fees for recreation activities (Fees OK?). The results were generally consistent between the three surveys. Means ranged from 3.05 to 3.31, and although the differences are statistically sig-

nificant ($p < .05$), the initial measurement of 3.16 dropped to 3.05 then rose to 3.31, suggesting the public opinion has stayed in the middle, or slightly positive range throughout. Also in TABLE 2 is the general attitude toward the idea that fees are helpful to manage recreation sites (Fees help). Here there has been a steady increase over the years, with a total increase of a quarter of a scale point. This pattern of differences is statistically significant ($p < .01$) and may in part be attributed to increasing public acceptance of the fee program. Although the difference is real, it is rather small, suggesting the public remains in a moderately positive, stable position and that support is increasing slowly.

	1999	2001	2003	ANOVA test of means
Fees OK?	3.16	3.05	3.31	F=5.90, $p < .05$
Fees help	3.54	3.66	3.79	F=4.98, $p < .01$

TABLE 2: Acceptance of fees and general attitude toward their usefulness.

Next we report on a second major issue: the public's opinion about the "proper balance between taxes and user fees" for operating recreation areas (TABLE 3). The dominant response in all years was equal support from taxes and user fees (43.6 to 47.9 percent) with a noticeable rise in support for taxes in 2001. Although there was a slight trend in 2001 and 2003 towards increasing the proportion derived from taxes and a lower proportion who support a purely user fee source in 2003, the general pattern suggests that a balanced approach is desired with some emphasis on taxes as contributing the larger share.

Fees versus taxes	1999	2001	2003
Entirely from taxes	10.3	9.7	10.2
Mostly from taxes	20.7	29.2	26.2
Equally from taxes and user fees	47.9	43.6	47.1
Mostly from user fees	15.1	11.8	13.7
Entirely from user fees	6.0	5.8	2.9
TOTAL	100.0	100.1	100.1

Chi square = 41.8, $p < .001$

TABLE 3: Preference for fees or taxes as revenue source, in percent.

Third, we looked at site management options. Using the same 5-point response scale as before respondents were asked about the consequences of budget tightening, namely if money is not available should the managers close a site or keep it open and/or accept some site deterioration (TABLE 4a). There are low ratings for either option, with means ranging from 1.69 to 2.12, which correspond to disagree to somewhat strongly disagree. The level of disagreement does diminish with time and, although each series is statistically very significant, this is not a large change in practical terms. Closing a site is slightly more acceptable than letting it deteriorate, but the lack of support for either is consistent and obvious.

	1999	2001	2003	ANOVA test of means
a. Site options				
Close site?	1.84	2.12	2.10	F=21.62, $p < .001$
Let deteriorate	1.69	1.83	1.77	F=6.40, $p < .001$
b. Equity issues				
Only rich?	3.89	2.59	2.58	F=32.9, $p < .001$
Should not use	1.96	1.87	1.91	F=1.66, $p = ns$

TABLE 4: Agreement with site options, equity issues, management issues and revenue use questions.

c. Management options				
No fee sites?	4.18	4.17	4.03	F=6.39, p= ns
Free day?	3.82	3.86	3.84	F=1.15, p=ns
Developed only?	3.37	3.58	3.54	F=11.24, p< .001
d. Revenue use				
Natural Environment	4.59	4.38	4.43	F=13.617, p< .001
Restrooms	4.25	4.35	4.33	F=2.892, p= ns
Trails	4.04	4.08	4.11	F=0.675, p= ns
Universal access	3.55	4.06	3.89	F=58.665, p< .001
Recreation information	3.40	3.70	3.61	F=21.357, p< .001

Fourth, we report on equity issues. From the above discussion it seems obvious that most people felt that charging some fees is acceptable and helps the Forest Service do a better job of protecting the land and providing recreational opportunities. However, as a public agency there are social equity considerations to incorporate as well. The next section of results (TABLE 4b) shows the responses to two aspects of this issue, namely whether charging fees makes it so that some people cannot use the public lands and whether people who cannot pay the fees should not use the forest. Question wording was: "Charging fees on National Forests will make it so that only the rich can use the best areas" (Only rich?) and "If someone cannot afford to pay the fee, they should not use the National Forest" (Should not use). The second question remains stable over time with moderately strong disagreement in all three surveys (means of 1.87 to 1.96, differences not statistically significant). The other question shows a large, significant shift. Initially respondents mainly agreed that fees would have such an exclusionary effect (mean= 3.89) but this has dropped precipitously to 2.58 and remained there. Thus it seems that most people would now disagree that charging fees will make it so only the rich can use the National Forests. A combination of personal experiences and information effects has likely contributed to this shift.

Fifth, there are three questions that look at management options to ameliorate equity and access issues (TABLE 4c). First we asked if some sites should always be free, i.e., "Set aside some areas of the National Forest where no fees are charged" (No fee sites?). Strong and continuing agreement (means from 4.18 to 4.03) was evident for this idea. Secondly respondents were asked if some days should be free: "Make one day a month free" (Free day?). Here there was moderately strong and consistent agreement (3.82 to 3.86). And finally we asked if fees should be restricted to developed sites only: "Do not charge fees for use of National Forest lands, except for activities like camping at developed sites" (Developed only?). Again positive and consistent agreement (3.37 to 3.58) was recorded. The pattern is not statistically significant for the first two and highly significant for the third item. Thus the public opinion seems to be that some accommodation to equity and access is important and should be part of the fee management scheme, especially the principle that it is appropriate to charge for sites that include infrastructure developments.

The sixth and final bank of questions focused on residents' priorities on how fee revenue should be spent (TABLE 4d). These were purposely diverse, covering natural resource management "Maintain the quality of the natural environment" (Natural environment), restroom maintenance (Restrooms), trail maintenance (Trails), improvements for the disabled, i.e., "Provide assistance to ensure universal access" (Universal access), and providing recreation information (Recreation information). All were agreed to, and very strongly at times, with significant differences over the years. Maintaining the quality of the natural environment was the top rated priority, followed closely by maintaining restrooms and trails. Support for universal access improvements and recreation information has been more volatile, and overall has increased slightly over the years. In the end the mean scores seem to be converging slightly with a smaller range (3.61 to 4.43 in 2003 versus

3.40 to 4.59 in 1999). Although the strongest support is for spending on natural resource management projects and the weakest of these five is for information campaigns, all five options are moderately to strongly endorsed, with means always above 3.4. This suggests that providing multiple uses for the revenue would be a successful management strategy.

Summary of Results

In general, residents agree that fees are both acceptable and useful, and they strongly preferred imposing fees to closing sites or allowing them to deteriorate (when funds were inadequate). They do expect some balance between fees and taxes, and in all three surveys, supported a variety of implementation options designed to enhance the fairness of the fee program, such as setting aside some areas where no fees are charged or making certain days free of charge. The initial concerns about recreation fees being regressive and making the forest only accessible to the rich have been mollified substantially. Finally they had no problems with a broad use of fee revenue to support resource, facility and communication aspects of forest recreation management.

CONCLUSIONS

Results of the fee monitoring surveys suggest that public support for Forest Service recreation fees has been rather stable. There is some evidence of changes in opinions, and generally these have been in the positive direction. This implies that the recreation fee program has been successful at communicating the reasons behind the program and the benefits that have come from the program. Overall, changes have been slow, yet steadily positive. If this experience holds up elsewhere in the US, or perhaps internationally, managers cannot expect fast or dramatic changes in acceptance.

RECOMMENDATIONS FOR PRACTICE

Repeatedly obtaining data from affected users is important for fee program managers because it provides empirical evidence supporting the overall program direction with respect to public acceptance and preferences and leads to better informed decisions. The results above were used to fine tune the USFS fee program during the demonstration period and influenced the ultimate decision to legislatively make the pilot program permanent in late 2004. For example, this legislation specified which types of fees could be used and the types of areas at which fees could be charged, based on the public's response to the tested fee programs.

One limitation is that these results are based on population level data. Managers may need to distinguish the general population served from known fee paying groups. Comparisons of those who actually purchased a pass against those who support the idea but may not have actually paid a fee recently would add substantially to the discussion over user fees. Both perspectives are needed to make a complete assessment of market conditions and practical effects.

Another limitation is that this data applies to the USFS region. While it may be that these results are the same for other places we cannot conclude that with certainty. Other USFS regions, and especially managers in other countries, may find different social mechanisms that affect support, acceptance and rates of change.

Overall, the repeated waves of surveys have provided valuable information that was used to track public reactions and make important improvements to the fee program. We encourage program managers to pursue longitudinal surveys with an applied focus to not only provide administratively needed benchmarking and performance measures, but also to play an active role in generating positive outcomes for agency programs that rely on public interaction, acceptance, and compliance.

REFERENCES

- ABSHER, J.D. *et al.* (1999). The value of research in recreation fee project implementation. In: *J. Park Recr. Adm.*, 17:3, p. 116–120.
- BENGSTON, D.N. & FAN, D.P. (2001). Trends and attitudes toward the recreation fee Demonstration program on the national forests: A computer content analysis approach. *J. Park Recr. Adm.*, 19:4, p. 1-21.
- BOWKER, J.M. *et al.* (1999). User fees for recreation services on public lands: A national assessment. *J. Park Recr. Adm.*, 17:3, p. 1-14.
- DILLMAN, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method*. John Wiley & Sons, New York.
- DUSTIN, D.L. *et al.* (2000). The faithful execution of our public trust: Fully funding the National Parks through taxes. In: *J. Park Recr. Adm.*, 18:4, p. 92-103.
- MCCARVILLE, R.E. (1995). Pricing for public leisure services: An ethical dilemma? In: *J. Appl. Recr. Res.*, 20:2, p. 95-108.
- MCCARVILLE, R.E. *et al.* (1996). The role of fairness in users' assessments of first-time fees for a public recreation service. In: *Leis. Sci.*, 18, p. 61-76.
- MORE, T.A. (1999). A functionalist approach to user fees. In: *J. Leis. Res.*, 31:3, p. 227-244.
- MORE, T. & STEVENS, T. (2000). Do user fees exclude low-income people from resource based recreation? In: *J. Leis. Res.*, 32:9, p. 341-357.
- NYAUPANE, G.P. (2004). Determining the role of equity in recreation fee acceptance and fair price on federally managed public lands. Unpublished doctoral dissertation, The Pennsylvania State University, University Park, PA.
- REY, M. (2005). Statement of Mark Rey, Under Secretary for Natural Resources and Environment, Department of Agriculture. Retrieved June 26, 2007 from: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_senate_hearings&docid=f:26620.pdf.
- SCHNEIDER, I.E. & BUDRUK, M. (1999). Displacement as a response to the federal recreation fee program. In: *J. Park Recr. Adm.*, 17:3, p. 76-84.
- USDA FOREST SERVICE (2006). Federal Lands Recreation Enhancement Act: First Triennial Report to Congress, Fiscal Year 2005. Retrieved June 26, 2007 from: <http://www.fs.fed.us/passespermits/about-rec-fees.shtml>.
- USGAO [General Accounting Office] (1998). Recreation fees: Demonstration fee program successful in raising revenue but could be improved (GAO/RCED-99-7). Washington, DC: General Accounting Office. Retrieved June 26, 2007 from: <http://www.gao.gov/archive/1999/rc99007.pdf>.
- VASKE, J.J. *et al.* (1999). The price is about right. National wildlife refuge visitors' evaluations of the fee demonstration program. In: *Hum. Dimens. Wildl.*, 4:4, p. 62-72.
- WARREN, R. & REA, P. (1998). Fee-supported parks: Promoting success. In: *Parks and Recr.*, 33: 1, p. 82-88.

Monitoring Trampling Impacts from the Disposal of Human Waste at Campsites

Tetsuya Aikoh

Research Faculty of Agriculture, Hokkaido University; Kita9, Nishi9, Kitaku, Sapporo, Hokkaido 060-8589 Japan. Email: tetsu@res.agr.hokudai.ac.jp

Keywords: Trampling, campsite, aerial photograph, bare area, social trail, toilet

Abstract: The long-term monitoring of campsite impacts was conducted at two designated campsites in Daisetsuzan National Park, Japan. Changes in area of bare areas and social trail length were investigated by aerial photographs every five years. By interpreting the aerial photographs around the campsites, enlargement of bare areas and lengthening of radial social trails were identified. In the last two decades, bare areas doubled at one campsite, and increased by a factor of eight at the other. The length of social trails approximately doubled around both campsites. These changes in campsites were a result of trampling and the need for campers to defecate, made evident by feces and toilet paper at the end of each social trail. If camping is limited to designated campsites, appropriate toilet facilities should be offered.

Zusammenfassung: Das Langzeitmonitoring über die Beeinträchtigung von Campingplätzen wurde an zwei Plätzen im Daisetsuzan Nationalpark, Japan, durchgeführt. Alle fünf Jahre wurden die Veränderungen in den Anteilen von Kahlflächen und Trampelpfaden mittels Orthophoto untersucht. Die Interpretation der Orthophotos ergab eine Vergrößerung des Kahlflächenanteils und eine Verlängerung der Fusswege um die Campingplätze herum. In den letzten zwei Jahrzehnten konnte annähernd eine Verdoppelung der Kahlflächen beim einen Campingplatz und eine Verachtfachung beim anderen festgestellt werden. Die Länge der Trampelpfade um die Campingplätze herum verdoppelte sich in etwa. Verursacht wurden diese Beeinträchtigungen durch unachtsames Niedertreten und das Bedürfnis der Camper, ihre Notdurft zu verrichten, ersichtlich durch Fäkalien und Toilettenpapier am Ende jedes Trampelpfades. Wenn Campieren auf vorgesehene Plätze beschränkt sein soll, sollten entsprechende sanitäre Anlagen angeboten werden.

INTRODUCTION

Recreational impacts on campsites in natural settings are widely reported. These impacts include trampling of vegetation, soil erosion, littering, growth of social trails, damage to trees and creation of fireplaces (HAMMITT & COLE 1998). These impacts show the traces of past visitors and uncontrolled use of campsites.

Monitoring of campsite impacts is necessary for the appropriate management of camping in outdoor recreational settings. The monitoring of the campsites should include several impact parameters: vegetation loss, mineral soil increase, tree damage, root exposure, degree of development, cleanliness, social trails, camp area and barren camp area (COLE 1990). LEUEN & MARION (1999) categorized campsite impact indicators into three dimensions: area disturbance, soil and groundcover damage, and tree-related damage. Although the number of visitor-created social trails were categorized as one indicator of area disturbance factor, most research has focused on on-site disturbances which are occurred within campsites boundaries (COLE 1990; HAMMITT & COLE 1998; LEUNG & MARION 1999; MARION & COLE 1996).

Most of the monitoring methods of campsites have been limited to on-site surveys. The on-site monitoring of campsite impacts in recreational settings requires considerable effort. Most monitoring sites are in remote areas, and weather conditions are unpredictable. Therefore, long-term on-site surveys are costly. On the other hand, BREWER & BERRIER (1984) and MAGILL (1989) introduced a photographic technique for monitoring. There are some limitations, notably scale and quality of photos, and photo interpretation skills (LEUNG & MARION 2000). Furthermore, results of such surveys cannot track the history of the impacts.

After World War II, economic growth boosted the number of hikers in mountainous national parks in Japan. Recreational impacts have been reported in many popular Japanese national parks (AIKOH *et al.* 1995; AIKOH *et al.* 1997; GOTOH & MAKITA 1990; YAMADA 1993; YODA & WATANABE 1999). The reported recreational impacts include trail widening, soil erosion on trails, vegetation cover loss around trails and campsites, littering and perceptions of crowding. Park managers and researchers need monitoring information to determine recreational impacts and develop appropriate management strategies.

The enlargement of bare areas was found around summits, trail junctions and campsites in some mountainous national parks (GOTOH & MAKITA 1990). The cause of the vegetation loss in such areas was considered to be the concentration of trampling and camping. Fencing with iron bars and ropes was installed to prevent more trampling impacts at most of the impacted sites. AIKOH *et al.* (1995) reported the enlargement of bare areas and increased vegetation loss around several designated campsites in Daisetsuzan National Park, Japan. Results from this study show that bare areas were increasing and vegetation cover was decreasing at most campsites, but the tendency towards bare area enlargement decelerated after fencing. AIKOH *et al.* (1997) reported the relationship between vegetation loss and the location of tents in one designated campsite. Visitors tend to pitch their tents at the edge of the campsite; therefore, especially the periphery of campsites is intensively used. Such behavior was considered to be one cause of campsite enlargement.

Simultaneously, increasing concerns about recreational impacts and an incident of river water contamination near a hut provoked concerns about human waste disposal in mountainous national parks. THE JAPAN TOILET ASSOCIATION (1998) began to survey the disposal methods of human waste by owners and managers of the mountain huts. At that time, most huts did not have enough facilities, and owners and managers lacked funds and information. Most mountain huts and shelters had only latrines. Feces and toilet paper were found around designated mountain campsites without toilet facilities. Although managers, hikers and guides showed concern, the impact of human waste had not been researched in Japan. CILIMBURG *et al.* (2000) reviewed research on human waste disposal in recreational areas. Most research was focused on pathogens and water quality. Few researchers had analyzed the relationship between campsite impacts and human waste disposal.

The purpose of this study is to monitor campsite impact over the long term by interpreting aerial photographs. Furthermore, we investigated the relationship between campsite impact and toilet activities on campsites without toilets.

MATERIALS AND METHODS

The study areas were designated campsites in Daisetsuzan National Park, Japan. Daisetsuzan National Park is located in central Hokkaido, northern Japan (FIGURE 1). This mountainous area was designated as a national park in 1934. It is composed of volcanic mountains including Mt. Asahidake (2,290 m), the highest peak in Hokkaido. There is a variety of periglacial landforms and alpine plant communities in the park. Altitude of tree line is about 1,500 to 1,600 meters. Although about 130,000 hikers per year are estimated to visit this park, visitor flow is concentrated at some popular trailheads (SHOJI *et al.* 2004). Recreational impacts such as trail erosion, vegetation trampling, and crowding have been reported at some popular summits, trails, and campsites.

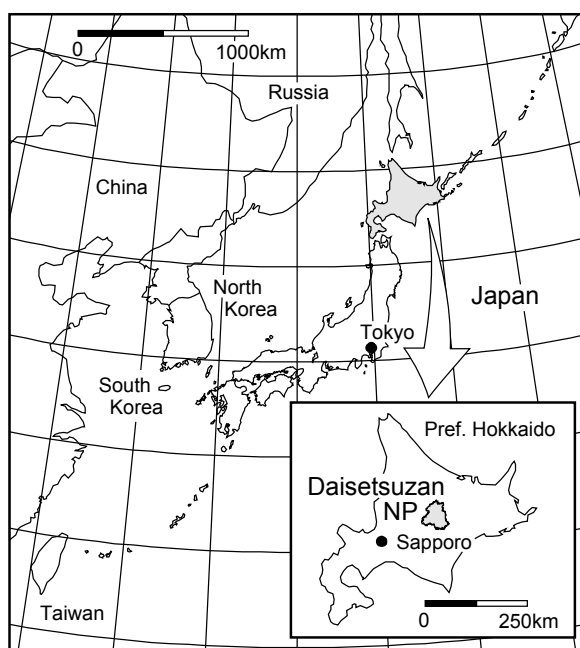


FIGURE 1: Location of Daisetsuzan N.P.

There are nine shelters and twelve designated campgrounds in Daisetsuzan National Park. Two shelters and seven campgrounds have no toilet facilities (TABLE 1, FIGURE 2). Hikers are asked by managers to camp only at those designated campsites. Several campsites and shelters do not have toilet facilities, although they are located in popular areas. Scattered feces and paper were found, and many complaints by hikers and guides were registered. Simple coverings were then used and “booths for plastic bags” were installed at some campsites. A compost toilet was established at one campsite in 2004.

Name	Toilet	Managed	Shelter
1 Kurodake	compost	Jun. to Sep.	adjacent
2 Hakuunndake	latrine	Jun. to Sep.	adjacent
3 Ura-Asahi	booth*	no	no
4 Tyubetsudake	latrine	no	adjacent
5 Hisagonuma	latrine	no	adjacent
6 Onuma	no	no	no
7 Buyonuma	no	no	no
8 Kotengu	booth*	no	no
9 Futagonuma	no	no	no
10 Bieifuji	no	no	adjacent
11 Kamihorokamettoku	latrine	no	adjacent
12 Minaminuma	booth*	no	no

*booth for using carry-out plastic bags

TABLE 1: Designated campsites in Daisetsuzan N.P.

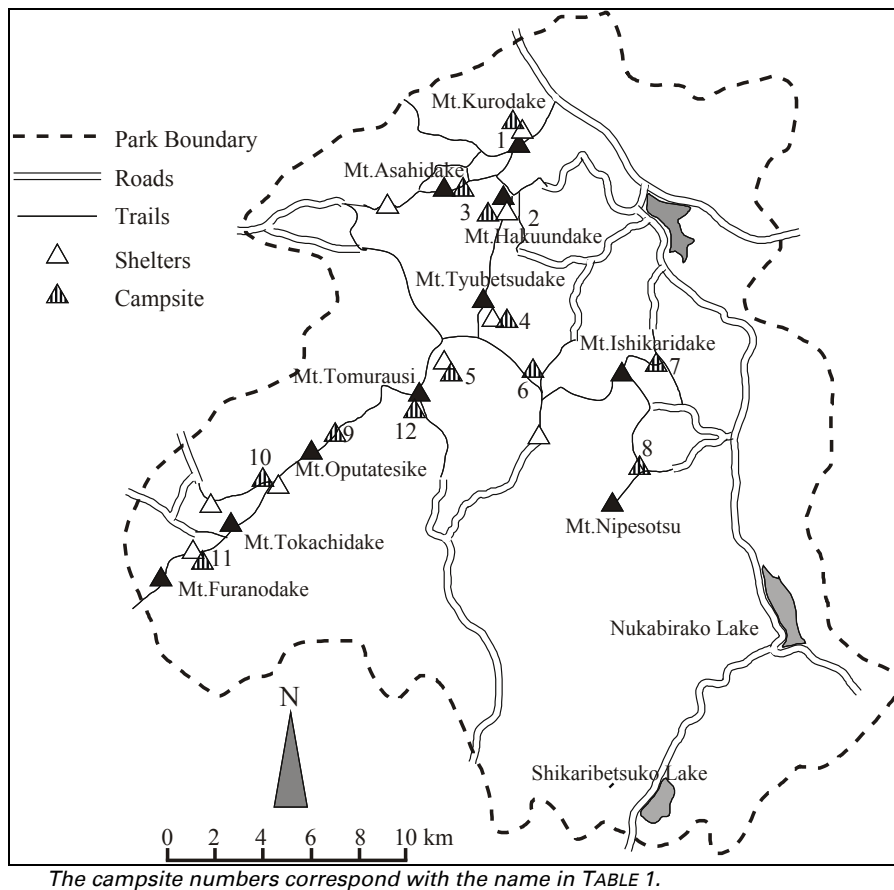


FIGURE 2: Locations of shelters and campsites in Daisetsuzan N.P.

Two campsites were chosen for our study. Minaminuma (12) campsite (altitude 1,960 m) is just beneath Mt. Tomurausi (2,141 m), which is popular among intermediate hikers. It takes about five hours on foot from the nearest trailhead to reach it. The hikers who climb Mt. Tomurausi and walk along the longitudinal traverse trail stay at this campsite. The campsite is located beside a small stream and slopes slightly. Situated above tree line, it is surrounded by alpine meadows and dwarf scrub.

Bieifuji (10) campsite (1,630 m) is located on the longitudinal traverse trail; a shelter is adjacent. It takes about four hours by foot from the nearest trailhead to reach. The hikers who climb Mt. Oputatesike and walk along the longitudinal traverse trail stay at this campsite and shelter. It is located above the tree line and surrounded by alpine meadows and dwarf scrub. Around both campsites, voluntary rangers set up fencing with steel pickets and ropes to prevent vegetation trampling from July to September since the 1990s. There are no exact statistics about the number of hikers who stay at these campsites.

The Japanese Forestry Agency has been taking aerial photographs of the National Forest every five years and distributing them to the public. We chose aerial photographs taken in summer from 1977 to 1997 because clear photographs were available and recreational impacts were expected. Photographs were magnified and printed from the original negatives at a scale of 1 to 5,000. Photographs were digitized as TIFF images using a flat bed scanner. Scanned images were color adjusted and sharpened with Adobe Photoshop. Bare areas and social trails were traced manually, referring to actual on-site survey results. Some images were blurred by snow. The area of bare ground and the length of social trails were measured by image processing and analyzing software, NIH Image. In 1998 we conducted an on-site survey to verify the traced maps and assessed the existence of feces and toilet paper around the campsites.

RESULTS

At the Minaminuma campsite, an increase both in bare areas and lengthened social trails was found from the interpretation of the aerial photographs (FIGURE 3). There were three small bare areas and several social trails in 1977. From 1977 to 1987 the campsites grew little by little and social trails became denser at the campsites. In 1992 five bare areas and elongated social trails were found. Finally, there were eight bare areas and many social trails stretching radially from the campsites. The aerial photographs showed that the number of bare areas increased from three to eight, the area of bare ground increased from 120 m² to 1,066 m², and the length of the social trails increased from 876 m to 2,409 m in the last two decades (TABLE 2).

Year	Minaminuma					Year	Bieifuji				
	Number of Sites	Bare Area (m ²)	% ^a	Social Trails (m)	% ^a		Number of Sites	Bare Area (m ²)	% ^a	Social Trails (m)	% ^a
1977	3	120.4	100.0	876.1	100.0	1978	3	276.9	100.0	499.4	100.0
1982	3	141.7	117.7	1,174.1	134.0	1982	- ^b	-	-	-	-
1987	3	203.5	169.0	1,376.4	157.1	1988	3	318.3	115.0	798.8	160.0
1992	5	442.6	367.6	1,976.0	225.5	1992	5	446.0	161.1	844.5	169.1
1997	8	1,066.0	885.4	2,409.1	275.0	1997	2	559.6	202.1	963.7	193.0

a: Percentages show the change from 1977.
 b: The aerial photograph around Bieifuji was blurred in 1982.

TABLE 2: Enlargement of bare areas and extensions of social trails on campsites.

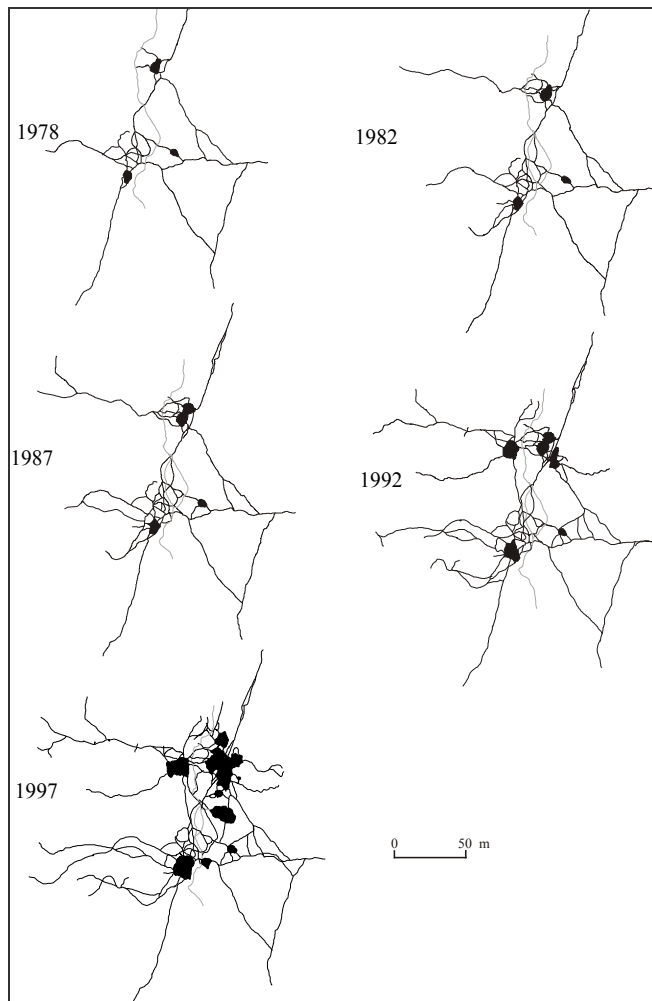


FIGURE 3: Changes of bare areas and social trails around Minaminuma campsite.

At the Bieifuji campsite an increase in bare areas and lengthened social trails was found from interpretation of the aerial photographs (FIGURE 4). In 1982 the aerial photo-

graph was blurred, and therefore impossible to interpret. There were three bare areas and several social trails in 1978. From 1978 to 1988 the bare areas gradually increased and social trails became denser around the bare areas. In 1992 five bare sites were found. Finally, small bare areas joined two larger bare areas and many social trails stretched radially from the campsite. The area of bare ground increased from 276 m² to 559 m², and the length of the social trails increased from 499 m to 963 m in the last two decades (TABLE 2).

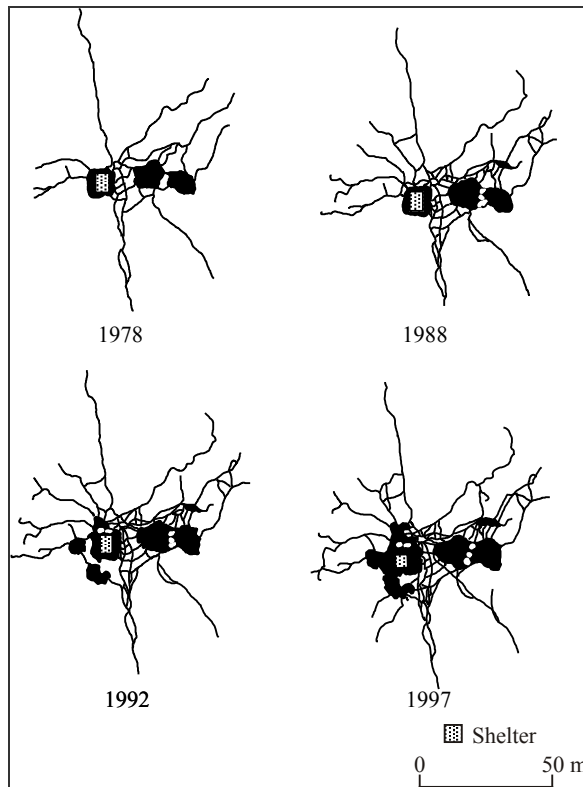


FIGURE 4: Changes of bare areas and social trails around Bieifuji campsite.

At both campsites, there were two types of social trails. The first type connected the campsites. They grew denser year by year between campsites and seemed like short cuts. The second type stretched from the campsites. They repeatedly bifurcated and lengthened; some newly emerged from the campsites for some distance and joined existing social trails. In the on-site survey during the summer of 1998 a considerable amount of feces and toilet paper was found at the end of each social trail. At the end of the lengthened social trails we found trampled bare sites with a diameter of 2 m.

DISCUSSION

Interpreting aerial photographs leads to an understanding of the trend of recreational impacts from the past. On the other hand there are several limitations. First, we will not always be able to get clear images. Obscure images will make interpretation difficult. Second, the scale of the survey is limited. It is impossible to interpret subtle changes. Information from on-site surveys is always necessary. Moreover, it is impossible to survey a campsite from the air that is located under a tree canopy. The aerial photographs are useful to survey impacts occurring above the tree line. Photographs taken on-site will be one option for monitoring under the tree line (BREWSTER & BERRIE 1984; MAGILL 1989). Furthermore, information about visitors' behavior and their attitude will be needed to establish management strategies.

CONCLUSIONS

Enlargement of bare areas and growing social trails on campsites were found from interpretation of aerial photographs. At two campsites bare areas increased gradually, social trails were dense at sites, and stretching out radially. We considered that trampling by camping and walking around the campsites caused those impacts. At the end of the social trails, feces and paper were found. The lack of toilet facilities led to lengthening social trails and the emergence of bare ground. As LEUNG & MARION (1999) indicated, the number of social trails radiating from a campsite can be one indicator for the level of off-site disturbance and the potential for campsite expansion.

Enlargement of bare grounds and extensions of the length of social trails at Minaminuma and Bieifuji had been increasing for a long period. Many studies showed that campsite impacts increased rapidly with initial disturbance, then stabilized with ongoing disturbance (COLE 1990; MARION & COLE 1996). These continuing impacts are relevant to the management strategy. Fencing around campsites in Daisetsuzan has been set up since around 1990. Bare grounds at a campsite surrounded by fencing set up in the same location since around 1980 have not increased in size since then (AIKOH *et al.* 1995). At Minaminuma, Bieifuji and some other campsites, fencing is set up on the boundary between bare grounds and vegetation at the beginning of the hiking season every year. The location of the fencing has been changed every year, and the fencing follows the enlargement of bare grounds. Managers should define fixed locations of fencing and inform voluntary rangers.

This study showed that human waste disposal at campsites without toilets resulted in the lengthening of radial social trails. The major factors of campsite impacts are the amount and frequency of use, the type and behavior of users and the environment conditions (COLE 1990). Although the effects of the amount and frequency of use were not obvious, the campers' toilet behavior has a connection with campsite impacts. Our findings suggest that the length of social trails are one indicator for impacts at campsites without toilet facilities.

The enlargement of bare grounds and the length of social trails increased much more at the Minaminuma campsite than at the Bieifuji campsite. Minaminuma campsite is not only closely located to a popular summit, it is also slightly sloped. Minaminuma campsite was chosen by usage; therefore we may say that its current location is not necessarily the best place for the designated campsite. An unsuitable location of recreational facilities will cause more impacts. Although there is a booth for carry-out plastic bags in Minaminuma campsite, there are still few hikers using this system. It is hard to consider that the campsite's impact will be reduced only by installing a booth.

RECOMMENDATIONS FOR PRACTICE

Enlargement of campsites and growing social trails are indicative of the disordered condition of the campgrounds. Limiting camping on designated campsites might reduce the campsite impacts at heavily used sites (COLE 1981) and temporarily closing them might be one management strategy (MARION & COLE 1996). More impacts will occur if no appropriate facilities are provided. If toilet facilities are considered inappropriate in terms of technological, financial or aesthetic perspectives, managers should recommend that visitors use existing social trails, dig a cat-hole or pack and carry out their feces in plastic bags. In any case, education on low-impact camping is necessary. Continuous monitoring will bring more information, such as the trend of impacts; subsequently managers should evaluate the effect of impacts and the suitability of current campsites.

REFERENCES

- AIKOH, T. *et al.* (1995). Enlargement of Bare Grounds at Campsites in Daisetsuzan National Park. In: *Pap. Environ. Inf. Sci.*, 9, p. 63–68.
- AIKOH, T. *et al.* (1997). The Influence of Camping on Vegetation and Soil Conditions. *Pap. Environ. Inf. Sci.*, 11, p. 201–206.
- BREWER, L. & BERRIER, D. (1984). *Photographic Techniques for Monitoring Resource Change at Backcountry Sites*. Gen. Tech. Rep. NE-86. Bromall, PA: USDA Forest Service, Northeastern Forest Experiment Station.
- CILIMBURG, A. *et al.* (2000). Wildland Recreation and Human Waste: A Review of Problems, Practices, and Concerns. In: *Environ. Manage.*, 25:6, p. 587–598.
- COLE, D. (1981). Managing Ecological Impacts at Wilderness Campsites: An Evaluation of Techniques. In: *J. For.*, February, p. 86–89.
- COLE, D. (1990). Ecological Impacts of Wilderness Recreation and their Management. In: Hendee, J.C., Stankey, G.H. & Lucas, R.C. (eds.). *Wilderness Management*. North American Press, Colorado, p. 425–466.
- GOTOH, T. & MAKITA, H. (1990). Nature Degradation and Hiking in Kitahakkoda Mountains. In: *Nature and Development in Kitahakkoda Mountains*. Hirosaki Univ., p. 143–176.
- HAMMITT, W.E. & COLE, D.N. (1998). *Wildland Recreation: Ecology and Management* (2nd ed.). John Wiley & Sons, New York.
- JAPAN TOILET ASSOCIATION (1998). *Guidebook of Toilet Development in Mountains*. Japan Toilet Association, Tokyo.
- LEUNG, Y. & MARION, J.L. (1999). Characterizing Backcountry Camping Impacts in Great Smoky Mountains National Park, USA. In: *J. Environ. Manage.*, 57, p. 193-203.
- LEUNG, Y. & MARION, J.L. (2000). Recreation Impacts and Management in Wilderness: A State-of-Knowledge Review. In: *Wilderness Science in a Time of Change: Wilderness Ecosystems, Threats, and Management*. USDA Forest Service, Rocky Mountain Research Station, Ogden, UT, Proceedings RMRS-P-15-Vol-5., p. 23-48.
- MAGILL, A.W. (1989). Monitoring Environmental Change with Color Slides. In: Gen. Tech. Rep. PSW-117. Berkeley, CA: USDA Forest Service, Pacific Southwest Forest and Range Experiment Station.
- MARION, J.L. & COLE, D.N. (1996). Spatial and Temporal Variation in Soil and Vegetation Impacts on Campsites. In: *Eco.Appli.*, 6:2, p. 520-530.
- SHOJI, Y. *et al.* (2004). Understanding Visitor Flows in Daisetsuzan National Park: Case Study in Fall Trekking Season. In: Ito, T. & Tanaka, N. (eds.). *Social Roles of Forests for Urban Population*. Japan Society of Forest Planning Press. p. 1–17.
- TAKAHASHI, N. (1990). Environmental Geomorphological Study on the Holocene Mire Development in the Daisetsuzan Mountains, Central Hokkaido, Northern Japan. In: *J. Graduate School of Env. Sci., Hokkaido Univ.*, 13:1, p. 93-156.
- YAMADA, S. (1993). Footpath Erosion in Mt. Hakusan. In: *Bulletin of the Environmental Research Center, University of Tsukuba*, 17, p. 65–72.
- YODA, A. & WATANABE, T. (1999). Erosion of Mountain Hiking Trail over a Seven-Year Period in Daisetsuzan National Park, Central Hokkaido, Japan. In: Cole, D.N.; McCool, S.F.; Borrie, W.T. & O'Loughlin, J. (eds.). *Wilderness Science in a Time of Change Conference: Wilderness Ecosystems, Threats, and Management*. USDA Forest Service, Proceedings RMRS-P-15-Vol. 5, p. 172–178.

Analysis of the Sustainability of Nature-based Tourism in the Sumava National Park, Czech Republic: 1997-2004

Martin Cihar¹ & Viktor Trebicky²

¹ Charles University in Prague, Faculty of Science, Institute for Environmental Studies
Benatska 2, Prague 2, 128 01, Czech Republic. Email: mcihar@natur.cuni.cz

² TIMUR, Prague, Czech Republic; Nadrazni 26, Mnichovice, Czech Republic.
Email: viktor.trebicky@timur.cz

Keywords: National parks, nature-based tourism, visitors, monitoring, sustainability

Abstract: The main objective of the paper is to evaluate, compare and interpret data from eight years of monitoring tourism in Sumava National Park. Sumava is the largest Czech national park and is situated in the southeast part of the country. The research results show that nature-based tourism in the park experienced significant changes during the period from 1997 to 2004. From the point of view of regional sustainable development, some changes are positive, like the regional, semi-autarkic character of tourism in the park and the positive attitude of visitors towards conservation management in the park. Other characteristics are negative, such as a growing dependence on car use, the fact that the park reaches its carrying capacity, and an increasing level of consumption among visitors. The park administration should be aware of temporary characteristics and trends of nature-based tourism in Sumava and should actively prevent continuous attempts made by the tourism industry towards unsustainable development in the park.

Zusammenfassung: Das Hauptziel des Berichts besteht in der Auswertung, im Vergleich und der Interpretation der Daten eines acht-jährigen Tourismus-Monitorings im Sumava Nationalpark. Sumava ist der grösste Nationalpark in Tschechien und liegt im nordöstlichen Teil des Landes. Die Forschungsergebnisse zeigen deutlich, dass sich der naturnahe Tourismus über die letzten Jahre, von 1997 bis 2004, deutlich verändert hat. Einige Veränderungen sind vom Standpunkt der nachhaltigen Regionalentwicklung aus positiv zu bewerten, so z.B. der regionale, semi-autarke Charakter des Tourismus im Park und die positive Einstellung der Besucher gegenüber Schutzmassnahmen. Andere Ausprägungen sind negativ, wie z.B. die wachsende Abhängigkeit vom Auto, das Erreichen der Tragfähigkeit und das Konsumwachstum der Besucher. Die Parkverwaltung sollte von den temporären Ausprägungen und Trends des naturnahen Tourismus in Sumava Kenntnis haben und Versuche, den Tourismus im Park ungeachtet von Prinzipien der Nachhaltigkeit weiterzuentwickeln, aktiv unterbinden.

INTRODUCTION

The past decades have seen a pronounced increase in tourism, both domestic in the Czech Republic and internationally. Tourism is primarily based on mobility and the consumption of distances (WHITELEGG 1997), places and visual images (URRY 1995) Therefore, it has traditionally been regarded as an environmentally benign sector, with a positive economic impact on local, regional and national economies (WORLD BANK 1972). However, since the mid-1970s, evidence of tourism's negative environmental, economic and social impacts has accumulated. Natural areas and protected areas are the most vulnerable. They are visited by a growing number of visitors, both in the Czech Republic and abroad. Travel defined by its principle aim – visiting natural areas – is called *nature-based tourism*.

On a global scale, nature-based tourism accounts for about 10% of international tourism and is often regarded as the fastest growing tourist sector, with annual growth rates of 15% (GÖSSLING 1999). Official indicators of nature-based tourism's volume in the Czech Republic are not available; the only published expert study found nature-based destinations to have a 17% share among the "126 top tourist areas in the Czech Republic".

As tourism is probably the world's largest industry and nature-based tourism is becoming an increasingly important sector, the direct and indirect impacts on protected areas are on the rise (GÖSSLING 1999). Therefore, a systematic research and monitoring of nature-based tourism in protected areas is needed. Research on nature tourism impacts started as early as the 1920s (SUN & WALSH 1998). However, a systematic approach prevailed only in the second half of 1970s (LIDDLE 1997). Contemporary authors dealing with tourism research often employ the terms *ecotourism* (BOO 1990) or *sustainable tourism* (WELFORD *et al.* 1999). In this study, however, we prefer to use a more precise term: *nature-based tourism*, which is defined by the principle motivation of the travel – visiting of nature areas (ROE *et al.* 1997).

Sumava National Park in the Czech Republic was chosen as a study area for monitoring and assessing the development of nature-based tourism over a longer (eight-year) period. It is the country's largest national park, visited by 1.1 to 1.3 million visitors annually.

MATERIALS AND METHODS

Research results are based on annual surveys that were carried out in the high summer season over a nine-day period at four monitoring points in the central area of the park, from 1997 to 2004. The survey's methods include interviewing a random sample of visitors via an extensive questionnaire. It involved addressing every 10th passing visitor at given monitoring points in case of a high intensity of tourists. In case of low intensity, one tourist was approached and interviewed every 15 minutes. The following number of questionnaires were collected each year: N1997 = 1,274, N1998 = 1,020, N1999 = 1126, N2000 = 665, N2001 = 959, N2002 = 648, N2003 = 900, N2004 = 911.

The questionnaire was split into nine sections with 42 questions in total:

- Tourist socio-demographic characteristics (7 questions);
- Itineraries (5 questions);
- Modes of transport and types of accommodation (5 questions);
- Purpose of visit and role of the national park (5 questions)
- Environmental awareness of visitors (6 questions);
- Evaluation of conservation and tourism management in the park (4 questions);
- The park's carrying capacity in terms of visitor numbers (3 questions);
- Tourist activities and spending in the national park (7 questions).

Over the eight years of monitoring, 7,503 completed questionnaires were collected. The total number of records derived from these questionnaires was 450,000. The primary data was entered into an MS Access database and statistically processed in the NCSS program (HINTZE 2001). In the next stage, the data was statistically treated using the χ^2 test for evaluating cases where results differed between different years of monitoring. In such cases, a modifier pair test, based on the Bonferroni Difference, was used for identification of the particular year and sub-question where the difference occurred.

The response rate was high, ranging from the lowest, 68% in 2001, to the highest, 86% in 2004. As with other empirical surveys, the data were subject to non-sampling errors. These were reduced by the exclusion of insufficient or incomplete questionnaires. However, some respondents could misunderstand questions or provide incorrect answers. The indicative estimate error of the questionnaire survey is 10-15%.

Control of the representativeness of the results was evaluated by method THD 5 (ŘEHÁK & ŘEHÁKOVÁ 1986), based on the hypothesis that the composition of testing parameters in the sample population (i.e. Sumava tourists) is similar to the total population of the Czech Republic. Three parameters of the sample population using THD 5 were tested – gender, age and education.

Furthermore, the χ^2 test and the Kruskal-Wallis one-way ANOVA method were employed to determine differences between visitors' socio-demographic characteristics and their attitudes and opinions towards management of the park.

RESULTS AND DISCUSSION

By comparing Sumava National Park's visitors with the population of the Czech Republic, we learned that the first group is better educated, higher in social status and more often male than female. Further, park visitors tend to be in the middle (25-39 years) and upper-middle (40-59 years) age groups. These findings correspond with many authors and institutions dealing with nature-based tourism and eco-tourism (WIGHT 1996; HVENEGARD & DEARDEN 1998; PARKS CANADA 1998).

The results of monitoring show that nature-based tourism in Sumava National Park experienced significant change over the eight years of study. From the point of view of regional sustainable development, some positive characteristics can be named, e.g. the regional, semi-autarkic character of tourism in the park, the fact that the distances traveled by tourists within the park have not increased, the fact that the costs of recreation have not grown faster than inflation, and the positive attitudes towards conservation management in the park.

The regional, semi-autarkic character of tourism in the park can be illustrated by two findings. Firstly, in the national make-up of respondents there is a prevailing domination of Czech tourists. Over the eight-year period an average of 93% of park visitors were Czech. The share of foreign visitors has never exceeded 10% (TABLE 1). If we focus on the Czech visitors more in detail, the highest proportion of tourists came from nearby districts. Prague and nine other nearby districts accounted for 55% of the Czech visitors. In relative terms (the share of tourists from a given district relative to the share of inhabitants of a given district on the total population of the Czech Republic), the two Sumava districts (Klatovy, Prachatice) and the nearby Plzen-město district were prevailing.

	Average	Median	SD	Min.	Year	Max.	Year
Czechs	93,10%	93,60%	1,20%	91,20%	2001	94,40%	1997
Foreigners	7,00%	6,50%	1,20%	5,60%	1997	8,80%	2001

TABLE 1: National composition of visitors: Czechs vs. foreigners.

The share of foreign visitors in some well-known and even less-known national parks of the world is often higher – 31% in case of Kruger NP in South Africa (TURPIE & JOUBERT 2001), 93% in case of NP Komodo in Indonesia (WALPOLE et al. 2001), 30% in NP Keoladeo in India (GOODWIN et al. 1998), etc. A comparison of the national make-up of foreign visitors of the Sumava NP and the Czech Republic shows a higher proportion of Germans in Sumava NP (71% of foreigners compared to 28% nationwide).

The median travel distance by Czech tourists to the park increased only 10 km over the eight years. Average distances increased by 8 km (TABLE 2). First-time visitors are mostly younger people and students, mostly from distant larger cities. Repeated visits to the park are mainly from nearby regions.

Year	1997	2000	2004
<i>N (number of respondents)</i>	1,122	557	795
Average distance	198	196	204
Median distance	160	160	170
Minimum	40	40	40
Maximum	625	676	626

TABLE 2: Travel distances to SNP (in km).

The median recreational costs per visit (spent by tourists for accommodation and food in the park) rose from 2,100 CZK (82 USD) in 1997 to 2,800 CZK (109 USD) in 2004. This represents an increase of 33% (TABLE 3), which corresponds to inflation over the same period.

The same method (calculation of gross costs) is often used for estimating the value of protected areas (e.g., GÖSSLING 1999; MACLELLEN 1999; WALPOLE et al. 2001). These authors concluded that nature tourism can be an important source for financing biodiversity protection and management of protected areas. Multiplying the median recreation costs per tourist stay with the lower estimate of total visits to the greater Sumava region (1.1 million) reveals a rough approximation of the total gross costs of recreation in Sumava National Park per year. For the year 2004, the result is 1.65 to 2.20 billion CZK (64.4 to 85.9 million USD), which is 9-12% of all domestic recreation costs (CSO 2005).

Year	1997	1998	1999	2000	2001	2002	2003	2004
N (number of respondents)	1,156	936	1,057	611	850	555	804	821
Average costs	2,683	3,009	2,760	2,503	2,543	3,250	3,250	3,231
Median costs	2,100	2,100	2,100	2,1	2,050	2,800	2,800	2,800
Minimum	100	100	100	100	100	100	100	100
Maximum	25,200	33,600	30,000	25,200	29,400	21,000	16,400	14,000

TABLE 3: Recreational cost per visit to SNP.

Finally, tourists' attitudes towards conservation management can be regarded as positive. For example, if we use the eight-year average, 57% of visitors polled declared their unwillingness to enter the forbidden Zone 1 of the park; 65% of visitors were able to cite specific ecological problems in the park; and only 17% suggested that the environmental quality in the park has declined over the past years. However, 17% was the highest share among the Czech national parks.

On the other hand, from the point of view of regional sustainable development, some negative characteristics were also identified, e.g. a growing dependence on car use, a reaching of the park's carrying capacity in terms of visitor numbers, an increasing level of consumption among visitors, a passive form of tourism developing and a very small share of active ecotourists among park visitors.

The car dependence of traveling to and within the park increased over the monitoring period. On average, 82% of visitors traveled by car to the park. This share increased from 78% in 1997 to 85% in 2004. The bus was the second most popular travel mode, but its share of modal split was 10 times smaller. While traveling within the park, most visitors combine different travel modes. However, several important trends were identified, such as a decreasing share of people using entirely non-polluting modes of transport (walking or walking/cycling). From 2000 to 2004, their number decreased from 48% to 31%. Secondly, the share of car use in combination with other transport modes has grown proportionally (from 33% to 54% – see FIGURE 1).

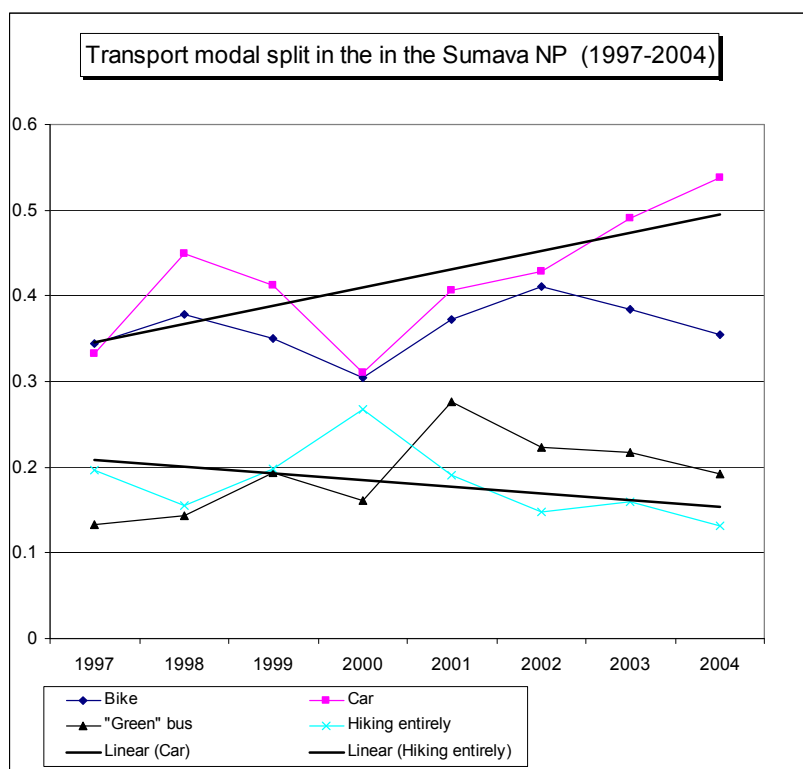


FIGURE 1: Transport modal split in the Sumava National Park (1997-2004).

According to several authors (e.g. HALL 1999), transport for tourists is not just a means of getting from A to B, but can be an end in itself. Experience while in transport is then an essential part of the tourist experience. In this context, transport to/from the Sumava National Park and especially transport within the park is an important part of the nature-based tourism experience. To meet the objective of CO₂ emissions reduction associated with passenger transport, a modal shift away from cars is necessary. As our results illustrate, nevertheless, most people associate their nature-based tourism experience with using a car. Paradoxically, the nature-based tourism experience is to some extent a car-based experience and changing the modal choice of visitors would therefore require altering the way they experience nature. It is not surprising that policies aimed to reduce car dependence have so far had only minor influences on behavior.

The social carrying capacity of visitor numbers has also been examined. According to literature (ROE 1997) social (or aesthetic) carrying capacity is reached when the number of visitors reaches a level where tourists frequently encounter other tourists, or see their impacts, such as litter, and lack of wildlife, so that their enjoyment of the site is diminished. Our results show that in the central parts of the park it has nearly been reached. Only a small percentage of visitors (less than 5%) would not mind if the number of visitors increased further. The feeling that tourism is too concentrated is more widely held by tourists in the park's central areas than in the more peripheral areas (in

2004, 53% of visitors stated that the intensity of tourism was too high). The carrying capacity in terms of visitor numbers has been reached or even exceeded in many protected areas worldwide (GÖSSLING 1999). The most sensitive areas are protected areas in developing countries, which are exposed to an ever-growing number of visitors (BOO 1990).

Several trends have been identified suggesting a growth in consumption and a passive form of tourism in Sumava. The consumption patterns of park visitors were shifting towards less sustainable options – car dependence increased as well as the ‘pace of visit’ (preference of cycling over walking, etc.). Several authors (e.g. WEAVER 2001) discriminate active and passive forms of eco-tourism. The active form involves environmentally aware participants who embark on relatively long specialized trips, and have physically active, non-mediated experiences with the natural environment. In contrast, passive eco-tourists tend to a more consumeristic approach, expecting a high level of comfort and services and are more likely to rely on interpretation and mediation to appreciate the relevant nature attractions. Based on the results of the survey, we estimated the share of active eco-tourists among park visitors to be only 3-5%. The rest of the visitors may be categorized as passive eco-tourists or even ordinary tourists.

Regarding visitors’ perceptions of Sumava National Park, we learned that it is to a large degree based on mental images of the Sumava (“clean, pristine, natural nature”). However, over the past years, this image contradicted reality in the park. The image did not inspire visitors to act accordingly – in a more environmental friendly way.

Conclusions and recommendation for practice

Several conclusions for the park administration and regional tourism management have been derived from the above-mentioned results. The park administration should be aware of temporary characteristics and trends of nature-based tourism in Sumava and should actively prevent continuous attempts by the tourism industry toward unsustainable development in the park. This refers to, for example, building a huge number of new apartments for tourists in green fields, or intensively developing the road network. On the contrary, sustainable ways of tourism development should be encouraged, such as supporting walking instead of car use or cycling in the central parts of the park, and/or building new houses only on the grounds of previous and vanished (thank to the “iron curtain”) ones.

The environmental information system of the park administration has to be reconceptualized to meet visitors’ true mental images of the park. It should also try to highlight alternatives to the way that most people currently experience nature, which is based on car use. Moreover, it was suggested that the park administration conduct research based on the willingness-to-pay method to set the optimal level of the park entrance fee. If established, entrance fees can generate a significant amount of income to finance the park administration’s activities connected with tourism.

Finally, the biggest challenge for all stakeholders is to change human behavior patterns in the park. This will be a time-consuming process and both governmental and park administration actions are essential for the enforcement of appropriate measures. To provide valuable scientific arguments for such measures, further research is needed on the tourism-national parks interface, especially with regard to direct and indirect impacts of tourism. It should also address the connection between emissions of CO₂ associated with the visit and other visitors’ characteristics could be statistically investigated and interpreted.

REFERENCES

Boo, E. (1990). *Ecotourism: The Potentials and Pitfalls*, Vol. 1 and 2. WWF, Washington, D.C.

- GÖSSLING, S. (1999). Ecotourism - a means to safeguard biodiversity and ecosystem functions? In: *Ecological Economics*, 29:2, p. 303-320.
- HALL, D.R. (1999). Conceptualising tourism transport: inequality and externality issues. In: *Journal of Transport Geography*, 7:3, p. 181-188.
- HINTZE, J. (2001). NCSS and PASS. Number Cruncher Statistical Systems. Kaysville, Utah.
- HVENEGARD, G.T. & DEARDEN, P. (1998). Ecotourism versus tourism in a Thai National Park. In: *Annals of Tourism Research*, 25:3, p. 700 - 720.
- LIDDLE, M. (1997). *Recreation Ecology*. Chapman and Hall, London-Weiheim-New York-Tokyo-Melbourne-Madras.
- MACLELLEN, R. (1999). An examination of wildlife tourism as sustainable form of tourism development in North West Scotland. In: *International Journal of Tourism Research*, 5:1, p. 375-387.
- PARKS CANADA (1998). *State of the Parks, 1997 Report*. Minister of Public Works and Government Services Canada.
- ROE, D. *et al.* (1997). *Take Only Photographs, Leave Only Footprints: The Environmental Impacts of Wildlife Tourism*. In: *Wildlife and Development Series No.10*, International Institute for Environment and Development, London.
- ŘEHÁK, J. & ŘEHÁKOVÁ, B. (1986). *Analýza kategorizovaných dat v sociologii*. Academia, Praha.
- SUN, D. & WALSH, D. (1998). Review of studies on environmental impacts of recreation and tourism in Australia. In: *Journal of Environmental Management*, 53:4, p. 323-338.
- TURPIE, J. & JOUBERT, A. (2001). Estimating potential impacts of a change in river quality on the tourism value of Kruger National Park: An application of travel cost, contingent and conjoint valuation methods. *Water SA*, 27:3, p. 387-398.
- URRY, J. (1995). *Consuming Places*. Routledge. London.
- WALPOLE, M.J. *et al.* (2001). Pricing Policy for tourism in protected areas: Lessons from Komodo National Park, Indonesia. In: *Conservation Biology*, 15:1, p. 218-228.
- WEAVER, D. (2001). Ecotourism as Mass Tourism: Contradiction or Reality? In: *Cornell Hotel and Restaurant Administration Quarterly*, 42:2, p. 104-112.
- WELFORD, R. *et al.* (1999). Tourism and sustainable development: an analysis of policy and guidelines for managing provision and consumption. In: *Sustainable Development*, 7:4, p. 165-177.
- WHITELEGG, J. (1997). *Critical Mass: Transport, Environment and Society in the Twenty-first Century*. Pluto Press, London.
- WIGHT, P.A. (1996). North American Ecotourists: Market Profile and Trip Characteristics. In: *Journal of Travel Research*, 34:4, p. 2-10.
- WORLD BANK. (1972). *Tourism-sector working paper*. The World Bank. Washington, DC.

ACKNOWLEDGEMENTS

Research presented in this paper was supported by Czech Ministry of the Environment and by Grant Agency of Charles University, Prague.

The Look of and on Sustainable Development: the Role of Images in Participation Processes to Establish Protected Areas

Norman Backhaus¹, Urs Müller² & Ulrike Müller-Böker³

University of Zurich, Department of Geography, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland. Email: norman.backhaus@geo.uzh.ch¹, urs.mueller@geo.uzh.ch², ulrike.mueller-boeker@geo.uzh.ch³

Keywords: Sustainable development, image analysis, conservation, participation, representation of space

Abstract: Sustainable development is not a process that simply happens, rather it has to be achieved and agreed upon by the voters. In both case study areas – the UNESCO Biosphere Entlebuch and the World Heritage Site (WHS) Jungfrau-Aletsch-Bietschhorn – voters and parish councils have decided in polls to financially contribute to the establishment and management of protected areas that are committed to sustainable development. In this paper we focus on the role that images (i.e., photographs and pictures in published media) played in this process and we analyze the potential appropriations of space and use of the regions' resources that are depicted. Results show that there are differences between inside and outside views as well as between the case study areas. Moreover, there is accordance between the way the regions were presented and the integration of different stakeholders into the process of sustainable development. Therefore, for instance we recommend using a multi-option visualization in order to promote a project that is aimed at sustainable development rather than an approach that polarizes.

Zusammenfassung: Nachhaltige Entwicklung ist nicht etwas, das einfach geschieht. Vielmehr muss ausgehandelt und darüber abgestimmt werden, ob und wie sie erfolgen soll. In unseren beiden Fallstudien – der UNESCO-Biosphäre Entlebuch und dem Weltnaturerbe Jungfrau-Aletsch-Bietschhorn – haben Stimmberechtigte entschieden, sich (finanziell) an der Errichtung und dem Management von Schutzgebieten und deren nachhaltiger Entwicklung zu beteiligen. In diesem Artikel fokussieren wir auf die Rolle, die Bilder (z.B. Fotografien, und Darstellungen in Printmedien) in diesem Prozess spielten. Konkret analysieren wir die potenziellen Aneignungsmöglichkeiten und Ressourcennutzungen, die dargestellt werden. Die Resultate zeigen, dass es Differenzen zwischen dem Blick von aussen und von innen und zwischen den Fallstudien selbst gibt. Darüber hinaus besteht eine Übereinstimmung zwischen der Art, wie die Regionen präsentiert wurden und dem Grad der Integration verschiedener Stakeholder-Gruppen in den Entwicklungsprozess. Deswegen empfehlen wir Projekten, die auf nachhaltige Entwicklung abzielen, unter anderem, eher eine multi-optionale Visualisierung zu verwenden als eine polarisierende, wie dies vielfach in der Werbung geschieht.

INTRODUCTION

In recent years, mostly due to the growing public acknowledgment of direct and indirect threats of climate change, the question of how sustainable development can be successfully communicated has gained more and more attention (cf. BITTENCOURT *et al.* 2003). The objective of this article is to analyze how sustainable development was communicated – in information brochures and newspapers – so that the voters of two Swiss pilot regions for sustainable development (the UNESCO Biosphere Reserve Entlebuch and the World Heritage Site Jungfrau-Aletsch-Bietschhorn) agreed upon striking a new, sustainable development path. Thereby, we focus on the increasingly important visual communication during the campaign for the application for the UNESCO labels. The aim is to analyze how the idea of sustainable development was communicated and to make recommendations for successful visual communication in such processes.

The term ‘sustainable development’ has some commonly shared meanings, of which the most prominent is the so-called Brundtland definition of a development “that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987). However, its concrete meanings have evolved and are evolving in several, sometimes conflicting, directions (cf. WILBANKS 1994). Therefore, there is no single recipe that can be applied everywhere at any time to attain sustainable development, its content has to be continuously negotiated and renegotiated (LUKE 2005:228). Thus, the achievement of sustainability is strongly associated with the participation of all actors concerned. In addition to this normative reasoning (cf. MÜLLER & KOLLMAIR 2004) the political context of our two case studies provides us with a convincing argument for a bottom-up approach of sustainable development: Both the Swiss Entlebuch and the region of Jungfrau-Aletsch-Bietschhorn became UNESCO approved model regions for sustainable development on their own initiative. In both regions, the concerned population voted in local referendums for the respective candidature and thereby committed itself to strive for sustainable development. Such a bottom-up understanding of sustainable development has consequences for its communication.

Hence, we start with the assumption that sustainable development has to be communicated in an inclusive, integrative way, in order to make all people feel they belong to the process by taking their concerns seriously. A successful approval and vote for sustainable development depends on the images people have about the development of their region, the values they attribute to specific resources or places, the ideals they have, and the constraints they expect to face with certain developments. Within the complex process of decision making visual images can play an important role. Therefore, in the following, we want to concentrate on the role of images within the establishment of the two model areas for sustainable development: the UNESCO Biosphere Entlebuch (UBE), on which we put the emphasis in this paper and the Jungfrau-Aletsch-Bietschhorn World Heritage Site (JAB), which serves as comparative example. By analyzing how the two projects were presented during the application process we can learn much about both how “image producers” imagine their region’s development through the way they presented them and what ideas “image consumers” had in mind when they voted for the projects. We subsequently ask the following research questions:

- “How did the promoters of the projects present the concept of sustainability to the public?”
- “What potential meaning and use of space are suggested by these images?”
- “How do media from the outside depict the regions?”
- “What recommendations can we make for endeavors that pursue a sustainable development of the regions?”

Choosing a human geographical perspective (cf. BACKHAUS & MÜLLER 2006; MÜLLER & BACKHAUS 2007) we are particularly interested in how visual representations suggest certain interactions with space or, in other words, the possibility to appropriate space (cf. JÄGER 2001:78-111; BOURDIEU 1991; GIDDENS 1984; SCHELLER 1995). Spatial appropriation can be divided into physical and mental appropriation. The former describes the situation when people are physically present in an area, the latter describes an attitude towards space that is mental but that can have consequences for the use and shaping of natural resources (e.g., the image of the Entlebuch as "Switzerland's poorhouse" in the heads of people can have an impact on tourism in that area). Hence, categories of spatial appropriation indicate how space in each region can or should be appropriated when becoming a biosphere reserve or a World Heritage Site and how its resources can be used (see also below). The published images (i.e., photographs and pictures) convey notions about potential spatial relations which they can have within predefined regions. They show the current land-use activities and emphasize those that are desirable in the future.

Behind this approach lies the notion that different social groups can imagine different kinds of spatial appropriation, and that these can result in diverging notions about their region's development and even to conflicts. If differing ideas about the same region develop further into visions for its future development, conflicts are to be expected. These conflicts can be a consequence of unreflected reproductions of the social images inherent to each group. Therefore, it is an important precondition for sustainable development that unquestioned social images are dealt with on a discursive level.

In the following chapters we will introduce our method of image analysis – based on categories of appropriation of space – that allows for the processing of a great number of images. Subsequently, we will present our results that show a difference between an inside and an outside view and also between the two research areas. Finally, we will make recommendations regarding the use of images in projects that aim for regional sustainable development.

Space and spatial appropriation

Elements of the material world only become "things" or "objects" when they are named, when they are attributed with meaning. Something without an attribution of meaning remains diffuse, hidden, it does not exist. "All meaningful reality exists for us because we make it meaningful or because it has been instilled with meaning by our ancestors or neighbors and is still important to us" (JÄGER 2001:17). During their socialization, people can learn about the pre-structured meanings of the material world and they orient themselves in relation to the meanings given to others and thus reproduce them (cf. GIDDENS 1984). Space only "emerges" through the duality of spatial appropriation which is a combination of attribution (production) and the incorporation of pre-structured meanings (reproduction). In everyday life, the reproduction of social ideas or images of space (IPSEN 1997) is done routinely and often the meaning of objects and space seems to stick to them and to be part of them. Thus, space is very often conceived as a container of objects (cf. WARDENGA 2002). In discussions on the development of a certain region it is very important to keep in mind the fact that people attribute different meanings to different spaces.

In such debates it is important to discuss what can be done in an area and what not and who can do it and who cannot or, in other words, who can appropriate space and how. We discern between physical and mental appropriation. The physical appropriation of space usually means actively accessing a certain place in order to perform specific activities (e.g., people trekking on footpaths or campers pitching their tent). Whether a space can be appropriated in the desired way depends on institutions (for institutions cf. NORTH 1990; GEISER *et al.* 2007) or rules that are in place within a society. These rules can be formal (e.g., the prohibition to pitch a tent on private property or within a strict conservation area) or informal (e.g., the rule not to walk through mead-

Talking about desired forms of spatial appropriation leads to the concept of mental appropriation and its relation to its physical forms. Physical appropriation of space (in its intentional form) implies that people have a conception of their interactions with real or fictitious spatial units. Mental appropriations are people's ideas about what certain spatial units or objects mean, what one can expect from them and what one's relation to them can or should be (TOPITSCH in THABE 2002:96). Mental appropriation neither requires people to be physically present in the specific area nor do the images people have about these areas have to correspond to "reality". Mental appropriations generally come before physical appropriations (e.g., before someone goes hiking in the Alps he or she has a more or less concrete conception of how it feels and looks like to actually be there). Even if mental appropriations do not lead to physical ones they can have an influence on other people's decisions or images, for example if they are talked about (BOURDIEU 1991).

Spatial appropriation may appear to be a personal affair. However, since meanings are based on social structures, routines and power relations, the form of possible appropriations is more or less conventionalized. Therefore, we can make a distinction between different social groups that appropriate space differently according to their members' disposition, which can cause conflicts when they are not compatible with each other.

Spatial appropriations result in regionalizations that establish regions (HARD 1994:54; WERLEN 1997; BACKHAUS & MÜLLER 2006). Regions are meaningful constructs that are more or less stable depending on their constant re-structuration (GIDDENS 1984) and their social acceptance. The labeling of the Entlebuch as the Swiss poorhouse because of its inhabitants' low income is such a regionalization that is about to change due to its newly acquired status as biosphere reserve (at least that is what people living there hope for) (cf. MÜLLER & BACKHAUS 2007).

MATERIALS AND METHODS

Ideas that people have about the world are shaped by their own experiences and increasingly by various media (e.g., TV, movies, newspapers, magazines, advertisements, etc.). LUHMANN (1996:9) goes as far as to claim that "whatever we know about our society, indeed about the world in which we live, we have learnt from the mass media." Therefore, it makes sense to have a look at how the media present places and landscapes visually, for these images shape the notion people have about them and consequently the way they appropriate space.

In a simplified way FIGURE 1 shows the relation between image production, image consumption or reception, and the social world that serves as a bridge of understanding between encoding and decoding and thus enabling "preferred readings" (cf. HALL 1994). The meanings that image producers (e.g., photographers, editors, journalists, advertisers) wish to convey materialize in the images they produce. We call these materialized meanings inherent meanings in order to emphasize that per se, they neither entirely conform to the intended nor to the perceived meanings. On the one hand, differences between the producer's intention and the meanings that effectively materialize in an image are likely to occur for instance by a lack of skills and resources, negligence etc. On the other hand, the readings made by the image beholders must not necessarily be in line with the intentions of the image producers – in other words, there is no causal transmission of meaning from the image producer to the consumer. They vary accord-

ing to changing contexts within which images are placed and read, different socio-cultural backgrounds, and even alternating situative relations between beholders of an image (e.g., the actual mood or interest). In this paper we focus on the analysis of the inherent meaning of visual images to reveal the likely, context-specific range of interpretations by readers or consumers. The method used must be adapted to the type and amount of the images analyzed. Our data consist of several hundred images that were published in newspapers, brochures and magazines during the critical process before the populations of the UBE and the JAB decided upon the application for UNESCO status. Therefore, we have adopted a quantitative approach in order to get an overview over whole publications (cf. FIGURE 2). By applying categories of spatial appropriation we are able to ascertain potential spatial appropriations that are deemed to be adequate for the two regions.

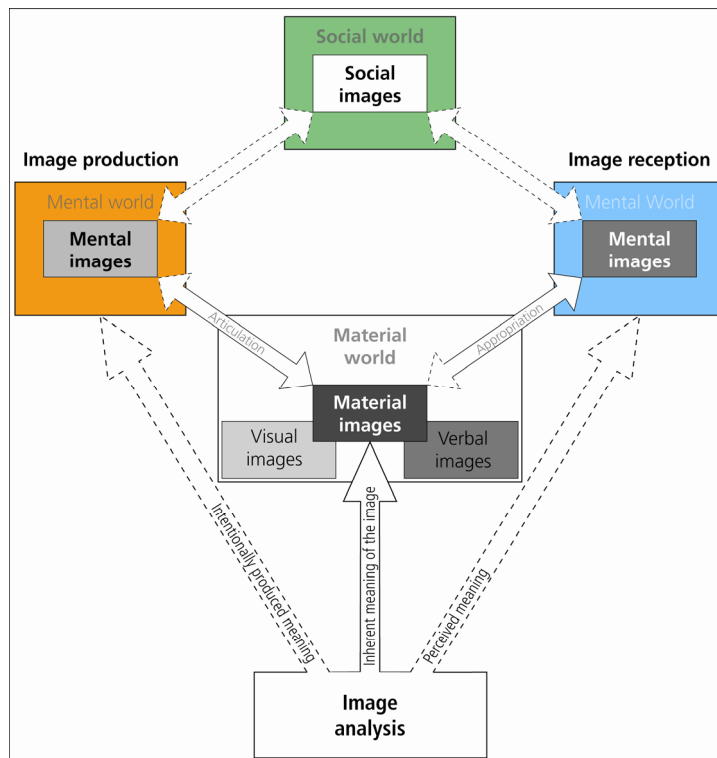


FIGURE 1: Model of the theoretical background and the analytical approach to images.

For the development of our categories we have followed an abductive procedure (cf. SCHEFF 1990) that combines theoretical considerations (deduction) with the empirical analysis of the available image material (induction). For the former we took important indications of the basic functions of existence (Daseinsgrundfunktionen) of the Munich school of social geography (here we shall not develop on the weaknesses of this approach; for this cf. WERLEN 1988:230f.) and further thoughts were taken from BORGHARDT *et al.* (2002), BOZONNET (1992), BRECHBÜHL & REY (1998), BUWAL (2002, 2003), GAMPER *et al.* (1997), IPSEN (1997), REUTLINGER (2003), RODEWALD (1999) and STEGMANN (1997). Categories are adequate if (ideally) all images can be included and categorized (cf. ROSE 2001:62). Therefore, we produced additional categories from the description of images (i.e., detailed paraphrasing of image elements with increasing abstraction from one level to the next). During the categorization we further differentiate between the primary and secondary occurrence of a category. While primary forms dominate the image or its focal point, secondary forms can be found in the background or at the edge of an image. The reliability of the category definitions and their coding is approached through inde-

pendent coding of the same data sample by different coders (inter-coder reliability) as well as of different data (and the same data after a certain time) of the same coder (intra-coder reliability; cf. BELL 2001:22).

As already mentioned, the effect of images depends on the context in which they are placed (cf. BIGNELL 2002:46f.). Especially the text that accompanies the images has a great impact on the meaning that is conveyed (cf. MITCHELL 1990:52). Therefore, a parallel analysis of the text hones the categorization of the images. It gives an indication of the importance of a person, building or landscape and it even can negate the meaning of an image (e.g., "we do not want our region to be appropriated like this").

The last step is to draw together the categories of the images that we find in one publication and to aggregate them according to the respective image size. Thus we get a kind of an alternative "area statistic" about the region (see FIGURE 2).

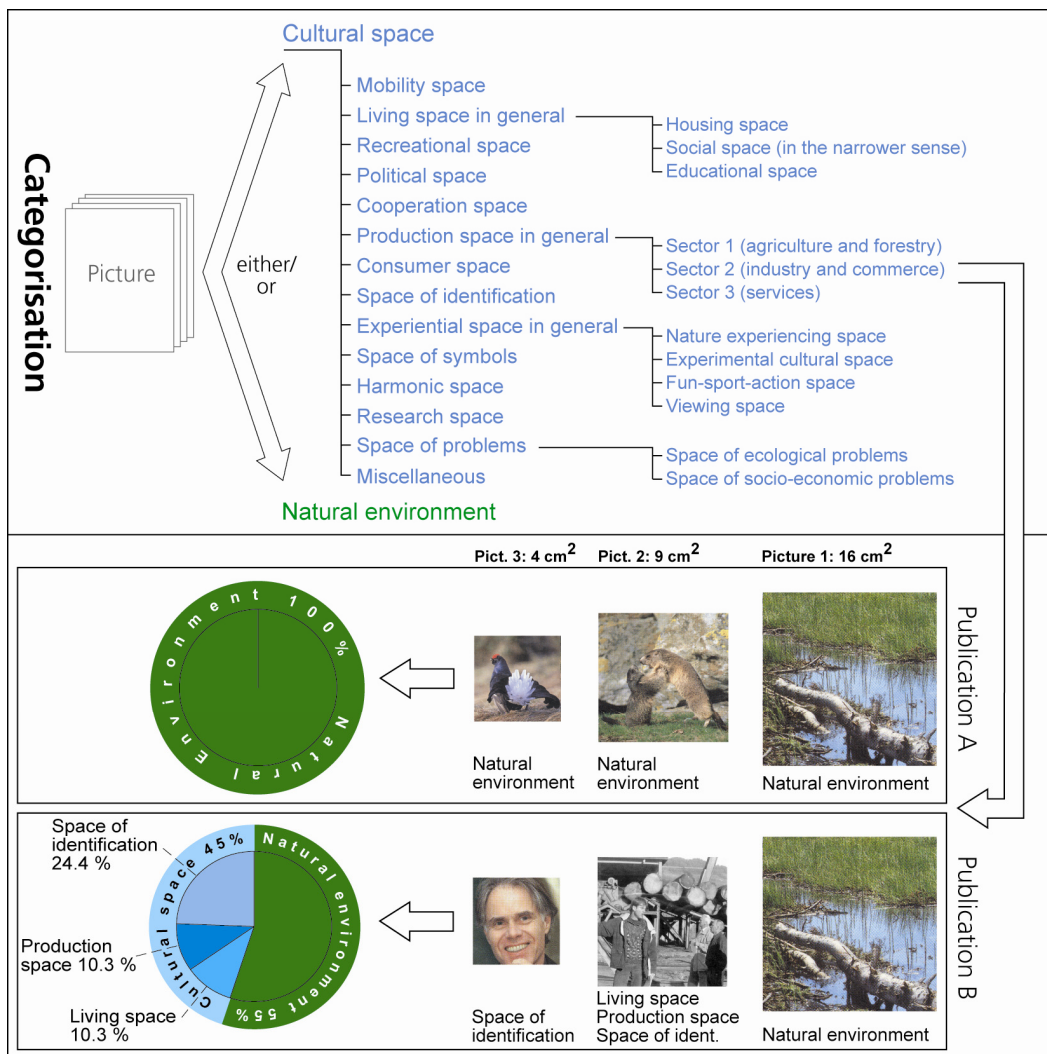


FIGURE 2: Depiction of the categories of spatial appropriation and illustration of the analytical process: from area proportional categorisations of single images to weighted overviews.

RESULTS

The methods outlined above were applied to five publications concerning the UBE and three concerning the JAB. All have been published before or slightly after the crucial polls on applying for the UNESCO label. FIGURE 3 shows the first approximation of the image analysis in which we discerned between nature space and cultural space and lists the publications we analyzed. Four of them present an outside view and four were targeted at the people within the specific areas.

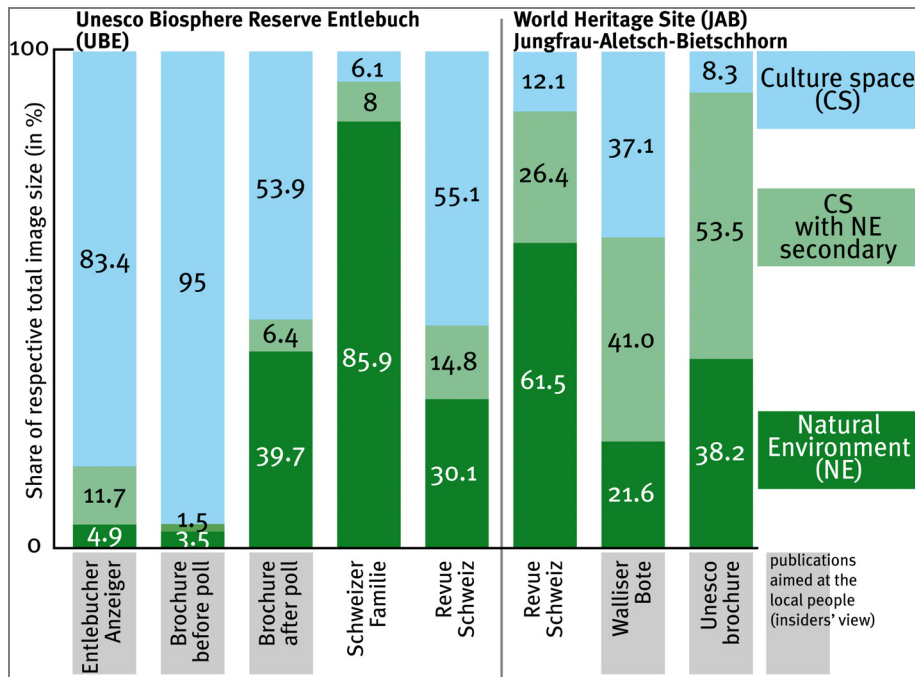


FIGURE 3: Proportions of culture space and natural environment (in %) of UBE and JAB.

Casting a closer look on the UBE and the differences between inside and outside view we see that the national magazine “Schweizer Familie” depicts the Entlebuch predominantly as ‘nature space’. Moreover, images that are classified as ‘culture space’ mostly have a natural background (classified as ‘secondary nature space’). Hence, an image of natural landscapes that is almost void of people is drawn here. The imagery of the Entlebuch in the local newspaper “Entlebucher Anzeiger” and the voter’s information brochure that was distributed to all Entlebuch households present a starkly contrasting image: almost no ‘nature space’ is shown. FIGURE 4 shows a more detailed analysis of the information brochure. Not only is nature reduced to few images but the pictures reveal a notion of a modern ‘production’ and ‘living space’ that lies in contrast with general views of Swiss rural areas. The promoters of the biosphere idea deliberately wanted to create this modern image. The “Entlebucher Anzeiger” adopted a similar approach, although the editors were more neutral in their coverage.

The “Revue Schweiz” edition on the Entlebuch, that targeted an outside public, takes a middle ground. At first glance this result contradicts the outside view that was sketched before. However, this can be explained by the fact that the management of the UBE had control of the image production and selection. While consenting to more images depicting ‘nature space’ they explicitly wanted to present the region’s modern production sites and living space to an outside public. The admission of more nature space into the new edition of the information brochure after the Entlebuch’s population voted in favor of becoming a biosphere reserve is a sign of the importance of the (political) context in which images and publications are placed (see chapter DISCUSSION).

In the second case study, the JAB, the difference between the inside and the outside view is more or less the same (here the “Revue Schweiz” edition on the World Natural Heritage site was not controlled by the JAB management). The percentage of primary and secondary ‘nature space’ is much higher than of the inside view of the UBE. The Great Aletsch glacier is the dominant icon in a great number of photographs. As we will see in the next chapter this pronounced appropriation of nature space was not undisputed within the population of the JAB.

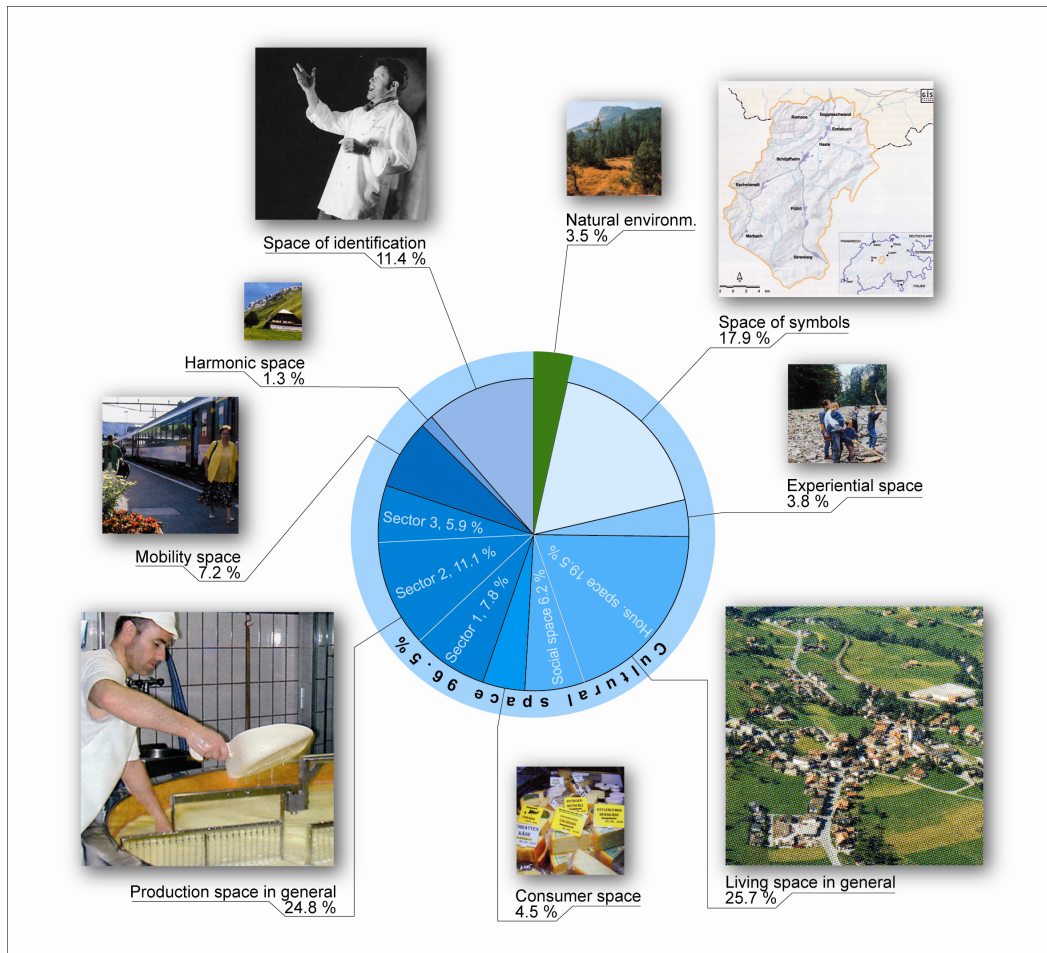


FIGURE 4: The image of the Entlebuch as presented in the voter information brochure (pictures UBE).

DISCUSSION

In order to understand the significance of the use of images, the context within which they were created and used must be taken into consideration. For outsiders the Entlebuch was either terra incognita – for instance in the Merian guides of 1975 and 1991 it is not even mentioned – or (since a study of the 1980s; cf. FISCHER 1985) the poorhouse of Switzerland (RUOSS 2001:128). Therefore, it does not surprise that the “Schweizer Familie” ties its report to this “backwardness” (cf. PROBST 1999) and tries to show the region’s hidden treasures and beautiful landscapes that were to be protected as biosphere reserve. Spatial appropriations connected with this imagery are hiking, nature conservation and traditional agricultural production. One important reason behind the insiders’ depiction of the UBE as a relatively modern residential and economic area can be found in political events, more specifically in the acceptance of the 1987 national poll on the protection of moors (cf. MÜLLER 2007). With this initiative – called Rothenthurm-Initiative – people intended to prevent the establishment of a military training field in the mire landscape of Rothenthurm with the general protection of all Swiss moors and mire landscapes of national importance and particular beauty. This initiative was accepted and as a consequence a quarter of the Entlebuch’s area was assigned nature protection status due to the acreage of moors in that region. The farmers regarded this as a severe constraint to the use of their land that was imposed to them from the outside. Because of this negative attitude towards nature protection the promoters of the biosphere reserve carefully avoided creating the impression of wanting to protect even more of the Entlebuch’s landscape. They preferred to emphasize the region’s potential as living and production space that should prosper and develop sustainably within the biosphere reserve. Hence, other kinds of spatial appropriation can be seen in the images: as living space, production space and consumer space.

In the JAB there was no such prominent event that influenced the opinion of its population. As a World Natural Heritage site the rationale to label the area is different from a biosphere reserve. The latter consists of a core zone that is strictly protected (in the Entlebuch, mainly the highmoors), a buffer zone around them, and a development zone where (sustainable) economic and social development is not only possible but even asked for. In contrast, the area within the perimeter of a World Natural Heritage site is not meant to be living space or development zone. Therefore, living and production activities take place outside the perimeter and normally do not face any restrictions. Nevertheless, the villages around the JAB signed a charter in which they agreed on developing their entire region sustainably. But unlike the insiders view of the UBE no visions of what that could mean were presented. The dominance of nature space in the images of the JAB in both the insider's and the outsider's view gave the impression that the primary concern of sustainable development lies in nature conservation or in preserving so called outstanding landscapes; its progressive and innovative aspects remained in the dark. This led to a loud and emotional dispute between conservationists and tourism entrepreneurs whether further tourism development may or may not take place. Whilst both parties tried to draw the majority of the population to their side, the chance of discussing the region's development in a more holistic manner was missed. Moreover, the polarization due to the either-or-discussion ripped open a gap that hampered further discussion about a multidimensional sustainable development of the region. Contrary to the UBE, the potential for sustainable development and for the integration of diverse interests was thrown away.

CONCLUSIONS

The analysis of images gives access to often unreflected mental images or ideas of image producers and consumers. According to GIDDENS (1984) these are the real motivations for action. The producer of images either follows his or her personal values or strategically aims to appeal at the assumed values of the consumers. An image's impact depends on whether or not it can appeal to values and arouse emotions. Therefore, image analysis is a useful method to complement interviews, as subsequent consultation with image producers made clear (cf. MÜLLER 2007). But even if the context in which images are placed is taken into consideration, image analysis cannot provide answers to the exact influence images have on beholders because it changes with each person's changing dispositions and attitudes (cf. FIGURE 1). Even a later confrontation with such an image within an interview will not provide scientists with these informations since the situation in which a person saw an image cannot be reproduced. Nevertheless, the overarching 'social world' allows for the analysis of the inherent meaning of images regarding potential spatial appropriations because they can be put in relation to sustainable development and give an indication about what it could look like. In a nutshell, the UBE is a region in which sustainability is connected to people's living and production space and less to nature conservation, whereas in the JAB it is more a commitment to the protection of the Great Aletsch glacier and its (already protected) surroundings and less the habitat of the people. To a certain extent, this reflects to a certain extent the different orientations of the two regions. A biosphere reserve is more focused on an encompassing sustainable development of the region, whereas a World Heritage (Natural) Site's main objective is to protect its natural features. However, since the communities within the scope of JAB specifically committed themselves to sustainable development in the "Charta vom Konkordiaplatz"¹, the conceptual differences between the case studies are not that great. The example of the UBE shows that a multi-option visualization strategy is more successful than to focus on one aspect of a project. In contrast to the

¹ On September 26, 2001, representatives of the communes of the WHS Jungfrau-Aletsch-Bietschhorn signed the "Charter of Konkordiaplatz" (www.welterbe.ch/en/world-heritage/vision-charter/charter.html) on the symbolic "Konkordiaplatz" where a number of glaciers converge to form the Great Aletsch Glacier, thus emblematising the coming together of different philosophies. The charter's aim is to testify the willingness to support the sustainable future development of the WH region. Thus, the charter expresses the "regional conscience" of how to deal with ecological, economic and social issues relating to the broader region of the involved communes. At a later date, the fundamental statements of the charter were concretised in the management plan for the WHS.

field of product advertisement where most placards choose to convey a single message in order to sell the product to one specific target audience, sustainable development was not narrowed down to one or two issues. The aim of the project to propagate the region's sustainable development must include efforts to address all stakeholders (without compromising its content). Whereas a "normal" political campaign in order to win a referendum can be called successful if the majority of voters could be convinced, the communication of sustainable development should not produce offended minorities. Part of this multi-option visualization is also to present "problematic" images (and texts) that are not in line with the notion of sustainable development, in order to include critics into the debate. The editor of the "Entlebucher Anzeiger" (the regional newspaper of the UBE), who is a supporter of the biosphere idea, occasionally used such images. Otherwise, critical or worried people would have felt excluded, have lost interest in the debate or, even worse, started to refuse the dialogue because of missing transparency. Such images were not used in the case of JAB. That is why the participation process took longer to develop and was more problematic in its initial stages than in the UBE (cf. WIESMANN *et al.* 2005).

RECOMMENDATIONS FOR PRACTICE

Regarding the promotion of sustainable development we can make the following recommendations concerning the use of images. These recommendations are neither a foolproof recipe nor a guarantee for the success of such an endeavor. A good choice of images can enhance the acceptance of a viable project but it cannot change the course of a badly planned or unrealistic process.

Since sustainable development has to be seen as a process, the successes of the polls in the two case study areas are an important starting point and not the end like it is the case in most political campaigns. Hence, for a strategy that depicts various options, the key is not to say that anything goes with sustainable development but to talk to and involve as many different stakeholders as possible in the process, even opposing ones.

A campaign that exclusively depends on images alone can be (mis-)interpreted in much more different ways than if it is accompanied by (con)text. An image contains information in a highly condensed form and if this abundance is not channeled or targeted by additional information (mostly text) its message remains unfocused and arbitrary. Bearing this in mind the combination of text and image can be shaped into strong messages. Editors are often faced with the problem that *the* image that they have in mind is not available or too expensive. In combination with a good (con)text less favorable alternatives can be forged into a powerful message.

There is no such thing as a project without drawbacks or problems. When having a goal in mind people tend to avoid addressing negative aspects. And because images can rarely be provided with 'ifs' and 'buts' as with texts, negative or counter images are rarely shown. However, any intended negligence of problematic issues usually creates problems at a time when it is often too late or more costly to tackle them. Therefore, we recommend to also address negative aspects from the beginning of a project in order to find solutions and to involve opponents of the project.

Sustainable development does not just occur; it is made by and dependent on people and personalities that stand for it. Therefore, in all phases of such projects but mostly in their initial phases it is important to involve personalities other people can identify with. Both our case studies used a lot of images of personalities that have a distinct opinion about the project (not always a positive one). These personalities are focal points – or anchor people – of discussions and debates and have a great potential to address all kinds of people even if the consumers of images have contrasting opinions about them.

REFERENCES

- BACKHAUS, N. & MÜLLER, U. (2006). Regionalisierung: eine konstruktivistische Perspektive. In: Backhaus, N. & U. Müller-Böker (eds.). Gesellschaft und Raum – Konzepte und Kategorien, Zürich, p. 13-29.
- BELL, P. (2001). Content Analysis of Visual Images. In: van Leeuwen, T. & Jewitt, C. (eds.). Handbook of Visual Analysis. SAGE Publications, London, p. 10-34.
- BIGNELL, J. (2002). Media Semiotics – an Introduction. Manchester University Press, Manchester and New York.
- BITTENCOURT, I.; BORNER, J. & HEISER, A. (2003). Nachhaltigkeit in 50 Sekunden: Kommunikation für die Zukunft. Okom verlag, München.
- BORGHARDT, J.; MELTZER, L.; ROEDER, S.; SCHOLZ, W. & WÜSTENBERG, A. (eds.) (2002): ReiseRäume – Touristische Entwicklung und räumliche Planung. Dortmunder Beiträge zur Raumplanung, 109. Institut für Raumplanung Universität Dortmund, Dortmund.
- BOURDIEU, P. (1991). Physischer, sozialer und angeeigneter physischer Raum. In: Wentz, M. (ed.). Stadt-Räume. Campus, Frankfurt a. M.; New York, p. 25-34.
- BOZONNET, J.-P. (1992). Des Monts et des Mythes - L'imaginaire social de la montagne. Presses Universitaires, Grenoble.
- BRECHBÜHL, U. & REY, L. (1998). Natur als kulturelle Leistung: zur Entstehung des modernen Umweltdiskurses in der mehrsprachigen Schweiz. Seismo, Zürich.
- BUWAL (2002). Umwelt Schweiz 2002 – Politik und Perspektiven. BUWAL (Bundesamt für Umwelt, Wald und Landschaft), Bern.
- BUWAL (2003). Landschaft 2020 – Analysen und Trends. Schriftenreihe Umwelt Nr. 352. BUWAL (Bundesamt für Umwelt, Wald und Landschaft), Bern.
- FISCHER, G.; MENNEL-HARTUNG, E. & RUTISHAUSER, P. (1985). Räumliche Disparitäten in der Schweiz – Überblick und Bilanz. Publikationen des Schweizerischen Nationalfonds aus den Nationalen Forschungsprogrammen, Vol. 34 Band 3. Paul Haupt, Bern.
- GAMPER, C.; LISKA, G. & STROHMEIER, G. (1997). Projektbereich Raumbilder. Forschungsschwerpunkt Kulturlandschaft: Kulturlandschaft im Kopf. Iff, Wien.
- GEISER, U.; FRITSCHI, A.; UPRETI, B.R. & MÜLLER-BÖKER, U. (2007). Rapid institutional change and livelihood realities of the poor – Insights from South Asia. Report on the JACS South Asia Phase 1 Synthesis Workshop, Kathmandu, 1-5 December 2006.
- GIDDENS, A. (1984). The Constitution of Society: Outline of the Theory of Structuration. Polity Press, Cambridge.
- HALL, S. (1994). Reflections upon the Encoding/Decoding Model. In: Cruz, J. & Lewis, J. (eds.). Viewing, Reading, Listening. Audiences and Cultural Receptions. Westview, Boulder, p. 253-274.
- HARD, G. (1994). Regionalisierung. In: Wentz, M. (ed.). Region. Campus, Frankfurt / New York, p. 53-57.
- IPSEN, D. (1997). Raumbilder. Centaurus, Pfaffenweiler.
- JÄGER, S. (2001). Discourse and Knowledge – Theoretical and methodological aspects of a critical discourse and dispositive analysis. In: Wodak, R. & Meyer, M. (eds.). Methods of Critical Discourse Analysis. Sage, London, p. 32-62.
- LUHMANN, N. (1996). Die Realität der Massenmedien. Westdeutscher Verlag, Opladen.

- LUKE, T.W. (2005). Neither Sustainable nor Development: Reconsidering Sustainability in Development. In: Sustainable Development, 13:4, p. 228-238.
- MITCHELL, W.J.T. (1990/Orig. 1986). Was ist ein Bild? In: Bohn, V. (ed.). Bildlichkeit. Suhrkamp, Frankfurt a. M., p. 17-68.
- MÜLLER, U. (2007). Die Kraft der Bilder in der nachhaltigen Entwicklung. Die Fallbeispiele UNESCO Biosphäre Entlebuch und UNESCO Weltnaturerbe Jungfrau-Aletsch-Bietschhorn. vdf Hochschulverlag AG, Zürich.
- MÜLLER, U. & BACKHAUS, N. (2007). The Entlebuchers: people from the back of beyond? In: Social Geography, 2, p. 11-28.
- MÜLLER, U. & KOLLMAIR, M. (2004). Die Erweiterung des Schweizerischen Nationalparks: Der Planungsprozess 1995-2000, betrachtet aus partizipationstheoretischer Sicht. In: DISP, 159:4/2004, p. 44-51.
- NORTH, D. C. (1990). Institutions, institutional change and economic performance. Cambridge University Press, Cambridge.
- PROBST, L. (1999). «Irgendwie heimelig» und «manchmal ziemlich langweilig». In: Scagnet, E.; Duss-Studer, H.; Ehrler, J.; Küng, J.; Lohri, P., Probst, L. & Schmidiger, A. (eds.). Lebenszeiten im Entlebuch. Verlag Druckerei Schöpfheim, Schöpfheim.
- REUTLINGER, C.T. (2003). Jugend, Stadt und Raum – Sozialgeographische Grundlagen einer Sozialpädagogik des Jugendalters. Leske + Budrich, Opladen.
- RODEWALD, R. (1999). Sehnsucht Landschaft – Landschaftsgestaltung unter ästhetischem Gesichtspunkt. Chronos, Zürich.
- ROSE, G. (2001). Visual Methodologies - An Introduction to the Interpretation of Visual Materials. SAGE Publications, London.
- RUOSS, E. (2001). The Biosphere Reserve as Living Space: Linking Conservation, Development and Research. In: Mountain Research and Development, 21:2, p. 128-131.
- SCHEFF, T.J. (1990). Microsociology – Discourse, Emotion, and Social Structure. University of Chicago Press, Chicago.
- SHELLER, A. (1995). FRAU MACHT RAUM – geschlechtsspezifische Regionalisierungen der Alltagswelt als Ausdruck von Machtstrukturen. In: Schriftenreihe Anthropogeographie, Vol. 16, Geographisches Institut der Universität Zürich, Zürich.
- STEGMANN, B.-A. (1997). Grossstadt im Image – Eine wahrnehmungsgeographische Studie zu raumbezogenen Images und zum Imagemarketing in Printmedien am Beispiel Kölns und seiner Stadtviertel. Kölner Geographische Arbeiten, Vol. 68. Geographisches Institut der Universität Köln, Köln.
- THABE, S. (2002). Raum(de)konstruktionen. Leske + Budrich, Opladen.
- WARDENGA, U. (2002). Alte und neue Raumkonzepte für den Geographieunterricht. In: geographie heute, 23:200, p. 8-11.
- WERLEN, B. (1988). Gesellschaft, Handlung und Raum - Grundlagen handlungstheoretischer Sozialgeographie. Franz Steiner Verlag, Stuttgart.
- WERLEN, B. (1997). Sozialgeographie alltäglicher Regionalisierungen - Band 2: Globalisierung, Region und Regionalisierung. Franz Steiner Verlag, Stuttgart.
- WCED (World Commission on Environment and Development) (1987). Our Common Future (Brundtland-Report). Oxford University Press, New York.
- WIESMANN, U.; LIECHTI, K. & RIST, S. (2005). Between Conservation and Development – Concretizing the First Natural Heritage Site in the Alps through Participatory Processes. In: Mountain Research and Development, 25:2, p. 128-138.

WILBANKS, T.J. (1994). "Sustainable Development" in Geographic Perspective. In: Annals of the Association of American Geographers, 84:4, p. 541-556.

ACKNOWLEDGEMENTS

The authors wish to acknowledge support from the Swiss National Science Foundation, the National Research Programme NRP 48 "Landscapes and Habitats of the Alps" and the NCCR North-South.

Landscape Preferences and Perception of Both Residents and Tourists: A Case Study in Müritz National Park (Germany)

Gerd Lupp¹ & Werner Konold²

Institute for Landscape Management, Faculty for Forestry and Environmental Sciences, Albert Ludwigs University, Freiburg/Germany, Tennenbacher Strasse 4, D-79106 Freiburg. Email: gerd.lupp@landespflge.uni-freiburg.de¹, werner.konold@landespflge.uni-freiburg.de²

Keywords: National park, landscape preferences, landscape perception, Lifestyle Group Concept, Q-Sort test

Abstract: The Mueritz National Park in Germany is undergoing landscape changes due to wetland restoration, extensification of agriculture and abandonment of timber oriented forest management. In the park region, tourism is one of the main income factors. This study assesses the perception of the landscape and landscape preferences of both local visitors and tourists. 605 passers-by were interviewed at five different places inside the park. Preferences and perception of landscapes were identified in three steps: general preferences, perception of the scenery at the interview site and by using pictures. The results were differentiated and compared according to residents, first time visitors, and regular visitors as well as lifestyle groups. Lakes, traditionally maintained farmland and ancient currently unmanaged beech forests (*Fagus sylvatica*), containing deadwood, are preferred most. The results show that background knowledge about natural processes is essential for a positive perception of these landscape features.

Zusammenfassung: Im Müritz Nationalpark sind durch Moorrenaturierungen, Extensivierung der Landwirtschaft und Aufgabe der forstlichen Nutzung Veränderungen im Landschaftsbild unvermeidlich. Tourismus ist in der Parkregion ein wichtiger ökonomischer Faktor. In dieser Studie wurden Landschaftspräferenzen und die Landschaftswahrnehmung näher untersucht. An fünf verschiedenen Orten im Nationalpark wurden 605 Passanten befragt. Landschaftspräferenzen und die Wahrnehmung von Landschaft wurden in drei Stufen ermittelt: Allgemeine Präferenzen, Wahrnehmung der Landschaftsausstattung am Interviewort und unter Verwendung eines Bildsatzes. Eine Auswertung erfolgte nach Anwohnern, erstmaligen Besuchern und Stammgästen sowie nach Lebensstilgruppen. Seen, traditionell genutzte landwirtschaftliche Flächen und alte, lange Zeit ungenutzte Buchenwälder mit Totholzanteilen wurden am höchsten bewertet. Die Studie zeigt, dass Vorwissen über Naturprozesse für die Wertschätzung dieser Landschaftselemente von Bedeutung ist.

INTRODUCTION

Land use abandonment is a common phenomenon in rural areas of Central Europe, especially in economically less developed regions or mountain areas. Socio-economic factors are the main reasons for the decline of agriculture and subsequent encroachment of natural vegetation. The perception of these scenic qualities has been described in several studies, e.g., HUNZIKER (2000), BAUER (2005) or HOECHTL *et al.* (2005). Similar processes happen in national parks, which have been established during the last decades. The parks are set aside to provide space for natural developments and to create "new wilderness". They are often considered as an essential element for regional development (JOB *et al.* 2005). Recreation services and tourism are expected to become a main source of income for the residents in surrounding villages. Changes of scenic qualities are perceived critically, which might lead to conflicts between different interest groups.

Mueritz National Park is one example for this type of national park in Central Europe. It is situated in north east Germany, halfway between the cities of Berlin and Rostock and was established in 1990. At present, over 70% of the area is covered by woodland. It also comprises moors, meadows, fields and several small villages. Like many other national parks in Central Europe, it is dominated by vast softwood forests shaped by intensive silviculture. In the Mueritz National Park area, formerly intensive agriculture is being extensified and forest management activities are changing from timber production to nature conservation, drainage measures and water pumps are being shut down and moors will be restored. In the surrounding area, socio-economic changes are taking place rapidly. Employment in traditional sectors is diminishing while tourism is currently increasing and is expected to become one of the main income providing activities in the region. Given these management plans, changes of the landscape are unavoidable in the upcoming years. However, the impact of these scenic changes on residents and visitors of the Mueritz National Park has not yet been analyzed in detail. Potential preferences of onlookers concerning certain types of landscape also still need more research.

Therefore the research project targets at two main questions:

- Which sceneries in Mueritz National Park are considered the most attractive by different user groups?
- Which changes in landscape can be expected in the coming years?

The focus of this paper is the analysis of both residents' and tourists' landscape perception. It provides a framework for park authorities to identify scenic attractions of the national park. Based on these results the national park authorities will be able to identify potential social conflicts that might emerge due to landscape changes. The initiation of a dialogue process with different user groups is planned to follow.

MATERIALS AND METHODS

Interview design and questionnaire

An adapted method had to be developed to cope with the special information required in Mueritz National Park. In order to suit the demands, a user-based survey was implemented. A quantitative approach allowed one to gain a broader perspective on different park users. However, a number of open-ended questions, which are more typical for a qualitative approach, had to be implemented especially when concerning perception. According to ALLESCH & KREUL (1995), this blurred line between quantitative and qualitative research is necessary to cope with the specific demands of on-site environmental research.

In order to cover all types of park users such as day visitors, long term guests, and locals, interviews with passers-by at sites inside the park were considered the most efficient way to gain information. Standardized questionnaires were developed. People gave the answers to an interviewer, who would fill in the form. This type of interviews with passers-by suggested the

inclusion of “real” on-site sceneries for analyzing scenic preferences. Five different, well frequented sites inside the park were chosen. Each location selected represented a different type of landscape. The places with its respective relevant landscape elements were:

- Serrahn: an old, for a long time unmanaged beech-forest, some visible deadwood, core zone¹;
- Langhagen: vast, man-made pine-forests (*Pinus sylvestris*), development zone²;
- Granzin: pine regeneration on a devastated former military training range, portage facilities for canoes at an impassable river-section, core zone;
- Specker Horst: restored moor, huge amount of deadwood visible, popular bike route leading through on a dam, core zone;
- Mueritzhof: traditionally maintained meadows, lake visible, farmhouse with garden, management zone³.

The interviews were conducted between the beginning of May and the end of August 2005, since the park is visited mainly in the summer. Three interview-sessions were carried out at each place, one session in early, one in mid and one in late summer. In order to get a good, random selection of passers-by, a weekday, a Saturday, and a Sunday were selected. Questioning started at 9:00 am and ended at 5:00 pm. Passers-by were asked to participate in the survey, and were told its purpose and its overall duration (approximately 20 – 30 minutes). After the interview was finished, the next person approaching was contacted.

Persons were asked for their reasons to visit the park as well as for their activities planned. In order to obtain information on different aspects of the scenery and to minimize faults that may occur in each step, landscape preferences were assessed in three different steps.

Firstly, general questions on preferences for certain types of scenery in the park region were posed (e.g., “How do you like the pine-forests in Mueritz National Park?”). Persons were asked to rate on a 1 to 5 Lickert scale. This method is an easy and quick way of rating, though every person interviewed has her or his own “mental landscape” in mind when being asked.

Therefore, in a second step the quality of the surrounding scenery was investigated. The interviewee was requested to both rate on a 1 to 5 Lickert scale, and to name reasons for the grade given. This way more information about the perception of these typical sites inside the park could be obtained. However, some aspects, which might be more dominant in the future like forests with huge portions of deadwood, are not visible yet and there are existing places which are not well frequented. Therefore, in a final step, scenic impressions were given in a picture set. However, the aesthetics of a photo may be influenced by the viewpoint and segment. Therefore, the interviewees were asked to judge the landscape but not the picture as such.

Pictures had to be sorted according to a Q-Sort test method as described by STEPHENSON (1953). From 16 pictures shown, the interviewee was asked to select 4 pictures with landscapes liked more than average and 4 pictures with landscapes liked less than average. From these pre-selections the interviewees selected one picture each with the type of landscape liked best respectively the type of landscape liked least. The interviewees were then asked to explain their choice of best and least preferred type of landscape. Using this method a ranking of landscape preferences was achieved.

Defining different user groups

To detect possible discrepancies between different users of the park, three sub-groups are classified: *First Time Visitors*, *Regular Visitors* and *Residents*. *First Time Visitors* are literal ‘first time visitors’ as well as persons who had been in the park before but only for a few times. *Regular Visitors* are defined as persons visiting the park frequently at least over the last ten years. *Residents* or *Locals* are defined as persons living in national park villages and the towns of Neustrelitz, Waren and Mirow, situated at the park entrances.

1 Core zone: Inner part of a national park; natural processes, no management actions, is set to cover over 80% of the park area in the long run.

2 Development zone: Area to be developed towards either core zone of a national park by restoration (forests and wetlands) or management zone e.g., by extensification of meadows or fields.

3 Management zone: Areas with precious man made biotopes. Management actions are necessary to maintain rich biodiversity. Management zones sometimes also form buffer zones between surrounding intensively used land parts and core zones of a national park.

Additionally, all interviewees were sorted into so-called lifestyle groups, according to the concept of the German sociologist SCHULZE (1997). The reason for forming these groups is that people with a certain educational background show specific behavior patterns in their leisure time. For this query, it is of interest if and how many individuals of each of these groups come to Mueritz National Park. Also there might be different activities and landscape preferences for each of these groups. SCHULZE (1997) identifies the following five groups (TABLE 1):

Lifestyle Group	Names given by SCHULZE (1997) (in German)	Education Level	Age	Scheme
<i>Entertainment</i>	Unterhaltung	Low	Below 40	Excitement
<i>Self-fulfillment</i>	Selbstverwirklichung	High	Below 40	Both Excitement and Upper Class
<i>Harmony</i>	Harmonie	Low	Above 40	Common
<i>Integration</i>	Integration	Mid	Above 40	Mix of Common and Upper Class
<i>Class</i>	Niveau	Very high	Above 40	Upper Class

TABLE 1: Lifestyle groups.

The two lifestyle groups with members below 40 years old, follow a so-called *Excitement* scheme. For example, they like listening to rock music. *Self-fulfillment*, the group with a higher educational background, also shows culture oriented leisure patterns typical for *Upper Class* people, e.g., listening to classical music, visiting art exhibitions or theater performances. *Harmony* shows a so-called *Common* scheme, meaning that they prefer more easy and simple to understand literature and music. *Integration* mixes both the *Upper Class* and the *Common* scheme (SCHULZE 1997).

In some studies questions about the educational level were considered very critical in face to face situations (e.g. KORFF 2005). This was confirmed by the results of the investigation's test run.

Therefore, in the main run, besides age only a *trained profession* was asked on a voluntary basis. Instead of asking for the educational level, indicators for the different lifestyle groups were used. Regular everyday leisure activities were asked, which are assumed to correlate well with the educational level. (TABLE 2).

Indicators	Scheme
Classical music	<i>Upper Class</i>
Learning languages	<i>UpperClass</i>
Reading quality books/magazines focusing on politics, economy, society	<i>Upper Class</i>
Concerts, museums, art exhibitions	<i>Upper Class</i>
Easy listening	<i>Common</i>
TV/quiz –shows	<i>Common</i>

TABLE 2: Selection of indicators chosen to distinguish lifestyle groups.

The lifestyle groups formed by using above-mentioned indicators give information about general preferences for certain activities, leisure-time demands and communication channels used. However, these indicators are not of a high significance. This leads to inaccuracies to some extent when forming the groups. For the aim of the study, to gain information on visitors and their behavior patterns at home, lifestyle groups formed mainly by indicators are still valuable for visitor management.

Selection was made by age, and, if possible, by *trained profession*. If no suitable profession was given, indicators were taken instead. The interviewee was also assigned to a group, when all indicators clearly directed towards a group, no matter which *trained profession* was stated.

In most cases, sorting into the groups worked well. In 63 cases however, it was not possible to clearly sort into *Class* or *Integration* lifestyle. This appeared to be a more general problem, since item patterns of *Integration* are mixing with the *Class* group. To solve this problem, a sixth category was formed and named "*I/C*".

Significance to differences in answers between lifestyle groups on one side and *Locals*, *Regular* and *First Time Visitors* on the other side was tested by ANOVA and by Chi-Square tests, using SPSS.

RESULTS

Origin and distribution of the interviewees

722 passers-by were asked to participate in the survey, and 605 of them eventually took part. This is a response rate of 83.8%. Most interviews were carried out at Specker Horst, the least in Serrahn. Estimations suggest that the portion of persons asked to participate in relation to all passers-by between 9 am and 5 pm were around 20% in Serrahn, around 5-7% both in Specker Horst and Granzin, and 10-15% in Langhagen and at Müritzhof. The number of visitors in Serrahn is very low and therefore quite a large portion of passers-by could be interviewed. At the other sites only a very small amount of all Park users during the interview period could be asked to participate due to the high frequentation on these places. 78% in the survey were *First Time Visitors* (n=469), 9% *Regular Visitors* (n=55) and 13% *Locals* (n=81) (Figures 1 and 2).

Most of the *First Time* and *Regular Visitors* came from Berlin, followed by those from the German region of Lower Saxony. 7% of the tourists were from a foreign country, mainly from the Netherlands and Belgium. Over 57% of the *First Time* and *Regular Visitors* stated living in a big city of over 100'000 inhabitants or in a heavily populated urban area.

Distribution on Lifestyle Groups

A look at the groups indicates that most of the interviewees belong to *Class* (36%), and the second largest category is *Self-fulfillment* (22%). This suggests that the majority of park users lead lifestyles which indicate a higher educational level (*Entertainment* 8 %, *Harmony* 10%, *Integration* 14%, *I/C* 10%). *Self-fulfillment* is extremely over-represented at the canoe-route. Every second person at that place was assigned to this lifestyle group.

Reasons for visiting Mueritz National Park

This question was posed to name the importance of landscapes and scenic qualities when visiting Mueritz National Park. There were no predefined answers to this question, and the answers most frequently given were: "Area is very natural", "Beautiful scenery", "Possibilities to go biking", "Quietness" and "Canoeing". 3.6% of the visitors explicitly named "Visiting a national park". *Regular Visitors* stated "Biking", "Beautiful scenery", "Nature" and "Canoeing" significantly more often as their visiting motives than *First Time Visitors*.

Activities planned or carried out

For the visitor's perception of landscape, the way of exploring it is very important. A multiple choice list of activities was applied to find out the motives for visiting the park. Biking was the most popular way to get around inside the park (85%). More than 60% wanted to go swimming in one of the lakes. The percentage for this activity among *Locals* was significantly higher, around 80%. Half of the interviewees named "Hiking" or "Canoeing". "Canoeing" varies strongly among the lifestyle groups. While only 25.9% of the *Integration* group planned this activity, 76.9% of the *Self-fulfillment* group intended or carried out this activity. Among the *Entertainment* group of the same age as *Self-fulfillment*, only 53% mentioned it (statistically significant). Also *Regular Visitors* liked canoeing more than other groups (70% in comparison with 48% of both *Locals* and *First Time Visitors*).

About 60% of the interviewees intended to observe animals and plants, about 45% also considered using one of the information offers or a guided tour by national park rangers. While “picking berries/mushrooms” was not of great importance for any interviewed person, it was named by over two thirds of the “Locals” interviewed as an activity carried out inside the park boundaries.

Positive and negative perceptions of the park

The open question “What do you like/dislike about the park” allows interviewees to refer to different aspects of the park considered positive or negative, not only those related to landscapes. “Unspoiled/clean nature”, “Quietness”, “Loneliness” and “No noise” were the most frequent positive impressions, followed by “Lakes” and “Forest”. *Regular Visitors* especially mentioned “Quietness”. 54% of this group highlighted this feature (statistically significant).

Negative aspects were the surface quality of trails (“Too sandy”, “Rough”), and improvable signposting for trails and destinations. 8% felt crowding, 7% were disturbed by noise or motorized vehicles.

General impression of the scenery inside the park

In this question, interviewees were asked to give a grade for the different types of sceneries found within the park boundaries. 5 different quotes were possible: Very good (5), good (4), middle (3), bad (2), very bad (1). There was also the possibility to state “do not know, have not seen it yet”.

Lakes were voted the best, followed by avenues and viewpoints. Moors, reeds, beechforests and mixed forests formed a third block in rating. The least preferred general impressions were villages, fields and pine forests (FIGURE 1). *Residents* disliked “abandoned fields” most and in comparison with tourists, they appointed significantly lower grades. *Locals* found the pine-forests less attractive than tourists (FIGURE 2). For the aspects reed, moor and fallow land, lifestyle groups with a higher educational background gave better grades than the lifestyle groups *Harmony* and *Entertainment*.

An interesting aspect is that every fourth person quoted moors as “I do not know”/“I have not seen them yet”, although this type of landscape occurs frequently inside the park and it was also the most visited interview-site (FIGURE 3). Possibilities to overlook the land and fields exist mainly in the less frequented hillsides in the northern parts of the park, which is an explanation for the higher rate of “Do not know” answers. Especially *Self-fulfillment* lifestyle group members often mention overlooks, avenues, and fields as “I do not know”, because the canoe-route has none of these features.

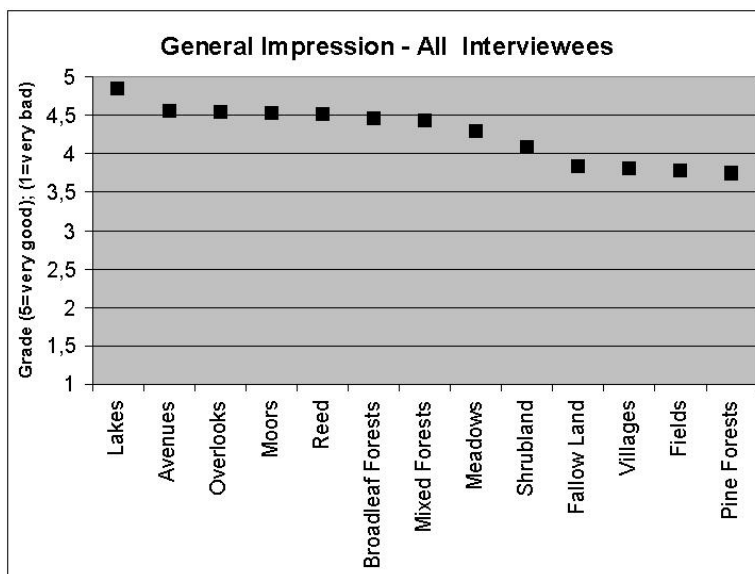


FIGURE 1: General impression –all interviewees.

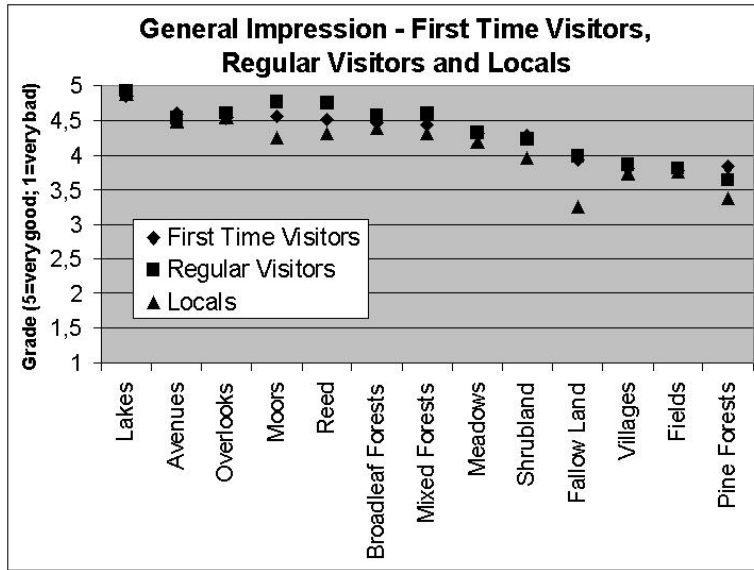


FIGURE 2: General impression: Differentiated between First Time Visitors, Regular Visitors and Locals.

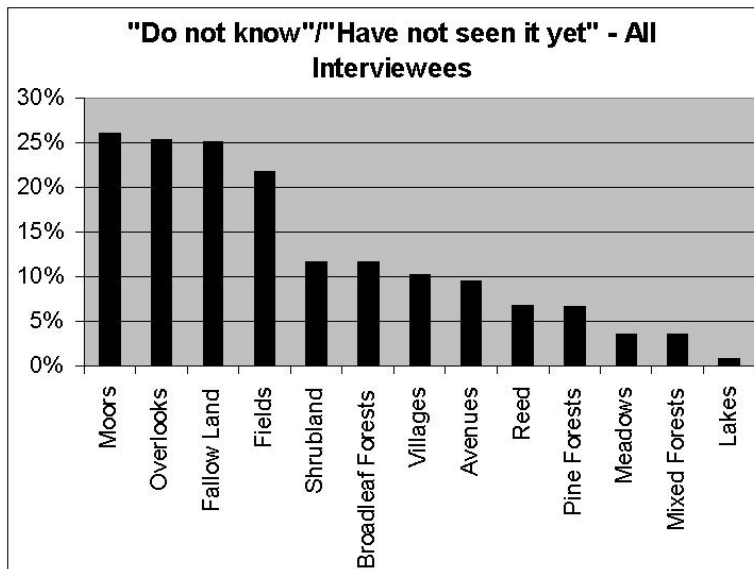


FIGURE 3: "Do not know" / "Have not seen it yet" - all interviewees.

Sceneries at the interview sites

The satisfaction with the surrounding scenery at the interview site was appraised with Lickert scales. In addition, an explanatory statement was asked for the rating of the landscape in the form of an open question, i.e., no predetermined answers were placed on the sheet. The Granzin site with its natural pine regeneration on the military driving range was given an overall evaluation of 3.82. Most of the passers-by named the place "Monotone" and "Pines artificially planted". Positive comments were "Nature" and "Nature conquers the military driving range". Pine forests in Langhagen had an average of 3.98. The main reason for this was the positive aspect "Quietness", after which "Prefer mixed forest" ranked second. Around 9% highlighted that "Positive developments in the forests are visible". This is mainly due to forest management activities that try to establish higher portions of broadleaf tree species.

The restored moor at Specker Horst was graded with 4.05. Information about this scenery is vital for its positive perception. Some information boards exist at Specker Horst that explain this kind of scenery.

The main reason was "I think regenerating and raising the water-level is a good thing". However, the huge amount of dead birch-trees (*Betula pendula*) lead to polarization. Around 21% said, that "Dead trees are negative", while 19% regarded it a positive aspect. Other fre-

quently mentioned impressions (15-20%) were: "Interesting", "Unusual impression", "Natural". 15% thought that "This impression needs explanations" or stated "I have questions about this scenery". Around 14% felt confronted with "Death", while 8% saw "New life visible".

The most appreciated sites were Serrahn with 4.71 and Mueritzhof with 4.75. In Serrahn, passers-by named a general preference for old trees and beech forests. Frequently mentioned was "Intense green spring color". Also "Virgin forests" and "Very close to natural forest" were named. More than 15% named "Deadwood" a positive feature in the Serrahn forests. Mueritzhof was liked for "Blooming plants/ Beautiful garden with flowers", "Views towards a lake" and "Quietness".

Regular Visitors and *Locals* were asked to name their favorite place inside the park. 28% of the *Locals* named the old beech forests in Serrahn as their favorite place. Among *Regular Visitors* the Havel River was named as their favorite place (38.2%), followed by Serrahn (25%).

The picture set assessment

A set of 16 pictures was used to ask for certain types of landscape which cannot be posed as a question without precise landscape knowledge or which are not yet found at well frequented places. The interviewees were asked to select preferred and disliked pictures according to the Q-Sort test method described by STEPHENSON (1953). The best and the worst image had to be chosen and were taken out. Then three pictures of each liked and disliked ones had to be chosen. The following types of pictures were given in the set:

1. Lake placed in a cultural landscape (meadow in the foreground);
2. Lake view from a canoe;
3. Initial state of a regenerated moor with dead trees;
4. Initial phase of natural reforestation with pine on abandoned agricultural land;
5. Pine forest;
6. Initial phase of transformation of pine towards broadleaf stand;
7. Mixed forest with pines and broadleaves;
8. Structured beech forest with little deadwood;
9. Beech forest with a large portion of deadwood;
10. Avenue (typical feature of cultural landscape in the northeast of Germany);
11. Overlook (abandoned dry meadow in the foreground);
12. Meadow with single oak trees (*Quercus robur*), traditional half-open cultural landscape;
13. Small scale cultural landscape without lake view;
14. Large scale unstructured abandoned field, blooming;
15. Large scale unstructured field;
16. Village or settlement, renovated.

In general, there were no major variations in sorting the pictures between user or life-style groups. The most preferred pictures were those showing waters. The most favorite one was a lake embedded in a cultural landscape (PICTURE LEFT) followed by the regenerated moor with deadwood. Third was the lake view from a canoe. A very interesting aspect was the picture showing fallow land. It ranked on the neutral, more positive side of the Q-sort Test in average. However this impression was polarizing. A closer look at this feature showed, that 7.3% selected this picture as their favorite one. It ranked fourth when comparing only first choice picks. However, the impression of fallow land was chosen by 5.1% as the least attractive scenic impression. It was liked for "Blooming", "Colors" and showing

“Wideness” but disliked for being “Monotone”, “Vegetation too dry”, and showing “Abandoned agricultural land”.

The least favored picture in the set was pine forest in initial transformation phase (PICTURE RIGHT), followed by plain pine forests. Reasons for the two pine forests being least preferred were “Being monotone”, “Not interesting” and “Dead, ill trees” and “Artificial”. As reasons for the most preferred landscape on the pictures 52% of the interviewees considered aesthetic qualities only, while 24% also reasoned with landscape potential for leisure time activities. 24% stated ecological qualities. Lifestyle group *Harmony* argued a little less on an ecological level. For negative pictures, around 38% chose an ecological reason for not liking the landscape shown, while still around 50% argued only on an aesthetical level.



PICTURE LEFT: Picture preferred most in the Q-Sort-test.

PICTURE RIGHT: Impression least preferred in the Q-Sort-test.

DISCUSSION

This study shows that it is necessary to analyze landscape perception in more than one step. Each way of interviewing or only using a picture set is not adequate to cope with the complexity of landscape and its perception.

In Mueritz National Park, a majority of visitors are identified as members of *Class* or *Self-fulfillment* lifestyle groups. This suggests that people visiting the park have a higher educational background. This fits quite well with other studies, e.g., MUHAR *et al.* (2006) or BRAUN (1999). Lifestyle groups with lower education tend to prefer more cultivated places.

The old Serrahn beech forests are considered very attractive, which supports the general impression that this kind of forest is liked by the visitors. Deadwood in these forests, at least to some extent, is seen as a positive feature. In other recent surveys deadwood in forests is also seen more positive (e.g., LINDHAGEN & HOERNSTEIN 2000). However, purposeful background information is important. This is vital for judging whether scenery is considered positively or negatively, especially for unusual impressions like the regenerating moor scenery at Specker Horst and its large portion of deadwood.

CONCLUSIONS

Some features of cultural landscape like avenues and viewpoints are liked as such. Meadows and open cultural landscape are important for aesthetics when providing views towards lakes. This fits to more general theories of landscape perception and preferences (e.g., APPLE-

TON 1975; KAPLAN & KAPLAN 1989). The impression of abandoned fields and fallow land was perceived negatively. Especially *Locals* relate fallow land with diminishing agriculture and had a negative perception when asked. However, blooming, open land is often considered interesting and attractive, although the picture of an abandoned field had no other landscape structures in it. The ambivalent quality of fallow land was also reported from studies in Alpine areas (e.g., HOECHTL *et al.* 2005).

Pine forests are considered less attractive compared to other landscapes. The pictures showing these types of forests were judged the least attractive ones. *Locals* dislike the pine forests more than visitors, although they have been shaping the region for a long time. This is a surprising result as e.g. NOHL (2001) claims that locals may prefer them. However, grades were not totally bad. Asking for the scenic quality at the interview site revealed that other factors for judging were important. Non-visual elements like "Quietness" were positive features. Also visible small broadleaf trees in the shelter of pine stands were considered a "Positive development".

The studies in Mueritz National Park support theories of landscape perception based on three different strategies, which are biological laws, cultural laws and personal strategies (BOURASSA 1991). General human habitat theories explain only some preferences, e.g. for lakes and rich structured cultural land.

RECOMMENDATIONS FOR PRACTICE

Water is preferred most by visitors and there is a huge demand for this feature. However, this is not strictly correlated with its use for activities and is liked just for being visible from landside. Also in regions with few lakes, where this feature is rather atypical, there is a strong wish for this element (e.g., ASSEBURG *et al.* 1985). As a recommendation for Mueritz National Park, agricultural activities should be continued close to lake sites in management zones, since they provide views on lakes and maintain very valuable biotope structures. This is to a certain extent a contradiction to national park plan objectives which aim at diminishing farming at lakeshores in some places in order to reduce nutrient inputs. Moreover, farmers might prefer to give up these very wet places close to waters due to difficult maintenance. A careful, sensitive land management involving farmers might maintain these aspects for the future.

In abstract questions fallow land was considered negative, especially by *Locals*. However, it seemed to be more an impression of the "mental landscape" as the real scenic quality was considered both positive and negative when questioned on site. Blooming aspects in early summer are attractive and can improve scenic qualities especially compared to large unstructured fields. Information about the ecological values of fallow land might be a strategy to gain acceptance for this feature. An alternative could be to manage these fallow lands again.

According to the lifestyle concept by SCHULZE (1997), people with lower education tend to watch nature films on television frequently. However, these groups are under-represented when participating in outdoor activities (SCHULZE 1997; BRAUN 1999; MANNING 1999 cited in some studies; MUHAR *et al.* 2006). Important reasons for this might be the lack of mobility or little money that can be spent for experiencing nature; but certainly they are not the only ones. Further research on this issue is necessary and fundamental, since these lifestyle groups represent a large group of society.

Using the lifestyle concept by SCHULZE (1997), important communication and information channels with visitors can be for example high quality magazines, newspapers, radio and TV programs. National park experiences can be combined with arts exhibitions, cultural events and theater performances in the region. A large majority of park visitors is generally interested in this kind of offer.

Landscapes in national parks often do not provide impressions suiting habitat theories. Acceptance for sceneries resulting from natural regeneration processes can be promoted by information. Judgment of these landscapes by passers-by is based on knowledge, values and positive experiences. The predominance of visitors with a higher education but with a certain lack of knowledge about nature suggests that there is a demand for information of high quality. It can help develop acceptance and appreciation of landscape change.

REFERENCES

- ALLESCH, C. & KEUL, A. (1995). Analyse von Mensch-Umwelt-Beziehungen. In: Roth, E. (ed.): Sozialwissenschaftliche Methoden: Lehr- und Handbuch für Forschung und Praxis. Oldenbourg, München.
- APPLETON, J. (1975). The Experience of Landscape. Wiley, New York.
- ASSEBURG, M. *et al.* (1985). Landschaftsbild und Flurbereinigung. Beiträge zur räumlichen Planung 12. In: Schriftenreihe des Fachbereichs Landespflge der Universität Hannover, Hannover.
- BAUER, N. (2005). Für und wider Wildnis: Soziale Dimension einer aktuellen gesellschaftlichen Debatte. Bristol Stiftung, Zürich. Haupt, Bern.
- BOURASSA, S.C. (1991). The Aesthetics of Landscape. Belhaven Press, London, New York.
- BRAUN, A. (1999). Wahrnehmung von Wald und Natur. Leske & Buderich, Opladen.
- HOECHTL, F. *et al.* (2005). Kulturlandschaft oder Wildnis in den Alpen? Fallstudien im Val Grande-Nationalpark und im Stronatal (Piemont/Italien). Haupt, Bern.
- HUNZIKER, M. (2000). Einstellung der Bevölkerung zu möglichen Landschaftsentwicklungen in den Alpen. Eidgenössische Forschungsanstalt WSL, Birmensdorf.
- JOB, H. *et al.* (2005). Regionalökonomische Effekte von Großschutzgebieten. In: Nat. u. Landsch., 80:11, p. 465-71.
- KAPLAN, R. & KAPLAN, S. (1989). The Experience of Nature: A psychological Experience. Cambridge University Press, Cambridge.
- KORFF, C. (2005). Mit den Augen des Urlaubsgastes: Studien zur Natur- und Kulturlandschaftswahrnehmung am Beispiel regionskundlicher Themenwege. Leibniz-Institut für Länderkunde (Forum / IFL ; H. 4), Leipzig.
- LINDHAGEN, A. & HOERNSTEIN, L. (2000). Forest Recreation in 1977 and 1997 in Sweden: Changes in public preferences and behaviour. In: Forestry, 73:2, p. 143-53.
- MANNING, R.E. (1999). Studies in Outdoor Recreation, Second Edition. Oregon State University Press, Corvallis OR, USA.
- MUHAR, A. *et al.* (2006). Trends in Alpine Tourism: The Mountaineers' Perspective and Consequences for Tourism Strategies. In: Siegrist, D. *et al.* (eds.). Exploring the Nature of Management. Proceedings of the Third International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas. University of Applied Sciences Rapperswil, Rapperswil.
- NOHL, W. (2001). Landschaftsplanung – Ästhetische und rekreative Aspekte. Patzer, Berlin, Hannover.
- SCHULZE, G. (1997). Die Erlebnisgesellschaft – Kulturosoziologie der Gegenwart. 7th edition. Campus, Frankfurt, New York.
- STEPHENSON, W. (1953). The Study of Behavior: Q-Technique and Its Methodology. The University of Chicago Press, Chicago, London.

ACKNOWLEDGEMENTS

The author would like to thank the Jost Reinhold Foundation for their financial support.

Natura 2000 and Tourism

Opportunities and limitations in destination marketing and branding

Veronika Wirth¹, Petra Sterl² & Ulrike Pröbstl³

Inst. of Landscape Development, Recreation and Conservation Planning, Dept. of Landscape, Spatial and Infrastructure Sciences, U. of Natural Resources and Applied Life Sciences, Vienna, Peter-Jordan-Str. 82, 1190 Vienna, Austria. Email: veronika.wirth@boku.ac.at¹ (corresponding author), petra.sterl@boku.ac.at², ulrike.proebstl@boku.ac.at³

Keywords: Protected areas, tourism, Natura 2000, Alps, destination choice, marketing, branding

Abstract: Alpine tourism strongly relies on the natural integrity of destination areas. It is argued in this paper that protected areas can and will play an increasingly important role in the branding of tourism destinations. This article discusses whether the concept of Natura 2000, a European-wide network of protected areas, may contribute to a unique selling proposition for Alpine destinations based on an analysis of core demands for brand positioning. Surveys that have been conducted in two Alpine Natura 2000 sites, one in Germany and one in Austria show that protected areas have an influence on the destination choice of tourists and recreation seekers; also, the visitors' attitude is favorable towards protected areas. General knowledge about Natura 2000, however, is rather low among tourists as well as recreationists, and even among tourism stakeholders. Therefore, the performance of Natura 2000 for destination branding is rather limited at the moment, but promising examples exist in the Alpine area and also in other European regions how to link Natura 2000 and tourism. Key strategies of good practice examples are analyzed and compiled as recommendations for destinations.

Zusammenfassung: Der alpine Tourismus ist in großem Maße auf naturnahe und unversehrte Landschaft angewiesen. Nachdem geschützte Landschaften diesem Anspruch gerecht werden, kann angenommen werden, dass diese zunehmend eine wichtige Rolle in der Markenbildung und im Marketing von Tourismusdestinationen spielen werden. In diesem Artikel wird diskutiert, ob das Konzept Natura 2000 als europaweites Schutzgebietsnetzwerk einen Beitrag zu einem Alleinstellungsmerkmal (USP) für alpine Tourismusdestinationen leisten kann, basierend auf einer Analyse von Kernanforderungen für die Markenpositionierung. Befragungen, die in zwei alpinen Natura 2000-Gebieten in Deutschland und Österreich durchgeführt wurden, zeigen, dass Schutzgebiete einen Einfluss auf die Destinationsentscheidung von Touristen und Erholungssuchenden haben. Ebenfalls stellte sich heraus, dass die Besucher zum großen Teil eine positive Einstellung gegenüber Schutzgebieten haben. Der Bekanntheitsgrad von Natura 2000 ist jedoch bei Touristen und Erholungssuchenden sowie bei Tourismusvertretern sehr gering. Zum gegenwärtigen Zeitpunkt ist deshalb die Eignung von Natura 2000 für die Markenbildung von Tourismusdestinationen ziemlich eingeschränkt. Allerdings gibt es viel versprechende Beispiele im Alpenraum sowie in anderen europäischen Regionen, wie Natura 2000 und Tourismus vernetzt werden können. Erfolgsfaktoren von Praxisbeispielen werden in diesem Artikel analysiert und als Empfehlungen für Tourismusdestinationen zusammengestellt.

INTRODUCTION

Destination marketing and branding is of growing relevance to tourism in the Alps. The Alpine area is a prime tourism destination in Europe, characterized by an increasing competition between its destinations, decreasing demand or stagnation and permanent pressure for adaptation, and improvements in quality and standards. However, the market is still characterized by many rather similar and replaceable products which lack a unique profile. Researchers have pointed out that especially in the Alpine region a type of “standard destination” has evolved (BIEGER 2006:185). Therefore destinations attempt to add value by different means such as providing a meaning to tourists (BIEGER 2006:185; SCHERHAG 2003:1-7).

One increasingly used strategy is to use the various types of protected areas in destination marketing and branding (MEHNEN & MOSE 2007; WEIXLBAUMER *et al.* 2007; PRÖBSTL 2006; BMLFUW 2005; JOB *et al.* 2005; GETZNER & JUNGMEIER 2002). The Alpine space is characterized by a high level of biodiversity with many endangered species and natural habitats of European significance. To protect this special biological diversity, a significant proportion of the region has been protected in the last decades. Across the Alpine space, six main categories for nature conservation exist: national parks, nature parks, biosphere reserves, nature reserves, protected landscapes, and the European network Natura 2000.

Especially in areas where tourism strongly relies on natural integrity, protected areas are used in destination marketing and branding. The concept of Natura 2000 is quite appealing for tourism. Over the past 15 years, a coherent network to protect the European natural heritage has been established across the entire European Union. Tourists in Scotland can experience parts of the network as well as tourists in Greece. Based on a conceptual framework of brand building and positioning of tourism destinations, this paper discusses and evaluates the possible role of Natura 2000 for this purpose. Opportunities and limitations for the Alpine region are described. Because of its Europe-wide distribution and its rather strict level of protection, it is assumed that Natura 2000 can contribute to a unique selling proposition for Alpine destinations.

Background

Natura 2000 - European network of protected areas

The aim of Natura 2000, a recently developed type of protected area, is to establish a European network of protected areas according to the Habitats Directive (DIRECTIVE 92/43/EEC) and the Birds Directive (DIRECTIVE 79/409/EEC) of the European Union. This network has to be implemented by the respective member countries of the European Union to restrain the loss of biodiversity. Over the past few years, large areas of the Alps have been included in the Natura 2000 network. Natura 2000 differs from the various national protection categories as the same rules apply to all nations of the European Union.

Destination choice and destination branding

The tourist's choice of a holiday destination is a complex decision. A holiday is a high value purchase and usually high expectations are associated with it (SWARBROOKE & HORNER 1999:48). Furthermore, vacations are also associated with risks because the product cannot be tested or inspected prior to consumption, the working population only has limited time available for a holiday, money usually has been saved exclusively for the holiday, and frustration is possible if the holiday does not meet the expectations (LIPING 2002:721; MUNDT 2001:153; MANSFIELD 1992:408). As destinations become more diversified the decision is becoming more difficult and complex for tourists, and so support in the choice of destination is needed (SCHERHAG 2003:133-135).

This situation makes it necessary for tourism destinations to differentiate their product from each other with a clear profile and an appealing image. Also tourists who are experienced in traveling perceive a brand as a guarantee of quality which reduces their risk during the decision for a destination (BIEGER 2005), especially in the Alpine area. In the highly fragmented and competitive environment new products are easily imitated by competitors (PECHLANER 1998:367). For all these reasons destination branding plays an important role.

Protected areas in destination choice and branding

Several studies show the influence of protected areas on the destination choice. Most studies focus on national parks. In a study in the Müritznational Park in Germany, 57% of the visitors stated that the existence of the national park played an important role for their choice of destination (JOB *et al.* 2005:61). In a survey in the region of the Swiss national park, the national park played an important role in their choice for 42% of the interviewed visitors (KÜPFER 2000:102). In a nationwide telephone survey in Germany by the WWF, 72% of the interviewees would preferably choose a holiday destination adjacent to a designated national park (WWF GERMANY 1999:39).

Some studies investigated the role of other types of protected areas. Apparently, nature parks have less influence on the destination choice. However, it is quite difficult to compare the results because of different survey designs. A study in four nature parks in the Austrian federal state „Burgenland“ shows that for 34% of the visitors knowing of the existence of a nature park in the region the nature park played a very important or important role (WEIXLBAUMER *et al.* 2007:45). In Germany, JOB *et al.* (2005:72-76) found that for 39% of all visitors of nature park „Altmühltal“ and for 31% of nature park „Hoher Fläming“ the existence of the respective parks played an important role in their destination choice.

A study in the Canadian mountain resort of Whistler, BC, using a discrete choice experiment technique, shows that visitors preferred resorts with a higher percentage of designated protected areas, even if it is of local area designation only (KELLY *et al.* 2007:384; ENGLUND 2005:69). BRAU & CAO (2005:17) find that tourists leaving Sardinia had a significant preference for resorts with nature reserves in the vicinity. So far no studies have been published that include Natura 2000 in the investigation of destination choice. But there are studies describing possible positive effects on the regional economy by Natura 2000 (GETZNER & JUNGMEIER 2002; LEIBENATH & BADURA 2005). Given a positive perception in tourism regions, GETZNER & JUNGMEIER (2002) propose that Natura 2000 may be seen as unique selling proposition.

MATERIALS AND METHODS

Evaluation framework

To study the possible use of Natura 2000 as a brand for tourism destinations a suitable framework for the assessment of Natura 2000 was developed based on two significant publications on destination branding and brand positioning. To analyze the core demands, in addition to a literature review and expert interviews, a survey was conducted in two Natura 2000 sites¹. The methodological approaches are described below.

Following KLEIN-BÖLTING & MASKUS (2003:84) and MORGAN & PRITCHARD (2005:70) the core demand for brand positioning can be divided into functional and emotional attributes as well as benefits for the visitor (see TABLE 1).

¹ In this article all protected areas according to the Habitats Directive (Directive 92/43/EEC) and the Birds Directive (Directive 79/409/EEC) of the EU are subsumed as Natura-2000-sites.

Modules	Core demands for brand positioning
Functional attributes	- Deliverable (service or product must justify positioning)
	- Defendable (cannot be copied easily)
Emotional attributes	- Possible to communicate
	- Compatible with the overall concept
Benefit	- Conveying salient ideas
	- Differentiating in the competition
	- Relevant for target group
	- Attractive for target group
	- Authentic for the target group

TABLE 1: Framework for the evaluation of brand positioning (MORGAN & PRITCHARD 2005: 69-70 and KLEIN-BÖLTING & MASKUS 2003: 83-84, modified).

According to the concept of KLEIN-BÖLTING & MASKUS 2003 and MORGAN & PRITCHARD 2005 a brand consists of *functional attributes*, the so called "reason to believe": it must be deliverable, meaning that the performance justifies the positioning. A brand also has to be defendable and unique, in order not to be copied easily. The functional attributes are analyzed based on a literature review.

Furthermore, a brand consists of *emotional attributes*: it must be possible to communicate the key issues in a straightforward and coherent way. Moreover, all elements of the brand should be compatible with the overall concept of the destination strategy. The emotional attributes are analyzed based on literature review and expert interviews.

In addition a brand has to provide a benefit for the visitor, a so called value proposition, and create an emotional attachment for the visitor. Thus, a brand has to be relevant, attractive and authentic for the target group and convey salient ideas. The brand needs to differentiate the destination in the competition against other destinations. To assess the benefits for the visitors, surveys have been conducted in two Alpine Natura-2000 sites in Germany and Austria with high levels of tourism and recreation use but with very different characteristics.

Survey

Surveys were conducted in both study sites in Germany and Austria. Alpine Natura 2000 sites have been selected with a very high importance of tourism and recreational use. This selection was carried out in close co-operation with the federal administration in both countries (Bayerische Staatsforstverwaltung, administration for rural development in Lower Austria). Both sites constitute internationally important natural or cultural attractions with accordingly high numbers of visitors. The German study area "Falkenstein, Alatsee, Faulenbacher- und Lechtal" is located in the Allgäu, Bavaria. It is situated in one of the most famous Alpine destinations in Germany with the castles "Neuschwanstein" and "Hohenschwangau", which attract many international visitors. It is also a popular destination for local recreation. Parts of this Natura 2000 site are visited by more than 3,000 visitors a day at peak days during summer. The area is a rather small (987 ha) and ecologically fragile. Main habitats are undisturbed alpine lakes and bogs, near-natural alpine forests and dry alpine pastures.

The Natura 2000 site "Nordöstliche Randalpen" in Lower Austria is a large area (64,066 ha) including the peak and the plateau of the "Schneeberg", the easternmost peak of the Alps with 2,000 m of altitude. The area is a typical day trip destination from Vienna and can be reached easily from Hungary and Slovakia. The area is popular in summer and autumn for hiking and in winter and spring for backcountry skiing. During the summer season, a rack railway leads to the plateau. Sensitive habitats are alpine grasslands and rock crevice plant communities.

Standardized personal interviews have been conducted in both test sites during tourism and recreational use peak time. In both test sites the interview days included weekdays and weekends as well as holiday time and off-holiday time. In the German site the interviews were conducted on six days in summer and autumn 2005. A total of 297 interviews were completed with a refusal rate of 25%. In the Austrian test site interviews were conducted on seven days during summer and autumn of 2005. These efforts yielded a total of 134 completed responses, with a refusal rate of 10%. Due to climatic conditions during the winter season in the Austrian test site, a mail-back questionnaire was distributed to tourists and recreation seekers with a postage free envelope (81 respondents and a return rate of 40%).

Expert interviews

Interviews were also conducted with tourism stakeholders in and around the study areas in both Germany and Austria. Interview partners were pension and hotel owners (24), hut keepers (3) as well as marketing professionals (2). These experts were asked for their perception of risks and opportunities associated with Natura 2000 sites and brand. Additional scientific experts working in the field of Natura 2000 from Germany (4), Austria (2), Italy (2), and Slovenia (2) were involved in the evaluation process of the required core demands via the research project AlpNaTour.

RESULTS

Analysis of functional attributes

The analysis of functional attributes shows that Natura 2000 can be perceived as a deliverable label because it is a comparatively strict protection category. The designation of the Natura 2000 sites follows strictly scientific criteria. It has been argued repeatedly that there has not been enough participation in the designation process (SAUER *et al.* 2005; SUDA *et al.* 2006). But on the other hand this uncompromising designation practice ensured a rather high quality of the sites. What also contributes to this fact is that the member states have to avoid the deterioration of natural habitats and the habitats of species (Art.6 COUNCIL DIRECTIVE 92/43/EEC). Natura 2000 can also be called defensible; it has legal status so that it cannot be copied easily by other regions or communities without designated Natura 2000 sites. The designation process is nearly finalized but minor additions are still to be made (BfN 2007; ELLMAUER *et al.* 2005). Natura 2000 satisfies the functional criteria: it is both deliverable and defensible.

Analysis of emotional attributes

The second module in building a successful brand encloses the emotional benefits. Because of the Europe-wide consistency of the name and logo the concept of Natura 2000 can be communicated well across the EU (TEN BRINK *et al.* 2002). Natura 2000 can also be compatible with the overall concept of a destination strategy as long as the destination focuses on landscape and nature-based offers. Experts and tourism stakeholders in the study areas perceive Natura 2000 as predominately compatible with their tourism strategies and target groups. Further experts (PRÖBSTL 2005; LICHTENECKER 2004) stated that the protection of endangered species in a Natura 2000 helps to communicate Natura 2000; an emotional attachment to the vision of Natura 2000 can be created.

Analysis of benefits

Salient ideas, differentiability and authenticity

Analyzing the benefits for the visitor it can be clearly stated that Natura 2000 conveys salient ideas: Natura 2000 has a pan-European vision to protect the natural heritage and to halt the loss of biodiversity within the European Union; it is described as one of the most important initiatives of nature conservation policy (GETZNER & JUNGMEIER 2002:31). This vision can also be very attractive for landscape-based tourism. In addition, Natura 2000 can be de-

scribed as authentic for the visitors. As stated above, Natura 2000 is a strict protection category. Specific test procedures (FFH Impact Assessment) exist to ensure the quality of the sites. Projects that may lead to a significant deterioration or disturbance of habitats and species protected are not allowed. Summarizing these aspects, Natura 2000 has the potential to differentiate a destination from other communities or regions, which have no designated Natura 2000 sites. But this differentiability is also depending on other benefits.

As background for the analysis of benefits the visitor structure is analyzed. Visitors interviewed in the German test site "Falkenstein" were mainly tourists (50%). Most visitors stayed between two and four hours (36%). In the Austrian test site "Schneeberg" day visitors from a distance greater than 50 km made up the largest part of the visitors (67%). Most visitors stayed for more than six hours in the area (41%). In winter, the percentage of day visitors was even higher and visitors also stayed longer. These results illustrate the very different types of tourism and recreation use in the two test sites.

Attractiveness

To assess the attractiveness of Natura 2000, the motives of the visitors to visit the area and the attitude of the visitors towards protected areas are analyzed. The main reason to visit the German test site was "nature and landscape" (47% of all respondent). In the Austrian test site "nature and landscape" was ranked equally with "doing sports" (28% each). Reasons for the differences in the test sites are that in the "Falkenstein" area visitors are more focused towards quiet recreation activities while visitors in the Schneeberg area are attracted by challenging routes during more physically oriented recreation activities, in which nature and landscape experience also play an important role.

For about a third of the respondents in both test sites nature and landscape is the main reason for their visit. This offers a fundamental opportunity to use protected areas for promotional purposes. Protected areas guarantee a protection of the landscape against more intensive future use and infrastructure projects. Natura 2000 designation also protects cultural landscapes to a large part; the amount of cultivated habitat types (e.g., mountain meadows and pastures), which have been underrepresented in other protection types, has increased. Also a favorable conservation status of these areas has to be ensured. Apparently, Natura 2000 contributes to the maintenance of attractive and typical cultural landscapes. However, these characteristics may not apply to all Natura 2000 sites, especially if they are small and scattered.

The visitors' attitudes towards protected areas provide some insights into the attractiveness of protected areas. The large majority of tourists and recreation seekers in both test sites agreed with the statement that protected areas are a sign of quality for a community or a region; in the Falkenstein area 57% strongly agreed and 30% agreed with the statement (see FIGURE 1). In the Austrian test site, 62% of the visitors agreed strongly and 33% agreed with the statement during the summer season, while the rate of agreement was clearly lower during the winter.

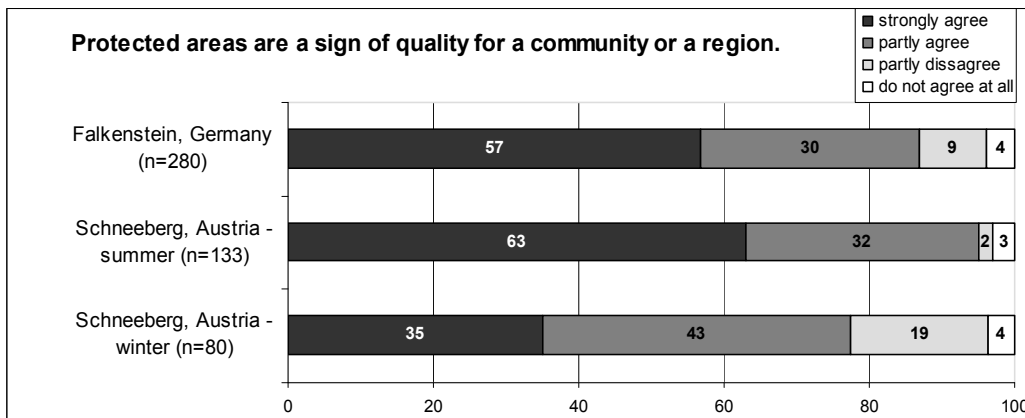


FIGURE 1: Statement: protected areas are as sign of quality for a community or a region (in percent).

About half of the visitors see protected areas as restrictive for outdoor sports and recreation (see FIGURE 2). In the “Falkenstein” area 48% strongly agreed or agreed with the statement. 52% partly disagreed or did not agree at all. In the “Schneeberg” area, in summer, 59% of the visitors strongly agreed or agreed that protected areas mean restrictions for recreation and outdoor sports, whereas 41% partly disagreed or did not agree at all. In winter the visitors perceived themselves slightly less restricted.

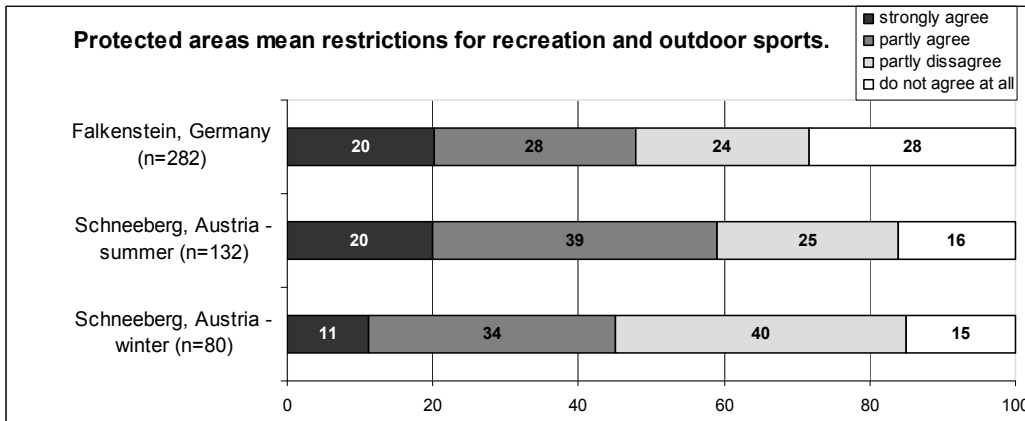


FIGURE 2: Statement: protected areas mean restrictions for recreation and outdoor sports (in percent).

It turns out that the attitude of tourists and recreation seekers towards protected areas is an overall positive one. The overwhelming majority in both test sites recognizes protected areas as a sign of quality for a community or a region. But around half of the visitors perceive protected areas as restrictive for recreation and outdoor sports. However, this does not imply that for these visitors protected areas are not attractive – they indicate even higher importance of protected areas in the destination choice. Apparently, most visitors accept the restrictions willingly.

Relevance

To assess the relevance of protected areas, the importance of protected areas in the overall destination choice of visitors and the recognition of different protection categories has been analyzed. To the question of how important the existence of protected areas generally is for their choice of holiday or day trip destination, 48% of the interviewed visitors in the German test site stated that it is very important and 31% that it is rather important (see TABLE 2). In the Austrian test site 34% of the interviewed visitors stated that the existence of protected areas is very important and 32% that it is rather important for their choice of destination.

Protected areas in the choice of destination	Falkenstein, Germany (n= 294)	Schneeberg, Austria (n= 216)
	%	%
very important	48	31
rather important	31	33
rather unimportant	18	31
not important at all	3	5

TABLE 2: Protected areas in the destination choice (in percent).

Two thirds of the visitors of both test sites stated that protected areas play a very important or important role in their choice of day trip or holiday destination, which indicates a high relevance of protected areas in the destination branding. Protected areas are apparently relevant and attractive for the visitors.

The visitors were also asked about their recognition of the various categories of protected areas (see FIGURE 3). The best known categories turned out to be “Nature Reserve” and “National Park”. The visitors were also fairly familiar with the categories “Protected Landscape” and “Natural Monument”. However, the category “Natura 2000 Site” was unknown to the majority of the visitors. For 85% of the respondents in the German test site and for 56% of the respondents in the Austrian test site this category is unknown. Only for 9% of the visitors this category is well-known in Germany and for 23% in the Austrian test site.

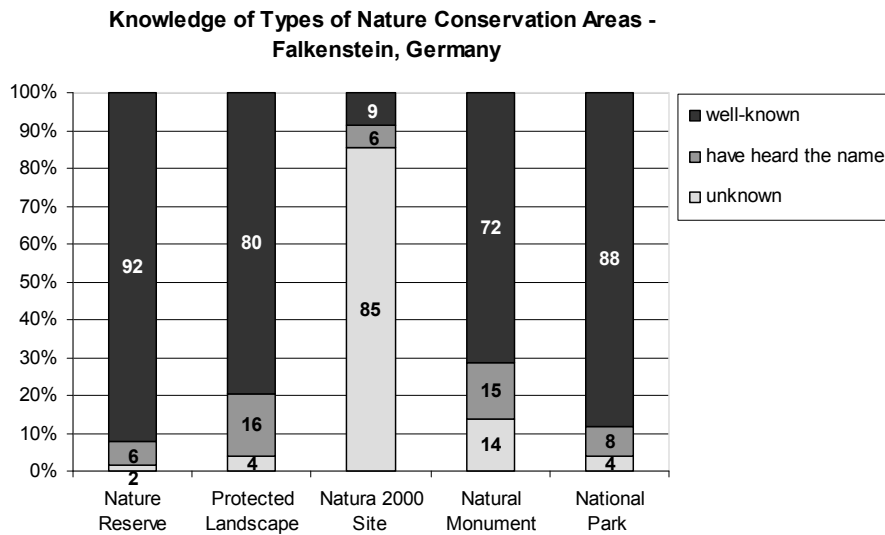


FIGURE 3a: Knowledge of Types of Nature Conservation Areas in Falkenstein, Germany (n= 286).

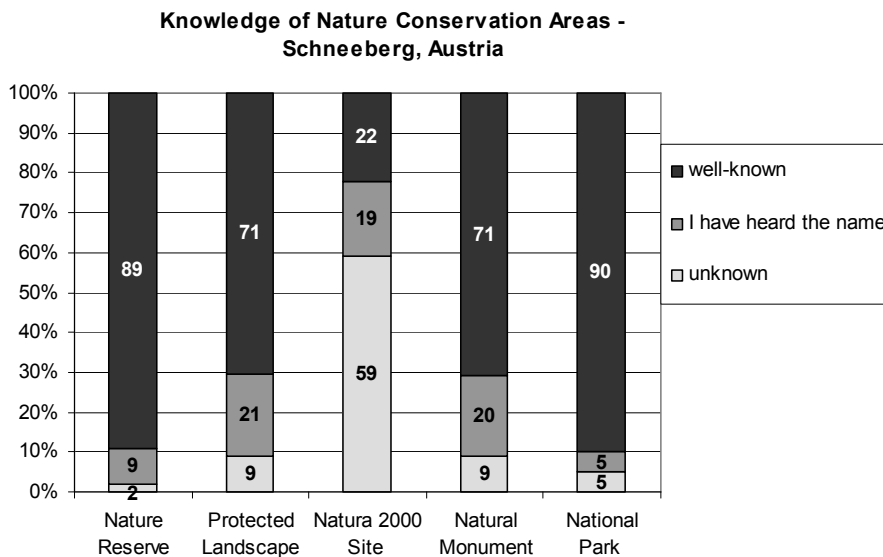


FIGURE 3b: Knowledge of Types of Nature Conservation Areas in Schneeberg, Austria (n= 211).

This deficit of knowledge regarding Natura 2000 by the vast majority of respondents is absolutely striking and documents a large information deficit among both tourists and recreation seekers. Also striking is the different degree of familiarity with Natura 2000 in the German and the Austrian test sites. The distinction of clientele might explain the higher recognition of Natura 2000 in Austria: visitors of “Schneeberg”, a higher Alpine area, seem to be more interested in nature. Austria might also have a superior informa-

tion policy. The lack of name recognition contrasts with the demands for successful brand positioning.

DISCUSSION

The controversial results on the performance of Natura 2000 for brand positioning are summarized in TABLE 3 and discussed below.

Modules	Core demands for brand positioning	Performance of Natura 2000
Functional attributes	- Deliverable (service or product must justify positioning)	√
	- Defendable (cannot be copied easily)	√
Emotional attributes	- Possible to communicate	√
	- Compatible with the overall concept	√
Benefit	- Relevant for target group	(√)
	- Attractive for target group	(√)
	- Authentic for the target group	(√)
	- Conveying salient ideas	√
	- Differentiating in the competition	√

TABLE 3: Performance of Natura 2000 in the brand positioning (based on interviews in test sites and literature analysis (KLEIN-BÖLTING & MASKUS 2003 and MORGAN & PRITCHARD 2005, modified).

√= requirements fulfilled
 (√)= partly fulfilled

The results clearly show that Natura 2000 performs well regarding the functional and emotional attributes. Natura 2000 sites even carry some advantages compared to other protected areas because of the Europe-wide distribution of Natura 2000 and the consistent logo used throughout the EU. Some similarities exist with other forms of protected areas such as national parks. They are seen as a guarantee of an intact natural landscape and convey a positive image for the region. National parks are sparse and thus enjoy a monopoly position in the market; they are not transferable or imitable because of the legal status and can extend the season (JOB *et al.* 2005:18-19).

But in contrast to the national park protection category that is fairly well known by the majority of visitors, the label Natura 2000 is unknown to most visitors. Because of the low degree of name recognition, the performance of Natura 2000 is low regarding the benefits for the visitors; Natura 2000 cannot be called relevant, attractive and authentic for the target group. This also weakens the other attributes. In contrast to the working hypothesis that Natura 2000 has the potential to contribute to a unique selling proposition of tourism destinations, the answers of tourists and recreation seekers show that at the moment Natura 2000 cannot contribute to destination branding because of the extremely low degree of name recognition and background knowledge. Similar effects are known from studies which were analyzing different types of protected areas. Based on a differentiated evaluation of several case studies, JOB *et al.* (2005:82) even sees nature parks as too diffuse to use as label. MEHNEN & MOSE (2007:2) however state that although nature parks are not actively recognized, they can give a positive image to a region. But to be successful with tourism in protected areas certain critical factors must be fulfilled, among them a consistent marketing strategy (SIEGRIST 2007).

Protected areas which are more well-known do fulfill the requirements to be relevant, attractive and authentic for the target group. Especially national parks or nature parks are increasingly used in destination branding. JOB *et al.* describe national parks as "officially sanc-

tioned unique selling propositions" (2005:18) which provide a unique competitive advantage. The survey results show that protected areas do have large potential for destination branding in the Alpine region if their ideas and concepts are communicated in a more sophisticated manner.

This study faces some limitations. Due to the questionnaire design the impact of protected areas on the destination choice as well as the agreement on the statements may be over-estimated. But the results still show a relevant impact. Also, the comparison with other studies show that similar trends exist in other regions: see for example KELLY *et al.* (2007), BRAU & CAO (2005), ENGLUND (2005), and BMLFUW (2005). Furthermore, the different sampling methods in the Austrian test site for winter and summer may have introduced a certain bias in the data. However, these different approaches were necessary due to climate conditions; it was too cold to conduct oral interviews in winter. There were no significant differences found between the survey groups, except regarding Natura 2000 as a sign of quality. This effect may be explained by the different visitor groups; the winter survey contained mostly ski tourists, a group that is more focused on their sport activity. Finally, the visitor structure in both test sites is very different. This makes the samples less comparable. However, there were not any significant differences found between locals, recreation seekers and tourists. A possible explanation is that the questions targeted general behavior, knowledge and attitudes of the visitors.

CONCLUSIONS

The study results show a large potential for protected areas, especially for well-known categories to be used as marketing and branding vehicles for tourism and recreation promotion. The main motives of tourists and recreation seekers in Alpine Natura 2000 study areas are to experience nature and landscape. Furthermore, tourists and recreation seekers state that protected areas are important in their destination choice. Also the majority of tourists' and recreation seekers' attitude is favorable towards protected areas; they perceive them as a sign of quality in a given region. In contrast to the experiences with land owners and farmers, protected areas have a positive image for tourists and recreation seekers.

Natura 2000 possesses some important requirements but it is still unknown among most tourists and recreation seekers and so strongly limited in the performance for branding and marketing tourism destinations. Natura 2000 could be built slowly as a brand, step by step. Overall, a positive attitude towards protected areas in general and also towards Natura 2000 exists in the tourism branch (GARBE *et al.* 2005).

To introduce Natura 2000 as a sole brand would require an EU communication strategy to promote its vision and benefits. If this is not the case, cooperation with nature based tourism destinations seem very useful and could lead to a win-win situation: Natura 2000 would become known to a wider range of people, raising awareness among the citizens and tourism destinations which on their part could make use of a supporting sign of quality. Within such cooperation, attention has to be paid that services and products using the Natura 2000 sign and logo reach a quality standard which is compatible with the aims of Natura 2000. Otherwise, there is a danger of losing the newly achieved credibility or of not even being able to establish a credible label - not even for the conservation purposes of the label and concept. Therefore, the following recommendations and requirements for practice can be derived. They are addressed to local and regional tourism organizations as well as to managers of Natura 2000 sites and planners in charge of the management planning.

RECOMMENDATIONS FOR PRACTICE

A better promotion of the concept Natura 2000 would be the precondition to correct the deficits identified above and make Natura 2000 more relevant, attractive, authentic and differentiating for visitors of a destination. To increase the opportunities for the Natura 2000 concept in the destination marketing and branding it would be necessary to change the communication policy on Natura 2000 on different levels. The vision and benefits of the concept need to be more strongly promoted, and there is urgent need for better public relations. The first approaches of tourism destinations using Natura 2000 can be classified into the following types (see TABLE 4).

Instruments to increase mutual benefit of Natura 2000 and tourism	Description of good practice examples	Relevance for brand positioning
Recreational infrastructure	Information centers using the logo and providing information on Natura 2000; playgrounds presenting species protected by Natura 2000; information trails with platforms	++
Publications and advertising	Tourism brochures explaining aims of Natura 2000 in the tourism destination	++
Web sites	Natura 2000 name and logo included in web sites of the community and tourism destination	++
Work camps	Work camp offers to help managing special Natura 2000 habitats and species	++
Events	Communicating Natura 2000 in the destination in tourism events like exhibitions, competitions, election of a "Hay - Queen"	+++
Products	Regional Products using a regional label and the Natura 2000 label as sign of quality	+++
Cooperative projects	Projects including Natura 2000 in the tourism marketing strategy; Projects communicating aim of Natura 2000 in general and on site	+++

TABLE 4: Instruments to increase mutual benefit of Natura 2000 and tourism, own compilation (+++ = high relevance for brand positioning, ++ = medium relevance, + = low relevance).

TABLE 4 illustrates different types, opportunities and examples of promoting the concept of Natura 2000 which have been developed recently by tourism destinations. Furthermore, their impact on a positive destination branding is highlighted. An adequate level of service and product quality has to be ensured in order to establish a credible label. A valuable first step would be the exchange of examples of good practice, because so far no studies exist on effects of this kind of cooperation in the field of Natura 2000.

Recreational infrastructure can be used to communicate the Natura 2000 concept; information centers and information trails can use the Natura 2000 name and logo and provide information on vision and benefits. In a children's playground those species that are protected by the respective Natura 2000 site can be presented in large scale to play with (planned in the German test site "Falkenstein"). Using this instrument, the degree of name recognition among tourists and recreation seekers can be increased and it is also possible to address the emotional benefits for visitors. Tourism brochures can include the logo and name of Natura 2000 as a sign of quality of the community or region and also provide information of Natura 2000's aims and benefits. This means of communication reaches a broad audience, but does not motivate very much (EUROPEAN COMMISSION 2004) so there is a medium relevance for the destination branding. Also web sites of communities or tourism destinations as well as hotels, pensions and other suppliers can include the Natura 2000

logo and name. The relevance for brand positioning is medium; web sites are becoming more important for the information search for a holiday destination and the actual target group can be reached. But still not everybody is connected to the internet and Natura 2000 is only partly recognized being not the main focus of research in the internet.

Volunteer camps can create an emotional attachment and increase the understanding of Natura 2000 habitats and species (SUCHANT & BRAUNISCH 2004:7). But the target group that can be reached is relatively small. Mainly young and active persons can be reached – they can serve as multipliers and future promoters, however.

With tourism events it is possible to reach larger groups; it is easier to raise emotions and reach the main attention of tourists and recreation seekers. In Pfronten, Germany, concept, aims and specific local requirements of Natura 2000 have been communicated in the frame of the “hay festival” that was focused on diverse alpine meadows predominately situated in Natura 2000 sites.

Environmentally sensitive goods (e.g., food, traditional products) produced in coherence with the aims of the Natura 2000 site can be branded using both a regional label and the Natura 2000 logo as complementing sign of quality. Further examples exist in different European countries (TEN BRINK *et al.* 2002). This instrument has a high relevance for destination marketing and branding because a product of the respective region can make the destination experience tangible. The visitors can also take a souvenir back home.

Most relevant for the brand positioning are cooperative projects of tourism and nature conservation organizations. These projects mostly pursue a broad communication strategy where different means of communication are applied. Also the emotional dimension is included; this aspect is important to build up a brand personality. The LIFE project “Natura Trails” in Austria, initiated by the “Naturfreunde” organization is a trail network leading through protected areas –also Natura 2000 sites – providing nature experience and explaining the aims of the respective protected area (LICHTENECKER 2004). Main means of communication of this project are web sites, publications, and recreational infrastructure. In the project “Tal der Sinne” (valley of senses) in Füssen, Germany, it is planned to include the Natura 2000 name and logo as sign of quality into a tourism marketing concept for one part of the town and its local tourism offer. Planned means of communication are web sites, publications, recreational infrastructure on site, and events. The above mentioned examples and their successful implementation show potential for a win- win situation where Natura 2000 can reach a broader audience and tourism destinations have a supporting sign of quality at their disposal.

REFERENCES

- BIEGER, T. (2006). *Management von Destinationen*. Oldenbourg Verlag, München.
- BRAU, R. & CAO, D. (2005). *Uncovering the Macrostructure of Tourists' Preferences. A Choice Experiment Analysis of Tourism Demand to Sardinia*. Working Papers 2005/14, Centro Ricerche Economiche Nord Sud.
- BUNDESAMT FÜR NATURSCHUTZ (BfN)(2007). *Zum Stand der Umsetzung von Natura 2000 in Deutschland*. Retrieved 14 June 2007 from: http://bfm.de/0316_gebiete.html
- BUNDESMINISTERIUM FÜR LAND- UND FORSTWIRTSCHAFT, UMWELT UND WASSERWIRTSCHAFT (BMLFUW) (ed.) (2005). *Schutzgebietstourismus in Österreich, Ausgangssituation, Tendenzen, Effekte*. Wien.
- COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
- COUNCIL DIRECTIVE 79/409/EEC of 2 April 1979 on the conservation of wild birds.
- ELMAUER, T.; KNOLL, T.; PRÖBSTL U. & SUSKE, W. (2005). *Managementplanungen für Natura 2000 in Österreich*. In: *Naturschutz und Biologische Vielfalt*, 26, p. 269-286.

- ENGLUND, K. B. (2005). Integrating GIS into Choice Experiments: An Evaluation of Land Use Scenarios in Whistler, B.C. (Master Thesis). Simon Fraser University, Burnaby, BC.
- EUROPEAN COMMISSION (2004). LIFE-Nature: communicating with stakeholders and the general public. Best practice examples for Natura 2000. Office for Official Publications of the European Communities, Luxemburg.
- GARBE, C.; PRÖBSTL, U.; MEYER, M. & RÄTH, B. (2005). Natura 2000 und nachhaltiger Tourismus in sensiblen Gebieten. BfN-Skripten, 134.
- GETZNER, M. & JUNGMEIER, M. (2002). Conservation policy and the regional economy: the regional economic impact of Natura 2000 conservation sites in Austria. In: Journal of Nature Conservation, 10, p. 25-34.
- JOB, H.; HARRER, B.; METZLER, D. & HAJIZADEH-ALAMDARY, D. (2005). Ökonomische Effekte von Großschutzgebieten. Untersuchung der Bedeutung von Großschutzgebieten für den Tourismus und die wirtschaftliche Entwicklung der Region, BfN-Skripten, 135.
- KELLY, J.; HAIDER, W.; WILLIAMS, P. W. & ENGLUND, K. (2007). Stated preferences of tourists for eco-efficient destination planning options. In: Tourism Management, 28:2, p. 377-390.
- KLEIN-BÖLTING, U. & MASKUS, M. (2003). Value Brands. Markenwert als zentraler Treiber des Unternehmenswertes. Schäffer- Poeschel Verlag, Stuttgart.
- KÜPFER, I. (2000). Die regionalwirtschaftliche Bedeutung des Nationalparktourismus untersucht am Beispiel des Schweizerischen Nationalparks. Nationalparkforschung Schweiz, Heft 90.
- LEIBENATH, M. & BADURA, M. (2005). Manual for the Evaluation of Natura 2000 sites in economic terms. TU Dresden. Retrieved June 16, 2007 from: www.tu-dresden.de/ioer/PDF/PublikPDF/Natura2000_engl.pdf.
- LICHTENECKER, A. (2004). Kampagnen-Info Sonderausgabe. Pilotprojekt: „Natura Trails in Österreich“. [online] Naturfreunde Internationale. [cited May 25, 2007]. Available from World Wide Web: www.nfi.at/index.php?option=com_content&task=view&id=47&Itemid=92.
- LIPING, A. C. (2002). Cooperative Branding For Rural Destinations. In: Annals of Tourism Research, 29:3, p. 720-742.
- MANSFIELD, Y. (1992). From Motivation to Actual Travel. In: Annals of Tourism Research, 19, p. 339-419.
- MEHNEN, N. & MOSE, I. (2007). Naturparke in Deutschland – unerkannte Imageträger für die Regionalentwicklung [online]. Vortrag auf der Tagung „Erlebniswelt Naturpark – Werte und regionalökonomische Effekte“ in Bildein (Burgenland), 23. – 24. Retrieved April 05, 2007 from: <http://www.naturparke.at>.
- MORGAN, N. & PRITCHARD, A. (2005). Meeting the destination branding challenge. In: Morgan, N. & Pritchard, A.: Destination Branding: Creating the Unique Destination Proposition. Elsevier, Amsterdam, 2nd edition.
- MUNDT, J. (2001). Einführung in den Tourismus. Oldenbourg Wissenschaftsverlag, München, 2. Auflage.
- PECHLANER, H. (1998). Strategisches Management und Marketing von Destinationen im Alpenraum. In: Keller, P. (ed.). Destination Marketing. Marketing de destination. Destinationsmarketing. Reports, 48th Congress 1998, Marrakech (Morocco), Editions Aiest, St. Gallen.
- PRÖBSTL, U. (2006). Tourism marketing for protected areas under the constraints of nature conservation. In: Job, H. & Li, J.. Natural Heritage, Ecotourism and Sustainable Development - Potentials and Pitfalls for China, 45, p. 87-94; Verlag Michael Lasseben

- Kallmünz/Regensburg. Münchner Studien zur Sozial- und Wirtschaftsgeographie, München.
- PRÖBSTL, U. (2005). Tourismusmarketing für und mit Schutzgebieten. In: Pröbstl, U.; Sterl, P. & Wirth, V.. Tourismus und Schutzgebiete – Chance oder Hemmschuh, am 24. und 25.11.2005, Wien, 16-17, Wien.
- RITCHIE, R.J.B. (1998). The Branding of Tourism Destinations – Past Achievements & Future Challenges. In: Keller, P. (ed.). Destination Marketing. Marketing de destination. Destinationsmarketing. Reports, 48th Congress 1998 Marrakech (Morocco), Editions AIEST, St. Gallen, 89-116.
- SAUER, A.; LUZ, F.; SUDA, M. & WEILAND, U. (2005). Steigerung der Akzeptanz von FFH-Gebieten. BfN- Skripten, p. 144.
- SCHERHAG, K. (2003). Destinationsmarken und ihre Bedeutung im touristischen Wettbewerb. Dissertation an der Universität Trier. Josef Eul Verlag, Lohmar.
- SIEGRIST, D. (2007). Erfolgsfaktoren des Tourismusmanagement in Grossschutzgebieten. [online]. Vortrag auf der Tagung „Erlebniswelt Naturpark – Werte und regionalökonomische Effekte“ in Bildein (Burgenland), 23. – 24. Retrieved April 05, 2007 from: <http://www.naturparke.at>.
- SUCHANT, R. & BRAUNISCH, V. (2004). Raufußhühner und Tourismus in Natura 2000 Gebieten. Leitlinien für eine Integration von Naturschutz und Naturnutzung. Forstliche Versuchs und Forschungsanstalt Baden-Württemberg.
- SUDA, M.; SAUER, A.; LUZ, F.; DETTWEILER, G. & BECK, R. (2005). FFH – Schlüssel zur Kooperation oder Motor von Konflikten? BfN- Skripten, p. 159.
- SWARBROOKE, J. & HORNER, S. (1999). Consumer behaviour in Tourism. Butterworth-Heinemann, Oxford.
- TEN BRINK, P.; MONKHAUSE, C. & RICHARTZ, S. (2002). Background Report for European Conference on „Promoting the Socio-Economic Benefits of Natura 2000“, Brussels, 28-29 November, 2002.
- WEIXLBAUMER, N.; GAMPER, C. & GRUBER, K. (2007). Bedeutung der Naturparke Burgenlands für den Tourismus und die wirtschaftliche Entwicklung der Region. Institut für Geographie und Regionalforschung der Universität Wien, Wien.
- WWF-DEUTSCHLAND (ed.) (1999). Nationalparke – Bundesweite EMNID- Umfrage Mai 1998. In: Liebmann, F. & H.-U. Rösner: Die Bedeutung von Nationalparks für den Tourismus. Reihe Nationalparke der Umweltstiftung WWF-Deutschland, Band 7.

ACKNOWLEDGEMENTS

This study has been conducted within the frame of Interreg IIIB Project AlpNaTour and received funding of the European Regional Development Funds (ERDF).

Information Needs and Channel Preferences of Hikers

Yu-Lan Yuan¹ & Chi-Chuan Lue²

Department of Sports and Leisure Studies No. 1, Sec.2, Da Hsueh Rd., Shoufeng, Hualien 97401, Taiwan, R.O.C. E-mail: yoyo@mail.ndhu.edu.tw¹, cclue@mail.ndhu.edu.tw²

Keywords: Information seeking behavior, communication channels, information needs, hikers, recreational experience, visitor management, forest areas

Abstract: Understanding the uses of communication channels in relation to information needs will enable forestry managers to deploy better information campaigns and to deliver education programs more effectively. This study examined the perceived usefulness of communication channels in relation to 11 types of hiking-related information needs (HIN) against different characteristics of hikers. The perceived usefulness of each communication channel for 11 types of HIN differed significantly with respect to hiking status, region of residence, and expertise. Overall, friends and relatives were identified as the most useful communication channels in fulfilling 5 types of HIN, including seeking a companion for planning hiking trips, information sources for hiking knowledge and skill, extending hiking experiences, sharing hiking knowledge and skills, and gaining knowledge and firsthand experience on equipment and gadgets. The internet was identified as the most useful communication channel for weather information. In terms of degree of expertise, respondents with a higher level of expertise were more inclined to obtain information from organized groups/clubs than those with less expertise, who were more inclined to obtain information from the internet. Also, respondents with a high level of expertise rated the internet as the most useful communication channel, over friends/relatives, in obtaining hiking route related information. On the contrary, respondents with less expertise

Zusammenfassung: Das Verständnis um die Nutzung verschiedener Kommunikationskanäle im Verhältnis zum Informationsbedarf befähigt Manager von Waldgebieten, verbesserte Informationskampagnen zu lancieren und effektivere Bildungsprogramme zu entwickeln. Diese Studie untersuchte die wahrgenommene Nützlichkeit verschiedener Kommunikationskanäle im Vergleich zu elf Formen von wanderbezogenen Informationsbedürfnissen (hiking-related information needs - HIN) und verschiedenen Typen von Wanderern. Die wahrgenommene Nützlichkeit jedes Kommunikationskanals für die elf HIN-Typen unterschied sich beträchtlich in Bezug auf ihren Wanderstatus, das Einzugsgebiet und die Fachkenntnis. Insgesamt sind Freunde und Bekannte als die nützlichsten Kommunikationskanäle identifiziert worden. Sie erfüllen fünf Bedürfnisse (HIN): Begleitung für die Planung eines Wanderausflugs, Informationsquelle für Wanderwissen und -fähigkeiten, Ausweiten von Wandererfahrungen, Teilen von Wanderwissen und -fähigkeiten, Aneignung von Wissen und Erfahrung aus erster Hand bzgl. Ausrüstung und Geräten. Das Internet zeigte sich als die nützlichste Quelle für Informationen über das Wetter. In Bezug auf den Grad der Fachkenntnis neigten die Antwortenden mit einer grösseren Fachkenntnis eher dazu, sich Informationen über organisierte Gruppierungen/Vereine zu beschaffen, als diejenigen mit einer geringeren Fachkenntnis. Diese stützten sich eher auf die Informationsbeschaffung via Internet. Antwortende mit einer grossen Fachkenntnis

rated friends and relatives more useful. In terms of region of residence, respondents that lived outside of the southern region of Taiwan were more inclined to use the internet and organized groups/clubs to obtain hiking related information than those that lived within the southern region. Forestry managers and outdoor activity programmers should take these findings into account when they attempt to influence choice and behavior through provision of information. First, the internet is not used equally among hikers. It is also not effective in delivering every type of hiking-related information. Extra effort will be needed to make the internet reach the expectations of users. Second, hiking programs that stress bringing families and friends together should be developed to attract hikers. Third, small workshops and training programs to target people who act as leaders during hiking might be a more effective way to reach this type of hiker and help them advance their understanding of hiking.

gaben das Internet als die nützlichste Informationsquelle für Wanderrouten an, während von denjenigen mit geringerer Fachkenntnis eher Freunde und Verwandte beigezogen wurden. In Bezug auf das Einzugsgebiet konnte festgestellt werden, dass Besucher, die von ausserhalb der südlichen Region Taiwans anreisten, eher das Internet und organisierte Gruppen/Vereine kontaktierten, um wanderbezogene Informationen zu erhalten, als Leute aus dem Süden. Manager von Waldgebieten und Outdoor-Anbieter sollten diese Erkenntnisse berücksichtigen, wenn sie versuchen, die Wahl des Kommunikationskanals und das Verhalten über die Informationsvermittlung zu beeinflussen. Einerseits wird das Internet unter den Wanderern nicht durchgängig gleich verwendet; andererseits ist es auch nicht für jede Art von wanderspezifischer Information geeignet. Zusätzliche Massnahmen werden notwendig sein, damit das Internet die Erwartungen der Nutzer erfüllt. Zweitens sollten Wanderprogramme entwickelt werden, die auf kleinere Gruppen (Familien und Freunde) fokussiert sind, um Wanderer anzuziehen. Drittens wird vorgeschlagen, kleine Workshops und Trainingsprogramme anzubieten, die sich an Personen richten, welche die Funktion eines Wanderleiters übernehmen. Dies könnte ein effizienter Weg sein, diesen Wandertyp zu erreichen und im Vorfeld zu einem besseren Verständnis für das Wandern beizutragen.

INTRODUCTION

Hikers have a number of possible information sources they can access when deciding which actions to take during their hikes. Human recreation behaviors relating to leisure research in information behavior have improved understanding of the effect, sources, and availability of recreational information (ROGGENBUCK 1992; SCHREYER *et al.* 1984; MANFREDO 1988). Understanding information needs and how communication channels are used to obtain information is the basis of wilderness recreation management for guiding and changing user attitudes and behaviors (ROGGENBUCK 1992; STEWART *et al.* 2000). However, the effectiveness of communication channels can vary significantly across diverse user groups. For example, studies of minimum impact practices and subsequent behavior found that the use of single on-site communication channels for message delivery could only reach limited audiences since not all user groups paid equal attention to onsite messages (COLE *et al.* 1997).

Scholars (JOHNOSON 1997; DERVIN 1997; TALJA *et al.* 2000) have proposed that the process of seeking and demanding information occurs within a context and must be understood as influenced by that context. Hiking in a wilderness involves a unique context of constantly changing trail conditions, weather and wildlife. Consequently, to enjoy the experience of hiking it is crucial that hikers understand what information is available and via which channels. However, previous studies have found that insufficient information provision by forestry managers was the most frequent complaint among hikers; and hikers perceived hiking-related information often as being difficult to obtain (YUAN & LUE 2007).

Surprisingly, few studies have examined information needs and searching behaviors of hikers (MCDONOUGH 1986; STYNES 1986), and existing ones mainly focused on the effects of specific channels for informing, persuading, and initiating behavior change (ROGERS & STOREY 1987; CONFER *et al.* 2000; COLE 1998) as well as on information usefulness (STEWART *et al.* 2000), and on information collection style (RAMTHUN *et al.* 2000). Much of the previous research has focused primarily on situations that only considered subjects as passive recipients of information.

Based on these concerns, this study investigated the following questions:

- What communication channels do hikers with different degrees of expertise prefer to use in fulfilling their hiking-related information needs?
- Does the usefulness of each communication channel in relation to information needs differ among different types of hikers?
- Has the mass diffusion of internet technology influenced the information search behavior of hikers?

Therefore, the objective of the study was to examine the relationships between the different characteristics of hikers and their perception of the usefulness of different types of communication channels in fulfillment of various information needs.

Information Seeking and Communication Channel

Extensive research exists on information needs and information searching behavior. However, few studies have examined such behavior in the context of outdoor recreation. This study incorporated the concept of serious leisure into the information behavior model proposed by WILSON (2000). WILSON (2000) defined information seeking behavior as the behavior of an individual purposefully "seeking for information as a consequence of a need to satisfy some goals" (p. 49). WILSON further stressed that the needs arise in specific contexts, which "constitute necessary conditions for achieving sufficient understanding of information needs and seeking phenomena" (VAKKARI *et al.* 1997:9), i.e. the manner in which desired information is sought. This definition identified a three-fold understanding of information seeking: hiker context, communication channels employed by hikers to satisfy needs for hiking-related information, and hiker involvement.

Information seeking in the context of hiking

Context provides a frame of reference for the hiker information seeking behavior that is the subject of this study. This study considers two aspects of context. First, information seeking behavior is referred to as “behavioral pattern” which is influenced by problem saturations and communities (TALJA *et al.* 1999). Hikers have differing levels of contentment with information provision depending on the situation they are in. The situations faced by hikers include frequent changes in landscape, vegetation, and weather. Such situations are not only making hiking a highly challenging outdoor recreation activity, but also one that requires appropriate equipment and is associated with considerable risk and uncertainty. Information seeking is undertaken when individuals sense the need to reduce uncertainty (ATKIN 1973) and to improve their understanding of the environment (DERVIN 1983). External information is thus needed to solve problems (LOVELOCK & WEINBERG 1984) and overcome constraints (ANDERSON 1987; COBLE & SELIN 2003) in response to situation-specific information needs (DERVIN 1981). Generally, hiking requires a certain degree of outdoor knowledge and skill as well as familiarity with the condition of the trail, which are the main concerns in information seeking (ERNEST *et al.* 2005). Additionally, individuals require information on directions, trail condition and length, choosing appropriate equipment (STEWART *et al.* 2000), safety (STEWART *et al.* 2000; YUAN & LUE 2007), facilities and their location as well as the enrichment of cultural and ecological understanding (YUAN & LUE 2007) that would maximize the quality of the hiking trip.

Second, communication is mediated by social and cultural meanings and values (TALJA *et al.* 1999). Restated, the reference group (e.g., members of hiking organizations/clubs) can also influence hiker communication patterns. Hiking is a social activity for many hikers, i.e. it involves meeting others, sharing experiences, and being part of a network. For most hikers hiking is not about experiencing nature but rather forming social bonds and enjoying social interaction. Hiking trips thus are often planned during other non-hiking social gatherings. Information regarding hiking partners, trail conditions and new information on appropriate hiking equipment might be obtained on such occasions (LUE 2006).

Communication Channel and Utility

People plan recreational trips by searching for information obtained from various communication channels (FONDESS & MURRAY 1999). Hiking information can be accessed on site and off site through various communication channels. Communication channels can be classified into two categories: “direct contact” and “mediated” (CASE 2002). Direct contact describes face-to-face interactions with others, including personal conversations and guided tours. Information can be recorded and delivered via various formats, including CD, booklet, brochures, electronic media, and so on, all of which are considered to be mediated communication channels. The 15 communication channels listed in TABLE 1 are commonly used in the outdoor recreation management.

TABLE 1: Classification of Communication Channels.

Communication Channel	On Site	Off Site
Directed	Interpreter Interaction with other hikers/tourists	Friends or relatives Organized groups/Clubs Sport shops Information center
Recorded	Brochures Guide book Booklet Signage Bulletin board	Tape/CD/Slide show Internet Books/Magazines Radio/TV

People actively select communication channels based on their utility (CHATMAN 1991). The utility of a communication channel thus determines its usefulness and importance in terms of fulfilling individual information needs (JOHNSON 1997). Therefore, hikers select communication channels based on how well they fulfill their information needs. CONFER *et al.* (2000) investigated the readership of different types of magazines and found that readers identifying themselves as wilderness users were more likely to read outdoor recreation magazines regularly, and also had more knowledge and awareness of Leave No Trace (LNT) practices than non readers. This study also indicated that various groups of users read different magazines as information sources; such as wilderness users read outdoor recreation (non-consumptive) magazines regularly; horse users read equine sports magazines. Evidence also demonstrates that there are significant differences in the patterns of communication channels used by outdoor recreationists to obtain information (RAMTHUN *et al.* 2000).

Involvement

STEBBINS (1992) stated that individuals who develop strong personal and behavioral commitment to a leisure activity are most likely serious about their participation. STEBBINS proposed that behaviors of pursuing casual and serious leisure differ in at least two ways. First, people who treat their leisure activities as serious pursuits tend to devote significant personal effort to acquiring special knowledge, training, and skills. Second, those who treat their leisure activities as serious pursuits tend to identify strongly with their chosen leisure activities (STEBBINS 1992). Accordingly, we hypothesized that serious hiking participants take a strong interest in their hiking pursuit that differentiates them from those who are less devoted to hiking.

The extent of personal effort a hiker devotes to engaging in hiking-related activities is known as their *involvement*, and is taken to indicate the "degree of importance or concern" (LOVELOCK & WEINBERG 1984:73) of hiking for that hiker. Hikers might intentionally seek information out of a need to satisfy various hiking-related information needs, which are recognized as a hiker perceived problematic situation (LOVELOCK & WEINBERG 1984; DERVIN 1981), such as planning a new route and knowing weather conditions. Hikers with high involvement in hiking are likely to be highly knowledgeable about hiking gadgets, equipment, and route conditions compared to hikers with less involvement. Highly involved hikers are also more likely to utilize different information sources than hikers with low involvement. Thus, serious hikers and dabblers in hiking differ in their patterns of information seeking and use of communication channels. Consequently, factors which influence involvement should be considered in examining the use of communication channels; those factors include expertise, commitment, and perceived status within a group (e.g., group "leader" versus "follower").

The use of communication channels is determined by expertise. Expertise is defined as "the ability to perform product related tasks successfully" (ALBA & HUTCHINSON 1987) or "the ability to solve problems" (SUJAN 1985). ALBA & HUTCHINSON (1987) suggested that expertise is a multidimensional concept composed of cognitive effort, cognitive structures, ability to analyze information, ability to elaborate on given information, and ability to remember information. Each concept itself is also a multidimensional construct. The complexity of expertise limited this study to focus on examining cognitive effort and cognitive structures as these two are increased with an increase of experience and knowledge.

Cognitive effort refers to the cumulating of experience and knowledge as well as learning. The degree of individual expertise results from the time and effort expended in pursuing a specific activity. The expenditure of more time and effort in pursuing hiking enables hikers to obtain more experience and knowledge. Hikers with different degrees of expertise may request different levels of information (e.g., general vs. detailed), for example, a backpacker in Yellowstone National Park who used an informational brochure published by the park had less backpacking experience in Yellowstone National Park than those who bypass the brochure (KRUMPE & BROWN 1982). Also, they might request the same information from different

communication channels, since hikers with a higher degree of expertise are more likely to know which channel offers rich and accurate information.

Previous research examined the degree of expertise by asking subjects to rate their knowledge related to others about the object of the study via a Likert scale (KERSTETTER & CHO 2004). The drawback of this approach is that subjects might either underestimate or overestimate their knowledge. This approach also did not properly indicate cognitive effort and cognitive structure. The time and effort spent in hiking might be a better alternative measurement to be tested.

Commitment indicates personal investments that bind individuals to consistently pursuing hiking as their favored leisure activity. People with a strong commitment to hiking tend to regard hiking as a central life interest. Hikers seriously involved in hiking might identify strongly with this pursuit and be psychologically committed to it.

Hikers frequently hike as a group. Generally, hiking groups comprise leaders and followers. Leaders are the ones making decisions while hiking and are responsible for planning hiking routes and watching over the safety of others, while the followers follow the lead of these leaders. Leaders, thus, have stronger commitment to and must have higher degree of expertise in hiking activity than followers. Followers have only a limited understanding of hiking. Hiking group members must coordinate and communicate efficiently to make their hiking trip enjoyable. KIRCHLER & DAVIS (1986) proposed that differences in status influenced the use of information in decision making. They found that high status individuals in a group reacted directly to information more than individuals playing more subordinate roles. This finding has important implications in relation to group dynamics. Restated, leaders and subordinate group members are likely to be concerned with identical information but assign different importance to it. Leaders and subordinate group members are also likely to obtain information from different communication channels.

MATERIALS AND METHODS

Study Setting

This study was conducted at the Da Wu Mountain Hiking Trail (DMHT) in cooperation with the Republic of China Forest Bureau. DMHT is located adjacent to the Da Wu Natural Reservation Area in southern Taiwan and is one of the most popular hiking trails in this area (FIGURE 1). The trail has a length of 8.7 kilometers, trail head elevation is around 1,500 meters above sea level, and the highest point is 3092 meters above sea level.

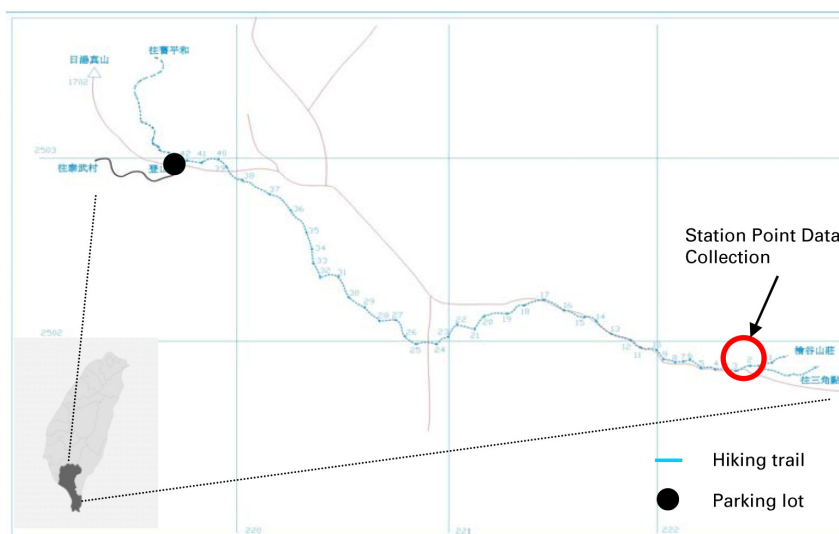


FIGURE 1: Location of the study site.

Sampling

The raining season and typhoon strongly influence visitor numbers and DMHT management. Heavy rain frequently causes closure of DMHT. To take this factor into account, sampling was performed from June 19, 2004 to March 31, 2005. Hikers were approached as they were setting out or entering the trail. Interviewers identified themselves as members of a research team who, in cooperation with the Forest Bureau, was conducting a user study for the hiking trail system. Interviewees were asked to provide contact information (i.e., name, addresses, and cell phone number) and invited to participate in the study. Data was collected on 42 different days, including 11 days during the rainy season (26.2%), and 31 days during the dry season (73.8%). Sixteen days were on weekends (38.1%) and 26 were on weekdays (61.9%). The sampling period lasted from 7:30 in the morning to 15:00 in the afternoon. A total of 1728 subjects were approached, 39 of whom (2.3%) refused to give contact information, while 164 (9.5%) were repeated visitors, and 117 (6.8%) were rangers and forestry workers. Thus, the contact information of 1408 subjects was collected and double checked to eliminate duplicates. After removing duplicates there were 1354 subjects to comprise the data sampling frame.

737 subjects were randomly drawn. The contact information was gathered over nine months; for instance, questionnaires were mailed out during three different time periods to avoid gradual dissipation of willingness to participate this study. The first mail-out was from September 1, 2003 to October 30, 2003, the second was from November 1, 2004 to January 15, 2005, and the third one was from January 16, 2005 to March 31, 2005. A three-step process (initial mailing, postcard follow-up, second mailing to non-respondents) was taken to maximize the return rate. These efforts resulted in 549 completed questionnaires, which represent a 74.5% response rate.

Data Collection

The survey instrument was a self-administered questionnaire comprising three sections, two of which are referenced in this study.

The second section focused on the use of communication channels. To assess the usefulness of communication channels in responding to 11 specific types of information needs, the instrument included eight categories of communication channels: organized groups/clubs, sports shops/specialized stores, friends/family members, mountaineer/hiker magazines, outdoor books, travel magazines, and the internet. Respondents were asked to identify the best or most useful communication channel for obtaining 11 specific types of hiking-related information needs, those types of information needs included: general hiking information, seeking companions for planning hiking trips, the primary information source of hiking knowledge and skill, opinion sources for planning a hiking trip, acquaintance of aficionados, extending hiking experience, sharing hiking knowledge and skills, gaining knowledge and firsthand experience on hiking gear and gadgets, obtaining the latest information about hiking gear and gadgets, weather information, and hiking route related information.

The third section of the questionnaire included questions on respondent involvement and socio-demographic characteristics, including gender, age, education, hiking style, and membership of hiking/backpacking organized groups/clubs, as well as the location of residence.

Degree of expertise: The degree of expertise was measured by three variables: "duration of participation", "frequency of participation", and "training":

1. Duration of participation - Knowledge and skills related to hiking are largely obtained during hiking; the longer a hiker pursues hiking, the more experience and knowledge he/she is more likely to have. The number of years spent pursuing hiking was used to measure the duration of participation.
2. Frequency of participation - The frequency of participation also affects knowledge and skill of hikers. The number of days spent hiking during the past year was used to measure the frequency of participation.
3. Training - Subjects were asked to identify whether or not they had intentionally devoted time to obtain hiking skills and knowledge by attending outdoor skill training camps/seminars.

Hiking status: The role of a hiker that affects his/her effort should be "Role adopted while hiking".

Commitment: Commitment has been shown to influence the effort devoted to pursuing a certain activity. In this study subjects were asked to identify the perceived importance of hiking in daily life as one of the following: 1) the only leisure pursue, 2) the most favorite leisure activity, 3) one of a number of leisure choices, 4) casual leisure pursuit.

Residence: The location of residence was surveyed because the development of regional infrastructure has an influence on the accessibility to communication channels, especially the internet. The region of residence question examined the differences between southern regions and non-southern regions. Counties and cities which are located on the south of Taichung province are called southern regions, which consist of Pindoun, Kaohsiung, Kaohsiung city, Chiayi, Yunlin, Zhanghua, Nantou, Tainan, Tainan city, and Taitung. Although in the two cities of Kaohsiung city and Tainan city the infrastructure is well-built and slightly above average, all eight counties are relatively ill-equipped with internet infrastructure and the internet literacy of residents falls behind the national average (RESEARCH, DEVELOPMENT AND EVALUATION COMMISSION 2007).

Data Analysis

The Statistical Package for Social Sciences was used to analyze the survey data. First, descriptive statistics were calculated for respondent profiling. Chi-square statistics were then employed for hikers who perceived hiking as a serious pursuit or casual leisure activity in order to examine differences in the use of communication channels.

RESULTS

TABLE 2 lists basic descriptive information regarding the respondents. Some 76.1% of respondents came from southern Taiwan. A significant proportion of respondents (32.3 %) spent 20 to 50 days hiking each year, with the next largest category comprising those who spent over 50 days hiking. Most respondents (60 %) acted as followers while hiking: Approximately 49 % had between 4 and 10 years of experience of hiking, while 22.7 % had over 11 years of experience. Over half of the respondents were not members of any organized groups/clubs (57.4 %), while 15.1 % were members of local organized groups/clubs, 15.1 % were members of company and college outing groups, and a further 12.4 % were members of national organized groups/clubs.

Variables	N	%	Variables	N	%
<i>Gender</i>			<i>Hiking style</i>		
Male	406	74.0	Solo	49	8.9
Female	143	26.0	With friends/family members	326	59.5
<i>Age</i>			Participated hiking organized via organized groups/clubs	115	21.0
Under 18	6	1.2	Participated hiking via commercial travel organizers	58	10.6
19-30	85	17.3	<i>The attendance of outdoor skill training camps/seminars</i>		
31-45	156	31.8	No	313	57.5
46-60	229	46.6	Yes	231	42.5
61 and over	15	3.1	<i>Years in pursuing hiking activity</i>		
<i>Education</i>			0-3	200	37.5
Senior high	73	13.4	4-10	212	39.8
Junior high	143	26.3	11-40	121	22.7
Technique school	122	22.4	<i>Memberships</i>		
College and beyond	206	37.9	None	315	57.4
<i>Residence</i>			Company or college outing groups	83	15.1
Southern region	418	76.1	Local organized groups/clubs	83	15.1
None southern region	131	23.9	National organized groups/clubs	68	12.4
<i>Hiking days in a year (days)</i>					
0-10	157	29.5			
11-20	100	18.8			
21-50	172	32.3			
51 and Over	103	19.4			
<i>Role taken during hiking</i>					
Leader/Assistant	216	49.8			
Follower	327	60.2			

TABLE 2: Profile of respondents.

TABLE 3 lists the usage of eight communication channels by respondents to fulfill their information needs. Friends/relatives were the primary information channel for all respondents for most information needs, with the exception of “acquaintance of aficionados” and “weather information”. The second most useful communication channel was organized groups/clubs, particularly for “general hiking information”, “seeking potential companions for hiking trips”, and “acquaintance of aficionados”, and as a channel acting as “the primary source of hiking knowledge and skill”. Over 45 % of respondents identified the internet as the best communication channel for obtaining weather information. The internet was also identified as the second most useful communication channel for obtaining information on the condition of “hiking route related information” and “general hiking information”. Unsurprisingly, numerous respondents identified sports shops as the second most useful source for gaining knowledge and firsthand experience on hiking gear and gadgets. TABLE 3 also reveals that the best place to make acquaintance of companions was during a hike.

Communication Channel	Making Sense				Seeking Answer					Social		
	A	B	C	D	E	F	G	H	I	J	K	
Organized groups/Clubs	22.1	24.6	21.3	28.8	14.4	12.2	10.5	18.9	31.0	26.9	18.5	
Sports shops	2.8	1.4	3.0	–	18.1	21.4	2.3	1.9	0.9	2.8	1.2	
During a hike	–	–	–	–	–	15.6	7.6	7.2	38.8	–	28.8	
Friends/Relatives	45.0	66.5	51.7	48.9	48.9	32.7	25.2	37.6	24.9	54.5	47.6	
Internet	22.1	4.6	9.5	9.5	8.3	12.2	46.3	27.4	0.7	8.1	3.2	
Mountaineer/Hiker magazines	3.7	2.0	4.9	4.2	4.9	5.1	1.4	4.9	0.0	4.7	0.0	
Travel Books/Magazines	2.3	0.6	4.8	0.4	4.8	–	–	–	–	–	–	
Others	1.9	0.4	1.8	1.6	0.5	0.7	6.7	1.9	3.7	1.9	0.4	

A: General hiking information	E: Gaining knowledge and first hand experience on hiking equipment and gadget	I: Acquaintance of companion
B: Seeking companion in planning stage	F: Hiking gear and gadget	J: Extending hiking experience
C: The primary information source of hiking knowledge and skill	G: Weather information	K: Sharing hiking knowledge and skill
D: Opinion sources for planning a hiking trip	H: Hiking route related information (trail condition, hiking distance/direction, and water source)	

TABLE 3: Use of communication channels to fulfill information needs.

Respondents who acted as hiking leaders and followers differed significantly in the use of communication channels to fulfill their information needs, including general hiking information, opinion, firsthand experience, understanding the newest hiking gear/gadget, weather information, and hiking route-related information (see TABLE 4). Respondents who acted as hiking leaders were more likely than those who acted as followers to use the internet to obtain general hiking information, weather information, and hiking route-related information. Such respondents were also more likely to use organized groups/clubs as their primary source of hiking knowledge and skills, and as the main source of opinions for planning hiking trips. Additionally, respondents who acted as hiking leaders were more likely than those who acted as followers to obtain firsthand experience and the most recent information regarding hiking gear/gadget via sports shops/specialized stores. Overall, those acting as followers were more inclined to rely on friends/relatives to fulfill their various information needs, except those related to weather information. Numerous respondents from both groups agreed that the best place of acquainting aficionados was while hiking.

Communication Channel	Leader (%)	Follower (%)	DF	Chi-square	P-value
General hiking information					
Organized groups/clubs	24.7	24.6	2	23.409	.000**
Friends/family members	38.9	57.3			
Internet	36.3	18.1			
Seeking companions as planning hiking trips					
Organized groups/clubs	29.0	23.4	2	2.060	.357
Friends/family members	66.4	71.6			
Internet	4.7	5.0			
The primary information source of hiking knowledge and skill					
Organized groups/clubs	32.8	21.4	2	11.025	.004*
Friends/family members	53.1	68.4			
Internet	14.1	10.2			
Opinion sources for planning a hiking trip					
Organized groups/clubs	39.7	29.6	2	11.505	.003*
Friends/family members	46.0	61.5			
Internet	14.3	9.0			
Acquaintance of aficionados					
Organized groups/clubs	35.9	30.7	2	3.631	.163
Friends/family members	22.0	29.2			
Hiking	42.1	40.1			
Extending hiking experience					
Organized groups/clubs	34.0	27.8	2	3.857	.145
Friends/family members	55.3	64.1			
Internet	10.7	8.2			
Sharing hiking knowledge and skills					
Organized groups/clubs	22.4	16.4	3	7.216	.065
Friends/family members	42.2	53.5			
Hiking	31.8	27.1			
Internet	3.6	3.0			
Gaining knowledge and firsthand experience on equipment and gadget					
Organized groups/clubs	19.1	14.5	3	8.948	.030*
Sports shops/specialized stores	24.2	17.7			
Friends/family members	45.9	59.5			
Internet	10.8	8.4			
Obtaining newest info about hiking gear and gadget					
Organized groups/clubs	13.9	12.3	4	12.298	.015*
Sports shops/specialized stores	26.9	19.8			
Friends/family members	26.9	39.9			
Hiking	20.2	14.2			
Internet	12.0	13.8			
Weather information					
Organized groups/clubs	15.3	11.4	2	7.366	.025*
Friends/family members	23.5	35.2			
Internet	61.2	53.5			
Hiking route related information					
Organized groups/clubs	23.4	22.4	2	11.720	.003**
Friends/family members	35.6	50.2			
Internet	41.0	27.4			

TABLE 4: Use of Communication channels by respondents with different hiking status to fulfill information needs.

Respondents living in southern and non-southern regions differed significantly in their use of communication channels to fulfill all aspects of their hiking-related information needs, as shown in TABLE 5. Generally, respondents living in the southern region were more likely to fulfill all of their hiking-related information needs by asking friends/relatives than those living elsewhere. In contrast, respondents living in non-southern regions were more likely to use organized groups/clubs to seek companions, acquaint aficionados, and increase the hiking experience, and share knowledge and skills than those living in the southern regions. Many of the respondents living in non-southern regions also identified this communication channel as being the primary source of information regarding hiking knowledge and skill. Over fifty percent of respondents living in non-southern regions even considered this channel the most useful source of information for planning hiking trips. Additionally, such hikers had low inclination to use sports shops/specialized stores to obtain knowledge and firsthand experience or the latest information regarding hiking gear and gadgets. Furthermore, the internet was used to obtain information regarding weather and hiking routes by the many respondents from both the southern and other regions; however, respondents from non-southern regions were more likely to obtain this information from the internet.

Communication Channel	None Southern Region (%)	Southern Region (%)	DF	Chi-square	P-value
General hiking information					
Organized groups/Clubs	33.3	22.0	2	23.462	.000**
Friends/Relatives	31.7	56.6			
Internet	34.9	21.4			
Seeking companions as planning hiking trips					
Organized groups/Clubs	41.4	20.6	2	25.947	.000**
Friends/family members	51.9	75.2			
Internet	6.8	4.2			
The primary information source of hiking knowledge and skill					
Organized groups/clubs	35.7	22.7	2	12.609	.002*
Friends/family members	48.7	67.1			
Internet	15.7	10.2			
Opinion sources for planning a hiking trip ⁽¹¹⁾					
Organized groups/clubs	52.1	26.9	2	32.974	.000**
Friends/family members	33.9	63.2			
Internet	14.0	9.9			
Acquaintance of aficionados					
Organized groups/clubs	47.3	28.3	2	25.992	.000**
Friends/family members	10.9	31.0			
Hiking	41.9	40.8			
Extending hiking experience					
Organized groups/clubs	41.3	26.5	2	12.787	.002*
Friends/family members	47.1	65.2			
Internet	11.6	8.2			
Sharing hiking knowledge and skills					
Organized groups/clubs	27.6	16.0	3	15.969	.001*
Friends/family members	37.3	52.1			
Hiking	29.1	29.5			
Internet	6.0	2.4			
Gaining knowledge and firsthand experience on equipment and gadget					
Organized groups/clubs	24.8	13.2	3	35.517	.000**
Sports shops/specialized stores	27.2	17.9			
Friends/family members	32.0	61.8			
Internet	16.0	7.0			
Obtaining newest info about hiking equipment and gadget					
Organized groups/clubs	14.8	12.4	4	27.282	.000**
Sports shops/specialized stores	33.6	19.3			
Friends/family members	20.3	39.4			
Hiking	11.7	18.1			
Internet	19.5	10.9			
Weather information					
Organized groups/clubs	14.9	12.1	2	22.142	.000**
Friends/family members	13.2	36.5			
Internet	71.9	51.4			
Hiking route related information					
Organized groups/clubs	26.5	22.5	2	38.262	.000**
Friends/family members	21.4	44.8			
Internet	52.1	32.6			

TABLE 5: Communication channels used by respondents living in different regions to fulfill information needs.

Respondents with different degrees of expertise also differed significantly in their use of communication channels. Generally, respondents with lower expertise were highly likely to ask friends/relatives for general hiking information, seeking companions, extend and share hiking experience and knowledge, and gain firsthand experience regarding hiking gear/gadget, and route-related information. Over 65% of respondents with low expertise also were heavily dependent on friends/relatives as the primary source of information regarding hiking knowledge and skills, and indicated it as the

most useful source of information when planning hiking trips (see TABLE 6). On the other hand, respondents with higher expertise were more likely to use organized groups/clubs to obtain the above mentioned information needs. Furthermore, the internet was used to obtain weather information by respondents. Notably, respondents with higher expertise were less likely to use the internet to fulfill their information needs. Additionally, respondents with lower expertise were more likely to use sports shops/specialized stores to obtain firsthand experience regarding hiking gear/gadgets.

Communication Channel	H (%)	M (%)	L (%)	DF	Chi-square	P-value
General hiking information						
Organized groups/clubs	31.9	23.0	18.4	4	9.876	.043*
Friends/Relatives	41.7	54.4	54.4			
Internet	26.4	22.6	27.2			
Seeking companion as planning hiking trips						
Organized groups/clubs	32.0	26.4	15.8	4	10.826	.029*
Friends/ Relatives	65.1	68.0	78.3			
Internet	3.0	5.6	5.8			
The primary information source of hiking knowledge and skill						
Organized groups/clubs	37.8	24.5	12.1	4	26.778	.000**
Friends/ Relatives	54.7	65.1	68.2			
Internet	7.4	10.4	19.6			
Opinion sources for planning a hiking trip						
Organized groups/clubs	46.8	30.2	20.0	4	23.761	.000**
Friends/ Relatives	43.0	59.0	67.8			
Internet	10.1	10.8	12.2			
Acquainting aficionados						
Organized groups/clubs	34.1	33.3	30.1	4	3.464	.483
Friends/ Relatives	23.5	24.7	32.5			
Hiking	42.4	42.0	37.4			
Extending hiking experience						
Organized groups/clubs	38.4	28.0	22.3	4	12.042	.017*
Friends/family members	56.7	61.2	66.1			
Internet	4.9	10.8	11.6			
Sharing hiking knowledge and skills						
Organized groups/clubs	23.7	17.1	15.5	6	12.691	0.48*
Friends/ Relatives	41.2	49.4	57.4			
Hiking	33.3	29.9	22.5			
Internet	1.7	3.6	4.7			
Gaining knowledge and first hand experience on equipment and gadget						
Organized groups/clubs	24.5	16.2	5.0	6	20.047	.003*
Sports shops/specialized stores	17.0	20.5	24.0			
Friends/ Relatives	50.3	54.6	59.5			
Internet	8.2	8.7	11.6			
Obtaining newest info about hiking gear and gadget						
Organized groups/clubs	19.6	10.0	9.8	8	14.918	0.61
Sports shops/specialized stores	23.8	22.1	22.8			
Friends/ Relatives	29.2	37.9	36.6			
Hiking	18.5	15.8	14.6			
Internet	8.9	14.2	16.3			
Weather information						
Organized groups/clubs	21.6	10.9	4.4	4	18.970	.001**
Friends/ Relatives	25.0	37.3	33.6			
Internet	53.4	55.7	61.9			
Hiking route related information						
Organized groups/clubs	30.7	21.0	14.4	4	15.983	.003*
Friends/ Relatives	33.3	47.7	55.0			
Internet	36.0	31.3	30.6			

TABLE 6: Communication channels used by respondents with different levels of expertise to fulfill information needs.

Hikers with different commitments only differed significantly in terms of sharing hiking knowledge and skills and route-related information. Hikers that identified hiking as their favorite activity shared their hiking experiences during hiking and in organized groups/clubs more frequently than those that only considered hiking to be a casual activity. Such respondents were more likely to perceive the internet as a useful source of information regarding hiking route condition (see TABLE 7).

Information sources	The most Favorite Activity (%)	Casual Leisure Pursuit (%)	DF	Chi-square	P-value
General hiking information					
Organized groups/clubs	27.9	21.8	2	2.806	.246
Friends/family members	47.4	53.6			
Internet	24.7	24.6			
Seeking companion as planning hiking trips					
Organized groups/clubs	28.3	23.3	2	1.753	0.416
Friends/family members	67.3	71.5			
Internet	4.5	5.2			
The primary information source of hiking knowledge and skill⁽⁸⁾					
Organized groups/clubs	29.7	22.0	2	3.789	.150
Friends/family members	59.9	65.3			
Internet	10.3	12.7			
Opinion sources for planning a hiking trip⁽¹¹⁾					
Organized groups/clubs	37.0	29.3	2	4.510	.105
Friends/family members	51.2	60.6			
Internet	11.8	10.0			
Acquainting aficionados					
Organized groups/clubs	31.9	33.5	2	5.655	.059
Friends/family members	22.6	30.1			
Hiking	45.6	36.5			
Extending hiking experience⁽¹³⁾					
Organized groups/clubs	32.5	27.8	2	1.409	.494
Friends/family members	59.0	62.5			
Internet	8.4	9.7			
Sharing hiking knowledge and skills					
Organized groups/clubs	17.6	20.1	3	8.877	.031*
Friends/family members	45.0	52.3			
Hiking	34.9	23.7			
Internet	2.5	3.9			
Gaining knowledge and first hand experience on equipment and gadget					
Organized groups/clubs	16.9	15.3	3	2.460	.483
Sports shops/specialized stores	20.6	19.8			
Friends/family members	51.6	57.3			
Internet	10.9	7.6			
Obtaining newest info about hiking equipment and gadget					
Organized groups/clubs	12.9	13.1	4	7.913	.095
Sports shops/specialized stores	21.6	24.0			
Friends/family members	31.4	38.2			
Hiking	20.8	12.4			
Internet	13.3	12.4			
Weather information					
Organized groups/clubs	15.1	10.6	2	2.201	.333
Friends/family members	29.3	32.2			
Internet	55.6	57.2			
Hiking route related information (road condition, hiking distance/direction, and water source)					
Organized groups/clubs	26.4	18.8	2	9.692	.008*
Friends/family members	37.9	51.9			
Internet	35.7	29.3			

TABLE 7: Communication channels used by respondents with different commitments to fulfill information needs.

Hikers that belonged to different groups/clubs differed significantly in the use of communication channels to fulfill various information needs. Respondents who were members of local organized groups/clubs and of company/corporate outing groups were more likely to use organized groups/clubs as their primary communication channels to obtain general hiking information. They were also more likely to use such groups/clubs as sources of information for planning hiking trips than those that belonged to national groups/clubs and those not belonging to any club. Respondents who belonged to local organized groups/clubs and company/corporate outing groups were also more likely to extend their hiking experiences in the organized groups/clubs to which they belonged (see TABLE 8).

Information sources	A (%)	B (%)	C (%)	D (%)	DF	Chi-square	P-value
General hiking information							
Organized groups/clubs	11.3	47.6	45.7	33.8	6	88.690	.000**
Friends/family members	63.6	23.8	22.2	53.2			
Internet	25.1	28.6	32.1	13.0			
Seeking companions as planning hiking trips							
Organized groups/clubs	10.1	50.0	52.3	37.5	6	98.907	.000**
Friends/family members	84.1	48.5	45.3	56.3			
Internet	5.8	1.5	2.3	6.3			
The primary information source of hiking knowledge and skill⁽⁸⁾							
Organized groups/clubs	10.1	51.8	50.6	38.2	6	91.739	.000**
Friends/family members	76.0	37.5	36.4	60.3			
Internet	13.9	10.7	13.0	1.5			
Opinion sources for planning a hiking trip⁽¹¹⁾							
Organized groups/clubs	14.9	57.1	65.4	44.7	6	103.061	.000**
Friends/family members	72.5	34.9	24.7	47.4			
Internet	12.7	7.9	9.9	7.9			
Acquaintance of aficionados							
Organized groups/clubs	17.2	45.6	64.7	46.9	6	97.815	.000**
Friends/family members	37.0	11.8	14.1	11.1			
Hiking	45.9	42.6	21.2	42.0			
Extending hiking experience⁽¹³⁾							
Organized groups/clubs	14.6	51.6	53.7	45.3	6	78.096	.000**
Friends/family members	74.3	43.8	37.8	49.3			
Internet	11.1	4.7	8.5	5.3			
Sharing hiking knowledge and skills							
Organized groups/clubs	9.1	29.0	48.3	17.1	9	77.373	.000**
Friends/family members	54.7	36.2	33.3	51.2			
Hiking	32.2	31.9	16.1	30.5			
Internet	4.1	2.9	2.3	1.2			
Gaining knowledge and firsthand experience on gear and gadget							
Organized groups/clubs	6.2	29.7	30.9	27.0	9	74.147	.000**
Sports shops/specialized stores	18.6	34.4	12.3	23.0			
Friends/family members	66.7	25.0	44.4	43.2			
Internet	8.6	10.9	12.3	6.8			
Obtaining newest information about hiking gear and gadget							
Organized groups/clubs	6.1	22.6	21.2	24.0	12	52.796	.000**
Sports shops/specialized stores	19.0	27.4	31.8	24.0			
Friends/family members	42.9	25.8	17.6	28.0			
Hiking	17.7	16.1	12.9	16.0			
Internet	14.2	8.1	16.5	8.0			
Weather information							
Organized groups/clubs	6.3	36.4	12.3	18.3	6	53.717	.000**
Friends/family members	38.8	12.7	17.3	31.0			
Internet	54.9	50.9	70.4	50.7			
Hiking route related information							
Organized groups/clubs	12.0	41.9	32.9	34.3	6	61.866	.000**
Friends/family members	56.6	27.4	19.7	42.9			
Internet	31.5	30.6	47.4	22.9			

A: None
 B: Company or college outing groups
 C: Local organized groups/clubs
 D: National hiking organizations/Clubs

TABLE 8: Patterns in the use of communication channels by respondents with different memberships to fulfill information needs.

However, a different pattern emerged when the respondents were asked which communication channel they used to obtain firsthand experience regarding hiking gear and gadgets. Respondents who belonged to corporate outing groups/hiking clubs were more likely to obtain such information from sports shops/specialized stores, while respondents who belonged to other groups/clubs were more likely to obtain the latest information regarding hiking gear and gadgets from organized groups/clubs or sport shops/specialized stores. Additionally, TABLE 8 shows that respondents who did not belong to any groups/clubs were more likely to rely on information from friends and relatives.

DISCUSSION

This study examined communication channel choice in responding to various information needs of hikers against different characteristics of hikers in a forest setting. The study findings indicate that channel choices vary in response to information needs. As

in previous studies, the most commonly used communication channels for obtaining information regarding forest environment were friends and relatives (see THAPA *et al.* 2002). Relatively few hikers used mountaineer/hiker magazines and travel books/park newspapers to obtain such information, and even fewer directly contacted agency staff to ask about trip planning and hiking trail condition.

As noted by ROGERS (1983), mass communication channels, such as magazines and travel books, are effective for informing and building awareness. In contrast, interpersonal communication channels are more effective for persuading and achieving attitude change. Additionally, information provided by multiple channels receives more attention than that provided by single channels (HARKINS & PETTY 1987).

Channel choices also differ based on hiker status, region of residence, degree of expertise, and club/group memberships. The findings of this study indicated that hiking leaders were more likely to use organized groups/clubs to fulfill their information needs than followers. There are several possible explanations for this finding. First, hiking is a social activity; people frequently go hiking with friends and relatives, who are perceived as an accurate and useful communication channel (THAPA *et al.* 2002). Consequently, it is convenient for inexperienced hikers to obtain information from such channels. Second, hiking leaders may have more hiking experience and better hiking skills than their hiking partners. Organized groups/clubs comprise hikers with various levels of experience, and may contain hiking experts from whom leaders can obtain advanced skills and better information. Previous studies found that experienced visitors were less likely to use trail information, while highly specialized recreationists tended to seek additional information (HUFFMAN & WILLIAMS 1986). Hiking leaders thus may need to acquire improved information to maintain their lead.

Nevertheless, the perceptions of hikers living in southern Taiwan regarding the usefulness of friends/relatives as a communication channel are noteworthy. Hikers living in southern Taiwan were more likely to fulfill their information needs by asking friends/relatives, and relied less on other communication channels. The majority of hikers in this region were also not internet users. This finding suggests different styles of social networking and information seeking patterns between the southern and other regions.

Notably, the internet was only identified as the most useful communication channel for obtaining weather information. Numerous hikers also perceived the internet as useful for obtaining information on hiking routes. Group comparisons demonstrate that hiking leaders and more experienced hikers were more likely to use the internet to obtain information regarding weather and hiking routes. This finding differs from the findings of KERSTETTER & CHO (2004), who found that individuals with more past experience and expertise were less likely to use the internet to obtain information, suggesting that hikers may deliberately select certain communication channel depending on the type of information they require.

CONCLUSIONS

To establish the generalizability of the picture presented in this study, similar projects employing the same methods in other locations would be useful. Some of the issues raised in this study deserve greater attention, including the following: How do hikers simultaneously use different communication channels to obtain desired information; what are the factors that differentiate communication patterns of hikers from different regions? Is it affected by the socio-economic status? Is it affected by the inequality of information infrastructure due to regional development? Do hikers from different regions react differently to conservation messages?

Future research efforts should attempt to understand the leisure involvement of hikers in relation to their information needs and to identify why hikers select particular channels to fulfill their information needs. A particularly interesting question is whether channel selection is guided by the richness of the information provided or by the ease of accessing it. Theoretically, there are three forms of serious leisure: amateurism, volunteering, and hobbies. Members of the hobby class are enthusiastic to learn about their hobby. Hobbyists should be of particular interest to the information behavior community due to their eagerness for information. Hikers who treat hiking as their hobby may be more likely to join hiking communities (organized groups/clubs) for sharing interests and obtaining information. Their need for information might be driven by "the enjoyment derived from the information consumption process itself" (PURDUE 1993:184).

A longitudinal approach and qualitative research design are recommended for obtaining an in-depth understanding of the social and cultural value of information seeking in the context of hiking. If hikers with different roles and levels of involvement are followed while searching for various types of information, it should be possible to develop a conceptual framework that can be used to test various types of hikers with different degrees of expertise.

Furthermore, this study only analyzed eight communication channels used by hikers to fulfill their information needs, and other communication channels should be examined in future studies. Moreover, the scale for measuring the importance of communication channels needs to be revised.

RECOMMENDATIONS FOR PRACTICE

It is important for forestry managers to learn about the influence of various communication channels and to combine the effects of those channels to improve the effectiveness of information dissemination. Forestry managers should make special efforts to reach hikers from different residential regions. They should also recognize that the use of the internet to distribute wilderness information is not as effective as generally thought. It is necessary for forestry managers to incorporate the clubs and organizations into their communication networks to make information more widely available. This area of study is especially important to managers, since communication regarding conservation occurs both on and off site. Off-site communication allows recreationists adequate planning time to implement desired behaviors (VANDER STOEP & ROGGENBUCK 1996). The selection of information strategies for delivering specific educational programs and conservation messages (e.g., LNT) thus depends on the communication channels used by hikers.

Based on those findings, three strategies are suggested. First, the internet is not used equally among hikers. It is also not effective in delivering every type of hiking-related information. Extra effort will be needed to make the internet reach the expectation of users, such as providing trip planning tools to assist making a hiking trip, or providing blogs to allow hikers to share their experiences and enable them to form an attachment to official websites. Second, regional differences should be taken into account in future information campaigns; strategies with personal touch and face-to-face contact (e.g., interpreters) might be more effective than non-personal forms of communication (e.g., the internet), volunteer programs and summer camps should make more effort to attract hikers of southern regions. By doing so, a seed of knowledge could be planted and spread through friends/relatives circles. Third, small workshops and training programs that target people who act as leaders during hiking might be a more effective way to satisfy the information needs of this type of hiker and help them advance their understanding toward hiking.

REFERENCES

- ALBA, J. & HUTCHINSON, W. (1987). Dimensions of Consumer Expertise. In: *J. consum. res.*, 12, p. 411-454.
- ATKIN, K. (1973). Instrumental utilities and information-seeking. In: P. Clarke (ed.), *New Models for Mass Communication Research* (p. 205-242). Sage, Beverly Hills.
- ANDERSON, R.B. (1987). Reassessing the odds against finding meaningful behavioral change in mass media health promotion campaigns. Paper presented to the Conference on Communication Theory and Public Relations, Illinois State University, Normal.
- CASE, D. (2002). *Looking for Information: A Survey of Research on Information Seeking, Needs, and Behaviors*. Elsevier Science, CA.
- CHATMAN (1991). Life in a Small World: Applicability of Gratification Theory to Information-seeking Behavior. In: *J. Am. Soc. Inf. Sci.*, 42, p. 438-449.
- COBLE, T.G. & SELIN, S.W. (2003). Hiking Alone: Understanding Fear, Negotiation Strategies and Leisure Experience. In: *J. leis. res.*, 35:1, p. 1-22.
- CONFER, J.; MOWEN, A.J.; GRAEFE, A.R. & ABSHER, J.D. (2000). Magazines as Wilderness Information Sources: Assessing Users' General Wilderness Knowledge and Specific Leave no Trace Knowledge. In: D. N. Cole et al. comp. (2000). *Wilderness science in a time of change conference—Volume 4: Wilderness visitors, experiences, and visitor management* (p.193-197); May 23-27, 1999; Missoula, MT. Proceedings RMRS-P-15-VOL-4. Ogden, UT.
- COLE, D. N. (1998). Written Appeals for Attention to Low-impact Messages on Wilderness Trailside Bulletin Boards: Experimental Evaluation of Effectiveness. In: *J. park recreat. admi.*, 16:1, p. 65-79.
- COLE, D.N.; HAMMOND, T.P. & MCCOOL, S.F. (1997). Information Quantity and Communication Effectiveness: Low-impact Messages on Wilderness Trailside Bulletin Boards. In: *Leis. sci.*, 19, p. 59-72.
- DERVIN, B. (1981). Mass Communicating: Changing Conceptions of the Audience. In: R. E. Rice & W. J. Paisley (eds.), *Public communication campaigns* (p. 71-87). Sage, Newbury Park.
- DERVIN, B. (1983). An Overview of Sense-making Research: Concepts, Methods and Results to Date. International Communications Association Annual Meeting, Dalas, Texas.
- ERNEST, D.J.; LEVEL, A.V. & CULBERTSON, M. (2005). Information-seeking Behavior for Recreational Activities and Its Implications for Libraries. In: *RSR*, 33:1, p. 88-103.
- FODNESS, D. & MURRAY, B. (1997). Tourist Information Search, *ATR*, 24:3, p. 503-523.
- FODNESS, D. & MURRAY, B. (1999). A Model of Tourist Information Search Behavior. In: *JTR*, 37:3, p. 220-230.
- HARKINS, S.G. & PETTY, R.E. (1987). Information Utility and the Multiple Source Effect. In: *Journal of Personality and Social Psychology*, 52, p. 260-268.
- HUFFMAN, M.G & WILLIAMS, D.R. (1986). Computer versus Brochure Information Dissemination as a backcountry Management Tool. In: *Proceedings—National Wilderness Research Conference—Current Research*. Gen. Tech. Report INT-212, Ogden, UT. USDA Forest Service. Intermountain Forest and Range Experiment Station, p. 501-508.
- JOHNSON, J.D. (1997). *Cancer-related Information Seeking*. Hampton Press, Cresskill.
- KERSTETTER, D. & CHO, M. (2004). Prior Knowledge, Credibility, and Information Search. *ATR*, 31:4, p. 961-985.

- KIM, K.S. (2001). Information seeking on the Web: Effect of user and task variables. In: *Libr. inf. sci. res.*, 23, p. 233-255.
- KIRCHLER, E. & DAVIS, J.H. (1986). The influence of member status differences and task type on group consensus and member position change. In: *J. pers. soc. psychol.*, 51:1, p. 83-91.
- KRUMPE, E. & BROWN, P.J. (1982). Redistributing backcountry use through information related to recreation experiences. In: *J. For.*, June, p. 360-364.
- LOVELOCK, C.H. & WEINBERG, C.B. (1984). *Marketing for Public and Nonprofit Managers*. John Wiley, New York.
- MANFREDO, M.J. (1988). An Investigation of the Basis for External Information Search in Recreation and Tourism. In: *Leis. Sci.*, 11, p. 29-45.
- MANFREDO, M.J. & BRIGHT, A.D. (1991). A model for Assessing the Effects of Communication on Recreationists. In: *J. leis. re.*, 23:1, p. 1-20.
- MCDONOUGH, M. (1986). Communication channels in recreation research. In: *A Literature Review: The President's Commission on Americans Outdoors*. p. Information 35-43. U.S. Gov't Printing Office 1986-165-816: 64524.
- PURDUE, R. (1993). External information search in Marine recreational fishing. *Leis. Sci.*, 15, p. 169-187.
- RAMTHUN, R.; KERSEY, L. & ROGERS, J. (2000). Information Collection Styles of Wilderness Users: A Market Segmentation Approach. In: D. N. Cole et al. comp. (2000). *Wilderness science in a time of change conference—Volume 4: Wilderness visitors, experiences, and visitor management* (p.221-226); May 23-27, 1999; Missoula, MT. Proceedings RMRS-P-15-VOL-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- RESEARCH, DEVELOPMENT AND EVALUATION COMMISSION, Executive Yuan (2007). *2007 Digital Divide in Taiwan*. RDEC, Taipei.
- ROGERS, E.M. (1983). *The Diffusion of Innovations*. Free Press: New York. p. 453.
- ROGGENBUCK, J.W. (1992). Use of Persuasion to Reduce Resource Impacts and Visitor Conflicts. In: Manfredo, M.J. (ed.) *Influencing human behavior: Theory and application*. Segamore, Champaign. p. 149-152.
- SCHREYER, R.; LIME, D.W. & WILLIAMS, D.R. (1984). Characterizing the Influence of Past Experience on Recreation Behavior. In: *J. leis. re.*, 16:1, p. 34-50.
- STEBBINS, R.A. (1992). *Amateurs, Professionals, and Serious Leisure*. McGill-Queen's University Press, Buffalo.
- STEWART, W.; COLE, D.; MANNING, R.; VALLIERE, W.; TAYLOR, J. & LEE, M. (2000). Preparing for a day hike at Grand Canyon: What Information is Useful? In: D.N. Cole et al. comp. (2000). *Wilderness science in a time of change conference—Volume 4: Wilderness Visitors, Experiences, and Visitor Management* (p. 221-226); May 23-27, 1999; Missoula. MT. Proceedings RMRS-O-15-VOL-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- STYNES, D. (1986). Consumer Information and Recreation Choice. In: *A Literature Review: The President's Commission on Americans Outdoors*. p. Information 1-14. U.S. Gov't Printing Office 1986-165-816: 64524.
- SUJAN, M. (1985). Consumer Knowledge: Effects on Evaluation Strategies Mediating Consumer Judgements. In: *J. consum. res*, 12, p. 31-46.
- TALJA, S.; KESO, H. & PIETILÄINEN, T. (1999). The Production of 'Context' in Information Seeking Research: a Metatheoretical View. In: *Inf. process. manage.*, 35, p. 751-763.

- THAPA, B.; GRAEFE, A.R. & ABSHER, J.D. (2002). Information Needs and Search Behaviors: A Comparative Study of Ethnic Groups in the Angeles and San Bernardino National Forests, California. In: *Leis sci.*, 24, p. 89-107.
- VAKKARI, P.; SAVOLAINEN, R. & DERVIN, B. (1997). Information Seeking in Context: Proceedings of an International Conference on Research in Information Needs, Seeking and Use in Different Contexts (p. 7-9). Taylor Graham, London.
- VANDER STOEP, G. & ROGGENBUCK, J. (1996). Is your park being "love to death"? Using communication and other indirect techniques to battle the park "love bug". In *Crowding and Congesting in the National Park System: Guidelines for Research and Management*. University of Minnesota Agricultural Experiment Station, Paul, Minn. Publication 86-1996, p. 85-132.
- WILLIAMS, D.R. & HUFFMAN, M.G. (1986). Recreation specialization as a factor in backcountry trail choice. In: *Proceedings-National Wilderness Research Conference, Current Research. GEN. TECH. Report INT-212 USDA Forest Service*. p. 339-344.
- WILSON, T.D. (2000). Human information behavior. In: *Inf. Sci.*, 3:2, p. 49-55.
- YUAN, Y. & LUE, C. (2007). Understanding the Relationships between Recreation Experience and Perception to Management Actions in Forestry Settings Using Qualitative Approach. In: *Q. j. Chinese For.* 39:4, p. 13-28.

Key Success Factors for Nature-based Tourism in Protected Areas of the Alps

Florian Lintzmeyer¹ & Dominik Siegrist²

1 ifuplan – Institute for Environmental Planning, Landscape Management and Nature Conservation, Schleissheimerstr. 156, 80797 München, Germany.

Email: florian.lintzmeyer@ifuplan.de

2 University of Applied Sciences Rapperswil, Switzerland, Institute for Landscape and Open Space, Oberseestr. 10, 8630 Rapperswil, Switzerland. Email: dominik.siegrist@hsr.ch

Keywords: Parks, protected areas, protected area management, nature-based tourism

Abstract: The project SUSTOURPARK aimed for the identification of success factors for protected area tourism or for park tourism, respectively. Hence, new knowledge regarding a targeted promotion of park tourism was gained. These success factors were elaborated in the context of the evaluation of a two-stage Delphi survey among 27 experienced persons in charge of parks and their corresponding tourism destinations in the Alpine area. The research was conducted in 2006 in Austria, Italy, Germany, Switzerland, and France.

As a result 14 success factors divided into three central categories were distinguished:

- Success factors regarding general framework conditions of park tourism;
- Success factors concerning the cooperation of participating stakeholders;
- Success factors which are reflected in the design of tourism offers.

Resulting from the identified success factors it became clear that appropriate setups and a good cooperation between the stakeholders are central requirements for the creation of attractive tourism offers. In turn, attractive offers enhance cooperative efforts and the improvement of frameworks in order to promote successful park tourism.

Zusammenfassung: Das Ziel des Projektes SUSTOURPARK besteht darin, Erfolgsfaktoren des Schutzgebiets- bzw. Parktourismus zu identifizieren. Daraus sollen Erkenntnisse bezüglich einer gezielten Förderung des Parktourismus gewonnen werden. Die Herausarbeitung dieser Erfolgsfaktoren erfolgte im Rahmen der Auswertung einer zweistufigen Delphi-Befragung von 27 erfahrenen Verantwortlichen von Parks und der zugehörigen Tourismusregionen im Alpenraum. Die Untersuchung wurde im Jahre 2006 in Österreich, Italien, Deutschland, der Schweiz und in Frankreich durchgeführt.

Aufgrund der Ergebnisse können 14 Erfolgsfaktoren in drei zentralen Kategorien unterschieden werden:

- Erfolgsfaktoren, bezüglich der Rahmenbedingungen des Parktourismus;
- Erfolgsfaktoren betreffend die Zusammenarbeit der beteiligten Akteure;
- Erfolgsfaktoren, die sich in der Ausgestaltung des touristischen Angebots niederschlagen.

Aus den ermittelten Erfolgsfaktoren ergibt sich, dass geeignete Rahmenbedingungen und eine gute Zusammenarbeit der Akteure eine zentrale Bedingung für die Erarbeitung eines attraktiven touristischen Angebots darstellen. Attraktive Angebote wiederum sind motivierend für eine gute Zusammenarbeit und die Verbesserung der Rahmenbedingungen zur Weiterentwicklung eines erfolgreichen Parktourismus.

INTRODUCTION

Can nature conservation and tourism coexist in protected areas of the Alps? Depending on the technical background of scientists and the regional and local conditions, the answer to this often posed question varies from a categorical negative to a conditional affirmative (see HALL 2005; MOSE 2006). While one finds a long tradition of cooperation between nature conservation and tourism in North America, this approach is new in the European context (see HAIDER 2007). Relatively dense populated and intensively developed regions like the Alps present fundamentally different starting conditions than North America. In these areas nature conservation is more strongly confronted with the claim for usage rights from the local population than it is the case in the sparsely populated American West and North. Thus the implication of the local population receives a greater importance as a success factor of nature conservation in the Alps.

Looking across the Alps at protected areas such as the Swiss National Park in Lower Engadin, the Hohe Tauern National Park in the Austrian Tauern region, or the UNESCO-Biosphere Entlebuch in Switzerland, most of these large protected areas have become major tourist attractions in their respective regions. This involves a significant creation of value for the regional economy (LAURENS *et al.* 2000; JOB *et al.* 2003; KÜPFER 2000; CROMPTON 2001). For the Berchtesgaden National Park in Germany a quantitative survey of park visitors carried out by JOB *et al.* (2003) assessed the added value per year that can be related to the protected area at 5 million USD. A similar study conducted in the Swiss National Park came to the conclusion that an added value of 6 to 8.7 million USD can be related to park visitors (KÜPFER 2000). Protected area tourism contributes to local acceptance of nature conservation schemes (WEIXLBAUMER 2005).

Regional park initiatives rarely evoke massive opposition in their respective regions, which is partly due to the integrated concept of nature conservation and regional development of the regional park category. On the other hand, broad acceptance indicates that these regions are expecting tangible economic benefits from the establishment of protected areas, particularly in the field of tourism and marketing of regional products. A survey in Austria has revealed that among regional economic sectors, the establishment of a national park was least disputed in the tourism sector (see BMWA 2001). Additionally, the survey came to the conclusion that there were remarkably few conflicts related to tourism and conservation objectives.

In the process of this paradigm shift (PHILLIPS 2004; BROGGI 2003; WEARING & BOWDEN 2000) large protected areas and their administrations are increasingly perceived as actors in sustainable regional development and are being involved in the development of regional guidelines, in the creation of tourism packages as well as in marketing efforts (see MOSE 2007; EAGLES & MCCOOL 2002; WEIXLBAUMER 2005). This reassessment of roles on a local level is remarkable given the clashes between the interests of nature conservation and tourism over the past decades. While the incorporation of regional tourism in protected areas differs from region to region and varies according to the category of protected area (see HAMMER 2003, NEWSOME *et al.* 2002), the questions remain how protected areas in the Alps react to the increasing trend for nature-based tourism (see SIEGRIST & STUPPÄCK 2002) and whether certain factors of success can be generalized for tourism in protected areas to reconcile economic, social as well as ecological objectives.

Against this background the SUSTOURPARK survey gathers first-hand information from Alpine park managers and tourism representatives on successful park tourism:

- It describes the current and future general conditions and goals of park managements on the basis of the specific know-how of local actors;
- It depicts possible approaches to resolve user conflicts and searches for ways of creating potential cooperation between tourism and parks;
- Furthermore, the significant areas of mentioned cooperation are examined as well as success factors for protected area tourism that is tolerable both environmentally and socially and at the same time economically fruitful.

These modules were intended to provide answers to the overall research question as to what framework conditions and success factors can be identified for sustainable tourism in protected areas of the Alps.

MATERIALS AND METHODS

The SUSTOURPARK survey was designed and administered between 2003-2006 by the University of Applied Sciences in Rapperswil (Switzerland) with assistance from the Alpine Network of Protected Areas¹. A pool of 78 relevant park managers and tourism representatives from Austrian, French, German, Italian, and Swiss protected areas was identified in cooperation with the Alpine Network of Protected Areas. These experts on park management or tourism in protected areas were then asked to participate in a two-stage online Delphi survey.

The principle of the Delphi method is to repeatedly confront a group of experts with an issue to gain consensus on the issue and its themes and develop priorities. In this type of survey method results from the first round of questioning form the basis of further iterations of inquiry. Experts have the opportunity to react and respond to aggregate responses from the other survey participants in successive rounds, and at the end of the different rounds of questioning one obtains a widely supported and generally consensual result in view of future developments (see HÄDER 2002). Furthermore, the Delphi method enables the researchers to follow up new aspects as they appear and add them to the discussion. This would not be possible in a conventional single-tier survey.

The questions of the Delphi survey were structured in 5 categories with a series of subcategories:

1. Current and future objectives of protected area management;
2. Framework conditions for successful park tourism;
3. Demand side;
4. Success factors of park tourism;
5. Tourism and park-related management instruments.

The Delphi method is not intrinsically representative in any statistical sense. The results of the Delphi survey gain relevance not from quantity but from the expertise of the participants. The emphasis lies in the process of creating an idea for future developments that derives from the three components: knowledge (information), speculation, and opinion (projection) (see STUDIENKREIS FÜR TOURISMUS UND ENTWICKLUNG 1997).

Thus, the aim of applying the Delphi method was to collect knowledge, speculations, and opinions of the park managers in the first round, to react to their statements and to concentrate these in the second round towards general, consensual trends. By means of the online evaluation tool Q-feedback, experts' estimations of success factors for protected area tourism were obtained in two rounds. Open and closed questions were used and the participants had the option to comment each question in a separate field. In the first Delphi round 42 out of a total of 78 contacted experts replied, a return rate of 53%. In the second round, these 42 have again been contacted, out of which 28 returned their questionnaires for a second time – a return rate of 67%.

The participants were made aware of the survey both by regular mail and email. After the contacted participants agreed to the two-round survey, a personal login to their online questionnaire was sent by email. They had four weeks to fill in the form. The analysis of results was simplified through the online data collection, since the questionnaire data was available to the research team in real-time. The survey could also be administered more easily than through back-and-forth postal correspondence.

¹This transnational network has been established in 1997 and maintains strong links with the Alpine Convention, an international binding agreement between Alpine countries. The aim of the Alpine Network of Protected Areas is to pool expertise, techniques, and methods used by the managers of Alpine protected areas and to promote cooperation among these protected areas.

Country	Protected area representatives	Tourism representatives
France	3	0
Italy	6	6
Germany	1	0
Austria	6	2
Switzerland	3	1
Sum	19	9

TABLE 1: Survey participants by country.

Protected area category ^{2,3}	Overall number	Represented in the survey
National Parks	14	7
Regional or Nature Parks	70	13
Nature Conservation Area	430	-
Biosphere Reserves	9	3
UNESCO World Natural Heritage	2	-
Sum	525	23

TABLE 2: Protected area categories in the Alps and their representation in the survey.

The average area of the participating protected areas is 506 km²; the smallest one with an area of merely 3 km² and the largest one with an area of over 1800 km². In total, the Alpine region has over 500 large protected areas (more than 100 ha)⁴.

Numerically, there are more survey participants than protected areas because in 5 protected areas park managers as well as tourism representatives took part in the study. Looking at the number of participants from each field there is somewhat of a bias towards the perspective of protected area representatives reflected in the study, which is a result of the protected area focus of the study.

RESULTS

The results of the survey are summarized below under the categories: ‘Goals and framework conditions’, ‘Demand side’, ‘Management tools in regard to tourism and protected areas’ and ‘Success factors of protected area tourism’.

Goals and framework conditions

Expectations related to the establishment of protected areas are growing as these areas are increasingly considered as “catalysts” of sustainable regional development. Even though protected area tourism does, based on its economically measurable effect, not qualify as a key economic branch in most Alpine regions, it does generate regional economic effects beyond the traditional tasks of conservation and environmental education in protected areas.

Managers perceive this multi-functionality to be a key asset of their protected area and even more so in the future (cp. FIGURE 1). According to their assessment all tasks of protected area management – from the promotion of nature-based tourism to the prevention of human interferences - will become more important in the future. Furthermore, they stress that many aspects are closely interacting.

² Source: www.alparc.org. As nature conservation areas mainly do not have a mandate to promote tourism, this protected area category was not a target of this study.

³ The International Union for the Conservation of Nature and Natural Resources (IUCN) classifies protected areas in 7 categories (www.alparc.org): Ia Strict Nature Reserve (Protected area mainly for science), Ib Wilderness Area (Protected area managed mainly for ecosystem protection and recreation), II National Park (Protected area managed mainly for ecosystem protection and recreation), III Natural Monument (Protected area managed mainly for conservation of specific natural features), IV Habitat/Species Management Area (Protected area managed mainly for conservation through management intervention), V Protected Landscape/Seascape (Protected area managed mainly for landscape/seascape conservation and recreation), VI Managed Resource Protected Area (Protected area managed mainly for the sustainable use of natural ecosystems). Due to dense settlements and intense land use, one finds few category Ia and Ib in the Alps, although for example the Swiss National Park belongs in this category. The national parks in the Alps correspond to category II, nature parks to category V. As UNESCO designations, Biosphere Reserves and World Heritage sites are not part of the IUCN classification.

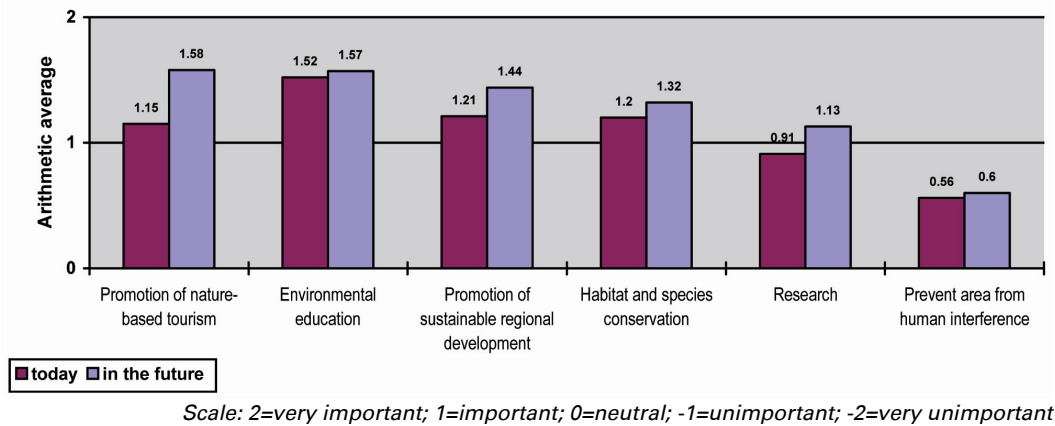


FIGURE 1: Current and future objectives of protected area management.

In the eyes of survey participants, the most important goals of park management are, currently and in the future, the promotion of nature-based tourism, environmental education, and the promotion of sustainable regional development (cp. FIGURE 1). Traditional core objectives of protected areas such as habitat and species protection are rated as being of secondary importance, which is due to the perception that these goals are safeguarded under current legal provisions.

Informing guests about regional nature and landscape is regarded as the most important goal of protected area tourism, while the promotion of regional cooperation is ranked as rather low in importance. Some representatives of tourism organizations criticize protected area managers for their lack of sensitivity of towards the needs of tourism.

Framework for successful protected area tourism

The most important framework condition for successful protected area tourism is a positive environment for the promotion of nature-based tourism. This is characterized by a stronger awareness of beneficial effects of protected areas among the resident population and local representatives and their positive attitude towards the protected area. It is only under these preconditions that a protected area can be positively advertised in the marketplace.

In regard to the legal framework, participants were divided into two groups: One group cautioned against additional legal requirements and uniformity of protected areas, while the other argued that additional steps need to be taken to ensure standards and to avert inflationary use of labels related to protected areas.

Professional experience from park managers across the Alpine region revealed differences in the application of protected area categorizations. In South Tyrol, a uniform application of protected area categories appears to be safeguarded by legal basis, while in Austria, the implications and preciseness of protected area categories vary from state to state. In France, the new National Park Law of 2006 has strengthened the position of local stakeholders in national park administrations, which is expected to require more persuasive efforts on behalf of park managements.

In general, participants favored a stronger orientation towards European and international standards such as the IUCN-categorization in order to make supervisory bodies more independent from the influence of local interest groups.

As a core future contribution to regional development, the experts deemed necessary an improved collaboration of protected area management with private and public stakeholders in the respective region, not so much in quantitative terms, but in terms of a clear assignment of tasks.

Public subsidies for nature-based tourism were strongly endorsed by the experts, even though they stressed that these should be used for investments related to the start-up phase of projects and not as permanent assistance. The participants were split into two groups over the question of whether these subsidies should be restricted to sustainability-labeled

4 Source: www.alparc.org.

products. Those in favor of the idea emphasized the steering function of labeling, while those opposing it feared bureaucracy and underlined that tourism-related products and services such as marketing, vocational training and tourism infrastructure are not solely targeted towards nature-based tourism and nonetheless are worth public support.

Demand side

In the future, the experts consider scenic landscape, good accommodation facilities at fair prices, guest houses featuring regional products, and good service to be crucial factors in visitors' decision making processes.

In the context of the low importance that participants assigned to premium accommodation in the first round, the experts were asked to position tourism in protected areas in regard to the much voiced call for upgrading tourism facilities in the Alpine region. It is interesting to note that most participants of the survey considered park tourism to be directed towards simple and middle class accommodations. While premium hotels and corresponding packages including wellness and gastronomy are crucial for completing the regional range of offers and thus for a region's competitiveness, the main demand seems to be for middle and lower class accommodation. Nonetheless, 'quality' and 'luxury' must not be confused in this context. Generally, there exists the need for Alpine tourism offers to introduce a certain minimum quality based on authenticity and local character in all categories instead of creating premium offers on a large scale.

For all types of nature-based sports activities, except climbing, park and tourism managers expected a future growth of demand, with hiking being the main activity in protected area tourism, followed by mountain biking and nature excursions. The highest potential for growth is attributed to nordic walking, tobogganing, and outdoor swimming. In the future, it is expected that activities in protected areas will be polarized in adventure-oriented (trekking excursions, glacier hikes, sunrise/sunsets) and wellness- and recreation-oriented activities, the latter implying contemplative and inward-bound activities and retreats.

Park representatives are calling on the tourism industry to actively develop these products tailored to the specific needs of certain target groups. Protected areas, in their eyes, need to be incorporated even more into the regional chain of tourist services and experiences.

However, park representatives stressed that one still needs to keep in mind that successful tourism in protected areas is not so much defined by increasing visitor arrivals as by ecological and socio-cultural impact mitigation. The quality of the visitor experience thus remains the only unique selling proposition for protected areas in a competitive tourism market, while aiming at price competitiveness would jeopardize their ecological and socio-cultural basis.

Management tools in regard to tourism and protected areas

To implement these park objectives and to resolve conflicts between conservation and tourism, managers have a variety of instruments at their disposal, ranging from 'soft' tools such as environmental information, cooperative agreements between interest groups, and economic incentives to 'hard' tools such as management of visitor flows, and legal restrictions and regulations. In general, park managers opted for a mixed approach with an emphasis on 'soft' instruments, while still acknowledging the usefulness of top-down-instruments for certain conflict areas. Long-term studies on the effectiveness of participatory and cooperative instruments for conflict resolution between tourism and conservation objectives are still pending.

Core instruments for the promotion of nature-based tourism on behalf of park managers includes informing visitors and local residents on the objectives of the protected area, followed by visitor monitoring (see MCINTYRE 1999). Even though the latter is considered to be essential by the participants, it is often not carried out due to financial constraints. According to the survey experts, the most important aspects of monitoring are visitor motivation and satisfaction, statistics of arrivals and number of overnight stays, activities and their spatial distribution, and regional economic effects. For Alpine protected areas, KÜPFER (2000) and JOB *et al.* (2003) have carried out ground-breaking surveys on regional economic effects generated by park tourism.

Target-group-oriented tourism offers which integrate protected areas as well as their nature-based offers into the regional chain of tourism products and services are considered to be the most important tasks of tourist management in protected areas (cp. FIGURE 2). It was stressed, however, that park management authorities must always remain the decision-making bodies in all fields relating to the condition and development of the park.

On a regional scale, one single park manager obviously is not capable of covering all aspects of park management in-depth. Therefore, the role of park management in regional governance needs to be interpreted as a platform for exchange of conservation expertise and experience (see MOSE & WEIXLBAUMER 2003; STOLL-KLEEMANN *et al.* 2006). In view of international cooperation and exchange of experience networks like the *Alpine Network of Protected Areas* or those affiliated with EU-programmes such as INTERREG or LEADER seem to be firmly established and well used; more than 70% of park managers claim to have benefited from one of these networks.

Success factors of protected area tourism

The underlying assumption of the concept of success factors is that success or failure of the subject of study is – despite all multi-dimensionality and multi-causality – determined by a limited number of core factors (TROMMSDORF 1991). In the early stages of the concept, it was believed to produce universally valid recommendations. While this objective still holds true for some output of the concept, it has nonetheless been acknowledged that success factors need to be differentiated into comprehensive or branch-specific factors. Furthermore, within one branch, they can apply to either all subjects of study, to a limited number depending on their size, legal status and strategic group or to only one individual subject of study. Within one enterprise success factors can again either address the entire subject of study or only sub-groups of it.

The following results originate from experiences of protected area management and tourism across the Alpine region. One has to keep in mind that the group of protected areas is not homogeneous; it rather comprises spatial categories that feature distinctive differences in terms of conservation, tourism, regional development, and educational orientation. Therefore, comprehensive success factors that apply to all types of protected area management will be limited in number and also in significance, as situations and also envisaged profiles differ from park to park.

Concerning the most important future partners for cooperation, survey participants identified local and regional tourism and municipal representatives, followed by the hotel and restaurant industry and farmers. A remarkably minor importance is assigned to public transport, which indicates that park managers and tourism representatives are somewhat disillusioned about increasing the share of public means of transportation in tourism transport.

The participants' statements concerning key success factors of cooperation between various regional stakeholders can be summarized under the following five aspects:

- *Participation:* This aspect includes the local population as well as a broad representation of all relevant interest groups (see RONMARK 2005). Participants considered the activation of the local population in terms of a Local Agenda 21 process to be particularly successful. In this context the common elaboration of guidelines establishes a mutual trust and a kick-off meeting signals the start of a process.
- *Personality of key stakeholders:* Crucial for the success of multi-stakeholder working groups and steering committees is the consensus-orientation of those involved. Reliable and qualified persons with a long-term perspective should represent these diverse and often opposing interests.
- *Balance of top-down and bottom-up-processes:* A balance between top-down and bottom-up-processes enables an effective implementation of objectives and projects while safeguarding participatory principles.

- *Project-oriented cooperation:* Joint projects facilitate contacts among different interest groups and help to reduce prejudices. The incorporation of sociocultural stakeholders broadens the range of offers in terms of cultural offers and enables to create packages.
- *Institutionalization of a broad sponsorship:* The incorporation of stakeholders from policy, economy and civil society in form of a park supervisory board – a type of Park Ltd. - creates a broad identification with the park, allows cooperation and helps to resolve conflicts at an early stage.
More precisely, these bodies can assume tasks such as improving the quality standards of tourism offers or marketing. It is decisive that every member of these park administrative boards is adopting a perspective that goes beyond his/her immediate field of expertise. Protected area as well as tourism representatives should be able to inform guests on each other's range of offers.

A similar set of success factors has also been identified by BRENDE (2002) in regard to conservation projects in Germany.

Just as there are key success factors, there are also factors that – according to experience – do not bode well for the tourist performance of protected areas. These “factors of failure” include the following aspects:

- *Top-down character of projects:* If projects are enacted from above and objectives and measures appear to be predetermined, then the acceptance of and identification with the protected area will suffer.
- *Insufficient participation:* It is on the one hand characterized by a pro forma participation of the public in the planning stage without considering their contribution in the implementation. The investment of time it takes for coordinating and organizing public participation is often underestimated.
- *Unclear objectives:* Ambiguity regarding objectives and lack of qualified leadership on behalf of project supervisors jeopardize successful protected area management.
- *Unrealistic expectations:* Establishing sustainable protected area tourism requires a long-term perspective and, in this respect, the expectation of short-term success may quickly lead to frustration.

On the other hand, it is important for reasons of acceptance to accompany the establishment of the protected area with state subsidies for the region and to create small and easily achievable milestones of success.

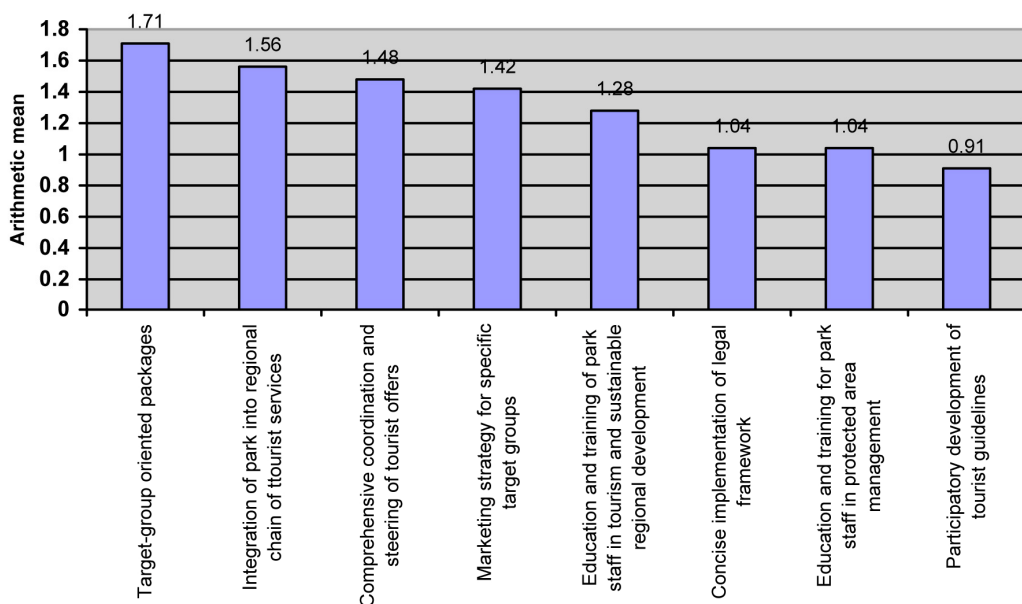


FIGURE 2: Relevant tourist management tasks of protected areas.

Scale: 2=very important; 1=important; 0=no relevance

The personal contact between park administrative staff and tourism representatives should be further intensified in the future (see FIGURE 3). Joint marketing and joint participation in publicly funded programs are further fields of cooperation.

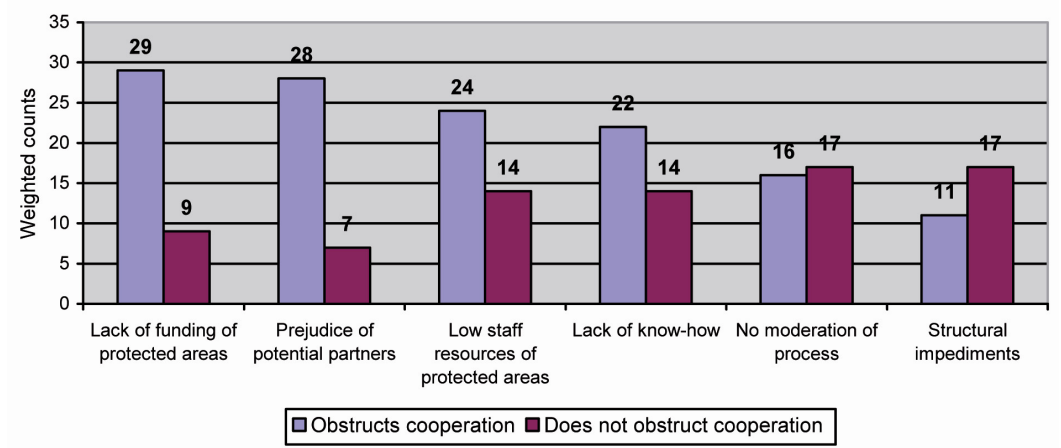


FIGURE 3: Fields of future cooperation.

Whether or not shared offices between tourism organizations and park administrations are a viable solution was disputed among the experts. While some stress the positive, synergetic aspects, others are skeptical and fear an unproductive mixture of these two institutions that jeopardizes conservation objectives. Furthermore, different preconditions in regard to funding – tourism organizations are privately funded, while park administrations are public bodies – would impede a close cooperation in shared offices.

According to participants, obstacles for further cooperation are not so much of a structural character such as lack of moderators or structural impediments, but rather the insufficient provision of protected areas with financial and human resources (cp. FIGURE 4). The staff of protected area administrations is notoriously overstrained, a situation that is in contradiction to the much-voiced need for more professionalism in park management.

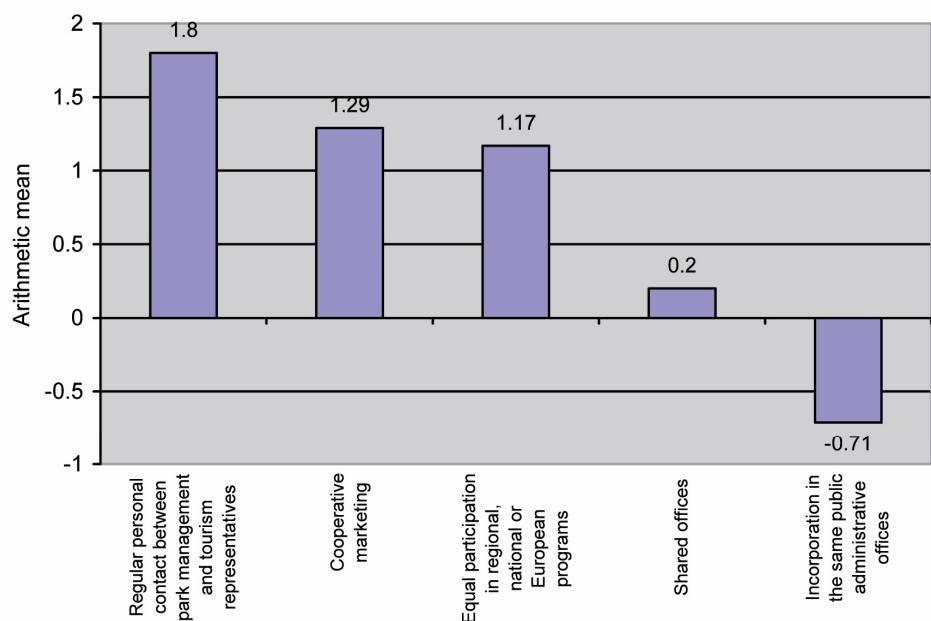


FIGURE 4: Obstacles to cooperation.

Scale: 2=fully agree; 1=agree; 0=neutral; -1=do not agree; -2=completely disagree

Participants claim that – apart from the natural surroundings – authentic and nature-based offers would be the backbone of protected area tourism. Offers that are in accordance with the park's guidelines should be particularly promoted. After all, successful tourism in protected areas is not so much defined by absolute numbers as by improving visits in ecological and socio-cultural respects. The high quality of the nature experience is a chance for protected areas to reach a unique selling proposition, as they cannot and should not compete with discount offers (see GRIFFIN & VACAFLORES 2001).

The following sequence illustrates how many aspects of protected area tourism combine to form an attractive offer (cp. FIGURE 5):

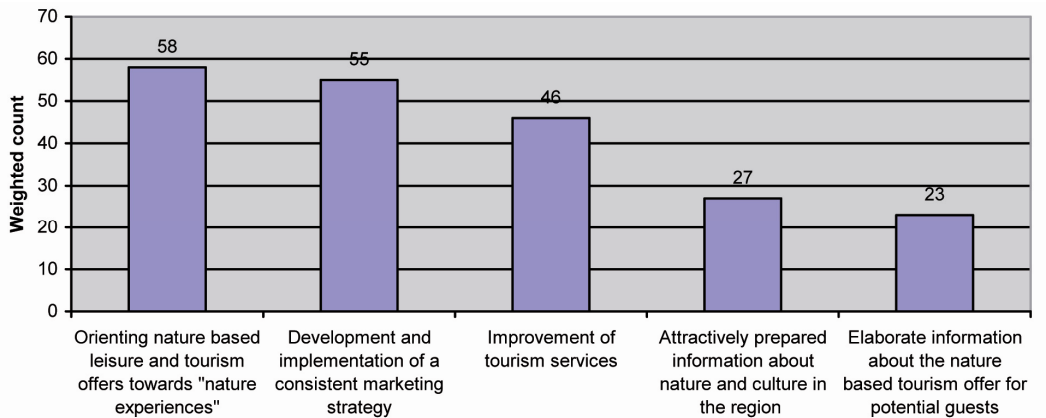


FIGURE 5: Future success factors.

Scale: 3=very important role; 2=important role; 1=minor importance

The existence of competitive offers forms the very basis for any type of marketing. This marketing, which ideally is carried out according to a marketing concept, in turn enables one to position the offer in the marketplace and should follow a long-term strategy. Keywords describing this strategy are 'clear positioning', 'bundling of resources', 'coordination with public and private local stakeholders', and 'economic feasibility within the ecological carrying capacity'.

According to experts an optimized chain of tourism services is again of crucial importance for visitor satisfaction. These service chains include the chance to centrally and easily access information on the protected area, to book all-inclusive offers, and to obtain information from tourism staff on nature-based offers. In this context, participants suggest to annually host a guided tour in the protected area for employees working in the tourism industry.

The success factor of an optimized chain of tourism services should also be seen in context with the increasing competition from large horizontally and vertically integrated tourism enterprises, such as the French *Compagnie des Alpes*, that small and medium sized tourism enterprises have to face in the Alps. These large-scale enterprises are capable of offering a variety of services in one package. Only if the local tourism industry in the Alpine region manages to establish a regional network and to create synergies it will stand a chance against these large-scale structures.

The factor of professionally prepared information on nature and culture of the region is taking effect both internally and externally (see MACLENNAN 2000). In the process of establishing a protected area, informing the local population adequately is crucial, and during the operational stage it is important to provide appropriate information both for hosts and guests. In the eyes of the experts, communication between protected area representatives and local hosts needs to be intensified in the future; the adoption of park-related information by hosts in accordance with the objectives of the protected area could provide a starting point.

DISCUSSION AND CONCLUSION

SUSTOURPARK confirmed the assumption that the range of tasks of protected area administrations has expanded over the last years towards trans-sectoral regional development. Park managers of the Alpine region are very well aware of the contribution to regional development that is being expected from their protected areas. Core contributions in that respect are the promotion of nature-based tourism and the integration of local farmers and their products and services in these schemes. Protected areas, however, cannot fulfill this multifunctional role, unless their core task – habitat, process and species conservation – is sufficiently safeguarded through a legal framework. Furthermore, there are still constraints in funding and staff resources of protected area management that impede certain efforts beyond the parks' immediate objectives.

Throughout the survey it became evident that this balance between core tasks of nature conservation and broader responsibilities in regional development is a constant and at times difficult challenge for protected area management in the Alpine region. The incorporation of protected areas into the regional range of tourism offers should not obscure their core responsibilities, for which they have been installed in the first place. Blaming park administrations for not fully embracing tourist strategies and offers would neglect this balance; even in the future, park administrations will not become full-fledged tourism organizations.

Looking ahead, park and tourism authorities will need to combine efforts to be able to tap the full potential of protected areas in regard to regional development. For the parks, this means to appropriately address problems of visitor impacts and to support tourism stakeholders in creating nature-based activities and packages. Particularly in regional parks, visitors are sometimes not even aware of the park label. Therefore, an added value effect of regional products will require more marketing efforts on behalf of protected areas.

In view of implementation and funding of projects, it is decisive to permanently stay in touch with local decision-makers and to incorporate them in the parks' supervisory board. Without communicating objectives and cooperation between tourism and park management to local stakeholders, results are unlikely to be reached on a sustainable basis.

For the regional tourism industry, to tap the full potential of parks means to increasingly incorporate protected areas in their range of offers. Due to their positive image and high profile among park representatives, transnational networks pose potential platforms for mutual exchange and increasing capacity.

RECOMMENDATIONS FOR PRACTICE

To be successful, tourism-oriented monitoring and management of natural areas needs to incorporate the view and practice of tourism (tourist management). Sustainable tourist management could be part of integral, tourism-oriented management of protected areas. Therefore, it is in the future recommended to increasingly pay attention on the development of integrated methods and instruments used for that purpose. Against this background, the following recommendations are important for the practice:

- The existence of qualitatively good basic rules at national and/or regional level; the existence of comparable and actually implemented best practices and management concepts; precisely coordinated strategies and methods for regional protection and development plans; clear framework defining tourism activities in relevant tourism regions and recreational areas.
- The availability of staff and financial resources for the strategic and practical guidance of managements. These resources further support general activities for the local public and guest support (information, visitor guides, environmental awareness etc.); they also support quality control and the realization of protection and development plans.

- The realization of an integrated management philosophy in regard of nature and landscape protection, which provides an opportunity for sustainable regional development and would foster the cooperation with those involved in nature-related projects (local authorities, tourism, land and forestry interests, environment, etc.).
- A sufficient consideration of bottom-up-strategies with focus on communication, especially in the process of establishing regional parks. The local population and relevant interest groups of the park region (e.g., agriculture, tourism, small and medium sized enterprises, nature protection and culture) have to be involved.
- The creation of a comprehensive tourism offer with qualitative service chains as well as the integration of the park as an independent product in the destination and the development of a professional marketing. On a regional and national level, parks need to be differentiated according to their unique selling propositions and park tourism strategies need to be created.

REFERENCES

- BMWA (2001). Nationalparks und Tourismus in Österreich. Short Version. Institute for Tourism and Spatial Planning ITR, Vienna.
- BRENDLE, U. (1999). Musterlösungen im Naturschutz – Politische Bausteine für erfolgreiches Handeln. Publikation des BfN, Bundesamt für Naturschutz. Landwirtschaftsverlag, Münster.
- BROGGI, M. (2003). Grossschutzgebiete – Schutz durch Entwicklung? In: Hammer, T. (ed.) (2003). Grossschutzgebiete – Instrumente nachhaltiger Regionalentwicklung. OEKOM-Publ., München. p. 85-196.
- CROMPTON, J.L. (2001). Parks and Economic Development. APA Planning Advisory Services, Washington D.C..
- EAGLES, P.F.J.; MCCOOL, S.F. (2002). Tourism in National Parks and Protected Areas – Planning and Management. CABI Publishing, Oxfordshire.
- GRIFFIN, T.; VACAFLORES, M. (2004). The Visitor Experience (= Project Paper 1, A Natural Partnership : Making National Parks a Tourism Priority), Sydney.
- HÄDER, M. (2002). Delphi-Befragungen. Ein Arbeitsbuch. Westdeutscher Verlag, Wiesbaden.
- HAIDER, W. (2006). North American Idols. Personal Observations on Visitor Management Frameworks and Recreational Research. In: Siegrist, D., Clivaz, C., Hunziker, M. & Iten, S. (eds.). Exploring the Nature of Management. Proceedings of the Third International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas. University of Applied Sciences Rapperswil, Switzerland, 13 – 17 September 2006, Rapperswil. p 16 – 22.
- HALL, C.M. & BOYD, S. (eds.) (2005). Tourism and Nature-based Tourism in Peripheral Areas: Development or Disaster, Channelview Publications, Clevedon.
- HAMMER, T. (2003). Schutzgebiete als Instrumente der Regionalentwicklung im Alpenraum? In: Berichte zur deutschen Landeskunde, Selbstverlag Deutsche Akademie für Landeskunde e.V., Freiberg. No. 2/3, vol. 77/2003, p. 187 – 208.
- JOB, H.; METZLER, D. & VOGT, L. (2003). Inwertsetzung alpiner Nationalparks. Eine regionalwirtschaftliche Analyse des Tourismus im Alpenpark Berchtesgaden. In: Münchner Studien zur Sozial- und Wirtschaftsgeographie, 43. Verlag Michael Lassleben, Kallmünz.

- KÜPFER, I. (2000). Die regionalwirtschaftliche Bedeutung des Nationalparktourismus untersucht am Beispiel des schweizerischen Nationalparks. In: Nationalpark-Forschung in der Schweiz, 90, Zernez.
- MACLENNAN, P. (2000). Visitor Information as a Management Tool – a review. In: Science & Research Internal Report 180. Department of Conservation New Zealand (DOCNZ), Wellington.
- MCINTYRE, N. (1999). Towards Best Practice in Visitor Use and Monitoring Processes: A Case Study of Australian Protected Areas. In: Parks and Leisure, 2:1, p. 24-29.
- LAURENS, L. & COUSSEAU, B. (2000). La valorisation du tourisme dans les espaces protégés européens. Quelles orientations possibles? In: Annales de Géographie, 613, p. 240-258.
- MOSE, I.; WEIXLBAUMER, N. (2003). Grossschutzgebiete als Motoren einer nachhaltigen Regionalentwicklung? – Erfahrungen mit ausgewählten Schutzgebieten in Europa. In: Hammer, T. (ed.) (2003). Grossschutzgebiete – Instrumente nachhaltiger Regionalentwicklung. OEKOM-Verlag, München. p. 35 – 95.
- MOSE, I. (ed.) (2007). Protected Areas and Regional Development in Europe. Aldershot.
- NETZWERK ALPNER SCHUTZGEBIETE (ed.) (2002). Typologie der alpinen Schutzgebiete. Gesetzliche Grundlagen und Schutzformen. Die Dossiers des Alpinen Netzwerkes 8. Gap: Netzwerk Alpiner Schutzgebiete.
- NEWSOME, D.; MOORE, S. A.; DOWLING, R.K. (2002). *Natural Area Tourism. Ecology, Impacts and Management*. Multilingual Matters Ltd., Clevedon.
- PHILLIPS, A. (2004). Turning ideas on their head. The new paradigm for protected areas. Paper presented at the IUCN World Parks Congress 2003. Durban.
- RONMARK, T. (2005). Evaluating the role of collaborative planning in British Columbia's Parks and Protected Areas Management Planning Process (Masters Thesis, School of Resource and Environmental Management, Simon Fraser University), Vancouver.
- SIEGRIST, D.; HASS, S. & LINTZMEYER, F. (2007). SUSTOURPARK – Erfolgsfaktoren im alpinen Schutzgebietstourismus, Project report (unpublished). Rapperswil.
- SIEGRIST, D.; AUFDEREGGEN, M.; LINTZMEYER, F. & SPIESS, H. (2007). The Economic Potential of Regional Nature Parks in Switzerland. A case Study of the Planned Regional Nature Parks in the Canton of Bern. In: Mose, I. (ed.) (2007). Protected Areas and Regional Development in Europe. Aldershot, p. 213–230.
- SIEGRIST, D. & STUPPÄCK, S. (2002). Naturnaher Tourismus in der Schweiz. In: Anthos. Zeitschrift für Landschaftsarchitektur. p. 4-8.
- TROMMSDORFF, V. (1991). Innovationsmarketing. In: Marketing. Zeitschrift für Forschung und Praxis, 13:3, p. 178-185.
- STOLL-KLEEMANN, S. *et al.* (2006). Linking Governance and Management Perspectives with Conservation Success in Protected Areas and Biosphere Reserves (Perspectives on Biodiversity Governance and Management 1). Berlin.
- WEARING, S.L.; BOWDEN, I. (2000). The Need for a Paradigm Shift in Natural Resource Management. In: G. Worboys; T. DeLacy & M. Lockwood (eds.). Protected Area Management: Principles and Practice. Oxford University Press, Melbourne.
- WEIXLBAUMER, N. (2005). „Naturparke“ –Sensible Instrumente nachhaltiger Landschaftsentwicklung. Eine Gegenüberstellung der Gebietsschutzpolitik Österreichs und Kanadas. In: Mitteilungen der Österreichischen Geographischen Gesellschaft, 147:2005, p. 67-100, Wien.

ACKNOWLEDGEMENTS

The authors wish to express their gratitude to all park managers and tourism representatives who have participated and shared their expertise. We thank also the staff members of the Alpine Network of Protected Areas (AlParc) for their support. Stefanie Hass, Marco Aufderreggen from the University of Applied Sciences Rapperswil (Switzerland) and Oliver DeCaro have greatly contributed to the outcome of the survey and this paper.

Local Recreational Areas: Accounting for Peoples' Needs in the Development and Selection of Planning Instruments

Harry Spiess¹, Margit Mönnecke^{2a}, Karin Wasem^{2b} & David Kümin

¹ Institute of Sustainable Development, INE, Zurich University of Applied Sciences Winterthur, Switzerland. Email: spha@zhaw.ch

² Institute of Landscape and Open Space, University of Applied Sciences Rapperswil, Switzerland. Email: mmoennec@hsr.ch^a, karin.wasem@hsr.ch^b

Keywords: Local recreation, leisure trends, urbanization, urban sprawl, planning instruments, landscape planning, spatial planning, sustainable development.

Abstract: The goal of this research project is to indicate how peoples' needs for and expectations towards local recreation areas can be met by means of employing different formal and informal planning instruments. The examined instruments are also evaluated regarding their applicability for conflict resolution between locals, seeking recreation and other interests on land use. Further, the project investigates how a communication and cooperation process may improve the explanatory power and acceptance of planning instruments compared to the present code of practice.

Four case studies within the Swiss agglomerations of Zurich, Basle and Winterthur illustrate the functional capacity of the analyzed planning instruments. The evaluations of these case studies lead to recommendations concerning future implementation of the various planning instruments.

Zusammenfassung: Das Forschungsprojekt will Möglichkeiten aufzeigen, wie über informelle und formelle Planungsinstrumente die Ansprüche von Naherholungsuchenden an eine attraktive Alltagslandschaft verwirklicht werden können und inwieweit die betrachteten Instrumente geeignet sind, zur Lösung von Konflikten zwischen Naherholungsinteressen und anderen Raumnutzungsinteressen beizutragen. Ferner wird ermittelt, wie in einem kommunikations- und kooperationsorientierten Prozess die Aussagekraft und Akzeptanz von Planungen erhöht beziehungsweise im Vergleich zur derzeitigen Planungspraxis verbessert werden können.

Anhand von vier Fallbeispielen in den Schweizer Agglomerationen Zürich, Basel und Winterthur wird die Zweckmässigkeit der eingesetzten Planungsinstrumente analysiert und illustriert. Die Evaluation dieser Fallstudien führt zu Empfehlungen betreffend der zukünftigen Anwendung der verschiedenen Planungsinstrumente.

INTRODUCTION

Urbanization and urban sprawl lead to rapid disappearance of attractive open landscapes in built-up areas. As a result, there is less space available for local recreational purposes, and people have to travel further distances to find the kind of landscape they are looking for. In order to tackle and hopefully improve this situation in the long term, adequate instruments for controlling the development of landscapes within built-up areas are essential.

This paper aims to show how different planning instruments can be implemented to achieve best outcomes for people seeking decent recreational areas. The planning instruments must aim at preserving an attractive landscape. The findings gained from this research between 2003 to 2007 provide the basis for recommendations concerning the future implementation of planning instruments, as well as for their future development.

METHODS

The following methods were applied:

1. *Analysis of existing studies*: In an extensive analysis of literature on the subject, the needs of people looking for local recreation and recent trends in the field of local recreation were identified and collected.
2. *Evaluation and analysis of planning instruments related to recreation¹*: The most suitable planning instruments, which result in local recreation facilities and landscapes preferred by the public, were evaluated.
3. *Analysis of case studies*: Four case studies (see short description in section below) were selected and evaluated based on a four level evaluation grid, adapted from MÖNNECKE (2000) (see TABLE 1). The following methods were used to analyze the questions given by the evaluation grid:
 - Analysis of existing documents such as meeting minutes, planning documents, development and implementation concepts, and previous scientific research.
 - Subject-specific, qualitative, guided expert interviews with representatives from public authorities, politics and the general public. The selection of interview partners was based on the respective project leaders' knowledge of parties concerned and involved.
 - Bachelor's thesis containing a non-representative survey of passers-by and field studies (in the case of Töss / Leisenthal).
4. *Comparison and discussion of the case studies*: The findings gained from the research provide the basis for formulating recommendations for the implementation of selected planning instruments in order to ensure that people's needs in the field of local recreation can be taken into account more effectively.

¹ The following planning instruments were evaluated: communal spatial plan (Kommunale Richtplanung), cantonal spatial plan (Kantonale Richtplanung), communal land use plan (Kommunale Nutzungsplanung), landscape development concept (Landschaftsentwicklungskonzept LEK), forest development plan (Waldentwicklungsplanung WEP), Local Agenda 21.

TABLE 1: Valuation levels
 (Source: adapted from MÖN-
 NECKE (2000)).

Valuation level	
I	Evaluation of objectives
	<ul style="list-style-type: none"> - Which objectives with respect to recreation were considered in the planning process? - Have the objectives been operationalized? Which design features are planned for implementation? - Did the planning process take into consideration the expectations of relevant stakeholders?
II	Evaluation "state of the art"
	<ul style="list-style-type: none"> - To what extent are the requirements from a professional point of view included? - To what extent are possible requirements of future users considered? - To what extent should further aspects of recreational land use be implemented?
III	Evaluation of the process
	<ul style="list-style-type: none"> - Which instruments have been implemented in order to assess the expectations of future users? - How was the involvement, collaboration, participation of stakeholders organized? - Has a solution been reached that gains wide acceptance among relevant stakeholders? - Which conflict solving strategies are ready to be implemented?
IV	Evaluation of the contribution to sustainable development (where available)
	<ul style="list-style-type: none"> - Ecological dimension: to what extent has living space for people, animals and plants been preserved, and to what extent can natural resources be used considering the quality of life of future generations? - Economic dimension: to what extent has the well-being and development capacity of the economy been considered? - Social dimension: to what extent has society (people, their lives and development, solidarity and well-being) been considered?

RESULTS

Needs and activities of individuals seeking recreation

The literature survey yielded the following results:

- Desires to experience nature and attractive landscapes, to recover and enjoy quietness, the opportunity to exercise as well as other health aspects are most prominent. These are followed by the desire to experience social interaction, for example with friends, colleagues, or family. In this respect all studies surveyed basically came to the same results (LAMPRECHT & STAMM 1993; NOHL 2001; THÉLIN 1983; SEELAND 1999; ZEIDENITZ 2005).
- The most frequent activities of people seeking recreation include strolling, walking dogs, and hiking, while sporting activities like jogging, cycling, mountain biking, and swimming seem somewhat less important. Newer trend activities such as nordic walking, snowshoeing or skating hardly receive any attention in the studies surveyed (BUWAL 2000; FRICK & BUCHECKER 2005; JACSMAN 1994; HOISL *et al.* 2000; LAMPRECHT & STAMM 1993; NOHL 2001; SCHMITTHÜSEN & WILD-ECK 2000; SEELAND 1999; THÉLIN 1983; ZEIDENITZ 2005).
- The high number of studies focusing on recreational activities in forests (BAUR 2003; BERNASCONI *et al.* 1998; BUWAL 2000; BUWAL 1999; ELSASSER 1996; GASSER 1997; JACSMAN 1997, 1994; ROSCHEWITZ 2003) shows the high importance attached to such

areas – while, for example, lakes, rivers, outskirts of forests, or agricultural areas have received only little attention up to the present.

- In order to balance the high density of visitors in forests nearby cities, more efforts are required to increase the attractiveness of open landscapes (e.g., agricultural landscapes) for individuals seeking recreation. Increasingly, strategies and concepts focusing on the redesign of open landscapes are required in order to respond to the demands of the respective individuals (e.g., infrastructure, accessibility, etc) (BECKER et al. 1992; BUWAL 2000; LAMPRECHT & STAMM 2000; NOHL 1991; OPASCHOWSKI 1986; ZEIDENITZ 2005).

Leisure trends

Trends indicate a continual, significant growth in both indoor and outdoor recreational activities, even with no population increase. This will inevitably lead to an increased use of open spaces in built-up areas.

The trend towards even more rapid sequencing of activities (recreation, sports, work, family), or towards the simultaneous practice of different activities ('multitasking') will increase and will become an important factor in the development of local recreation areas in European agglomerations.

However, the focus on trend sports should not be overestimated. Focussing on Germany, OPASCHOWSKI (2004) finds that only a small fraction of the population is attracted to 'trend sports' and that the demographic trends towards an aging population will lead to an increase in more relaxing activities such as walking, hiking, and cycling.

TABLE 2 presents the results of the analysis of the literature addressing current and future trends in leisure and recreation relevant for spatial planning in built-up areas (BAUD-BOVI & LAWSON 1998; BECKER et al. 2004; ESCHER et al. 2000; GERKEN & KONITZER 1996; KLEINHANS 2000; LAMPRECHT & STAMM 1993, 2002; OPASCHOWSKI 2004; RUPE 2000; SCHÄFER 1995; SCHWIER 1998; WÖHLER 2003; ZEIDENITZ 2005).

Leisure and recreation trends		Current importance	Anticipated development over the next 10 to 20 years	Relevancy regarding recreation in agglomeration areas	
				Impact on landscape change (Quality)	Pressure on landscape (Quantity)
Fitness sports, outdoor (Jogging)		●●●	→	●	●●●
Club sports, outdoor (soccer, tennis)		●●●	↘	●●●	●●
Indoor sports (badminton, volleyball, gymnastics, etc.)		●●●	↗	●	●●
Trend-sports	'Soul sports' (mountain biking, windsurfing, inline skating)	●●	→	●●●	●●●●
	Fun sports (parasailing, verti-biking, bungee-jumping)	●	↗	●●	●●●
	Extreme sports (ice-fall-climbing, cave-diving)	●	→	●●	●
	Thrill sports (base-jumping, canyoning)	●	→	●●	●●
'Being outdoors' (walking, hiking, biking)		●●●●●	↗	●●	●●●

TABLE 2: Leisure and recreational trends and their impacts.

Wellness	○○○	→	○	○
Event shopping	○○	↗	○	○
Amusement parks	○○	↗	○○	○
Mega events in sports and culture	○○	↗	○○	○
Virtual recreational offers (video games, play stations, virtual hotels)	○	→	-	-

Key: ○ low relevance
 ○○○○○ high relevance

Case studies

The following four projects, in which areas close to built-up areas have been re-developed, were selected and evaluated:

1. *Development plan Salina-Raurica (vicinity of Basle)*

The open area between 'Schweizerhalle' and 'Augst', delimited by the Rhein and the highway A2/A3 as well as the area of the roman city 'Augusta Raurica' shall become an area accommodating high quality living and workplaces within a time frame of 10 to 20 years. It is the largest extension of a residential area and infrastructure of the Canton Baselland. The combination of different land uses such as leisure, recreation, events, and exhibitions, are meant to create an outstanding character defining a label that will show effects beyond the actual region itself (AMT FÜR RAUMPLANUNG KANTON BASEL-LANDSCHAFT 2002). The guiding principles of the development plan for Salina-Raurica were elaborated in three studies conducted by private organizations in 2002; implementation of the development plan will follow with a special cantonal spatial plan (Spezialrichtplan).

The evaluation on the three levels 'Objectives', 'State of the Art' and 'Process' (see section 'Methods') revealed that only within the participation process little effects regarding recreational usage are yielded. It is most likely that this is due to the fact that recreational usage received only relatively little weight within the participation process.

Nevertheless, all in all the participation process should receive sufficient credit. It created a good communication basis and intensified cooperation on different planning levels, even if not all expectations could be fulfilled. Especially on the side of public authorities improved coordination between different planning projects (e.g., between the canton and municipalities, different municipalities as well as within individual municipalities) could be observed. The initial position improved to transform the area of Salina Raurica into an attractive residential and work area.

2. *Landscape Development Concept LEK 'Limmtraum Zürich'*

The perimeter of the LEK 'Limmtraum' (SCHUBERT 2000) extends from the Bernoulli residential area in Zurich to the 'Erdbeeri-Feld' Schlieren, ZH. The 'Limmtraum' is characterized by a variety of different land uses. In addition to recreational use, the area also provides for nature conservation, living space, waste disposal as well as farming. LEK Limmtraum's objective is to mitigate current and future conflicting interests as well as to exploit opportunities to valorize and optimize a goal oriented development of the 'Limmtraum'. Public authorities, users as well as the general population were involved in the project at an early stage.

The evaluation showed that the acceptance of the project 'Limmtraum' in the population was increased through a participation process. Different effects were identified that would not have been present without the participation process. Existing conflicts of interest were made transparent and solutions were found within and beyond the LEK Limmtraum.

3. **Land-use Concept 'Allmend Brunau Zurich'**

Since the end of military activities in the year 1987 the Allmend Brunau, in the southern outskirts of Zurich, has been open to recreational use and effectively used by different groups (GRÜN STADT ZÜRICH 2003). The increasing usage of the surrounding area for infrastructure projects such as highways, road tunnels and railway tubes as well as the continually increasing usage pressure have led the City of Zurich to initiate an intensive participation process in order to define how the area should be used in future. The result of this process is a land-use concept that forms the basis for the implementation of development intensions in the form of individual subprojects.

The evaluation yielded positive results for the participation process. It initiated different effects that would not have taken place otherwise. The broad analysis of needs formed the basis for decisions and lead to a concept supported by a majority in both the general population as well as in parliament. The involvement of concerned parties lead to adjustments of subprojects and to improved solutions (e.g., for the location of the bike park).

However, not all impulses that were created within the participation process were beneficial for the new concept and its implementation; for example the skater park was delayed by objections, but the intensive discussion of the subject at hand lead to an overall more careful planning and to better solutions. It will be especially important to maintain good communication. The public and the parties concerned should be informed at length on a regular basis about ongoing and future measures as well as implementation steps.

4. **Development and implementation Concept Töss / Leisental, Winterthur**

The case study 'Töss' investigated a small project. Its aim was to allow a river to re-find its natural course (PICTURE 1). At the end of the 1990s, a decision was taken to allow the river more freedom in certain sectors rather than to renovate existing dams. Until now, only a few interventions have been made. The development of the landscape (SUTER VON KAENEL AG 1998) is mainly left to the forces of the river itself.



PICTURE 1: River section Töss/Leisental (Winterthur) with a renaturation of the natural course / Source: MARINELLO 2005.

During the realization of the development and implementation concept, several potential conflicts between goals, such as groundwater supply, forest use, protection of nature, and research requirements were identified (RUEEDE 1999, 1997). Authorities managed to reduce the conflict potential by creating a trans-disciplinary 'core group' (FIGURE 2), (VON RIJCKEVORSEL 2001). As a result it was possible to plan and implement the project comparatively quickly.

The development and implementation concept 'Töss / Leisental' in Winterthur was evaluated on all four levels: 'Objectives', 'State of the Art', 'Process', and 'Contribution to Sustainable Development' (see section 'Methods'). It is interesting to note that people's interest for local recreation opportunities were only included marginally. Nevertheless, when questioned on the subject², comments made both by experts and passers-by at the actual location of the project indicate a high level of acceptance of the river project's goals. Future research will have to validate whether the following quote is universally applicable: 'as long as we shape attractive river landscapes, people will come to see them'.

The maintenance and development concept 'Töss / Leisental' contributes to a sustainable development if the formulated and implemented measures are economically efficient, ecologically acceptable, and socially equitable. Since the objective designs a gradual renaturation of the river, we assume that the requirement for ecological acceptability is fulfilled. Whether the measures are economically efficient or not, can not yet be concluded. Although it is a stated objective of the concept to reduce the running costs by renaturing the river, the economic consequences for forestry and the operator of the groundwater wells remain ambiguous to date. Finally, social equitableness is hardly affected. A final evaluation with respect to sustainability will become possible when larger sections of the river are renaturated and first observations and experiences can be analyzed.

Process Flow

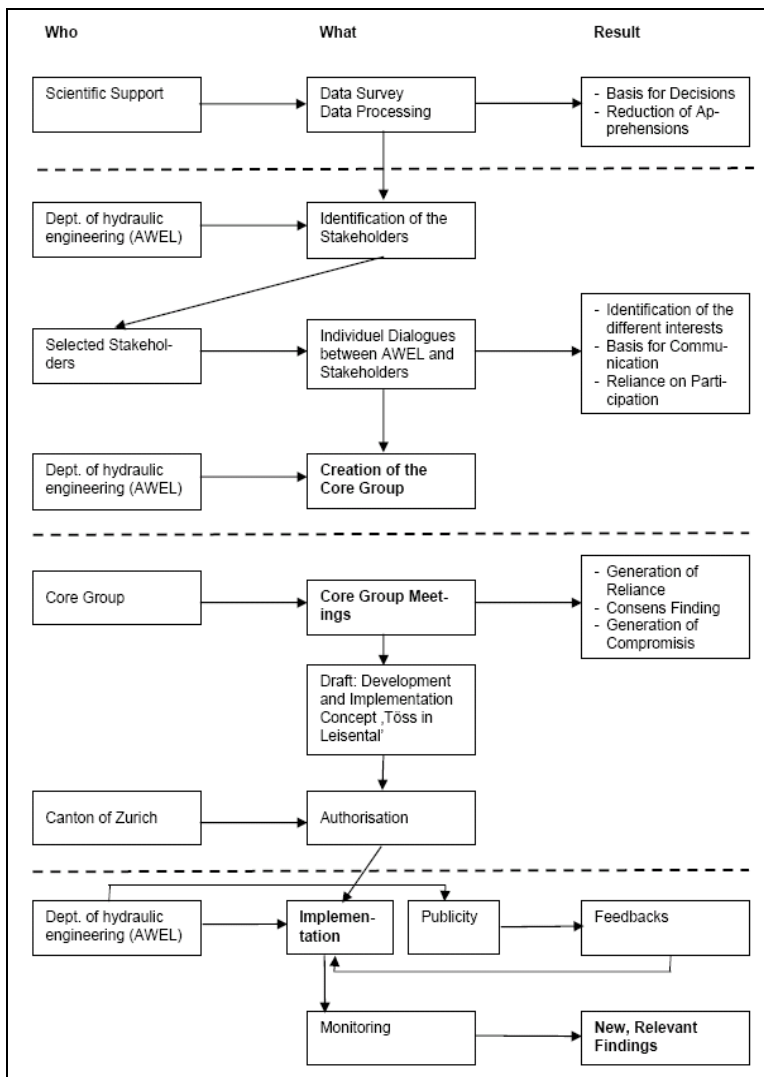


FIGURE 1: Process: Development and implementation concept 'Töss - Leisental' (source: own depiction).

CONCLUSIONS

A comparison of the four case studies based on the dimensions presented in TABLE 1 lead to the following conclusions.

Dimension I: Evaluation of objectives

The goals formulated in the planning documents are principally dedicated to aesthetics (e.g., within the context of rehabilitating river sections) and infrastructure (e.g., roads and pathways). The categories relating to the use of natural environments (e.g., the creation of natural areas requiring no maintenance and suitable for both children and young people), resolving conflicts (e.g., between various leisure activities such as cycling and walking, or between leisure activities and environmental protection), and the designation of areas for leisure (e.g., areas for peaceful, contemplative relaxation, fun and games, etc.) are considered to a lesser degree.

Dimension II: Evaluation 'State of the Art'

All case studies concentrate on upgrading the leisure potential of less attractive areas (e.g., opening up streams, rehabilitating natural environments). Additional leisure-time opportunities will be created, such as skating and cycling facilities along the banks of the Sihl and the Limmat.

Only the implementation concept of the project 'Allmend Brunau' systematically determined the needs of people seeking leisure and relaxation before the planning process.

The needs of future user groups, which should be taken into account, are not explicitly addressed in the case studies. The reason for this is that it is rather difficult to give substantial weight to potential future user groups in the participation process since current users and inhabitants are generally not prepared to consider such needs when „their“ local leisure facilities are at stake.

Dimension III: Evaluation of the Process

All examined planning processes included some form of collaboration at different stages of the processes. However, the precise form of collaboration was different in each project. In all case studies, the participation process led to improved communication and collaboration between the various actors (authorities, politicians, citizens):

- Involvement of the local population;
- Involvement of young people (e.g., skate-boarders and cyclists in the case of the 'Allmend Brunau');
- Improved exchange between cantonal, community and federal authorities;
- Focussed public relation work involving experts ('Töss/Leisental').

Thanks to a close collaboration between different actors throughout the planning processes, various goals were achieved. However, the right selection of participants to involve is a key factor for success.

Participative processes lead to new expectations of those involved. It is important that the goals of collaboration, the possibility to influence participants and especially the relationship between collaboration and decision-making are clearly defined and communicated.

However, the analysis also revealed the limitations of participatory processes, especially when applied to meetings that target a very heterogeneous audience. Not all participants were able to accommodate the views of others, keeping strictly to their initial position. As a conclusion, participatory processes are instruments best used for the analysis of requirements and needs, rather than for resolving conflicts.

It can be assumed that participatory processes have led to a broader acceptance of the various projects within the relevant population. Most of the requirements and objections expressed could be accommodated in the design of the projects. In all the case studies, certain stakeholders felt they had been inadequately included in the process. In such cases, it

was found to be important to continue the dialogue with these groups, and to keep looking for potential solutions acceptable to all participants concerned. A suitable concept concerning information and communication, at both the planning and the implementation stages proved to encourage acceptance.

Dimension IV: Evaluation "Sustainability"

Only one case study ('Töss') was evaluated regarding its contribution to sustainable development. Whether projects are really economically efficient, ecologically viable, and socially acceptable can only be evaluated precisely when the initial steps towards transformation have been taken, and the consequences of the measures employed can be observed at least to some degree.

On the level of development and transfer concepts it becomes clear that the main focus of the planned measures is rarely equally distributed between the three sustainability dimensions: economy, society, and environment. In the 'Töss' case study, for example, the main focus clearly resided on the ecological dimension.

DISCUSSION

The study revealed important insights but also showed various aspects which require further research:

- *Selection of participants to be included in the participation process:* The evaluation of the four case studies revealed that the careful selection of participants is a major challenge. The difficulty resides in the necessity to identify all those persons who will be affected by a specific project either positively or negatively. At the same time a high number of participants is more likely to substantially complicate the process.
- *Significance of the soft location factor 'local leisure':* Additional sound knowledge of the significance of the soft location factor '(local) leisure' compared to the classical location factors is absolutely vital and necessary. This would provide planners and politicians with the necessary arguments to increasingly include leisure aspects into planning processes.

Local leisure time facilities are increasingly being seen as a relevant marketing factor for communities, towns, and regions. The most immediate and closest available leisure facilities play an increasingly important role when choosing either where to live or where to set up a business. However, the relative importance of the leisure factor compared to other classic location factors (e.g., availability of highly qualified employees, communication networks, taxation, etc.) remains unclear.

- *Representative surveys on leisure-time needs outside the forests:* In order to counteract the sometimes extremely high numbers of people who visit nearby forests, and the constantly diminishing proportion of open and green spaces, a greater effort should be put into making agricultural and cultural landscapes more attractive for leisure time activities.

RECOMMENDATIONS FOR PRACTICE

The following recommendations are the result of the evaluation of planning instruments and the analysis of the four case studies:

- *Combination of formal and informal planning instruments¹:* In order to implement goal- and result-oriented planning instruments, the following elements should be combined with a clear purpose in mind: formal instruments, such as general guidelines on spatial planning, land use planning and zone selection planning, are mainly suitable for ensuring and establishing leisure requirements. Informal instruments,

such as landscape development concepts, forest development planning and Local Agenda 21 are particularly suitable for dealing with the needs of individuals seeking leisure.

- *Creation of 'nature experience' as well as spaces to encourage learning about nature:* Within the future planning framework it is important to pay more attention to the needs of both children and young people. Natural areas requiring no maintenance (e.g., quarries, gravel pits, former fields, areas in the forest) which are left to themselves and which can be designed and changed have become rare in residential areas (SCHEMEL 1998).
- *Orientation on success factors:* previously gathered experience and knowledge for identifying success factors shows that project results are not only influenced by the content structure of a project but also by the procedural form, the way a project is carried out, and the behavior of the participants. The studies undertaken by WOLF & APPEL (2003), STOLL (1999), BRENDLE (1999) and WIENER & RIHM (2002) offer an overview of success factors for the planning and transfer of projects within the fields of sport, leisure, tourism, mobility, and nature protection.
- *Equal and timely inclusion of all relevant actors:* It is essential to ensure that all relevant actors are equally included in all phases of the planning process.
- *Win-win situation for all participating actors:* If the planning process shall be successful and accepted, it is absolutely vital that it results in an improvement of the situations of all individual actors.
- *Speedy transfer of measures:* A speedy transfer of measures encourages motivation and ensures that the same people can be involved at all stages, from conflict resolution to transformation.
- *Monitoring and controlling:* To ensure that the measures taken are effective, it is essential to ensure that both the measures and regulations are monitored and adhered to after implementation.
- *Establishing a communication concept:* Successful planning processes contain communication concepts, which describe how agreements, measures, and regulations are communicated to all the relevant parties concerned.

REFERENCES

- AMT FÜR RAUMPLANUNG KANTON BASEL-LANDSCHAFT (2002). Arbeitsprogramm zur Erarbeitung von Studienaufträgen im Rahmen des Projekts, Salina-Raurica. Arbeiten Wohnen Wissen Erleben am Rhein'. Bau- und Umweltschutzdirektion Kanton Basel-Landschaft, Basel.
- BAUD-BOVY, M. & LAWSON, F. (1998). Tourism and Recreation Handbook of Planning and Design. Architectural Press, VIII, Oxford.
- BAUR, B. (2003). Freizeitaktivitäten im Baselbieter Wald - Ökologische Auswirkungen und ökonomische Folgen. In: Quellen und Forschungen zur Geschichte und Landeskunde des Kantons Basel-Landschaft, Band 84, Verlag des Kantons Basel-Landschaft, Liestal.
- BECKER, CH. et al. (2004). Geographie der Freizeit und des Tourismus: Bilanz und Ausblick. Oldenbourg, München.
- BECKER, CH. et al. (1992). Umweltschonende Konzepte der Raumordnung für Naherholungsgebiete, Belastungen, Lösungs- und Planungsansätze, Verwaltungsstrukturen. Geographische Gesellschaft Trier, Trier.
- BERNASCONI, A. et al. (1998). Freizeit im Wald - zehn beispielhafte Konfliktlösungen, Arbeitsgemeinschaft für den Wald, Zürich.
- BRENDLE, U. (1999). Musterlösungen im Naturschutz-Politische Bausteine für erfolgreiches Handeln. BfN-Schriftenvertrieb im Landwirtschaftsverlag, Münster.

¹ 'Formal' planning instruments are planning instruments that meet legal requirements; 'informal' planning instruments include aspects beyond legal requirements.

- BUWAL (2000). Freizeit im Wald: Schlussbericht, Bern.
- BUWAL (1999). Gesellschaftliche Ansprüche an den Schweizer Wald. Meinungsumfrage, Bern
- CONDRAU, V. *et al.* (2002). Projektphasen, Umsetzung, Erfolgskontrolle. In: Werkzeugkasten LEK. Eine Arbeitshilfe zum Erarbeiten von Landschaftsentwicklungskonzepten (LEK). HSR & SRVA, Rapperswil.
- FRICK, J. & BUCHECKER, M. (2005). Erhebung der Wohnqualität und Erholungsnutzung im Raum Hönningerberg-Affoltern. Forschungsbericht mit limitierter Zirkulation der Eidg. Forschungsanstalt WSL, Birmensdorf.
- GASSER, G. (1997). Aktivitäten der städtischen Forstverwaltung Liestal (BL) in der Wahrnehmung von Waldbesucherinnen und Waldbesucher, Arbeitsbericht. In: Allgemeine Reihe: 97:1, Professur für Forstpolitik und Forstökonomie ETH Zürich, Zürich.
- GRÜN STADT ZÜRICH (2003). Entwicklungsplanung ‚Allmend Brunau‘. Nutzungskonzept, Zürich.
- HOISL, R. *et al.* (2000). Naturbezogene Erholung und Landschaftsbild. Handbuch. KTBL-Schrift 389. KTBL, Münster.
- JACSMAN, J. & SCHILTER, R.CH. (1997). Nutzung des Bodens für Sport, Erholung und Tourismus. Teil 1: Grundnutzungen. In: Berichte zur Orts-, Regional- und Landesplanung, Bd. 102, Zürich.
- JACSMAN, J. (1994). Der Wald als Erholungsraum. In: Schweizer Wald, 5:94, p. 15-94, Zürich.
- LAMPRECHT, M. & STAMM, H. (2002). Sport zwischen Kultur, Kult und Kommerz. In: Seismo, Sozialwissenschaften und Gesellschaftsfragen, Zürich.
- LAMPRECHT, M. & STAMM, H. (2000). Sport Schweiz 2000. Sportaktivität und Sportkonsum der Schweizer Bevölkerung. Schweizerischer Olympischer Verband, Sport-Toto-Gesellschaft, Basel, Bern.
- LAMPRECHT, M. & STAMM, H. (1993). Dimensionen und Determinanten der Sportaktivität. Forschungsstelle Sportsoziologie ETH und Soziologisches Institut der Universität, Zürich.
- MARINELLO, T. (2005). Der Naherholungsnutzen des Flussrenaturierungsprojektes Töss-Leisental in Winterthur (unpublished). Bachelor Thesis at the Zurich University of Applied Sciences Winterthur (ZHAW), School of Management (EDA 5041), Winterthur.
- MÖNNECKE, M. (2000). Evaluationsansätze für die örtliche Landschaftsplanung. Grundlegung, Konzipierung und Anwendung. Dissertation am Fachbereich Landschaftsarchitektur und Umweltentwicklung der Universität Hannover, Hannover.
- NOHL, W. (2001). Landschaftsplanung: ästhetische und rekreative Aspekte: Konzepte, Begründungen und Verfahrenshinweise auf der Ebene des Landschaftsplans. Patzer, Berlin.
- OPASCHOWSKI, H.W. (2004). Deutschland 2020: Wie wir morgen leben - Prognosen der Wissenschaft. Verlag für Sozialwissenschaften, Wiesbaden.
- OPASCHOWSKI, H.W. (1986). Freizeit im Grünen. BAT Freizeit Forschungsinstitut, Hamburg.
- ROSCHWITZ, A. (2003). Der Erholungswert des Zürcher Waldes- gestern und heute. Forschungsanstalt WSL, Birmensdorf.
- RUEEDE, A. (1999). Sozialwissenschaftliches Monitoring der Umgestaltung im Tössacher. (unpublished), Küsnacht.
- RUEEDE, A. *et al.* (1997). WissenschaftlerInnen und Regionale Akteure im Dialog. EAWAG, Kastanienbaum.

- RUPE, CH. (2000). Trends im Abenteuersport – Touristische Vermarktung von Abenteuerlust und Risikofreude. In: *Tourismus – Beiträge zu Wissenschaft und Praxis - Band 1*, Universität Lüneburg. Karlheinz Wöhler, Hamburg.
- SCHEMEL, H.-J. (1998). Naturerfahrungsräume. In: *Angewandte Landschaftsökologie*, Heft 19. Bundesamt für Naturschutz, Bonn.
- SCHMITTHÜSEN, F. & WILD-ECK, P. (2001). Uses and perceptions of forests by people living in urban areas: findings from selected empirical studies. In: *Forest Policy and Forest Economics*, Zurich.
- SCHUBERT, B. (1999). Landschaftsplanung im ‚Periurbanen Raum‘. In: *Forum für Wissen 1999, Biosphärenpark Ballungsraum*, 1. Eidgenössische Forschungsanstalt WSL, Birmensdorf.
- SEELAND, K. (1999). Periurbane Natur im Spiegel zukünftiger Nutzungsbedürfnisse. *Forum für Wissen 1999*, 1:7-11. Eidgenössische Forschungsanstalt für Wald, Schnee und Landschaft, Birmensdorf.
- SUTER VON KAENEL AG (1998). Unterhalts- und Entwicklungskonzept: Töss im Leisental (unpublished). Baudirektion Kanton Zürich. AWEL, Zürich.
- THÉLIN, G. (1983). Freizeitverhalten im Erholungsraum. Freizeit in und ausserhalb der Stadt Bern – unter besonderer Berücksichtigung freiräumlichen Freizeitverhaltens am Wochenende. Arbeitsgemeinschaft Geographica Bernensia in Zusammenarbeit mit dem Geographischen Inst. der Uni. Bern und der Geographischen Gesellschaft von Bern. Geographica Bernensia (ed.), Bern.
- VON RIJCKEVORSEL, P. (2001). Stakeholder involvement in river rehabilitation. EAWAG, Kastanienbaum.
- WIENER, D. & RIHM, I. (2002). Erfolgsfaktoren und Qualitätsstandards partizipativer Prozesse in Gemeinden, Quartieren, Städten und Regionen. Vorstudie. ecos.ch, Basel.
- WÖHLER, K. (2003). Virtualisierung von touristischen Räumen. In: *Tourismus Journal*, 7:2, p. 237-250, Lucius & Lucius, Stuttgart.
- WOLF, A. & APPEL, E. (2003). Wirksamkeit freiwilliger Vereinbarungen zwischen Natursport und Naturschutz. Abschlussbericht. Universität Duisburg-Essen.
- ZEIDENITZ, C. (2005). ‚Freizeitaktivitäten in der Schweiz - wegen oder gegen Natur und Landschaft?‘ Eine umweltpsychologische Studie zu Motiven, Einstellungen und Lenkungsstrategien. Eidg. Forschungsanstalt für Wald, Schnee und Landschaft, Birmensdorf.

ACKNOWLEDGEMENTS

This research was supported by the research funds of: Federal Research Institute for Forestry, Snow and Landscape (WSL), University of Applied Sciences Rapperswil, Zurich University of Applied Sciences Winterthur and by public Agencies: Green City Zurich (GSZ), Cantonal Agency for Spatial Planning and Survey of Zurich (ARV), Cantonal Agency for Waste, Water, Energy and Air of the Canton of Zurich (AWEL) and the Cantonal Agency for Spatial Planning of the Canton of Basle.

The Authors would like to acknowledge the contributions made by the staff of the ‘Institute of Sustainable Development’ in Winterthur and the ‘Institute of Landscape and Open Space’ in Rapperswil.

Outdoor Activities in Nature and Landscape – Practice-Oriented Solutions

Margit Mönnecke¹, Karin Wasem² & Dominik Siegrist³

University of Applied Sciences Rapperswil, Institute for Landscape and Open Space, Oberseestrasse 10, 8640 Rapperswil, Switzerland. Email: margit.moennecke@hsr.ch¹, karin.wasem@hsr.ch², dominik.siegrist@hsr.ch³

Keywords: Outdoor activities, nature sports, sensitization, good practice examples, environmental communication, conflict resolution, success factors, toolbox

Abstract: Outdoor-oriented sport activities that have a proven positive effect on human health can lead to massive strain on nature and landscape. There are different approaches and strategies to solve the conflict between nature conservation and sports interests. Some of these approaches have been applied in practice. However, there is insufficient knowledge about the success and efficacy of the applied measures.

The objective of the study was to perform evaluations of measures that were applied and tested in six concrete case studies. On this basis, suggestions, recommendations, and information for conflict resolution in the area of sports and nature conservation were presented in the form of a toolbox which is a component of the internet platform "NaturSportInfo". Focus is placed on the spreading of information regarding conflict resolution that sportsmen can access at appropriate locations.

Zusammenfassung: "Outdoor"-orientierte Sportaktivitäten, die erwiesenermassen eine positive Wirkung auf die menschliche Gesundheit haben, können zu beträchtlichen Belastungen für Natur und Landschaft führen. Es liegen unterschiedliche Ansätze und Strategien vor, wie der Konflikt zwischen Naturschutz und Sportinteressen gelöst werden kann. Ein Teil dieser Ansätze ist in der Praxis angewandt worden. Ungenügend sind hingegen die Kenntnisse über den Erfolg und die Wirksamkeit der propagierten Massnahmen.

Ziel der Arbeit war, Evaluationen von Massnahmen durchzuführen, die in konkreten Fallbeispielen angewandt und erprobt wurden. Auf dieser Grundlage wurden adressatenorientiert Hinweise, Empfehlungen und Informationen zur Lösung von Konflikten im Spannungsfeld Sport und Naturschutz in Form einer Toolbox als Bestandteil der Internet-Informationsplattform "NaturSportInfo" präsentiert. Ein besonderer Schwerpunkt liegt auf der Vermittlung von Informationen zur Konfliktlösung, welche die Sportler an der richtigen Stelle abholen sollen.

INTRODUCTION

Starting position

Sports belong to our everyday culture. Activities that are practiced outdoors or that are linked to the enjoyment of nature are in unfailing demand. Positive effects on health and positive perceptual experiences are undisputed. However, the effects of outdoor activities can also lead to behavioral change in wildlife, loss of habitat for plants and animals, physiological changes and death of individual organisms (INGOLD 2005; BAUR 2003; SCHNIDRIG-PETRIG & INGOLD 2001; SUCHANT 2003). Good solutions to these problems should therefore seek to maximize the positive benefits of outdoor activities while minimizing the negative impacts on nature and landscape.

There are different possible approaches and strategies to resolve conflicts effectively (see among others AUBE 2002; SCHEMEL & ERBGUTH 2000; LORCH 1995; WEBER 1998; BUWAL 1997). The suggestions for conflict resolution range from individual technical and organizational measures, legal restrictions and directives, steering measures, zoning, exclusion of sensitive areas, appeals, distribution of information, incitation, landscape shaping, creation of special areas (e.g., bike courses), to voluntary agreements and commitments between sports associations and nature conservation organizations (INÖK 2004).

Previous studies have examined voluntary agreements (WOLF & APPEL 2003), acceptance of steering measures, and stakeholder's compliance with the resolutions (ZEIDENITZ 2005; KAISER 1999). However, there is insufficient knowledge about the success and efficacy of the applied measures.

Project Goals

The project's goal was to evaluate existing measures and methods of resolution regarding conflicts between outdoor activities and nature protection. On the basis of different approaches of problem solving (e.g., zoning concepts, voluntary agreements and commitments, adoption of new laws) applied in six case studies, helpful indications and recommendations for practitioners and management authorities dealing with such conflicts were expected.

In this context, the following research questions were pursued:

1. What measures and methods of resolution were applied and how did they function?
2. What were the main reasons for success or failure with regard to a) the process design and the stakeholders' willingness towards a solution, b) the implementation of and adherence to measures, and c) the awareness and acceptance of measures?
3. Which are the main success factors for resolving conflicts between outdoor activities and nature conservation?

METHODS

Evaluation is to be understood as a task, by which "Programs, plans, projects, instruments and measures are rated from different points of view (e.g., scope, content, implementation, planning process, results, costs, convenience) through the application of corresponding methods (...)" and "(...) predominantly measured by their implementation and their effects," (MÖNNECKE 2000).

In our investigation we used the approach frequently called "summative" or "ex-post". This type of evaluation has the aim of summarily judging the results or the effects of past planning or measures (after implementation and/or execution) (see BORTZ & DÖRING 1995). In this context, the term "efficacy" refers to:

- The execution of measures: it is necessary for measures to be implemented in order to achieve the aspired positive effects.
- Durability: Most methods of resolution are oriented towards long-term effects. Thus, evaluation procedures are required to ensure the stability and lastingness of the approaches.

Evaluation Procedure

For the evaluation a procedure was elaborated that examined the applied measures and methods of resolution on three levels. To derive evaluation criteria, results from previous studies were taken into account during this elaboration procedure (see APPEL 2002; BRENDLE 1999; WOLF & APPEL 2003; BROSCHE 2002; PENKER 2001; MÖNNECKE 2000).

Level of investigation "Process design and stakeholder's willingness towards a solution"

The goal of this level of investigation was to find out if and how far the process design, from the definition of the problem to the implementation of resolution measures, has a measurable influence on the success of the problem solving. The following evaluation criteria were devised:

- Inclusion of relevant stakeholders;
- Use of instruments for enhancing communication and cooperation (e.g., discussion groups, round tables);
- Existence of a common problem definition;
- Possible win-win situation for the parties involved;
- Transparency of the process and ability to relate to it.

Level of investigation "Implementation and adherence to measures"

Solutions can only be effective if they are implemented. The goal of this level of examination was to evaluate if/which measures of conflict resolution were implemented. Moreover, it had to be analyzed to what extent measures were introduced to ensure compliance and longevity of conflict resolution. The evaluation criteria were established as follows:

- Execution of the established solutions and measures;
- Application of measures to the main conflicts;
- Enforcement and monitoring of adherence to measures and procedures;
- Risk of sanctions for non-compliance to directives or procedures.

Level of investigation "Awareness and acceptance of measures"

For adherence to and long term success of methods of resolution acceptance by stakeholders and their degree of awareness of directives and procedures are of central importance. The goal of this level of investigation was to identify these aspects as well as if initiatives have been made or activities undertaken to ensure awareness and acceptance of measures in the long-run.

With respect to this, the following evaluation criteria were selected:

- Degree of ignorance and criticism towards the defined approaches for problem resolution;
- Implementation of initiatives and activities regarding the distribution of information about directives and measures;
- Execution of special sensitization measures.

The case study approach was used for the evaluation of methods of resolution and measures that are applied in practice. Hence, a "mix of methods" with different forms of in-

vestigation was used. Along with the analysis of literature and documentation, interviews were undertaken with persons who were involved in the resolution process. These were partially structured, with questions guiding the discussion through the evaluation procedure. The choice of interviewees was made by taking into account the different viewpoints and attitudes of the relevant stakeholders towards the conflict situation. For each case study four to five qualitative interviews were held. To complete the picture, field trips were made to gather on-site information about the implemented measures.

Six case studies were carried out including the following sports activities: climbing (Sälifluh, Thal region), freeride skiing (Engelberg), hang gliding (Augstmatthorn), river-rafting (Vorderrhein), and other winter sports such as snow shoeing, cross country skiing, ski touring, and downhill skiing (Lombachalp, Habkern Municipality).

RESULTS

The following table shows the discovered conflicts as well as main measures and methods of resolutions which have been applied in the six case studies (TABLE 1):

Case study	Description of conflict	Main measures/methods of resolution applied
Climbing, Sälifluh	<ul style="list-style-type: none"> - Sälifluh is popular for local recreation and climbing; - rare species of rock flora and populations of rare wall lizards are endangered; - vegetation cover at the lower slopes as well as on the belays suffers from damage due to trespassing; - representatives of nature protection institutions want to prohibit climbing at Sälifluh and in other climbing areas. 	<ul style="list-style-type: none"> Elaboration of a protection concept with the following aspects: <ul style="list-style-type: none"> - restrictions for climbing; - reduction of trampling damage; - measures to promote vegetation in rocky conditions and at the lower slopes; - increasing public awareness; - voluntary events / patronage; - monitoring of results.
Climbing, Thal	<ul style="list-style-type: none"> - climbing boom at the end of the 1980s; - in Ramsfluh the protected zone is not respected by climbers; - 25 climbing routes have been established; - Ramsfluh is even mentioned in a local climbing guide; - rare Peregrin Falcons are barred from breeding. 	<ul style="list-style-type: none"> - agreements; - signage for climbing rocks; - public relation / increasing public awareness; - opening of new climbing rocks; - monitoring of results through inspections.
Free ride skiing, Engelberg	<ul style="list-style-type: none"> - freeride skiing has significantly increased in Engelberg; - restrictions and prohibitions are often not respected by sportsmen; - hooved game is in some parts significantly distracted in denning; - animals take flight and are pushed to move into other areas; - problems occur with concentration of live stock, e.g. damage of the vegetation and dying back of juvenescent plants. 	<ul style="list-style-type: none"> - markings at both sides of the slope; - entrance signs for freeride skiing; - penalties in case of rule violation; - erection of signs with rates for monetary penalties; - refusal of transportation as well as revocation of tickets and subscriptions by lift and cable car companies; - elaboration of spatial plans for outdoor sports activities; - improvement of communication.
Winter sports activities, Lombachalp	<ul style="list-style-type: none"> - sportsmen do not respect designated routes for snowshoeing, ski mountaineering, and freeriding; - trespassing in protected areas; 	<ul style="list-style-type: none"> - elaboration of spatial plans; - elaboration of concepts for visitor information and guidance; - monitoring of results.

TABLE 1: Description of conflicts and main measures and methods of resolution.

	– grouse habitat is severely disturbed.	
Hang gliding, Augstmatthorn	<ul style="list-style-type: none"> – considerable increase in hang gliding activity in the area of Augstmatthorn since the end of the 1980s; – chamois and Alpine ibex are pushed to seek refuge in the montane forest; – consequently, considerable damage of the juvenile trees by game and compromise of the forest's protective function; – breeding birds of prey (e.g. eagle) are disturbed by hang gliding activities. 	Agreement with the following content: <ul style="list-style-type: none"> – starts with hang gliders are prohibited in federal areas where hunting is banned (Jagdbanngebiet), seasonal restrictions for flights according to breeding seasons of chamois and Alpine ibex, abidance of minimum distances to aeries; – monitoring of results: observation journals, reporting of special observations, work group meetings.
River-rafting, Vorderrhein	<ul style="list-style-type: none"> – since the 1990s considerable increase of commercial river rafting tours; – simultaneous intensification of recreational use at the river banks; – decrease of the quantity of fish; – vegetation cover in places where rafting boats enter or leave the river suffers from tread damage; – disturbance of rare bird species; – destruction of spawning grounds and displacement of adult fish. 	Introduction of a new law on inland waterway transportation: <ul style="list-style-type: none"> – seasonal prohibition of access to river islands (landing and entering); – compulsory authorization of commercial river rafting; – education of coxswains; – no access to sensitive watercourses; – seasonal and temporary restricted access to watercourses; – abidance of minimum water levels; – start and end as well as stopovers of rafting tours only in authorized places.

The results of the six case studies are summarized in a kind of cross section view through the different levels of investigation.

Process design and stakeholder's willingness towards a solution

In several studies the premise for a successful process design lies in the competency and engagement of the implicated stakeholders. A common understanding of the problem is as necessary as the will to play a cooperative part in its resolution. This willingness to resolve is supported by field trips in groups and through objectification of the discussion through external opinion. In Sälifluh and in the Thal region (climbing) the appraisal of the climbing wall's situation took place on the basis of a previous study. The joint field trip to boulders and walls led to an objectification of the discussion between outdoor sports and nature conservation as well as rapid mutual agreement towards appropriate measures. In the Augstmatthorn case study (hang gliding) prepared maps were discussed in a working group until a general consensus over significant matters (e.g. number of flights) could be established. Thus a broadly accepted conflict evaluation was made possible.

Round tables or working groups were valuable forms of process participation. However, all relevant stakeholders must be integrated in the process. In the Lombachalp case study (winter sports) the whole process was delayed because the information and visitor management concept was handled excluding nature and wildlife authorities. Another important condition for successful process design is a mediation that is accepted by all parties. In the Augstmatthorn (hang gliding) and Lombachalp (winter sports) case studies the accepted mediation was an effective instrument to reach consensus. Similarly, public relations work is important in accompanying the processes. In the Sälifluh case study the use of different means of communication (e.g., press articles, excursions, information, and articles in climber's associations) contributed to the fact that climbers as well as the local population were informed of the protection concept for climbing boulders.

Implementation and adherence to measures

Usually stakeholder groups (climbing, hang gliding case studies) or appointed commissions (Lombachalp, winter sports) are responsible for the implementation and respect of the measures. However, in the river-rafting example (Vorderrhein) the conflict between municipalities, water sports, fishermen, and nature conservation was solved through the introduction of a new law.

The costs of implementation are divided in different ways, either on equal terms among stakeholder groups or, as the case may be, single groups or municipalities bear the main cost.

Implementation and compliance to measures occurs through guardianship of the climbing area, oral information from on site representatives, climbing rules (Sälifluh, climbing), indications on information panels (climbing, winter sports), or through recipient specific information (e.g. Augstmatthorn, hang gliding). In some cases monitoring to verify compliance to the implemented measures is declined because either financial resources are lacking, or it is assumed that social control for adherence to directives is so strong that actual monitoring is not necessary (Thal region, climbing). In the other case studies, as far as implementation has taken place, there is temporary monitoring (Augstmatthorn, hang gliding), an annual check of the results in the form of group visits (hang gliding; Lombachalp, winter sports) as well as an active visitor management supported by rangers. A verification of compliance hardly takes place in the case of river-rafting in which conflicts were resolved through legal measures. However, rafters who do not respect the rules are usually reported by fishermen or other (competing) rafting operators.

Awareness and acceptance of measures

In most case studies the degree of recognition of conflict resolution measures is estimated high and good. This was achieved through on site information panels (climbing, hang gliding, winter sports), information in climbing guides, internal distribution of information in associations and their institutions as well as through word of mouth propaganda (climbing, hang gliding). In parallel, wide PR work is undertaken with orientation meetings, press articles, excursions, and press releases. It is more difficult to reach non-local individuals for example in climbing areas or at the Vorderrhein where only rafting operators must obtain a license. Sportsmen outside of organizations, like canoeists, are not well informed about the rules that are applied.

Acceptance of the measures for conflict resolution is high in most of the investigated case studies. This can be explained by the fact that the measures are justified and comprehensible, and they may be adapted flexibly to different conditions (e.g., added climbing restrictions due to a nesting bird). It is also essential for acceptance that the new regulations are proportional (i.e., no absolute flight interdictions for hang gliding), that there is an equal treatment of all outdoor sports and activities in the resolution process, and that one sport does not solely carry restrictions (Augstmatthorn, hang gliding).

Moreover, in some case studies activities were organized to sensitize sportsmen to wildlife friendly behavior. A collective cleaning operation took place among members of the SAC (Swiss Alpine Club) and of nature conservation associations in the climbing areas of Sälifluh. A video, building awareness of conflicts between hang gliding and wildlife was included in the training curriculum of hang glider pilots.

DISCUSSION

The investigation of the case studies shows that good results for the resolution of conflicts between outdoor sports and nature conservation are not only determined by content but also by course of action during the process of resolution and by the attitude of implicated stakeholders (see APPEL 2002). Dynamic individuals known as key personalities, that have high personal engagement and readiness to assume responsibility as well as a good network and backing, are important to this process.

In parallel, the manner of proceeding for the inclusion of the different stakeholders in the process of resolution is of vital importance. It is particularly necessary to secure co-operation on equal terms of all stakeholders and in all phases of the resolution process. If actors are included too late (e.g., after evaluation of the problem) or passed by in decision-making one may reckon that these stakeholders will refuse the elected measures and regulations and will unnecessarily delay the process of conflict resolution (e.g., through opposition).

For a successful process it is indispensable that participating stakeholders have a common understanding of the problem. If this prerequisite is not met, it will not be possible to find a consensus-oriented solution. Measures on which consensus might be reached are characterized by preferably minimal restrictions on sports activities and assured ecological compatibility. This type of measure can only be developed in a common process if the methods of resolution lead to an improved situation for all involved stakeholders (win-win situation).

In the areas of conflict between outdoor sports and nature conservation it is again made clear that arguments for nature conservation must be well founded and comprehensible. A sign stating "Do not disturb wildlife" is not sufficient for winter sports users to understand why a sanctuary should not be skied or walked through, whereas a reference to the large loss of energy of the fleeing animals encourages understanding of the measure.

Predominantly planning oriented and persuasive strategies for resolution are employed in the analyzed case studies. Mostly one aims to solve existing conflicts through voluntary agreements. In several cases this approach was successful. However, one must also take into account the fact that such results come to be because of the potential sanctions in the form of prohibitions that are effective in the background. Voluntary agreements can produce solutions that act in favor of all participating stakeholders, while prohibitions can act in disfavor of one particular interest group.

The following significant aspects can be used for the resolution of future conflicts between outdoor sports and nature conservation:

1. Means are needed to transfer successful examples of conflict resolution to a larger circle of stakeholder groups like sports clubs, nature conservation associations, municipalities, and tour operators.
2. Ways must be found to inform non-organizational sportsmen and sensitize them to nature friendly behavior. Sportsmen that pursue their activity through organizations or organized events are easily reached through existing channels.
3. There are different strategies and methods to conflict resolution. It is important to sensitize sportsmen for potential negative impacts of their sport on nature and landscape. This aspect will gain importance in the future.
4. Communication of information or of regulations should be target group oriented as this gives a greater chance that the information reaches the desired recipient.

RECOMMENDATIONS FOR PRACTICE

The "Good solutions for conflicts between outdoor sports and nature" toolbox is a service that aims to make practical recommendations and basic principles for the resolution of conflicts between sports and nature conservation accessible to a large audience.

The toolbox has been elaborated on the basis of the analyzed case studies. It is a component of the web based information system "NaturSportInfo" (www.natursportinfo.ch) by the Federal Nature Conservation Agency (Germany) and the Federal Office for the Environment (Switzerland) and can be found at www.bfn.de/natursport/test/SportinfoHTML/toolbox.html.

The toolbox is directed to persons involved professionally or voluntarily with problems between the interests of outdoor sports and nature conservation. These can be representatives of municipalities, tourism organizations, sports and nature conservation associations, or cantonal authorities. Based on the main interests of these target groups the following key categories of the toolbox were defined:

- Since problems are often generated by a type of sport, or since users may be interested in a particular sport, the category Sport is a central window for entering the toolbox.
- In situations of conflict resolution communication processes are often the main concern. Therefore, Communication Pathways is the second main entrance window into the toolbox.
- For an effective implementation of the methods of resolution, a representative selection of criteria linked to success is helpful. Thus, Success Factors is the third entry point into the toolbox.

From the statements made in the previous chapter the communication pathways should be described more precisely. In situations of conflict the aim is to find suitable measures and apply them as quickly and effectively as possible. Hence, communication of the chosen measures is of paramount importance. In particularly successful cases multiple and diverse media were used (e.g., flyers, club newsletters, excursions) to sow the information as broadly as possible.

Simultaneously, some cases show that information (e.g., regarding wildlife sanctuaries) is insufficiently communicated or regulations are neither well known among sportsmen nor understood nor accepted by them.

Furthermore, communication plays an important part in sensitizing outdoor sportsmen to respectful behavior towards nature. Since it cannot be expected that the "right behavior", in the sense of environmentally friendly behavior, comes automatically, information can fill deficits in awareness and perception regarding the effects of outdoor activities on nature and landscape. The goal is to positively influence behavior and actions of sportsmen through environmental knowledge.

The effectiveness of information and education will among other things depend on the possibility to communicate effective practical concepts to the corresponding target groups.

If users want to know how they can address different groups the toolbox shows different communication pathways (FIGURE 1). These also reflect the different degrees of institutionalization and organization of the different sports.

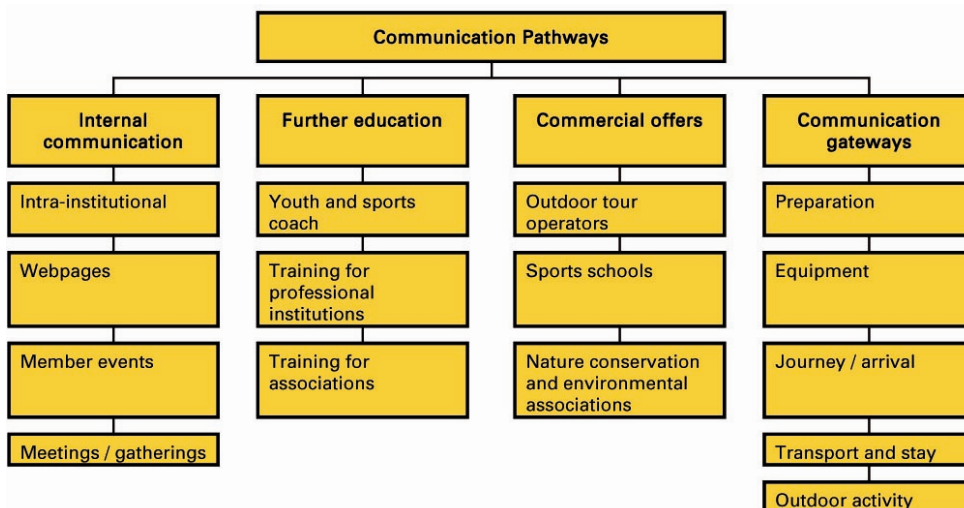


FIGURE 1: Communication pathways.

Internal communication: Refers to internal communication of associations and clubs. Information can reach members through the club's institutions, the club home page, or during events (e.g. excursions).

Further education: Information regarding the environment can be communicated through offers of further education (e.g., in training modules dealing with possible conflicts between sports and nature) or through admission standards (tests that contain questions about sports and nature).

Commercial offers: Include offers and events organized by outdoor tour operators, sports schools as well as nature conservation associations where participants are sensitized to nature conservation and environmental issues.

Communication gateways: Were designed to act more strongly than before on target groups that do not belong to any institution. Those who wish to practice an outdoor sport must "pass through" these information gateways. Environmental questions and recommendations for practicing the sport can thus be transmitted at these different key points (e.g., at preparation, equipping, journey and arrival, transport and stay in the area as well as while exercising the specific outdoor activity) (FIGURE 2).

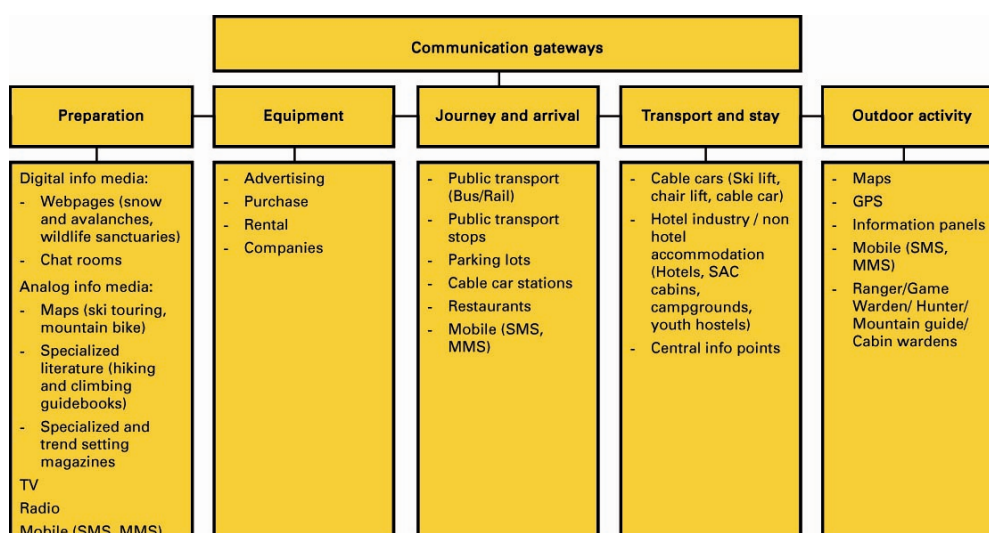


FIGURE 2: Communication gateways.

CONCLUSIONS

The toolbox is an instrument that gives recipient specific recommendations and information relevant for the resolution of conflicts between outdoor sports and nature conservation.

The toolbox's content accents the transmission of information and measures of resolution that outdoor sportsmen can access at appropriate locations. The toolbox makes an important contribution to the discussion on how information can be communicated to target groups in a recipient specific way. Simultaneously, working out communication pathways is something new in this discussion and makes clear that there is a great potential for research in this field. With the presentation of communication gateways, the issue of sportsmen not belonging to clubs or organizations is brought to the foreground. It becomes clear that in practice as well as in practice oriented research new efforts must be made on how these people may be addressed. The examples in the toolbox build a valuable basis to this aim.

Through the presentation on NaturSportInfo.de/ch the toolbox is made available to a large audience. It is well positioned since NaturSportInfo.de/ch will evolve to a central information platform in Switzerland. Simultaneously, through its focus on communication pathways it contributes significantly to the existing NaturSportInfo.de/ch information system.

Furthermore, the toolbox enhances the exchange of know-how in the field of outdoor sports and the networking of responsible agencies and stakeholders which are active in this domain. The toolbox makes practical knowledge originating from different case studies available and useable for conception, steering, and revision of projects with conflicts between outdoor sports and nature conservation.

REFERENCES

- AJZEN, I. & MADDEN, T.J. (1986). Prediction of Goal-Directed Behaviour: Attitudes, Intentions, and perceived behaviour control. In: *Journal of Experimental Social Psychology*, 22, p. 453-474.
- AUBE (Akademie für Umweltforschung und -bildung in Europa e.V.) (2002). Fachtagung – Workshop „Konflikte und Kooperationen im Wander-/Radwanderbereich: Natur- und sozialverträgliche Lösungsansätze und -strategien“ 13.-14.9.2002, Winterberg/Sauerland.
- APPEL, E. (2002). Konzeption und Durchführung von Projekten der nachhaltigen Regionalentwicklung. Retrieved November 11, 2005 from: http://edocs.tu-berlin.de/diss/2001/appel_elisabeth.pdf.
- BAUR, B. (2003). Freizeitaktivitäten im Baselbieter Wald: ökologische Auswirkungen und ökonomische Folgen. Verlag des Kantons Basel-Landschaft, Liestal.
- BORTZ, J. & DÖRING, N. (1995). *Forschungsmethoden und Evaluation*. Springer, Berlin.
- BRENDLE, U. (1999). *Musterlösungen im Naturschutz – Politische Bausteine für erfolgreiches Handeln*. BfN-Schriftenvertrieb im Landwirtschaftsverlag, Münster.
- BROSCH, S. (2002). *Freiwillige Vereinbarungen zwischen Sport und Naturschutz – Alternative oder Ergänzung zum Ordnungsrecht?* (unpublished). Diploma thesis at the Institut für Landschaftspflege und Naturschutz of Hannover University, Hannover.
- BUWAL (Bundesamt für Umwelt, Wald und Landschaft) (1997). *Praxishilfe. Hängegleiten – Wildtiere – Wald*, Bern.
- INGOLD, P. (2005). *Freizeitaktivitäten im Lebensraum der Alpentiere*. Haupt, Bern.
- INSTITUT FÜR NATURSPORT UND ÖKOLOGIE (INÖK) (2004). *Neue Entwicklungen bei Natursportarten. Konfliktpotential und Lösungsmöglichkeiten*. Schriftenreihe Natursport und Ökologie, Band 15, Köln.
- KAISER, F.G.; WÖLFING, S. & FUHRER, U. (1999). Environmental attitude and ecological behaviour. In: *Journal of Environmental Psychology* 19, p. 1-19.
- LORCH, J. (1995). Trendsportarten in den Alpen. Konflikte, rechtliche Reglementierungen, Lösungen. In: *Cipra Kleine Schriften 12:95*, Internationale Alpenschutzkommission, Vaduz.
- MÖNNECKE, M. (2000). *Evaluationsansätze für die örtliche Landschaftsplanung. Grundlegung, Konzipierung und Anwendung*. Dissertation at Hannover University.
- PENKER, M. (2001). *Vertragsnaturschutz in Österreich. Bestandsaufnahme seiner praktischen Handhabung sowie Maßnahmen des Verwaltungs-Controllings für eine ökonomisch effiziente und ökologisch effektive Mittelallokation*. Dissertationen der Universität für Bodenkultur. 58. Österreichischer Kunst- und Kulturverlag, Wien.
- SCHEMEL, H.-J. & ERBGUTH, W. (2000). *Handbuch Sport und Umwelt: Ziele, Analysen, Bewertungen, Lösungsansätze, Rechtsfragen*. Meyer & Meyer Verlag, Aachen.
- SCHNIDRIG-PETRIG, R. & INGOLD, P. (2001): Effects on paragliding on Alpine chamois *Rupicapra rupicapra rupicapra*. In: *Wildlife Biology*, 7:4, p. 285-294.
- SUCHANT, R.; BARITZ, R. & BRAUNISCH V. (2003). Wildlife habitat analysis –a multidimensional habitat management model. In: *Journal for Nature Conservation* 10:4, p. 253-268.

- WEBER, D. (1998). Empfehlungen zur Regelung des Kanusportes in Auengebieten von nationaler Bedeutung. Schweizerischer Kanu-Verband, Möhlin.
- WOLF, A. & APPEL, E. (2003). Wirksamkeit freiwilliger Vereinbarungen zwischen Natursport und Naturschutz. Final Report. Duisburg-Essen University.
- ZEIDENITZ, C. (2005). "Freizeitaktivitäten in der Schweiz - wegen oder gegen Natur und Landschaft?" Eine umweltpsychologische Studie zu Motiven, Einstellungen und Lenkungsstrategien. Eidg. Forschungsanstalt für Wald, Schnee und Landschaft, Birmensdorf.

ACKNOWLEDGEMENTS

This research was supported by the Swiss Confederation's Innovation Promotion Agency CTI and the following institutions: Federal Office for the Environment FOEN Bern, Schweizer Alpen-Club SAC Bern, Ferienregion Engadin, Amt für Raumentwicklung Graubünden Chur, Bundesamt für Sport BASPO Magglingen, Academia Engiadina Samedan, Eidgenössische Hochschule für Sport Magglingen EHSM and Lucerne University of Applied Sciences and Arts.