Measures for Developing Sustainability of Nature Tourism in Protected Areas

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Abstract: Nature protection areas are often significant and attractive recreation areas and tourist destinations. In Finland, Metsähallitus manages most of state owned protected areas. Thus, Metsähallitus also has a significant responsibility for tourism development in these areas. As a part of a larger Metsähallitus project to promote sustainable nature tourism in protected areas, the organization has developed measures for estimating the environmental impacts of nature tourism in protected areas. The measures are derived from Metsähallitus' nine principles of for sustainable nature tourism, including the aspects of ecological, socio-cultural, and economic sustainability. The indicators have been tested in six pilot areas across Finland.

This article describes the process of developing indicators, and the ways in which the indicators are being and will be used through incorporating them into the overall planning process. Sustainability is approached by setting standards, i.e. defining the limits of acceptable change, for each indicator. While some of the indicators are ready to be used, further development and testing is still required.

Introduction

The majority of protected areas are at the same time scenic and interesting recreation and tourism destinations that attracted tourists even before they were established as protected areas. Although the main purpose of protection is nature conservation, legislation in Finland usually allows for a certain amount of recreation and research as well. Moreover, a protection decision, especially the status of a national park, tends to increase public awareness of the area, thus attracting even more visitors. This is the case more or less everywhere in the world, although this article focuses on the case of Finland.

In Finland, most of the state owned protected areas are managed by Metsähallitus. Thus Metsähallitus has a particularly significant responsibility as regards tourism development in protected areas. In order to further develop the possibilities for quality nature tourism in conservation areas, Metsähallitus has developed measures for sustainable nature tourism in protected areas, wilderness areas, and areas that are included in nature protection programmes still to be implemented.

The development process is part of a larger project with which Metsähallitus is promoting sustainable nature tourism in protected areas. Other parts of the project include developing principles for sustainable nature tourism, agreements with nature tourism entrepreneurs, and creating a process for enhancing sustainability in the protected areas.

This article describes the process by which the indicators for sustainable nature tourism were selected. Furthermore, it classifies the indicators according to how useful they appeared to be on the basis of field testing and also when judged by general criteria for good indicators. Finally, it describes the ways in which the indicators are currently being used in Metsähallitus, and how they will be used and further developed in the future.

Material and methods

There are numerous definitions of nature tourism and sustainable nature tourism (e.g. Blamey 1995, Valkama 1997, Patterson 2001). In this article the concept of nature tourism is understood to include all tourism that is at least partly based on nature. It is used in the same way as in the recent Finnish Government action plan for developing outdoor recreation and nature tourism (Programme for Developing… 2002, p. 3):

"*Nature tourism refers to all tourism that is based on nature. In a slightly narrower definition, nature tourism is tourism that involves recreation in natural surroundings. Nature tourism combines recreational use of nature and tourism. In nature tourism nature is a significant attraction or environment for activities.*

In recreational use of nature nearly everything that is not part of daily outdoor recreation in the immediate surroundings is regarded as nature tourism. Thus, for example, the use of holiday homes and recreation in this context is regarded as nature tourism."

In order to keep the terminology simple, it was decided in the project that the term nature tourism will be used. However, in reality the indicators developed in this project, measure the impacts of outdoor recreation more broadly in a particular area, thus including e.g. outdoor recreation by local people (Figure 1).

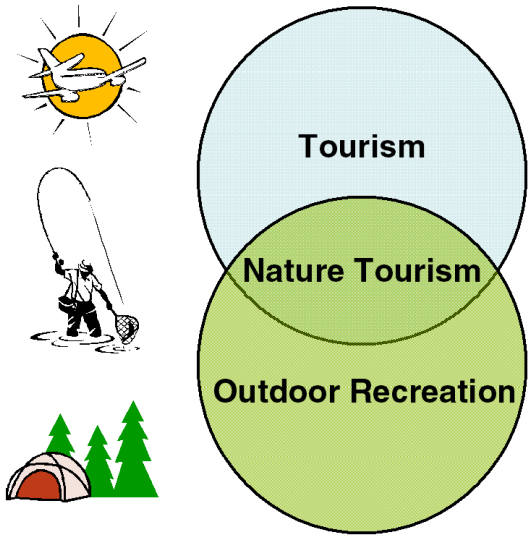

Figure 1. Nature tourism is both outdoor recreation and tourism.

Limits of Acceptable Change (LAC)

Limits of Acceptable Change (Frissell & Stankey 1972, Stankey et al. 1985, Cole & McCool 1997) was chosen as the planning framework for the process for several reasons. The LAC planning process provides a way of monitoring changes in the state of the area and helps to determine appropriate management actions in order to manage changes. It helps managers to systematically set explicit standards of acceptable and appropriate resource and social conditions in recreation settings. Furthermore, it encourages managers to set appropriate management strategies for maintaining and/or achieving these conditions.

LAC was found to be a particularly useful approach to sustainability of nature tourism because it draws attention to human-induced changes and emphasizes that all the limits are set by managerial decisions; they are not "the objective truth" in themselves (Hendee & Dawson 2002). Moreover, considering the limits of acceptable change during the planning process helps to draw attention to development trends that are threatening the area, and to find ways of stopping this development. Thus, LAC is one way of putting the term sustainability into practice in a concrete manner.

The Limits of Acceptable Change process was modified to fit the purposes of the nationwide Metsähallitus project. It turned out to be a nine-step process as follows (Numbers refer to Figure 2.):

1. The goals for nature tourism were set in Finland's publicly owned protected areas managed by Metsähallitus. This was implemented as part of the broader project; by establishing the general nine principles of sustainable nature tourism (Högmander & Leivo 2004, in these proceedings).

2. More specific desired future conditions were defined for nature tourism and its impacts.

3–4. A comprehensive list of indicators and ways of measuring them was developed.

5–6. Previous and current values of the indicators were inventoried.

7–8. Standards and desired future values were set for the indicators.

9. The management actions available to achieve or to maintain desired conditions were considered.

Steps 1–4 were common to all areas, while steps 5–9 were implemented in each area separately. During the year 2003, the measures were tested in six pilot areas: five National Parks representing both southern and northern Finland (Nuuksio, Repovesi, Oulanka, Pallas-Ounas and Pyhä-Luosto), and Kaldoaivi Wilderness Area. The pilot areas are continuing their work in the year 2004.

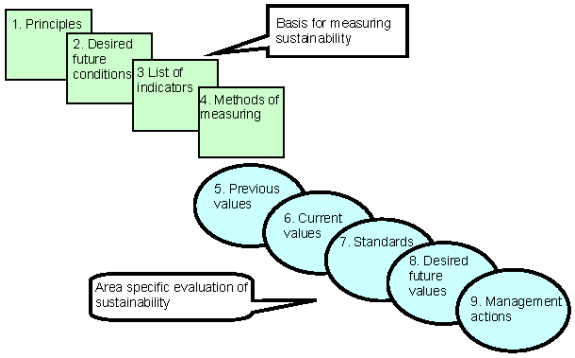

Figure 2. An application of the Limits of Acceptable Change planning framework used in the project.

Development process in practice

Based on former experience, the literature and field testing in pilot areas, employees of Metsähallitus selected and further developed several indicators for estimating the environmental impacts of nature tourism in protected areas. As the indicators are derived from the nine principles proposed by Metsähallitus for sustainable nature tourism, they inherently include the aspects of ecological, socio-cultural, and economic sustainability.

At first, the list was as comprehensive as possible. Pilot areas tested the indicators during the summer

season of the year 2003. They were not required for testing all the possible indicators, but only those that were significant and promising in their particular area.

During the testing period, pilot areas also created new indicators and ways of measuring them. This information was shared throughout the testing season. Indicators that are already collected by Metsähallitus for some other reason were favored. These include e.g. the amount of waste accumulated in protected areas and indicators obtained from standardized visitor surveys implemented by Metsähallitus.

In addition to inventorying the current value of the indicator, existing information such as previous visitor surveys was also gathered. Information for evaluating the usefulness of the indicators was also to be gathered in the pilot areas, e.g. the number of working hours required for each indicator.

In fall 2003 the results were compiled and analyzed in a workshop of pilot areas. Indicators were classified on the basis of criteria for good indicators. Ideally, indicators have an early-warning ability, they are significant, indicative, discriminative, sensitive, responsive, quantitative, reliable and feasible (Hendee & Dawson 2002, VERP 1997).

Selected indicators

As a result of the development process described in material and methods, a group of indicators that were judged as useful was created. They were classified into four categories:

- Common indicators that are ready to be put into practice and that are common to all protected areas with a significant amount of nature tourism
- Optional indicators that are ready to be put into practice, but that will be used only in certain protected areas with a significant amount of nature tourism
- Indicators that were found to be useful but require further development in the year 2004
- Indicators that were found to be useful but require further development later

Altogether, the process yielded almost 30 indicators that were estimated to be useful for all nature protection areas with a significant amount of nature tourism (Appendix 1). More than 20 indicators were evaluated as relevant for at least some of the areas. From these, each planning area will estimate which ones should and could be used. Some of the indicators in this category require further elaboration.

While some of the indicators are ready or fairly ready to be used, some require a significant amount of further development and testing. From these, the ones that are most likely to be good indicators were selected. These indicators will be developed and taken into practice later.

Towards managing the impacts of nature tourism

The indicators will be incorporated into the overall planning process of Metsähallitus as a tool for planning, managing and monitoring the impacts of nature tourism in protected areas. In the process of planning any particular nature protection area, the sustainability of nature tourism is approached by going through the entire updated LAC process (e.g. Hendee & Dawson 2002, p. 238). If nature tourism plays a significant role in the area, a nature tourism plan will be made, in addition to the general management plan. As public participation is an integrated part of Metsähallitus' planning processes, it will also be used in setting the limits of acceptable change for sustainable nature tourism.

During the year 2004, the six pilot areas are continuing their work. Now that the work of developing indicators is well under way, the pilot areas will be able to focus more on formulating standards, comparing the existing conditions with the standards, and considering appropriate management actions.

Other protected areas managed by Metsähallitus have not yet been requested to apply the measures, but if any of the areas are starting new management planning processes, they are likely to consider the method available. The goal of Metsähallitus is that the guidelines and measures should be finalized and applicable by the end of the year 2004. Thus, the areas can start applying them in practice fully by the year 2005. In the nature conservation areas where nature tourism is a significant form of use, at minimum all the common measures (Appendix 1) will be applied from 2005 on.

Conclusions

The task of the Metsähallitus project was to develop indicators for sustainable nature tourism in order to allow better monitoring and management of the environmental impacts of nature tourism. One direct way in which Metsähallitus will apply the indicators is in the management plans for the protected areas.

Of the indicators relating to the monitoring of impacts of nature tourism, visitor surveys are well represented among the common indicators. The intention is to develop visitor surveys further in order to better meet the needs of tourism monitoring.

Visitor counting is of great significance in developing indicators, as reliable data on number of visits is a prerequisite for many other indicators. The key figures for most of the impacts of nature tourism are calculated in proportion to the number of visits to the area: e.g. amount of waste, consumption of firewood, wear on the terrain, trash, various costs, impacts of nature tourism and nature conservation on the regional economy.

There should be some flexibility, depending on the protected area type. Moreover, it is possible that the relative importance of indicators may change as time passes. This requires follow-up and potentially updates on the indicators from time to time (Hendee & Dawson 2002, VERP 1997).

When considering appropriate management action, the minimum tool rule is a good guideline, in Finnish conditions, too. As Cole and Stankey (1997, p. 9) state: "Recreation opportunities should not be restricted to any substantial degree unless restrictions are necessary to keep conditions within standards."

Although a lot of work remains to be done, this project was a necessary and significant step towards monitoring and managing the impacts of nature tourism in state-owned protected areas of Finland.

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Appendix 1. Indicators that were selected for measuring the impacts of nature tourism in protected areas with significant amounts of nature tourism (common to all areas).

GENERAL PRINCIPLE	DESIRED FUTURE CONDITION	INDICATOR	METHOD OF MEASURING THE INDICATOR
1. Nature values are preserved and the activity promotes nature protection	Tourism and recreational use should not threaten occurrences of endangered species	Number of occurrences on which tourism has had an adverse impact (e.g. Saimaa ringed seal, red-throated diver and golden eagle)	Monitoring - guidelines concerning species to be monitored nationally will be developed further
		Visitor survey, questions 7 and 9 related to the attractiveness and quality of nature in the area	Visitor survey - Visitor survey to be developed further from the perspective of monitoring sustainable nature tourism
2. Minimum loading of the environment is assured	Wear on the terrain should be within acceptable limits	Width and depth of trail tracks	Monitoring of wear on the terrain with the help of the study on trail and campsite conditions. Measurements every 5 years. Wear is an indicator consisting of some 30 parameters.
		Uncovered roots	See the study on trail and campsite conditions
		Amount of vegetation in selected areas	See the study on trail and campsite conditions
		Number of campfires in selected areas	See the study on trail and campsite conditions: Inventory of campfire sites and campsites
		Visitor survey, question 15A, asking whether trampled ground has disturbed visitors.	Visitor survey
		Area of barren mineral soil/total area of barren soil	See the study on trail and campsite conditions
		Damage to trees, bushes and stumps; total number of cases of damage	See the study on trail and campsite conditions
	Sign-posted routes and maintained infrastructure should be used where provided	Number of unauthorized campfire sites and campsites in selected areas	See the study on trail and campsite conditions: Inventory of campfire sites and campsites
	Minimum loading of the environment should be taken into account in recreation: - Trips should be well planned and prepared - Sign-posted routes and maintained infrastructure should be used where provided - Waste should be treated according to instructions	Amount of landfill waste generated in the area	Information on waste accumulation is collected in accordance with the environmental management system
		Study on the amount of trash in a selected area	Trash monitoring
		Visitor survey, question 15B, asking whether littering has disturbed visitors	Visitor survey
3. Local culture and heritage are respected			

GENERAL PRINCIPLE	DESIRED FUTURE CONDITION	INDICATOR	METHOD OF MEASURING THE INDICATOR
4. Customers' appreciation and knowledge of nature and culture are promoted	The customers should know the special characteristics of the local culture	Feedback from local residents and stakeholders Visitor survey	
	The customers should show interest in nature, ask questions and seek further information	Number of visits to the areas	Visitor counting
	Nature should be a major motive for trips	Visitor survey, question 7, related to the attractiveness of nature in the area	Visitor survey
5. Customers' opportunities to find recreation in nature are enhanced	A high standard of recreational environment should be maintained	Visitor survey, question 9 (quality of services, quality of the environment) Question 10 (expectations vs. actual experiences during the visit)	Visitor survey Customer feedback
		Customer satisfaction index	Visitor survey Customer feedback
	The customers should take other customers visiting the area into consideration (group sizes, conduct)	Visitor survey, questions 5, 15D, 15E: size of the party, excessive number of visitors and behaviour of other visitors	Visitor survey Customer feedback
6. Customers' mental and physical wellbeing are reinforced	The visitors should feel refreshed and relaxed in the natural environment	Visitor survey, question 7 and open feedback	Visitor survey
	Visitors should have personal experiences of nature	Visitor survey, questions 8 and 10: respondents´ activities in the area, expectations vs. experiences	Visitor survey Feedback
	The safety of service infrastructure should be guaranteed	Condition inventory of infrastructure, age of the structures and scope of the inventory	Condition inventories of infrastructure (with the completion of the GIS project on trails, buildings and structures) Visitor survey, question 21
7. Positive impacts are made on local economy and employment		Number of agreements with nature tourism entrepreneurs	Information on agreements of different types included in Metsähallitus' information system
8. Communication and marketing are of high standard and carried out with a sense of responsibility	Open and comprehensive information should be given on what is permitted and suitable in the protected areas	Visitor survey, question 20, asking what is allowed and what is prohibited in the area	Visitor survey
9. Activities are planned and implemented in co-operation	Customer feedback should be collected regularly and processed	Number of events organized for stakeholders and number of participants	
		Number of partnership agreements in proportion to the total number of agreements with entrepreneurs	Information on agreements of different types included in Metsähallitus' information system
	Co-operation with stakeholders should be smooth and regular	Number of events organized for stakeholders and number of participants	