Perception of and attitudes towards a new Swiss Biosphere Reserve – a comparison of residents’ and visitors’ views

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Abstract

Almost all protected areas nowadays rely on sound support of the local population. More than for every other type of nature reserve this is the case for UNESCO Biosphere Reserves. A participatory and transparent approach taking into consideration views of all stakeholders involved is crucial for the successful progress of the project. In 2007 we interviewed 191 residents and 178 visiting tourists in the Val Müstair (Canton of Grisons, Switzerland) with standardized questionnaires to analyse acceptance of the – at the time of data collection – planned Biosphere Reserve. Both groups perceived the landscape of the study region very similar but had different demands regarding the Biosphere Reserve. Whereas tourists had a rather emotional approach, residents clearly had more hopes on economic benefits generated through the project. However, the way the residents intend to reach these benefits matches well with the ideas of sustainable tourism promoted by Biosphere Reserves. Therefore, we consider this gap to be bridged easily and in mutual agreement between both groups indicating a successful regional marketing for the Biosphere Reserve Val Müstair – Parc Naziunal.
Introduction

Until well into the 1970s and 1980s nature conservation in Europe was characterized by protecting pristine landscapes far away from human settlements. This changed in the 1990s with the adoption of Agenda 21 at the UN summit in Rio de Janeiro in 1992. The term “sustainability” was on everyone’s lips, involving local people in nature conservation approaches became more and more important. With the adoption of the Sevilla Strategy in 1995 (UNESCO 1996), the establishment of a new generation of protected areas was initiated. Since then, UNESCO Biosphere Reserves consist of three different zones with decreasing levels of anthropogenic influence (core zone, buffer zone, and transition zone) (UNESCO 1996). They are seen as ecological model regions with the local people playing an integral role in the new reserve concept (Hammer 2003). The support of the resident human population is indispensable for the success of protected areas (Mose & Weixelbaumer 2007), particularly Biosphere Reserves which are aimed at a balanced relationship between the interests of people and wildlife.

Lucke (1995) defines acceptance as the chance to receive approval for certain opinions, measures, proposals and decisions from an identifiable group of people. Designation of nature reserves always requires convergence of different parties; each one having individual interests in the area in question. Therefore, an integrated approach taking all ideas and interests into account is much needed (Wiersbinski et al. 1998). Backhaus et al. (2007) state that considering all existing views facilitates identification of similarities between stakeholder groups, and the clarification of controversial issues in discussions. Socioeconomic interviews are an important tool to adapt planning to existing perceptions and attitudes (Buchecker et al. 2003, Höchtl et al. 2005).

The aim of our study was to evaluate i) differences in the perception of the Val Müstair region of local residents and visitors and ii) attitudes towards the – at the time of data collection – planned Biosphere Reserve. Is there broad consensus between both groups and if so, on what do they agree? To know if a Biosphere Reserve is viewed differently by residents and people from regions further afield is important for the project initiators, especially during the planning stage. If expectations match between the two groups, the image transported to both groups concurs. This enables regional marketing strategies to be easily adapted accordingly (Mose 2007): Local people produce and deliver what visiting tourists and other external stakeholders demand and require. If expectations do not match
between the groups, the resulting gap has to be overcome, otherwise the regional marketing will hardly be able to strengthen the local economy.

Study area

The UNESCO Biosphere Reserve Biosfera Val Müstair – Parc Naziunal (center at 46°38’N, 10°18’E, Fig. 1) covers 361 km² between 1250 m to 3180 m above sea level and has ca. 1600 inhabitants. It is situated in the Canton of Grisons, in the Rhaeto-Romani speaking part of Switzerland. The core zone constitutes the Swiss National Park (Fig. 1). The neighbouring valley Val Müstair with its six settlements (Tschierv, Fuldera, Lü, Valchava, Santa Maria, and Müstair) functions as transition zone and the small secluded uninhabited valley Val Mora as buffer zone.

The Swiss National Park is dominated by pristine forest and high-mountain ecosystems (30% Spruce, Larch and Swiss pine forest, 20% alpine meadows, 50% vegetation free rock and rock debris and open water, Robin 2004). Land use on the territory of the National Park ceased with its designation in 1914, with the exception of low-level tourism. The Val Müstair is a remote high-altitude valley situated at the southern main slope of the Alps. Land use is rather extensive and restricted to forestry, dairy and arable farming.

The idea of integrating the existing National Park into the Biosphere Reserve was first proposed to the residents of Val Müstair by the Swiss National Park administration in the year 2000. At that time, the people of Val Müstair already thought of new ways for the future of their valley. Modernisations in agriculture and forestry, migration of young people, job cuts in the public sector and economic stagnation caused difficulties for the peripheral region (Corporaziun regiunala Val Müstair & Swiss National Park 2005). A definite unified position had to be chosen to be able to keep pace and bear up with other competing tourist destinations. The up to now extensive land use practices ought to be retained while strengthening the local economic situation at the same time. Thus, committed residents welcomed the vision of a joint Biosphere Reserve with the neighbouring National Park.

In 2005 89% of the Val Müstair residents voted for pursuing the plans to establish a Biosphere Reserve (Corporaziun regiunala Val Müstair & Swiss National Park 2005). In November 2007 79% agreed to adopt the charter for a Regional Nature Park Val Müstair (Corporaziun regiunala Val Müstair 2007) (in Switzerland, a Regional Nature Park marks the first step on the way to designate an area as Biosphere Reserve (see Swiss Federal Department of Environment, Transport, Energy and Communications (UVEK) 2007)). Finally, in summer 2010 the UNESCO preliminarily accepted the
application for a UNESCO Biosphere Reserve and in January 2011 the Swiss Federal Office for the
Environment (BAFU) approved the Regional Nature Park status (Swiss Federal Office for the
Environment 2010a & 2010b). The UNESCO’s final decision is subject to two important adjustments
that have to be met to fulfil the recently modified criteria for Biosphere Reserves: Since 2008, core
zones have to be surrounded by a buffer zone (Madrid Action Plan, UNESCO 2008). This and a
common management plan for all three zones are yet to be realised in the Biosphere Reserve Val
Müstair – Parc Naziunal.

Material and methods

Study design

A survey using quantitative interview methods was carried out in summer 2007. 191 residents and 178
tourists were interviewed face-to-face using standardized questionnaires containing a set of open and
closed questions. Open questions were used to identify lack of knowledge, misunderstanding and
unexpected associations regarding the Biosphere Reserve. In two questions (i.e. personal importance
of different characteristics of the region) residents and tourists were asked to assign predefined
attributes to Likert scales (Likert 1932). When composing the questionnaires relevant questions for
answering the research questions were collated and assembled to five thematic blocks: state of
knowledge of the interviewees regarding the Biosphere Reserve, evaluation of Val Müstair region,
evaluation of the Biosphere Reserve, expectations regarding the Biosphere Reserve, and
demographic information of the interviewees. Phrasing the questions was done in a non-suggestive,
short and straightforward way avoiding foreign words were possible. If several answers were possible
always negative and positive options as well as the option “other” were available. Two pre-tests were
conducted and the questionnaires adapted accordingly.

With 1605 residents (Maissen & Chiotopulus 2006) the population of Val Müstair provided a promising
environment for gaining a large enough sample size. We aimed at interviewing 163 residents (10% of
the population) using quota sampling (Atteslander 2006). We stratified the population according to
gender, age and place of residency (six villages) and used four age groups: under 19 years old, 20–
39, 40–64 and 65+ years old. The interviews were conducted on the doorsteps from 9:30–11:30 a.m.
and 2:00–6:00 p.m. over a period of 30 days between 04 May and 14 July 2007.
Although we did not use a randomized sampling strategy, the rather large sample size of 10% of all residents and the strict stratification suggest representative results. However, potential bias could have been introduced by interviewing people at their doorsteps because people living in remoter areas were less likely to be approached than people living in the village centres. Nevertheless, this interview method was the only one that allowed face-to-face contact with the Val Müstair residents thus giving immediate insight in the perception of the Biosphere Reserve project. Also, minor bias resulting from pseudoreplication might have influenced result quality, as sometimes more than one member per household was interviewed. However, gathering only independent observations was not practicable as this would have led to a very small sample size for the smaller villages. As a matter of courtesy it was not possible to terminate interviews with residents who obviously were not needed anymore for reaching the quotas of the sampling design. Therefore, all residents willing to complete the questionnaire where included in the survey increasing sample size to 191 compared to the calculated 163 (10%). This extended the sample size to 12% of the total population.

Tourists were interviewed at eleven, selectively chosen and for visitors attractive sites across the valley using accidental (haphazard) sampling (Bortz & Döring 2002). We chose various areas to reach different interest and age groups comprising visitors interested in culture, sports (hiking/mountainbiking), nature and wildlife. The interviewees were approached when passing by and the questionnaire filled in together with the surveyor. We aimed at gaining a sample size comparable to the one of the resident survey, and not at a representative sample of all tourists visiting the region. The interviews with tourists were conducted on 13 days. On average 14 tourists were interviewed per day between 29 June and 14 July 2007.

Response rates were high in both surveys with 73% among residents and 84% among tourists.

Data analysis

To facilitate quantitative analysis, every possible answer was allocated a numerical value. Where multiple answers were possible every answer was treated as separate question which either could be ticked (= 1) or not ticked (= 0). To analyse open questions a system of categories was created out of the answers given allocating each answer a certain numerical value.

For each question the number of valid answers was calculated. Illegible or ambiguous answers were discarded, thus sample size differs between questions.
Where Likert scales were used mean and standard errors were calculated assuming that the scales were roughly interval scaled, i.e. distances between scale items were equal (Clason & Dormody 1993). We tested for differences in means using nonparametrical two-sample Wilcoxon tests. Furthermore, we used correlation analysis to test how well perception and attitudes coincided between residents and visitors. All statistical analyses were conducted in R 2.12.2 (R Development Core Team 2010).

Results

Acceptance of the project was high among both interviewed groups: 63% of residents (n = 191) and 81% of visiting tourists (n = 178) evaluated potential changes resulting from the reserve implementation as positive (Fig. 1).

While the majority of the residents associated the term “UNESCO Biosphere Reserve” with sustainable regional development, the interviewed tourists mostly linked it to nature and biodiversity conservation (Fig. 2). Remaining associations were spread similarly in both groups, and possible restrictions arising from the designation were linked to a lesser extent to the term “Biosphere Reserve”, although from twice as many residents as visitors (Fig. 2).

Residents and visitors had similar expectations regarding potential developments in the Val Müstair generated through its designation as UNESCO Biosphere Reserve (Fig. 3) again indicating high overall acceptance. Only few interviewees expected negative developments to occur. Differences between both interviewed groups were obvious regarding tourism and sustainable land use. Expectations concerning improvements on the local labour market and regarding an increased community spirit across the villages in the valley matched closely (Fig. 3).

Asked for their favourite aspect of the Val Müstair, the characteristic alpine landscape was named by the majority of residents (67%, n = 180) and tourists (53%, n = 173). The personal feeling of well-being was rated highly by both groups: 82% (n = 187) of the residents and 97% (n = 155) of the visitors declared to feel “very well” and “well” in the Val Müstair. The tourists’ sense of wellbeing was reflected by the fact that 99% (n= 173) stated they wish to visit the area again.

There was a strong and highly significant correlation (Spearman’s r = 0.90, p<0.0001) in residents’ and tourists’ perception of the regional identity of the Val Müstair (Fig. 4A). Only life quality was, on average, ranked higher by residents compared to tourists (Table 1). Tourists ranked rural character,
nature conservation and attractiveness for tourism significantly higher than residents (Table 1). Asked for personal importance, there was a weak and nonsignificant correlation (Spearman’s $r = 0.54$, $p=0.09$) between the ratings of residents and tourists (Fig. 4B). Most attributes were ranked more important by residents, except rural character, remoteness and significance for nature conservation, which were ranked significantly more important by tourists (Table 2).

Discussion

Results of this study show that a broad majority of both interviewed groups favoured the implementation of a Biosphere Reserve in the Val Müstair region in 2007. Both interviewed groups had big expectations regarding the development of the region Val Müstair once the Biosphere Reserve is established (Fig. 4). Overall, tourists and residents perceived the Val Müstair and the Biosphere Reserve very similarly. By taking a closer look, important differences became evident. Residents had more hopes in opportunities connected with economic improvements such as upgrading existing tourist infrastructure, more events offered for tourists, a bigger market for local goods and an increase of overnight stays. Whereas tourists favoured development opportunities connected with a focus on sustainable land use, nature conservation, conservation of traditionally managed landscapes and local traditions. When it comes to developing the region, tourists tended to see more the emotional values while residents rather hoped for options bringing economic growth. The residents’ functional approach was obvious again when analysing the interviewees’ associations with the term “UNESCO Biosphere Reserve” (Fig. 3). Residents primarily linked regional development with it while tourists mainly thought of nature conservation. This is quite typical how results of a socioeconomic study in the Biosphere Reserve Grosses Walsertal show (Coy & Weixelbaumer 2006). There, the majority of residents also associated the term Biosphere Reserve with development and cooperation.

While different given attributes were related very similar to the region Val Müstair by both tourists and residents (Fig. 5A) answers of both groups significantly differed when asked to state the personal importance of each of these attributes (Fig. 5B). These results indicate a very similar perception of the landscape of the Val Müstair region among residents and visitors but differing needs regarding the ecosystem services provided by the Val Müstair landscape among both groups. Residents had rather rational, economic demands compared to the more emotion-driven demands of the tourists.
These findings resemble results of Gehring et al. (2004) who studied residents’ and tourists’ perception of landscape and land use in two other regions in the Canton of Grisons. They concluded that residents had a rather functional approach to “their” landscape which they mainly perceived as space for living and for cultural identity. Whereas tourists spending their holidays in the same area wished it to be as alpine idyllic and different from their (mostly) urban home region as possible (Leitungsgruppe des NFP 48 2007).

Satisfaction with being (living and visiting) in the Val Müstair was high among residents and tourists. In both groups the landscape of the Val Müstair region was attributed a key role for the individual well-being. Mai (1989) states that people who are happy with their living conditions and who are committed to contribute to the development of their home region are most likely to develop a strong local identity to their home region. This indicates a profound acceptance of the Biosphere Reserve in the Val Müstair.

Overall acceptance of the Biosphere Reserve was even higher among tourists. This is thought to be due to the fact that people visiting the region just in their holidays are not immediately affected by the Biosphere Reserve in their daily life and therefore have fewer constraints about potential negative impacts. This confirms the results of earlier studies, i.e. Schenk et al. 2007 and Stoll 1999.

Conclusions

Since the Seville Strategy, Biosphere Reserves are seen as promising instruments for regional development while contributing to nature and biodiversity conservation at the same time. Meeting these requirements is a complex task and utterly dependent on the long-term participation of its residents. The Biosphere Reserve Val Müstair – Parc Naziunal was supported by sound shares of residents and visitors. Residents and visitors perceived the landscape and the Biosphere Reserve in a similar way. Differences between both groups became obvious when comparing personal approaches to the landscape and assessments of potential economic benefits generated through the Biosphere Reserve. However, the differences between residents’ and visitors’ attitudes are reasonable and rather logical as the residents have to make their living in Val Müstair region whereas the visiting tourists earn their money elsewhere. Clearly, the unspoiled character was seen as the unique selling point of the Val Müstair region by both residents and tourists. Thus, the residents know and understand what the visiting tourists ask for. Regional marketing strategies can hence be implemented pursuing the same ideas in both directions. New offers introduced for tourists (i.e. “Hay Flower
Greetings”) match well with the ideas of promoting sustainable tourism through Biosphere Reserves.

Therefore we evaluate the chances for regional marketing in the Biosphere Reserve Val Müstair – Parc Naziunal as very promising.

The findings of the study to hand provide information about the support of the Biosphere Reserve in the local population and among visiting tourists at the time of its designation. Expectations linked with the new reserve were evaluated and compared between both interviewed groups. This presents a basis for future studies on perception and attitudes regarding the Biosphere Reserve Val Müstair – Parc Naziunal and shows quantified trends for Biosphere Reserve projects in other regions.

Acknowledgements

Many thanks to all residents and visitors of the Val Müstair who participated in the questionnaire survey, to Christian Schmid for compiling the map of the study area, to Johannes Kamp for support with the statistical analysis and to the Swiss National Park and the German Academic Exchange Service for funding the fieldwork.

References


Table 1: Ranking of various attributes assigned to the Val Müstair by residents and visitors. Question: “Which of the given attributes do you connect with the Val Müstair?”. Interviewees were asked to rank the predefined attributes on a four item Likert scale, ranging from 1 = not at all, to 4 = entirely. P-values refer to the results of Mann-Whitney-U-tests, comparing Likert scale item means for residents and visitors for every attribute separately.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>N (residents)</th>
<th>N (visitors)</th>
<th>mean ± standard deviation</th>
<th>p</th>
<th>level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>residents</td>
<td>visitors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High life quality</td>
<td>188</td>
<td>130</td>
<td>3.24±0.76</td>
<td>3.60±0.59</td>
<td>&lt;0.001 ***</td>
</tr>
<tr>
<td>Good transport connections</td>
<td>185</td>
<td>131</td>
<td>2.90±0.93</td>
<td>2.78±0.91</td>
<td>0.286 n.s.</td>
</tr>
<tr>
<td>Good infrastructure</td>
<td>186</td>
<td>123</td>
<td>3.15±0.79</td>
<td>3.06±0.74</td>
<td>0.321 n.s.</td>
</tr>
<tr>
<td>Pristine nature</td>
<td>190</td>
<td>150</td>
<td>3.90±0.30</td>
<td>3.89±0.40</td>
<td>0.542 n.s.</td>
</tr>
<tr>
<td>Rural character</td>
<td>189</td>
<td>152</td>
<td>3.93±0.25</td>
<td>3.85±0.37</td>
<td>0.023 *</td>
</tr>
<tr>
<td>Peacefulness &amp; remoteness</td>
<td>189</td>
<td>145</td>
<td>3.79±0.44</td>
<td>3.78±0.47</td>
<td>0.955 n.s.</td>
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<tr>
<td>Varied leisure facilities</td>
<td>185</td>
<td>115</td>
<td>2.97±0.79</td>
<td>2.79±0.83</td>
<td>0.103 n.s.</td>
</tr>
<tr>
<td>Existing local traditions</td>
<td>188</td>
<td>103</td>
<td>3.34±0.66</td>
<td>3.36±0.71</td>
<td>0.694 n.s.</td>
</tr>
<tr>
<td>Sufficient education facilities</td>
<td>184</td>
<td>97</td>
<td>2.03±0.76</td>
<td>1.90±0.75</td>
<td>0.182 n.s.</td>
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<tr>
<td>Importance of nature conservation</td>
<td>188</td>
<td>118</td>
<td>3.57±0.56</td>
<td>3.37±0.63</td>
<td>0.007 **</td>
</tr>
<tr>
<td>Attractiveness for tourism</td>
<td>187</td>
<td>136</td>
<td>3.59±0.56</td>
<td>3.34±0.70</td>
<td>0.001 **</td>
</tr>
</tbody>
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Table 2: Ranking of the personal importance assigned to various predefined categories describing the Val Müstair by residents and visitors. Question: “How important are the given attributes for you personally?”. Interviewees were asked to rank the personal importance of the attributes on a four item Likert scale, ranging from 1 = not important, to 4 = very important.

P-values refer to the results of Mann-Whitney-U-tests, comparing Likert scale item means for residents and visitors for every attribute separately.

<table>
<thead>
<tr>
<th></th>
<th>N (residents)</th>
<th>N (visitors)</th>
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<td>High life quality</td>
<td>191</td>
<td>146</td>
<td>3.70±0.52</td>
<td>3.39±0.79</td>
<td>&lt;0.001 ***</td>
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<td>Good transport connections</td>
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<td>3.34±0.73</td>
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<td>3.04±0.77</td>
<td>&lt;0.001 ***</td>
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<td>150</td>
<td>3.79±0.47</td>
<td>3.97±0.44</td>
<td>0.880 n.s.</td>
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<td>147</td>
<td>3.32±0.78</td>
<td>3.49±0.72</td>
<td>0.027 *</td>
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<tr>
<td>Peacefulness &amp; remoteness</td>
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<td>145</td>
<td>3.21±0.83</td>
<td>3.45±0.74</td>
<td>0.007 **</td>
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<td>Varied leisure facilities</td>
<td>187</td>
<td>143</td>
<td>3.09±0.68</td>
<td>2.85±0.80</td>
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<td>189</td>
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<td>2.90±0.81</td>
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<tr>
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<td>175</td>
<td>126</td>
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<td>3.08±0.78</td>
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<td>132</td>
<td>3.22±0.71</td>
<td>2.98±0.77</td>
<td>0.010 *</td>
</tr>
</tbody>
</table>
Fig. 1: The Biosphere Reserve Biosfera Val Müstair – Parc Nazional in the Canton of Grisons, Switzerland (Map compilation: Swiss National Park-GIS 2008)
Fig. 2: Evaluation of potential overall changes to be induced by the planned Biosphere Reserve.

Question: “How do you evaluate potential changes for the region coming along with its designation as UNESCO Biosphere Reserve?”.
Fig. 3: Associations of residents and tourists with the term “UNESCO Biosphere Reserve”. Question: “What do you associate with the term UNESCO Biosphere Reserve?”. Three answers were allowed.
Fig. 4: Expectations of residents and tourists regarding the planned Biosphere Reserve. Question: “Which of the given potential developments do you expect through the area’s designation as Biosphere Reserve?”. Multiple answers were allowed.
Fig. 5: Correlation of residents’ and visitors’ general perception of the Val Müstair (A), and the importance assigned to key features (B) of the Val Müstair (mean ± standard error of assignments on a four item Likert scale, $R^2$ and $p$ values refer to a standard linear regression). Questions asked were: “Which of the given attributes do you connect with the Val Müstair?” (A, for attributes see Tables 1 and 2), and “How important are the given attributes for you personally?” (B).