

Selected indicators of sustainable tourism in the central part of the Šumava National Park and Biosphere Reserve

Martin Čihař*, Viktor Třebický & Josef Novák

*Institute for Environmental Studies, Faculty of Science, Charles University,
Benátská 2, CZ–128 01 Prague 2, Czech Republic*

**mcihar@natur.cuni.cz*

Abstract

As part of a four-year research project, four nine-day surveys (1997–2000) were carried out in the central part of the Šumava National Park and Biosphere Reserve, each one in August at the height of the summer season. Quantitative and qualitative aspects of tourism and cyclotourism were recorded at four pre-selected monitoring points. A moderate decrease in the total number of visitors was detected in the period 1997–2000. The number of hikers decreased by 14.6% while the number of cyclists increased by 22.7%. The socio-demographic structure of the visitors was analysed and evaluated with respect to nationality, gender, age, education, period of visit, type of transport and accommodation etc. Specific questions concerned the relation between the visitors opinions and conservation management of Šumava NP, evaluation of the environment quality and sustainable development of the NP. The study is a part of the research of different aspects of sustainable tourism in the Czech national parks.

Key words: Sustainable tourism, indicators, long-term monitoring, visitors, public relations, management

INTRODUCTION

The research was aimed to obtain quantitative parameters of tourism and to evaluate visitors' opinions of and attitudes to nature protection in the central part of the Šumava National Park and Biosphere Reserve. The results of our research can be broadly used, e.g. for decision making concerning specific management, setting limits for sustainable development or as a background material for administration procedures. The four-year monitoring cycle makes it also possible to describe future trends and to compare them with another Czech mountain National Park and Biosphere Reserve Krkonoše (see below).

In the Šumava National Park our survey involved counting and interviewing tourists at four pre-selected monitoring points (at Antýgl, Kvilda, Modrava and Horská Kvilda – see Fig. 1.). Special emphasis was placed on covering trends in the developing field of cycle tourism. By means of questionnaires and interviews we were also able to ascertain basic social demographic characteristics of the tourists. In addition, we asked the tourists for their opinions and attitudes regarding the environment and environmental conditions in the Šumava National Park and regarding the management and control of this specially protected landscape area. A parallel survey was carried out in 1998 among local inhabitants of six specific municipalities in the Šumava National Park (ČIHAŘ & al. 1999b). Another parallel survey ascertained a range of opinions held by high-ranking representatives of local governments (ČIHAŘ & al. 1998).

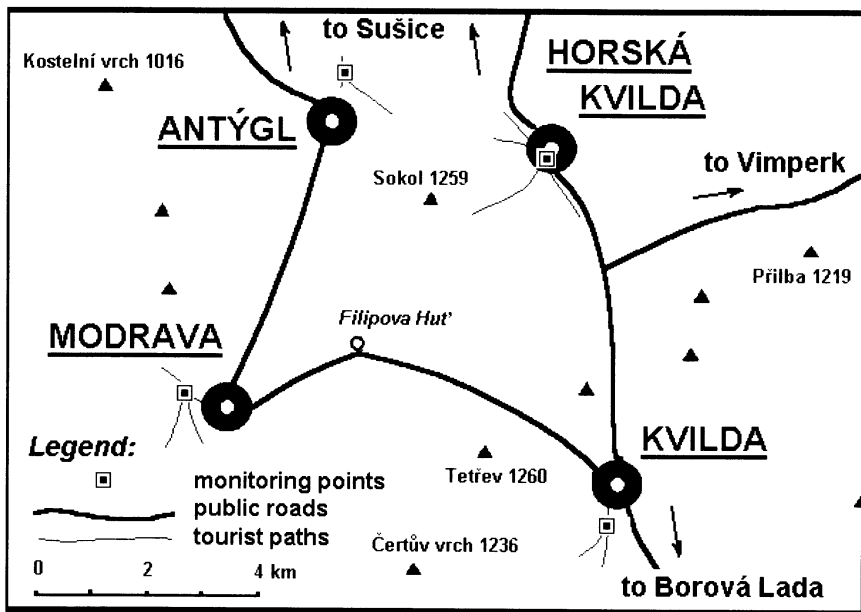


Fig. 1. – Localization of the monitoring points.

The research project was held in collaboration with the Czech Ministry of the Environment and the Administration of the National Park and Protected Landscape Area of Šumava and was connected to parallel investigations carried out in Krkonoše (1997–2000), Podyjí (2000) and České Švýcarsko (2000) national parks. Presented paper is thematically related to the contemporary Czech (e.g. BARTOŠ & al. 1998) and foreign (e. g. SHIPP & al. 1993, CEBALLOS-LLESCURAIN 1966, MESSERLI & IVES 1997, GODDE 1999) papers and documents.

QUANTITATIVE ASPECTS

Specific results of the quantitative part of our research (ČIHAR & al., 1997, 1998, 1999a, 2000a) are highlighted below.

A total of 22500 hikers (45059 records – see Table 1) were recorded to have passed the four monitoring points in the course of the 9-day survey in 2000, which was the lowest number since 1997 (1997: almost 27000, 1998: approx. 24000, 1999: over 24000). Throughout the monitoring period this decline represented a negative balance of 14.6 percent (Table 2). The site most frequented by hikers (records) in 2000 (Fig. 2) was once again Antýgl with a recorded daily average of 2352 (1997: 2642, 1998: 2258, 1999: 2168). This was followed by Modrava with a daily average of 1484 (1997: 1630, 1998: 1614, 1999: 1610), Kvilda with 711 (1997: 1042, 1998: 926, 1999: 1021) and Horská Kvilda with 459 (1999: 571). Antýgl was the only site that recorded an increase in the number of hikers passing through from the previous year; all the other localities showed a decline in numbers. The maximum daily number of hikers passing through the monitoring points in 2000 (Fig. 4) was recorded in Antýgl on Thursday 17 August (more than 1300). By far the most frequented tourist route during the monitored period remained Antýgl – Antýgl (a daily average of over 1100 hikers passing in both directions in 2000).

With regards to cyclotourism (an overall increase of approx. 22.7% from 1997, a compar-

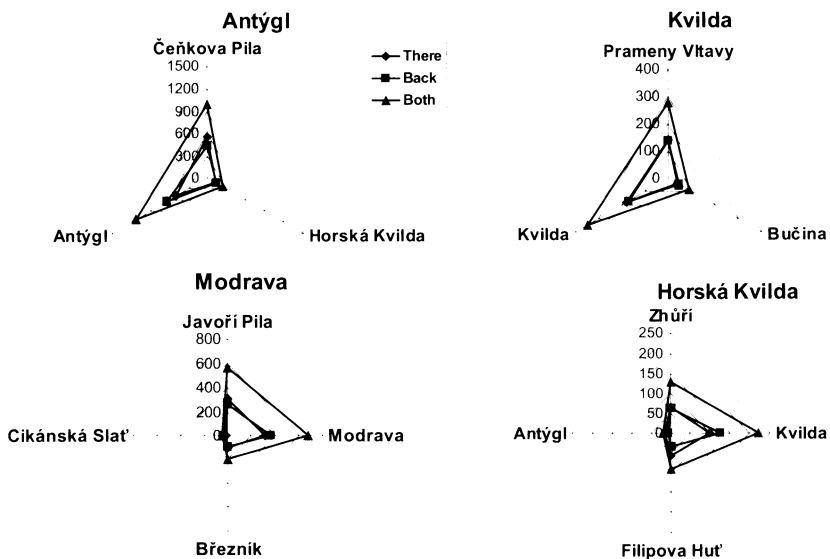


Fig. 2. – Average numbers of records of hikers per day at the monitoring points Antýgl, Kvilda, Modrava and Horská Kvilda (2000). Axes represent tourist paths.

Table 1. – Numbers of records¹⁾ of hikers, cyclists and cars in the monitoring points in the period 1997–2000.

Locality	Category	1997	1998	1999	2000
Antýgl	Hikers	23781	20323	19516	21171
	Cyclists	3228	4491	3192	4113
	Cars	62	11	106	129
Kvilda	Hikers	9377	8331	9186	6402
	Cyclists	8772	10026	9375	8507
	Cars	754	600	1356	944
Modrava	Hikers	14672	14527	14494	13354
	Cyclists	8729	12706	11389	12946
	Cars	3435	3265	4439	3550
Horská Kvilda	Hikers	4909	4966	5137	4132
	Cyclists	5812	6490	6203	7011
	Cars	²⁾ 1910	²⁾ 1805	²⁾ 2494 (9937)	²⁾ 2189 (8720)
Total	Hikers	52744	48147	48333	45059
	Cyclists	26541	33713	30159	32577
	Cars	³⁾ 4251	³⁾ 3876	³⁾ 5901	³⁾ 4623

¹⁾... Number of the records is roughly double of the number of counted subjects (hikers, cyclists and cars). Explanation: Each subject, when passing through the monitoring point, is counted twice. For the first time, when coming/arriving to the point ("Back") and for the second time, when leaving the point ("There").

²⁾... Values from monitoring point Horská Kvilda are reconstructed for one weekend observation (Saturday and Sunday); numbers in parenthesis determine measured total numbers in the years 1999 and 2000

³⁾... Data in the locality Horská Kvilda are not included

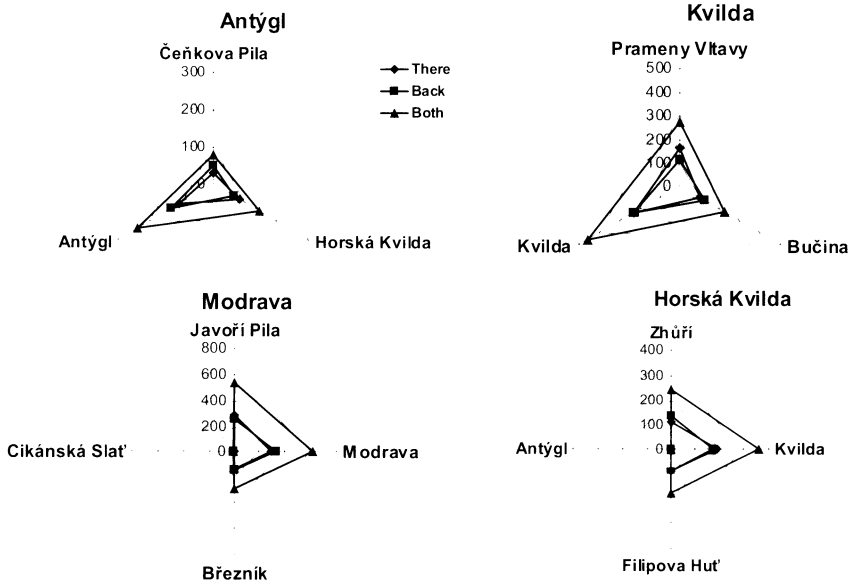


Fig. 3. – Average numbers of records of cyclists per day at the monitoring points Antýgl, Kvilda, Modrava and Horská Kvilda (2000). Axes represent tourist paths.

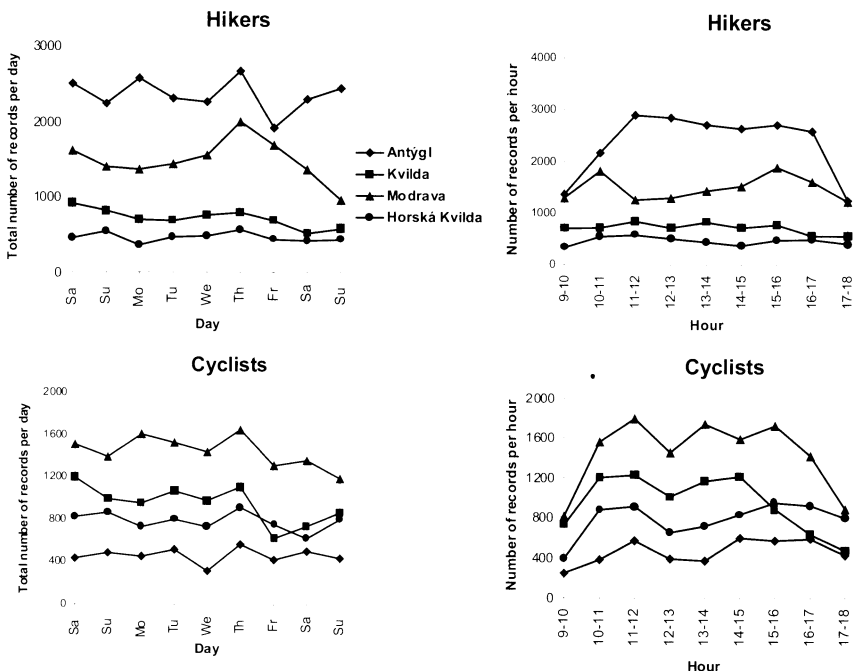


Fig. 4. – Average total numbers of records at the monitoring points per day and per week (August 12–20, 2000).

Table 2. – Relations of records of hikers, cyclist and cars in the four comparable monitoring points Antýgl, Kvilda, Modrava and Horská Kvilda in the period 1997–2000 (increase +; decrease –).

Comparison of years (first year ...100%)	Hikers	Cyclists	Cars on non- public roads ³⁾	Cars on public roads ²⁾
1997 – 1998	-8,7%	+27,8%	-8,2%	-5,5%
1997 – 1999	-8,4%	+13,6%	+38,8%	+30,6%
1997 – 2000	-14,6%	+22,7%	+8,8%	+14,6%
1998 – 1999	+0,4%	-10,6%	+52,2%	+38,2%
1998 – 2000	-6,4%	-3,4%	+19,3%	+21,3%
1999 – 2000	-6,8%	+8,0%	-21,7%	-12,2%

²⁾... Values from monitoring point Horská Kvilda are reconstructed for one weekend observation (Saturday and Sunday); numbers in parenthesis determine measured total numbers in the years 1999 and 2000

³⁾... Data in the locality Horská Kvilda are not included

Table 3. – Development of ratios of cyclists to tourists in the monitoring points in the period 1997–2000.

Locality	Rate of cyclists per hikers in the relevant year			
	1997	1998	1999	2000
Antýgl	1:7.4	1:4.5	1:6.1	1:5.1
Kvilda	1:1.6	1:0.8	1:1	1:0.8
Modrava	1:1.7	1:1.1	1:1.3	1:1
Horská Kvilda	1:0.8	1:0.8	1:0.8	1:0.6
Total	1:2.0	1:1.4	1:1.6	1:1.4

ative decrease of 3.4% from 1998, an increase of 8% from 1999; see Tables 2, 3), the predominant locality was Modrava [in 2000 (Fig. 3) we recorded a daily average of 1438 records of cyclists (1997: 970, 1998: 1412, 1999: 1265) see Table 1]. This was followed by Kvilda (2000: 945, 1997: 975, 1998: 1114, 1999: 1042), Horská Kvilda (2000: 779, 1997: 646, 1998: 721, 1999: 689) and Antýgl (where cycling is officially prohibited – 2000: 457, 1997: 359, 1998: 499, 1999: 355). The highest daily average of cyclists recorded in 2000 (for details see Fig. 4) was in Modrava on Thursday August 17 (1646 records, i.e. over 800 cyclists passing through).

OPINION POLL – SELECTED RESULTS

In the course of our tourist opinion poll, 665 completed questionnaires were gathered, computer processed and analysed in 2000. Most of the questions were the same in all our surveys between 1997 and 2000 and in parallel surveys in other Czech national parks (e.g. ČIHAR & al. 2000b). People were selected at random, as in previous years (e.g. ČIHAR & al. 1997, 1998, 1999a).

1. The regional make-up of Czech tourists was similar to that of the years 1997–1999. The highest proportion of tourists came from Prague (2000: 31%, 1999: 24.4%, 1998: 31%, 1997: 30.9%), followed by districts of Pilsen (2000: 7.4%, 1999: 5.4%, 1998: 5.6%, 1997: 7.2%), České Budějovice (2000: 4.7% – a rise from 5th position in 1999), Klatovy (2000: 3.2% – a drop from 3rd position in 1999), Příbram (2000: 2.3%). Foreign tourists constituted 6.0% (2000) of the total (1997: 6.6%, 1998: 8.1%, 1999: 6.4%). German tourists represented 4.1% of all respondents (1997: 4.6%, 1998: 6.2%, 1999: 5.2%).

Table 4. – Comparison of the Šumava NP visitors' population and the Czech Republic population (age above 15 years).

Czech Republic population		Czech participants			
		1997	1998	1999	2000
Gender					
Men	48.1%	56.8%	54.1%	54.6%	53.4%
Women	51.9%	43.2%	45.9%	45.4%	46.6%
Age					
15 – 17	5.5%	2.1%	4.3%	3.5%	4.2%
18 – 24	14.4%	15.4%	16.9%	12.7%	13.9%
25 – 39	24.4%	32.1%	33.4%	29.4%	30.2%
40 – 59	34.0%	42.0%	38.9%	44.9%	40.5%
>60	21.8%	8.4%	6.5%	9.5%	11.2%
Education					
Basically	23.3%	9.2%	6.3%	8.3%	8.7%
High school	67.8%	55.6%	56.8%	58.3%	58.4%
University	8.0%	35.2%	36.9%	33.4%	32.9%

2. In 2000 53.4% of all respondents were male (Table 4). As to the social make-up of the tourists, the predominant group constituted white-collar workers (2000: 42.4%, 1999: 13.1%, 1998: 13.8%, 1997: 16.5%) and the predominant age category was 40–59 (Table 4; children under 14 were not counted). More than half of all respondents had completed a secondary school education (56.7%), and 33.5% were university graduates (a slight drop from 1999).

3. One fifth of all respondents (20.2%) were visiting Šumava for the first time in 2000 (1997: 23.2%, 1998: 26.5%, 1999: 24.6%), while 75.9% had been in Šumava several times before (over 6% more than in 1999). Once again, the most frequent period of stay for Czech tourists was one week [45.5% of all respondents; as opposed to only 7.9% of foreign tourists. The majority of foreign tourists (23.7%) were there for two weeks]. There was an almost 3% increase in the number of one-day visits (2000: 13.7%) in comparison with the previous year. In addition, there appears to have been a slight increase in the number of 2–3 day visits (an increase of approx. 3%; this is mainly due to foreign tourists). Average length of the stay (1997–2000) shows Fig. 5.

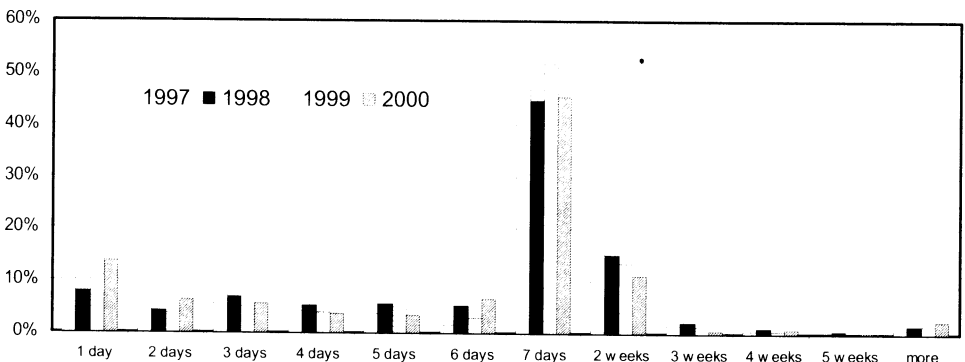


Fig. 5. – The length of the stay – comparison 1997–2000.

4. The proportion of tourists accommodated within the national park to those accommodated outside its boundaries was 2 to 1 (1997: 2:1, 1998: 1.3:1, 1999: 1.4:1). There was marked increase in the number of people staying in pensions/guest houses (2000: 37.9%, 1999: 32.1%, 1998: 29.5%, 1997: 27.9%; see Fig. 6); 15% were staying in hotels, which was the same as in 1999. There was a slight increase in the number of campers in comparison with 1999 (of almost 2% to 18.1%); the same amount of respondents was staying in "other" types of accommodation (an almost 6% drop from 1999). There was a certain drop in the proportion of tourists coming to the national park by car (2000: 78.8%, 1999: 81.4%, 1998: 81%). A similar trend was apparent in Krkonoše, a possible reason being an increase in the cost of fuel. In the case of foreign tourists, 89.5% (1999: 85.1%) of respondents had come by car. There was another decline in car use in the national park (2000: 31%, 1999: 41.2%, 1998: 44.9%, 1997: 33.2%). The proportion of respondents using the „green bus“ service (special buses running on bio-diesel oil in the national park) dropped by more than 3% (2000: 16.1%, 1999: 19.4%, 1998: 14.3%, 1997: 13.3%; see Fig. 7).

5. In 2000 most hikers/cyclists were in groups of two, in contrast to previous years (47.5%, 1999: 44.4%). In 1999 most hikers/cyclists were in larger groups (2000: 46.8%, 1999: 49.2%, 1998: 47.2%, 1997: 49.2%). The proportion of Czech tourists taking long excursions increased to a record 49.7% (1999: 43.5%, 1998: 40.7%, 1997: 49.6%). In contrast to the previous two years, there was a slight increase in respondents who preferred short walks to long hikes (2000: 13.6%, 1999: 11.8%, 1998: 12.6%, 1997: 17.9%). Yet again there was a marked decrease in the number of foreign tourists who preferred short walks to long hikes (2000: 21.1%, 1999: 46.4%, 1998: 54.7%, 1997: 58.5%). Fewer respondents than last year minded the fact that cyclists used tourist routes (2000: 18.2%, 1999: 24%, 1998: 21%, 1997: 19.5%).

6. As in previous years, a relatively high proportion of Czech respondents were in favour of regulating access to the most endangered parts of the national park (1997: 44.3%, 1998:

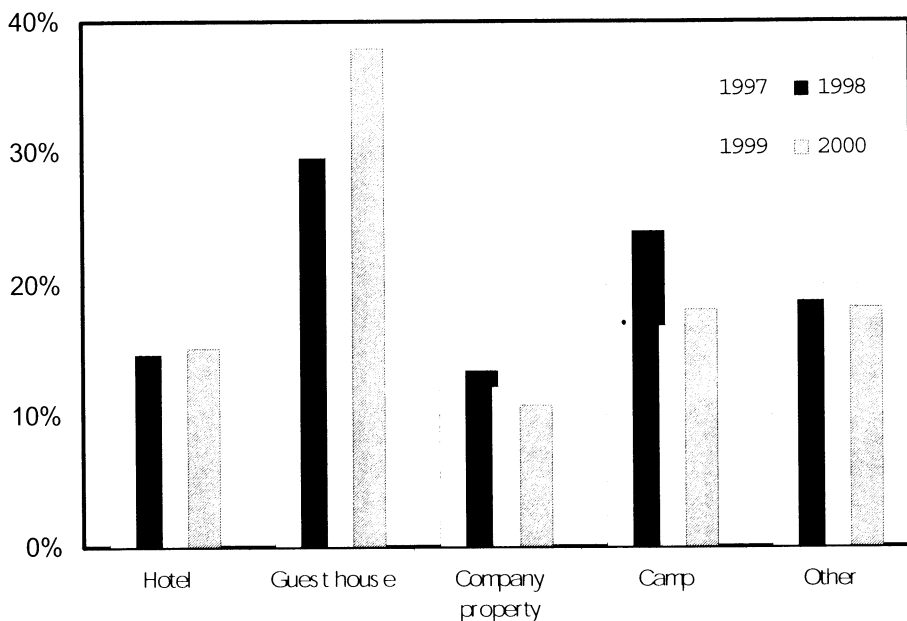


Fig. 6. – Type of accommodation – comparison 1997–2000.

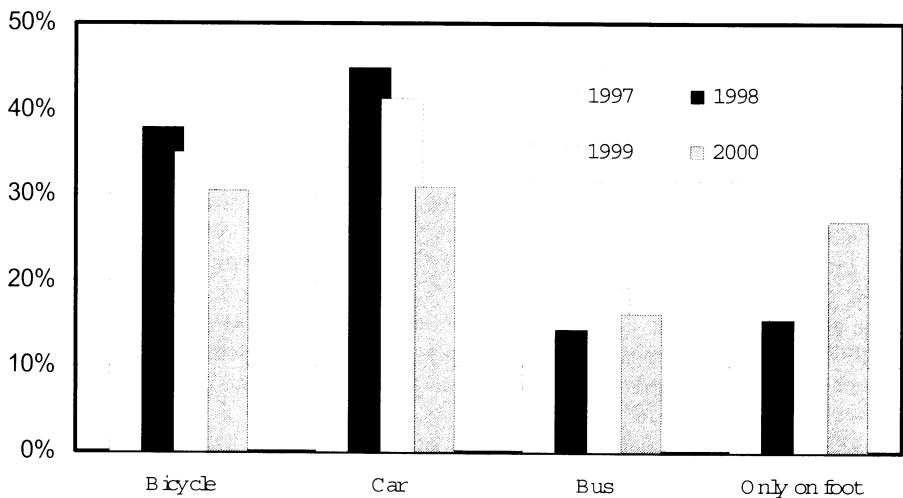


Fig. 7. – Type of transport in the NP (selected categories) – comparison 1997–2000.

38.2%, 1999: 38.5%, 2000: 40.2%; for better illustration of problem see Fig. 8). There was an increase in the number of people calling for a total or partial ban on public access to areas of the national park at most risk (2000: 59.3%, 1997: 53.5%, 1998: 58.3%, 1999: 57.4%). Public sentiment therefore appears to be set in favour of a ‘protective’ rather than a ‘liberal’ approach to this matter. In the hypothetical event of previously closed landscape areas being

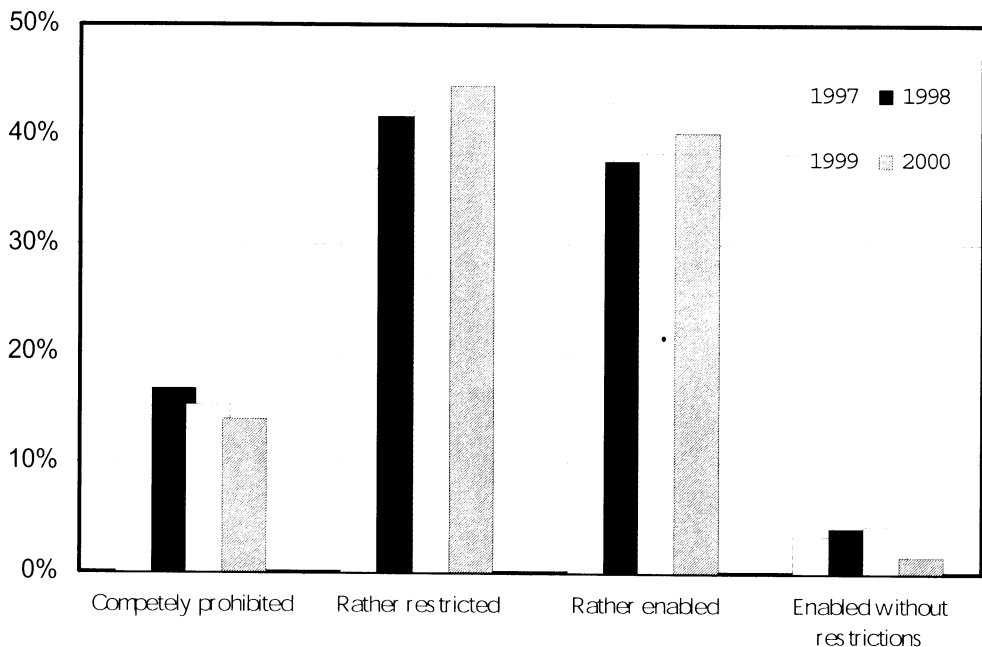


Fig. 8. – Access of visitors to the most endangered parts of the NP should be... – comparison 1997–2000.

opened up to the public, a clear majority (51.8%) were in favour of providing “access with a qualified guide”. Only 13.3%, however, were in favour of regulation in the form of entrance fees (1998: 14%, 1999: 11.8%).

7. There was a relatively marked decline in the number of tourists who used border-crossing points for pedestrians and cyclists during their stay (1997: 36.1%, 1998: 35%, 1999: 38.1%, 2000: 29.1%). On the other hand, as many as 75.5% of respondents were in favour of opening new border crossings of this kind.

8. In 2000 the majority of respondents (44.5%) considered the cost of their stay in the Šumava National Park to be in accordance with their expectations (1999: 50.8%, 1998: 54.8%, 1997: 43.3%). There was an increase in the number of people who were “satisfied” or “greatly satisfied” with the cost of the stay: 78.9% (for comparison, in Krkonoše National Park 66.1%) of foreign tourists and 43.1% (in Krkonoše National Park 29.2%) of Czechs. In contrast, 1.8% (in Krkonoše National Park 12.7%) of foreign tourists and 5.3% (in Krkonoše National Park 3.9%) of Czechs expressed extreme dissatisfaction. As to the most common estimate for daily expenses per person, foreign tourists stated the equivalent of CZK 200 (in Krkonoše National Park CZK 500) and Czechs stated CZK 300 (in Krkonoše National Park CZK 300). Other expenses associated with the stay (local transport, entrance fees, parking fees, etc.) amounted to 100 Kč and below for 86.9% (in Krkonoše National Park 65.9%) of Czechs and 40.7% (in Krkonoše National Park 38.8%) of foreign tourists.

CONCLUSIONS

As part of a four-year research project, four ten-day surveys (1997–2000) were carried out in the central part of the Šumava National Park and Biosphere Reserve, each one in August at the height of the summer season. Quantitative and qualitative aspects of tourism and cyclo-tourism were recorded at four pre-selected monitoring points (Modrava, Kvilda, Antýgl and Horská Kvilda). A total of 22500 hikers (45059 records) were recorded to have passed the monitoring points in the course of the 9-day survey in 2000, which was the lowest number since 1997. A moderate decrease in the total number of visitors was detected in the period 1997–2000 (the number of hikers decreased by 14.6% while the number of cyclists increased by 22.7%).

The socio-demographic structure of the visitors was analysed and evaluated with respect to nationality, gender, age, education, period of visit, type of transport and accommodation etc. For example, the highest proportion of tourists came from Prague (2000: 31%, 1999: 24.4%, 1998: 31%, 1997: 30.9%), followed by district of Pilsen (2000: 7.4%, 1999: 5.4%, 1998: 5.6%, 1997: 7.2%). Foreign tourists constituted 6.0% (2000) of the total (1997: 6.6%, 1998: 8.1%, 1999: 6.4%). One fifth of all respondents (20.2%) were visiting Šumava for the first time in 2000 (1997: 23.2%, 1998: 26.5%, 1999: 24.6%), while 75.9% had been in Šumava several times before (over 6 % more than in 1999). Once again, the most frequent period of stay for Czech tourists was one week (45.5% of all respondents; as opposed to only 7.9% of foreign tourists). Specific questions concerned the relation between the visitors’ opinions and conservation management of Šumava NP, evaluation of the environment quality and sustainable development of the NP.

In 2000 the majority of respondents (44.5%) considered the cost of their stay in the Šumava National Park to be in accordance with their expectations (1999: 50.8%, 1998: 54.8%, 1997: 43.3%). There was an increase in the number of people who were “satisfied” or “greatly satisfied” with the cost of the stay: 78.9% of foreign tourists and 43.1% of Czechs.

The study is a part of the research of different aspects of sustainable tourism in the Czech National Parks.

REFERENCES

- BARTOŠ M., KUŠOVÁ D. & TEŠITEL J., 1998: Integrated endogenous regional development concept and the role of Šumava National Park administration. *Silva Gabreta*, 2: 385–394.
- CEBALLOS-LESCURAIN H., 1996: Tourism, ecotourism and protected areas: the state of nature-based tourism around the world and guidelines for its development. *IUCN, Gland and Cambridge*, 301 pp.
- ČIHAR M. & al., 1997: Analýza rekreačně turistických aktivit v centrální části Národního parku Šumava [Analysis of recreational tourism in the central part of the Šumava National Park]. *Concluding report of the research project funded by the Czech Ministry of the Environment ("MoE"), Institute for the Environmental Studies of Faculty of Science, Charles University and the MoE, Prague*, 212 pp. (In Czech, Library MoE, Prague).
- ČIHAR M. & al., 1998: Rekreačně turistické využití centrální části Národního parku Šumava a reflexe ochrannářského managementu veřejnosti [Recreational tourism in the central part of the Šumava National Park and public reflections on protection management]. *Concluding report of the research project funded by the MoE, Institut for the Environmental Studies of Faculty of Science, Charles University and the MoE Prague*, 254 pp. (In Czech, Library MoE, Prague).
- ČIHAR M. & al., 1999a: Vyhodnocení vybraných ukazatelů udržitelného turistického ruchu v jádrové části Národního parku Šumava [Evaluation of selected indicators of sustainable tourism in the central part of the Šumava National Park]. *Concluding report of the research project funded by the MoE, Institute for the Environmental Studies, Faculty of Science, Charles University of Charles University and the MoE Prague*, 140 pp. (In Czech, Library MoE, Prague).
- ČIHAR M. & al., 2000a: Analýza monitoringu udržitelného turistického ruchu v jádrové části Národního parku Šumava. [Analysis of the monitoring of sustainable tourism in the central part of the Šumava National Park]. *Concluding report of the research project funded by the MoE, Institute for the Environmental Studies, Faculty of Science, Charles University and the Prague*, 124 pp. (In Czech, Library MoE, Prague).
- ČIHAR M. & al., 2000b: Monitoring základních ukazatelů trvale udržitelného turismu v hřebenevých partiích Krkonošského národního parku [Monitoring of basic indicators of sustainable tourism in the ridge parts of the Krkonoše National Park]. *Concluding report of the research project funded by the MoE, Institute for the Environmental Studies Faculty of Science, Charles University and the MoE Prague*, 103 pp. (In Czech, Library MoE, Prague).
- ČIHAR M., TREBICKÝ V. & TANCOSOVÁ Z., 1999b: Udržitelný turismus a jeho monitoring v jádrové zóně Národního parku a biosférické rezervace Šumava [Sustainable tourism and its monitoring in the central zone of the Šumava National Park and Biosphere Reserve Šumava]. *Silva Gabreta*, 3: 229–242. (in Czech)
- GODDE P. (ed.), 1999: Community based mountain tourism: practices for linking conservation with enterprise. *Synthesis of an electronic conference of the Mountain Forum April 13 – May 18, 1998, Mountain Forum and The Mountain Institute, Swiss Agency for Development and Cooperation*, 55 pp.
- MESSERLI B. & IVES J.D. (eds.), 1997: Mountain of the world, global priority. *The Parthenon Publishing Group, New York, London*, 495 pp.
- SHIPP D. (ed.), 1993: Loving them to death. *FNNPE, Grafenau*, 96 pp.