



*Cooperation in the
European Mountains
3: The sustainable
management of climbing
areas in Europe*

Brigitte Hanemann

IUCN

The World Conservation Union

Cooperation in the European Mountains

3: The sustainable management of climbing areas in Europe

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Cooperation in the European Mountains

3: The sustainable management of climbing areas in Europe

Brigitte Hanemann

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Contents

Foreword	viii
Preface	x
Acknowledgements	xi
Abstract	xii
List of Acronyms	xvi
I. Introduction	1
1. Breakdown of the subject area and the issues	1
2. Aims of the study	3
3. Structure of the study	3
4. Methodology	4
4.1 Choice of subjects	4
4.2 Categorisation of climbing areas and selection of the case studies	5
4.3 Case studies - investigation	6
4.4 Investigating data for countries at a European level	6
4.5 Research at an international level	12
4.6 Development of proposals for the sustainable management of climbing in Europe	12
II. Climbing and conservation	13
1. The climber - an attempt at demographic approximation	13
1.1 What is a climber?	13
1.2 Socio-demographic approximation	13
2. The history of climbing	15
3. Forms of climbing	18
3.1 Bouldering	18
3.2 Short climbing garden routes	18
3.3 Competitive climbing and climbing in artificial climbing centres	19
3.4 Multi-pitch climbing	19
3.5 Alpine climbing	20
4. Supply: climbing areas	20
5. The economic significance of climbing tourism	21
5.1 Climbing tourism as a factor in diversification and economic restructuring	21
5.2 Economic branches involved in climbing tourism	22
5.3 The daily expenditure of rock climbers and calculating the business generated by rock climbing tourism	23
5.4 Evaluation of the economic significance of rock climbing	23
6. The role in society of climbing as an outdoor sport	24
6.1 Climbing: outdoor sport - fashion sport - high-risk sport - extreme sport?	24
6.2 Climbing as an outdoor sport in its social context	28

7. The rock biotope	30
7.1 The rock flora of the low-lying mountain biotopes	31
7.2 Flora of the Alpine mountain biotope	32
7.3 The rock fauna of the German low-lying mountain areas	33
7.4. The Alpine mountain fauna	33
8. The conflict between climbing and nature conservation	34
8.1 The effects of climbing on the rock biotope	34
8.2 Possible solutions to the conflict	36
9. Overview of the current debate surrounding climbing sport in Europe	42
9.1 Germany	42
9.2 Austria	44
9.3 Switzerland	46
9.4 France	48
9.5 England	50
III. Results of the survey of experts	52
1. National level in Europe	52
1.1 Demand: number and development of climbers	52
1.2 Supply: the distribution of climbing areas in Europe	56
1.3 Current trends in climbing sport	57
1.4 Cross-border climbing tourism	59
1.5 Ranking of the climbing nations	65
1.6 The right of access to open country	66
1.7 Climbing regulations	69
1.8 Climbing ethics	75
1.9 The role of climbing bodies	78
2. Background conditions at European and international levels	83
2.1 Climbing regulations in the light of Agenda 21	84
2.2 The EU's Habitats Directive and its impact in individual countries	85
2.3 The Pan-European Biological and Landscape Diversity Strategy	88
2.4 Alpine Convention	90
2.5 The Club Arc Alpin (CAA)	90
2.6 The International Commission for the Protection of the Alps(CIPRA)	91
2.7 World Mountaineering and Climbing Federation (UIAA)	92
3. Summary	93
IV. Case Studies	98
1. Fontainebleau (France)	98
2. Arco (Italy)	101
3. The Roaches (England)	105
4. Le Grand Canyon du Verdon (France)	108
5. The Elbsandsteingebirge : The Saxon Switzerland (Germany)	112
6. Grimsel Eldorado (Switzerland)	116

7. Wilder Kaiser (Austria)	120
8. Conclusions from the case studies	123
V. Recommendations for Sustainable Climbing Management in Europe	125
1. Objectives for sustainable climbing in Europe	125
1.1 Legal objectives	125
1.2 Environmental objectives	126
1.3 Organisational objectives	126
1.4 Sport ethics objectives	127
1.5 Research objectives	127
1.6 Economic objectives	127
1.7 Social objectives	128
2. Means of implementation	128
2.1 Implementing the legal objectives	128
2.2 Implementation of the environmental objectives	129
2.3 Implementation of the organisational objectives	130
2.4 Implementing the sports ethics objectives	131
2.5 Implementation of the scientific objectives	132
2.6 Implementation of the economic objectives	132
2.7 Implementation of the social objectives	133
Bibliography	135
Appendices	143
1. People interviewed and sites visited	143
2. List of experts who answered the questionnaire	145
3. Conferences referred to	147
4. Questionnaires and Interview guidelines	148
5. Comparative representation of the grading systems	156
6. Overview of the distribution of climbing areas in Europe according to type of climbing area	157
7. Comparative representation of the voluntary and official climbing area regulations in absolute numbers	158

Foreword

This report has been prepared as a contribution to Action Theme 10 (mountain ecosystems) of the Pan-European Biological and Landscape Diversity Strategy (PEBLDS). The financial support for this activity, provided by the Netherlands Ministry of Agriculture, Nature Management and Fisheries, is gratefully acknowledged.

Over the period 1996-2015, the goal of the PEBLDS is to achieve conservation and sustainable use of biological and landscape diversity for the whole continent of Europe and all its regions. Its aims are to:

- substantially reduce, or where possible remove, the threats to Europe's biological and landscape diversity;
- increase the resilience of European biological and landscape diversity;
- strengthen the ecological coherence of Europe as a whole;
- increase considerably public involvement and awareness concerning biological and landscape diversity issues.

These aims are being implemented through four five-year Action Plans. In the 1996-2000 Action Plan, a total of eleven Action Themes were outlined. Action Theme 10 considers mountain ecosystems and, under this, ten activities (or sets of activities) were initially proposed for implementation, under the leadership of IUCN's European Programme. These activities were very diverse, reflecting the negotiation process that took place during the process of drafting the PEBLDS before it was endorsed by the environment ministers of 55 countries at the third 'Environment for Europe' conference in Sofia, Bulgaria, in 1995.

At its meeting in November 1996, the Executive Bureau of the PEBLDS gave priority to two activities within Action Theme 10. The present report derives from Activity 10.5, on the minimisation of the ecological impacts of recreational activities. It is being published in the series 'Cooperation in the European mountains' as it addresses a topic on which the need for cooperation is increasingly both recognised and growing.

The inclusion of Activity 10.5 in the PEBLDS was a topic of considerable debate within the European climbing and conservation communities, since the wording in the draft versions of the PEBLDS suggested a preference for climbing bans on cliffs. This ran counter to the principle of freedom of access to cliffs and crags espoused by most climbers and their various organisations; though many climbers also recognise the importance of limiting access in the interests of nature conservation; e.g., during the nesting seasons of rare breeding birds, and to preserve colonies of rare plants. In the event, this potential conflict was turned into an opportunity for cooperation, and Activity 10.5 has been jointly implemented by the European Programme of IUCN and the World Mountaineering and Climbing Federation (UIAA).

A key reason for this cooperation has been the realisation that rock climbing in Europe is a continent-wide phenomenon. Any ban on climbing in one country, or part of a country, inevitably leads to increased pressures on sites in other, particularly neighbouring, countries. Thus, regional if not continent-wide approaches are essential to identify the sites where restrictions on climbing may be necessary, and to justify, negotiate, and publicise these restrictions (which are often temporary or seasonal).

The process of cooperation between IUCN and UIAA began with the circulation of a questionnaire on limitations to access to all the European member organisations of the UIAA, who have over two million members. The results of this questionnaire were discussed at a joint IUCN-UIAA seminar hosted by the Centre Excursionista de Catalunya, Barcelona, in May 1998. At this seminar, the participants also presented the very different experiences from the ten countries represented, and formulated guidelines on access and conservation strategies for climbing areas which were subsequently presented at the 4* 'Environment for Europe' Ministerial Conference (Aarhus, June 1998), and disseminated widely to concerned parties in Europe.

The present report was under preparation over the same period, as a Diplomarbeit (master's thesis) at the Technical University of Munich. From the beginning, it was regarded as an essential element of PEBLDS Activity 10.5, and was undertaken in close consultation with key actors in both IUCN and UIAA. Both organizations, as well as the German Alpine Club, provided funds for its completion and publication. It represents a detailed investigation into the experience and possibilities for ensuring that rock climbing is conducted in a sustainable way with respect to the conservation of biological diversity, the needs of local people, and the desires of climbers. It also reveals that available knowledge varies considerably from country to country, and that there are considerable gaps that will have to be addressed before the goal of sustainable climbing in Europe can be approached. We hope the report will be a benchmark in the process of ensuring that climbing can continue across Europe while, at the same time, not jeopardising - and as far as possible, supporting - the conservation of biological diversity in some of Europe's most important and attractive locations.

Martin F. Price
Focal Point for Mountain Activities, IUCN European Programme,
Oxford, March 2000

Robert Pettigrew
Chair, UIAA Commission on Access and Conservation,
Stanton-by-Bridge, March 2000

Preface: from environmental harmlessness to sustainability

This study represents the investment of almost a year of work and a lot of time. The project has allowed me to travel extensively and to meet many interesting people. I had the opportunity of learning a lot about the status of climbing in other countries, about the way in which climbing is perceived and about the various approaches to it.

Working from the premise that it is possible to practise climbing in an environmentally harmless way, provided certain criteria are fulfilled, and taking as a starting point my research carried out in the context of my *Mémoires de Maitrise* (thesis) at Grenoble, I set about extending the horizons of my research to encompass the whole of Europe. In Grenoble, I noted that, in France, the economic and social aspects of climbing exert a much greater influence on climbing area management than in Germany. However, it was only once I had compiled and evaluated all the data, written up my results and set about compiling a graphical overview of the status of the research that the scales fell from my eyes: recommendations for the 'environmentally harmless' management of climbing areas would not be adequate for climbing in Europe. On the contrary, I would be making the very mistake I had wanted to avoid, namely that of approaching a Europe-wide issue from a truncated and ethnocentric (i.e., German) point of view and thus overlooking certain distinctive features. My research itself goes far beyond the concept of environmental harmlessness and comprises all aspects of the concept of sustainability, as used in 'Agenda 21'. Thus the study fits into the follow-up process to 'Agenda 21'. I accordingly decided to change the title of the study and the list of recommendations from 'environmentally harmless' to 'sustainable' climbing area management, reflecting the need both to preserve the natural spaces for future generations, and for the continuation of the practice of sport climbing - a sport rich in tradition.

This learning process is reflected in the course of the study. An entire chapter is devoted to the management of climbing areas in the light of 'Agenda 21'. For a scientific definition of the concept of sustainability, I refer the reader to the relevant specialist literature and also to 'Agenda 21'.

Brigitte Hanemann, Munich, March 2000

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Many thanks to all those whom I spoke to and experts whom I consulted, who gave me their time and even offered to accompany me to the sites.

A special thank you goes to Karin Steinmetzer, who so generously allowed me to use her car.

Last, but not least thanks go to my parents without whose support I would never have got so far.

Abstract

During the 1980s and 1990s, an increasing number of restrictions were imposed on the right of access to the German countryside, and particularly climbing areas. In the interests of nature conservation, traditional climbing areas were completely or partially closed to climbers, who then travelled to other climbing areas abroad (near the German border). This highlights the European dimension of the closure policy, which has resulted in overcrowding at alternative locations, and an increase in private traffic.

In order to move towards the sustainable management of climbing areas at the European scale, it is necessary to first establish the present state of affairs. The aim of this study was to use data obtained from across Europe - concerning rock-climbing itself, the various forms of climbing sports, trends, organisations and current climbing area regulations, and the reasons behind them - in order to produce recommendations for the sustainable management of climbing areas in Europe. Seven case studies, chosen as representative examples of the seven current forms of climbing, served to illustrate, and gain an understanding of, the forms of climbing area management currently in use.

An attempt was made to categorise climbing areas, based on both the historical development of sport climbing, and its current forms. Closer theoretical examination revealed that the scientific community views climbing in stereotyped and simplistic terms. It was further noted that there is a serious need for research concerning the significance of climbing for science and tourism, and the numbers of people involved in climbing. The demographic data obtained at the start of the 1990s no longer accurately represent the current situation.

In order to gain an understanding of the present situation, a Europe-wide, questionnaire-based survey of experts was carried out. A total of 23 experts from 21 countries took part. The response rate was very good - about 66%. With over 1.6 million people actively involved in climbing in the relevant countries, climbers are no longer a negligible minority in Europe. The number of crags available does not necessarily affect the number of climbers, and conflict with nature conservation only occurs where climbers are restricted to a limited number of crags (as in Germany, Belgium, or northeastern France).

Rock-climbing is continuing to grow in popularity, and we can expect to see an increase in the number of climbers - though this may not be to the extent of the last 20 years. The proportion of climbers involved in climbing organisations is 65% - relatively high compared with other outdoor sports.

However, at the national scale, this figure is inversely proportional to the number of climbers, and is particularly low (20%) in the major climbing countries of France, Italy and Great Britain. This indicates that the level of organisation alone cannot provide the key to effective climbing regulations. It is also apparent that climbing is well-organised and subject to strict self-regulation.

There is a particularly large number of climbing areas in the Alpine countries, as well as in Spain, Norway and Great Britain. One important influence on the distribution of the different types of climbing areas in European countries relates to climbing ethics. Climbers' preferences for various forms of climbing become apparent in the landscape: while there is an almost universal increase in the number of areas for sport climbing, adventure climbing areas are only spreading in traditional adventure climbing countries. Alpine climbing continues to enjoy a steady level of popularity, but alpine sport climbing is growing in popularity, with a corresponding number of new climbing sites being created.

As far as international climbing tourism is concerned, Germany is the principal country of origin. Climbing tourism takes place mainly in neighbouring countries; it is only German climbers who are found in almost all European climbing areas. This may be the effect of restrictive climbing bans. As a general rule, international climbing tourism originates in western and central European countries (Germany, Switzerland, Great Britain, the Netherlands) and is directed mainly towards the climbing areas of southern Europe (Italy, Slovenia, Spain, France) with their abundance of crags. The volume of this tourism is, however, widely underestimated. In over half of the countries surveyed - namely the major climbing tourism countries - climbing tourism is only of economic significance within a restricted local area. To date, sport climbing areas have been created with the specific aim of promoting tourism only in France, Spain and Italy.

The right of access to the countryside is not legally guaranteed in all European countries. In Scandinavia there is a special form of the right of access to the countryside: the 'allemansrätten' ('everyman's rights') is common law, requiring climbers to treat nature in responsible way.

Climbing area regulations vary greatly across Europe. As a basic rule, measures imposed by the authorities are more commonplace than self-regulation - though this is enjoying increasing acceptance, depending on whether or not the regulations were developed in consultation with climbers. The consent of climbers is in turn dependent upon the scope of the restrictions, the significance of the climbing area, and the practicability of

specific regulations. In percentage terms, most climbing areas in Belgium (100%) and Germany (90%) are subject to conservation-related restrictions. In absolute terms, there are also many regulations in Great Britain, France, Sweden, Italy, and the Czech Republic. These generally take the form of time restrictions and zoning regulations, as well as total bans for the protection of birds and plants. Although nature conservation is the most commonly mentioned reason for imposing restrictions on sport climbing across Europe, only in Germany and Belgium is nature conservation the primary reason for the imposition of such restrictions. Factors such as conflicts with landowners, or with the local population, have also led to climbing restrictions. In countries with an abundant supply of crags, such as Spain or France, self-regulation is a difficult concept to communicate. The power of the media and of other technical means to affect climbing management is often underestimated.

Climbing ethics play a major part in the various forms of climbing. Where there is no widespread climbing ethic, sport climbing areas are created; in countries with a strong ethic, it is mainly adventure climbing areas which are being created. Basically there is a standard for climbing rules, which can be complemented with additional area-specific regulations. In countries with a tradition of adventure climbing, bolting is frowned upon and there is a very strict climbing ethic. In the countries with the most stringent and refined climbing ethics, regulations regarding the new routing and rebolting require the greatest degree of self-regulation on the part of climbers. This however does not succeed in preventing the imposition of restrictions by the authorities. Often the climbing code came into existence, or was written down, at an early stage in the history of conflict (with the exception of the Saxon climbing regulations and the British ethical concepts). It would seem that these ethical rules helped to alleviate the situation and forestall the imposition of a number of regulations by the authorities. In countries with less stringent climbing ethics, or even none, the number of official regulations exceeds the number of self-regulatory rules (France, Italy). This is where the climbing associations have an important part to play. Formal agreements with nature conservation bodies have only been achieved in half of the European countries; i.e., those with a great need for regulation. The number of informal agreements may be somewhat higher. However, in most countries, climbers are committed to conservation within their associations - and this includes a large range of practical action.

Codifying social contracts of this kind with a view to achieving sustainable climbing is entirely in the spirit of 'Agenda 21', which calls on all societal groups to participate in the environmental reevaluation of the entire biosphere, as well as for greater involvement of non-governmental organisations in

environmentally harmless development. If, in areas with poor infrastructure, the local population derives financial benefit from this, and all people concerned are involved, sustainability in the sense of 'Agenda 21' is assured. The European Union's Habitats Directive continues, on the other hand, to be a source of confusion for climbing associations. As the Directive is implemented in each member state, and the climbing associations are involved in drawing up management plans, it will eventually become clear to what extent rock climbing is to be restricted. In general, however, we may assume that climbing will be allowed to continue in existing climbing areas (within areas designated under the Habitats Directive) provided there is no deterioration in the state of the environment. In order to implement the *Pan-European Biological and Landscape Diversity Strategy* of the Council of Europe and UNEP, the UIAA and the IUCN have jointly formulated guidelines for access to crags and their protection. These should be used by UIAA member associations as they develop effective access and conservation policies.

In conjunction with the results from the survey, it was clear that, while conservation activities were being undertaken in climbing areas in most countries, these efforts were uncoordinated, ad hoc initiatives. Only in countries where a limited number of crags are available for climbers was focused activity considered necessary. In each case, climbers are major partners in the work of conservation, since they are involved in the maintenance of many mountain areas. Often there is a discrepancy between permission being granted for far-ranging landscape alterations whilst sanctions are imposed on climbing.

As a result, it became apparent that the concept of the 'environmentally harmless' management of climbing areas does not take into account the requirements of the situation in Europe. Only sustainable management of climbing areas in the spirit of the follow-up process to 'Agenda 21' can ensure the long-term practice of sport climbing in a way which does not harm the environment or society, whilst at the same time creating an additional source of income in structurally weak areas. The recommendations for sustainable climbing area management can be divided into legal, environmental, research, sport ethics, economic, social and organisational objectives. Climbing associations have an important part to play in their implementation and the UIAA represents a force for integration at a European level. There must be freedom to practice sport climbing in an environmentally friendly way in future, since we can only protect what we know. In addition, free access must remain guaranteed to (what remains of) common land.

List of Acronyms

ACGW	Access and Conservation Working Group (of the UIAA)
AKN	Arbeitskreis Klettern und Naturschutz (<i>Committee on climbing and nature conservation</i>)
APB	arrêté de protection de biotope (<i>decree of biotope conservation</i>)
APPN	activités physiques de pleine nature (<i>outdoor sport</i>)
AVS	Alpenverein Südtirol (<i>South Tyrol Alpine Association</i>)
BAC/CAB	Belgische Alpenclub/Club Alpin Beige (<i>Belgian Alpine Club</i>)
BAC	Bulgarian Alpine Club
BFN	Bundesamt für Naturschutz (<i>German Office for Nature Conservation</i>)
BMC	British Mountaineering Council
BMU	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (<i>German Ministry for Environment, Nature Conservation and Nuclear Security</i>)
BNatSchG	Bundesnaturschutzgesetz (<i>German Law on Nature Conservation</i>)
BUND	Bund für Umwelt und Naturschutz Deutschland (<i>German Association for Environment and Nature Conservation</i>)
CAA	Club Arc Alpin (<i>European Alpine Association</i>)
CAF	Club Alpin Français (<i>French Alpine Club</i>)
CAI	Club Alpino Italiano (<i>Italian Alpine Club</i>)
CAM	Club Alpin Monégasque (<i>Alpine Club of Monaco</i>)
CAR	Clubul Alpin Roman (<i>Romanian Alpine Association</i>)
CDFME	Comité départemental de la FFME (<i>Department's Committee of the FFME</i>)
CFM	Czech Mountaineering Federation
CNM	Clube Nacional de Montanhismo (<i>Portuguese Mountaineering Assoc.</i>)
CNPM	Commission nationale de protection de la montagne (<i>French Mountain Conservation Commission</i>)
COSIROC	Comité de défense des sites et rochers d'escalade (<i>Committee for the Defense of the Rock-climbing Areas</i>)
DAV	Deutscher Alpenverein (<i>German Alpine Association</i>)
DB	Dansk Bjerghklub (<i>Danish Mountain Club</i>)

DRJS	Direction régionale de la Jeunesse et des Sports (<i>French Regional Youth and Sport Department</i>)
EOOA	Hellenic Federation of Mountaineering and Climbing
FAM	Federacio Andorrana de Muntanyisme (<i>Andorran Mountaineering Assoc.</i>)
FA SI	Federazione Arrampicata Sportiva Italiana (<i>Italian Sport Climbing Assoc.</i>)
FCA	Finnish Climbing Association
FEDME	Federacion Española de Deportes de Montaña y Escalada (<i>Spanish Mountaineering and Climbing Association</i>)
FFME	Fédération Française de la Montagne et de l'Escalade (<i>French Mountaineering and Climbing Association</i>)
GAL	Groupe Alpin Luxembourgeois (<i>Alpine Club of Luxemburg</i>)
HPS	Hrvatski Planinarski Savez (<i>Mountaineering Assoc. of Croatia</i>)
IAA	Irish Alpine Association
IG Klettern	Interessengemeinschaft Klettern (<i>Climbing Special Interest Society</i>)
ISALP	Islenski Alpaklubburinn (<i>Iceland Alpine Club</i>)
IUCN	International Union for the Conservation of Nature
JAMES	Slovak Alpinist Union JAMES
NKBV	Dutch Mountaineering and Climbing Club
LAA	Latvian Alpinist Association
LAV	Liechtensteiner Alpenverein (<i>Alpine Assoc. of Liechtenstein</i>)
LMA	Lithuanian Mountaineering Association
McofS	Mountaineering Council of Scotland
MHK	Magyar Hegymaszo Klub (<i>Hungarian Alpine Club</i>)
NABU	Naturschutzbund Deutschland (<i>German Nature Conservation Associat.</i>)
NK	Norges Klatreforbund (<i>The Norwegian Climbing Federation</i>)
NRW	Nordrhein-Westfalen (<i>North Rhine-Westphalia</i>)
NSG	Naturschutzgebiet (<i>nature reserve</i>)
OeAV	Österreichischer Alpenverein (<i>Austrian Alpine Association</i>)
ONF	Office national des forêts (<i>French Forest Administration</i>)
PEBLDS	Pan-European Biological and Landscape Diversity Strategy
PZA	Polski Zwiazek Alpinizmu (<i>Polish Alpine Association</i>)
PZS	Alpine Association of Slovenia (<i>Alpine Association of Slovenia</i>)

SAC/CAS	Schweizer Alpen-Club / Club Alpin Suisse (<i>Swiss Alpine Club</i>)
SBB	Sächsischer Bergsteigerbund (<i>Saxon Mountaineering Assoc.</i>)
SKF	Svenska Klattringförbundet (<i>Swedish Climbing Association</i>)
TDAF	Türkiye Dağcılık Federasyonu (<i>Turkish Mountaineering Fed.</i>)
UIAA	Union Internationale des Associations d'Alpinistes (<i>The International Mountaineering and Climbing Federation</i>)
UMCR	Union of Mountaineers and Climbers of Russia

I. Introduction

*"Access and conservation are
two sides of the same coin."
(MOUNTAINEERING COUNCIL OF SCOTLAND, 1997, 8)*

1. Breakdown of the subject area and the issues

During the 1980s and 1990s, an increasing number of restrictions were imposed on the right of access to the German countryside, especially climbing areas. Based on conservation considerations, climbing areas have been completely or partially closed for climbing activity. As established by the German Alpine Association (DAV 1994a), these closures have a displacement effect, showing that the resolution of the issue of the right of access to the countryside has a European dimension that cannot be neglected. These closures have resulted in climbers migrating to other climbing areas near the German border, such as the Inntal valley in Austria – and even to France, Belgium, and Switzerland. Apart from the effect of overloading the alternative locations, the closures have led to an increase in private traffic. This shows that the conservationists have acted according to the principle of St. Florian, being concerned only with the local situation, and not considering the wider implications. In other European countries, such as Belgium, Great Britain and France, there have also been efforts to restrict access to the countryside in the form of restrictions on sport climbing.

These restrictions do not make sense to climbers. In view of the damage to the environment permitted in other cases, the closures often seem to be a form of compensation. The representatives of conservation, on the other hand, see this form of recreation, practised by climbers, as an attack on the last remaining unspoiled areas. There is no doubt that all forms of outdoor sport both promote conservation and exploit nature. However, not only in Germany, but also in other countries such as Great Britain, both past and present experience demonstrates that there are opportunities for combining these interests and, in the context of the sustainable management of climbing areas, finding solutions acceptable to both parties.

The *Pan-European Biological and Landscape Diversity Strategy* (PEBLDS) - approved in 1995 by the Conference of European Environment Ministers - for the first time explicitly envisaged the closure of mountain areas of particular topological and biological value; not only in low-lying mountain areas, but in all European mountain regions, through a system of European

regulation (COUNCIL OF EUROPE 1996, Section 10.5). This is conclusive proof of the need for a Europe-wide management of climbing areas that takes into consideration the interests of climbers and the requirements of conservation - in other words the sustainable practice of sport climbing. This was intended to prevent the problem from spreading to other mountain areas within Europe or beyond, as feared by SEEWALD *et al.* (1998, 197). In the context of implementing this strategy, developed by the Council of Europe and UNEP, the representatives of the World Mountaineering and Climbing Federation (UIAA) and the World Conservation Union (IUCN) jointly produced the *Guidelines on Access and Conservation of Climbing Areas* (UIAA/IUCN, 1999).

In the context of implementing the Strategy, it became apparent that there was a need to identify and evaluate the present situation, Europe-wide, in relation to the restriction of the right of access to the countryside - based on the example of cliffs and crags - and the reasons behind these restrictions. There was a subsequent need for research into the methods for managing climbing areas and the principles applied in each case. This should make it possible to find common ground and identify differences in relation to the successful management of climbing areas, and for the countries in question to present proposals for the sustainable management of climbing areas at the European scale. As there were no general data available on rock-climbing at this scale, a first priority was to obtain these data, which then served as a basis for elaborating criteria for the management of climbing areas at the European scale. To complement and illustrate these data, seven case studies - which represent the different types of climbing area - are used to develop the criteria to create a functioning model of climbing area management.

Recently, in climbing circles in Germany, Austria, and Switzerland, there has been heated debate about climbing ethics in connection with the establishment of new routes and the rebolting of climbing sites. These dialogues produced the idea of developing a new principle for the management of climbing areas. SEEWALD *et al.* (1998, 221) also present Maxims for the Environmentally Harmless Practice of Nature Sports in the book '*Sportökologie*' (Sport Ecology), in which they refer to climbing ethics.

Taking as our starting point the need for research (also recognised by EGNER *et al.*, 1998, 128), and the topics mentioned above, the following issues arise:

- What potential is there for conflict in Europe, in terms of the number of climbing areas - according to the different climbing area types and numbers of climbers?

- Is there such a thing as sustainable climbing area management in the countries of Europe, and, if so, how is it achieved?
- What is the present situation in Europe in relation to climbing and conservation; apart from environmental considerations, what other factors lead to climbing restrictions?
- Who is involved? What part is played by the climbing associations?
- What are the overall trends in sport climbing in each country?
- How is the right of access to the countryside regulated at the national level?
- What effect do the sets of international regulations have on climbing?

2. Aims of the study

The study has the following aims:

- Socio-demographic description of climbers, and presentation of the history of the development of rock climbing;
- Outline of the grounds for tension between climbing and conservation;
- Presentation of the impact of climbing ethics on the sustainable practice of sport climbing.
- Categorisation of climbing areas according to climbing styles and ethics;
- Collation of general Europe-wide data on climbing concerning the number of climbers, the degree of organisation among climbers, and the number of climbing areas according to the type of area and present developments - and a comparison of the significance of climbing in each country;
- Analysis of the significance of climbing tourism and the economic significance of climbing;
- Investigation of the right of access to the countryside, and restrictions of that right at a national and international level;
- Compilation of climbing regulations, the methods for managing climbing areas, and climbing ethics in Europe;
- Illustration of management methods using case studies;
- Development of concrete proposals for sustainable sport climbing at the European scale.

3. Structure of the study

The study is divided into five subject areas:

- 1 In the introduction, the subject area is introduced, the issues and aims are identified, and the methodology is explained.

- 2 The second section introduces climbing and those involved in climbing: this includes socio-demographic, historical and economic aspects. The forms of climbing and the various kinds of climbing area are outlined, and some light is cast on climbing in a social context. The tension between climbing and conservation is then described together with various options for dealing with conflicts. On this basis, the significance of climbing ethics for the environmentally harmless sport climbing is expounded. The questionnaire is based on the criteria presented. The chapter is rounded off with an overview of the current debate surrounding sport climbing in various European countries.
- 3 In the third section, the results of the survey of experts from the European countries are presented. The overview is completed by a presentation of the background of this issue at an international level.
- 4 The fourth section introduces the various case studies.
- 5 The fifth section develops a list of recommendations for the sustainable practice of sport climbing in Europe.

4. Methodology

4.1 Choice of subjects

The choice of subjects was influenced by various considerations:

Topical relevance of the subject area: in 1997 and 1998, there were five conferences which were concerned, in various ways, with the regulation and/or restriction of the freedom to practise sport climbing at a supranational level (Appendix 3). By personally taking part in these events, or through access to conference papers, I observed the need for research to be carried out.

Pre-studies: In the context of the implementation of activity 10.5 of the PEBLDS, the IUCN and UIAA jointly organised a seminar in Barcelona in May 1998. In order to prepare for this, a short questionnaire (see Appendix 4) concerning the restrictions to the right of access to the countryside for climbers was sent to climbing associations and conservation organisations around the world. However, due to the low level of response (6% of 400 questionnaires), the data could only provide general information regarding the restriction of access for conservation reasons. Among the 21 countries

from which responses came, major 'climbing countries' such as France were missing - there was still a need for information. The completed questionnaires, but not the summary of their evaluation (ROBERTSON, 1999), were made available by Dr. M. Price. Most crucially, in the context of the Mémoires de Maitrise (master's dissertation) at the Joseph Fourier University (Grenoble) in 1997,¹ I had myself carried out a German-French comparison of the environmental aspects of climbing area management - a European comparative study was the logical sequel.

Expert discussions with representatives of climbing associations, conservation bodies and climbers confirmed interest in a Europe-wide research project.

Personal interest: this subject gave me the opportunity to realise my heart's desire; of combining my career as translator with the specialist knowledge acquired during my geography studies and my enthusiasm for climbing. At the same time, it allowed me to do work in an area which incorporates both physical geography and social and economic geography.

4.2 Categorisation of climbing areas and selection of the case studies

Assuming that it makes sense to tailor measures to the type of climbing area in question, it was necessary to categorise climbing areas. In the context of an expert interview with the former head of the Climbing and Nature Conservation Project of the German Alpine Association (DAV), N. Mailänder, a categorisation was produced which covers the range of different climbing areas in the Alps and outside, and differentiates them according to safety ethics and route lengths.

The case studies were selected on the basis of discussions with experts and of analysis of specialist literature (climbing guidebooks) and specialist magazines. At the same time, attention was given to finding a typical example of the seven types of climbing area. Each of these also needed to be of at least national, if not international significance, and so be at a particular altitude. In addition, the major climbing countries (France, Italy, Austria, Switzerland, Great Britain and Germany) should each be represented by climbing areas typical for the country in question. Finally, the different kinds of rock should also be represented. The question of conservation area status was also of interest. The areas selected are shown in Table 1.

Table 1: Overview of the case studies

No.	Climbing area	Length of the routes	Protection and climbing style	Significance of the area	Conservation area status	Type of rock
1	Fontainebleau, France	very short routes	boulders	international	creation of a national park is under discussion (state forest, classified site)	sandstone
2	Arco (Lake Garda) Italy	short routes	sport climbing	international	none	limestone
3	The Roaches (Peak District) Great Britain	short routes	adventure climbing	national	national park	gritstone
4	Gorges du Verdon, France	multi-pitch routes	sport climbing	international	classified site, regional nature park	limestone
5	Elbsandstein-gebirge, Germany	multi-pitch routes	adventure climbing	international	national park	sandstone
6	Eldorado (Grimsel) Switzerland	multi-pitch routes	sport climbing	international	conservation area	granite
7	Wilder Kaiser Austria	multi-pitch routes	Alpine	international	conservation area	limestone

4.3 Case studies - investigation

A combination of methods was used for the case studies. Through the analysis of climbing guidebooks, studies, articles in specialist journals and, where available, conservation area regulations, knowledge of climbing areas was deepened. Visiting the area, if possible with someone acquainted with the area, gave an overview of the current situation and an impression of the area. Guided conversations with experts according to the research model for European countries (see 4.4) rounded off the picture painted by the case studies.

4.4 Investigating data for countries at a European level

4.4.1 Definition of the scope of the research

Data must be collected comprehensively from all European countries in order for the statements to be valid at the European scale. The scope of the present study is all the countries which fulfil the following three criteria:

Table 2: Overview of the research in the countries involved

Country (member of the Council of Europe and of the UIAA)	Significance for climbing ¹	Association ²	compiled by Robertson ³	Written to	Response
Andorra	-	FAM		yes	
Belgium	+	CAB - BAC		yes	yes
Bulgaria	-	BAC		yes	
Denmark		DB		yes	yes
Finland	-	FCA	yes	yes	yes
France		FFME, CAF		yes	yes
Germany	+	DAV	yes	yes	yes
Great Britain/ Scotland	+	BMC, McofS	yes	yes (twice) ⁴	yes (twice)
Greece	+	EOOA	yes	yes	yes
Netherlands	-	NKBV		yes	yes
Ireland	+	IAA	yes	yes	yes
Island	-	ISALP		yes	
Italy / South Tyrol	+	CAI, FAS1, AVS	yes	yes (twice)	yes (twice)
Croatia	+	HPS	yes	yes	
Latvia	-	LAA		yes	
Liechtenstein	+	LAV		yes	yes
Lithuania		LMA		yes	
Luxembourg	+	GAL		yes	yes
Monaco	+	CAM		yes	
Norway	+	NK		yes	yes
Austria	+	OeAV		yes	yes
Poland		PZA		yes	
Portugal	-	CNM		yes	
Romania	+	CAR	yes	yes	yes
Russia	-	UMCR	yes	yes	
Sweden	+	SKF	yes	yes	yes
Switzerland	+	SAC - CAS	yes	yes	yes
Slovakia	+	JAMES	yes	yes	yes
Slovenia	+	PZS	yes	yes	yes
Spain	+	FEDME		yes	yes
Czech Republic	+	CFM	yes	yes	yes
Turkey	-	TDAF		yes	
Hungary		MHK		yes	
Total			14	33 + 2	21 + 2

Sources: COUNCIL OF EUROPE 1997, 5; MEMBERSHIP ROLL OF THE UIAA 1998; ROBERTSON, 1999

¹ + important, - less important

² See list of acronyms

³ Robertson (1999) also compiled data for Cyprus, Gibraltar, Malta, Kyrgyzstan and the USA. We received an answer from France that could not be evaluated, and Scotland was treated as a separate country, so in total 21 countries were covered.

⁴ In Italy and Great Britain, South Tyrol and Scotland each have their own mountain climbing association to which a separate letter was sent, in addition to the letter sent to the national mountain climbing association.

- member of the Council of Europe;
- membership of the national mountaineering association in the UIAA;
- some available knowledge of climbing in the country in question; climbing has a certain significance.

Membership in the UIAA is important as the UIAA gives access to addresses through which some contacts were established. Macedonia, Moldova and Ukraine are eliminated, since in their case the third criterion is not fulfilled. Analysis of specialist literature (climbing guidebooks and articles in specialist journals) supported this decision.

Only in Italy and Great Britain did the principle of dealing at a purely national level not apply; it became clear that the respective national mountain climbing associations were not responsible for South Tyrol or Scotland - in both of these cases, letters had to be written to two mountain climbing associations. In the assessment, however, these data were combined with the information from the national mountain climbing association into a single set of data per country. In the Czech Republic, while climbers are organised at a national level, in reality there are individual climbing associations (in each climbing area) which are relatively isolated from one another. Unfortunately, a response was only received from Bohemian Switzerland, so most of the information for the Czech Republic only focuses on this area.

4.4.2 Investigation

The experience obtained during the German-French comparative study in 1997 (which can be considered as a preliminary piece of work in anticipation of the present research) had indicated that the situation in relation to climbers and conservation differs greatly between Germany and France. Consequently, the most appropriate method of research would be a survey of experts in the form of a guided specialist interview. A previously developed standardised discussion guideline (Appendix 4) enabled data and facts to be obtained, and allowed answers given by different people to be compared and to be reliable (LAMNEK, 1995, 60-64). At the same time, this form of conversation management leaves room for the openness and flexibility (LAMNEK, 1995, 60-64) necessary for qualitative research, which is particularly important in the intercultural context, in order to avoid the danger of imposing/projecting German models of thought and behaviour on other cultures. The guideline was used in a flexible way and did not contain any set answers so that those questioned were free to answer in their own way. Unfortunately the realities of time and money did not allow this method to be employed Europe-wide; guided discussions were thus only held in Germany and the neighbouring

countries of Switzerland, Austria, France and Great Britain. In each instance, the discussion took place in the office of the person being interviewed, creating an informal situation and also ensuring that the interviewee could refer to any documentation for the purposes of illustration. The informal conversation style amongst climbers, who speak on first name terms, meant that the atmosphere was often relaxed. The conversations lasted between half an hour and an hour, were all recorded using a tape recorder, and then transcribed. Especially in foreign-language interviews, this is the only way of understanding the conversation in all its detail.

In the case of the other European countries, the survey was carried out by a questionnaire (Appendix 4) containing a range of closed questions for collecting data, and a range of open questions for country-specific matters. In order to achieve the highest possible response rate, the following procedure was adopted: a questionnaire was developed, translated into English and French and accompanied by a letter in three languages from the vice-president of the UIAA on official UIAA letter paper. This was sent by e-mail or fax, and then a second time, by post to an expert in each country or two experts in the case of Italy and Great Britain. After a period of two weeks I contacted the person by telephone (compare FRIEDRICH'S, 1990, 236-237).

When selecting the expert to be interviewed, I took account of whether they were responsible for climbing and/or conservation or right of access issues within the (national) mountain climbing association or, if this was not the case, whether the person was in touch with the current national climbing scene and could thus be considered an expert. It was decided not to interview conservationists, since both the German-French comparative study and ROBERTSON'S survey (1999) had shown that the management of climbing areas is carried out almost exclusively by climbers themselves. Often the conservation authorities and associations at a national level do not deal with sport climbing at all, so there are rarely contact persons for these areas. Thus in ROBERTSON'S research it was mainly mountain climbing associations which responded to the survey. It is mainly the national park administrations - lower-level conservation authorities responsible at a local level for the respective climbing sites - which have been specifically concerned with the issue of climbing; this situation was not very helpful when attempting to carry out a survey at a national level. For this reason, it was also important to complement the survey at a national level with concrete case studies to ensure that the conservationist voice was heard. The only exception is Finland; I did not receive sufficient answers from the Finnish mountain climbing association, so in the end the Finnish "Natura 2000" coordinator of the Finnish Association of Nature Conservation was involved as an expert on

the basis of his specialist knowledge. A list of the experts interviewed is to be found in Appendix 2.

The data collected in this way, by means of questionnaires, was compiled and evaluated using the Excel spreadsheet program. The interviews were evaluated separately and are included with the analysis. The data were complemented by the analysis of relevant documents made available to me by the expert in question, and by the analysis of articles from specialist journals.

4.4.3 Rate of response and transferability

From a total of 35 experts in 33 countries and 2 regions to whom questionnaires were sent, 23 experts from 21 states and both regions replied. This represents a positive rate of response of 66%. This high rate, in comparison to the results of ROBERTSON (1999), was mainly due to personal contact and recommendations, to the translation of the questionnaire into other languages, and because those who received the letter received several reminders. Almost all those questioned expressed interest in the results of the study. Classifying the countries according to their significance for sport climbing, it can be seen that, of the countries classified as 'important', only the experts in Croatia and Monaco failed to give an answer. Of the 13 less significant countries, three answered. It is thus possible to make generally applicable statements about sport climbing in Europe.

4.4.4 Quality of the data

At this point it seems appropriate to comment on the quality of the data. During the research, my assumption was confirmed that rigorous research into sport climbing had been carried out in only a very few countries. In most cases, I had to base this research on estimates by experts or the relevant climbing associations. The quality of the data in terms of specifics is as follows:

Number of local climbers. In 13 of the 21 countries, the figures are estimates by the climbing associations or the experts. Only in Germany, France, Italy, Austria and Switzerland is there scientifically-based research - though this must also be treated with caution; the French data, for example, represents a 1985 INSEP study about the sports activities of the French, from which figures for the present day have been extrapolated (BOURDEAU, 1993, 10). The situation in Austria is similar (RENZLER, pers. comm. 3/2/1999): in the 1980s, a study was commissioned by one of the largest opinion poll institutes in Austria and the sample was then converted into figures for the entire

population. In Germany and Slovenia, the number of climbers is based on counts in individual climbing areas and projections. These were carried out in Germany between 1993 and 1997 and are thus up-to-date. In Belgium, an estimated number of non-organised climbers was added to the number of climbers who were part of organised associations. In Finland, by contrast, the figures are the most up-to-date: in Spring 1998 and January 1999, VEISTOLA carried out a national survey by e-mail in order to arrive at current figures for the number of climbers. These correspond to estimates by the Finnish climbing association.

The level of organisation among climbers. Again, for this topic, for Germany only estimated values are available. In some cases, these figures are questionable.

Information regarding foreign climbing tourists. Only in Belgium can this figure be determined to a relative degree of accuracy, since the Dutch climbers, who represent the overwhelming majority of climbing tourists in Belgium, must apply for a climbing stamp ('authorisation') from the BAC through their climbing association NKBV. In Finland, these figures are also based on internet research, and in three other countries on counts in climbing areas and projections. In the remaining 16 countries, estimates by experts provide the only source of data.

Number of climbing areas. Here again, only estimates can be given for ten countries. In seven countries, reference is made to a book. Only the DAV's mountain directory (in preparation for internal use) and the French '*Guide des Sites Naturels d'Escalade en France*' (1994/1999) can claim to be comprehensive and up-to-date. However the German mountain directory is limited to non-Alpine climbing areas (somewhat unusual for an Alpine association) and the French counterpart is limited to climbing areas at altitudes of less than 1,600 m. For the Alpine climbing areas in Germany, the "Deutscher Kletteratlas" (German climbing atlas) (GOEDEKE, 1992) was used as a basis, and TAUPIN (pers. comm. 1/1999) calculated the figures on the basis of area guidebooks.

Climbing regulations: The information regarding climbing regulations gives a very accurate picture, as people in climbing circles find out about restrictions very quickly. However, in the context of the present study, only the number of restrictions, and not their scope, has been recorded.

All other trends and values obtained also rely on the estimates of experts. On the basis of my selection of experts, we can rely on these data providing quite

a realistic representation of reality. It should be noted at this point that there is a huge need for research at a national level.

4.5 Research at an international level

Participation in the *Parliamentary Conference on a Pan-European Policy for Mountain Regions* and the DAV conservation conference on the subject of European environmental policy (Appendix 3) and analysis of conference papers gave an initial overview of the situation at an international level. In addition, the corresponding legal texts and guidelines were analysed, as well as commentaries on the guidelines in various specialist journals. Guided conversations with experts rounded off the investigation.

4.6 Development of proposals for the sustainable management of climbing in Europe

Proposals were produced on the basis of the results obtained and the experience gained through the case studies and conversations with experts in the field. During the course of the entire research process, a log book was kept in which the progress of the research was recorded. Thoughts and impressions following conversations with the experts, as well as personal observations made while walking through the climbing areas, in relation to the state of the area, among other things, were noted.

II. Climbing and conservation

1. The climber - an attempt at demographic approximation

By way of introduction it seems necessary to give a profile of climbers and what motivates them. In Germany and France, studies on this subject in individual climbing areas have all painted a similar picture of the climber. The assumption is that this description applies to other European countries.

1.1 What is a climber?

The definition of a climber usually refers to overcoming certain levels of difficulty in climbing. This also provides the basis for research by the DAV:

"Constantly using their hands and feet, rock climbers climb steep rock faces in the Alps and on crags in low-lying mountain ranges on routes ranging from the second to the eleventh degree of difficulty on the [UIAA] scale," (SCHURZ, 1999,32)

A distinction is made between rock climbers and those who practise the sport exclusively on artificial climbing walls. The latter are not included in the DAV definition.

In France, as in some other European countries (see III 1.1.1), the definition of a climber also takes account of the frequency with which they practise the sport and assumes that 18% of climbers practise the sport regularly, 12% irregularly and 70% sporadically. Climbers on climbing walls are not considered (BOURDEAU, 1993, 11).

Given the issues under consideration in this study, the DAV definition will be extended to cover other European mountain ranges and used as a basis for the work. It also thus appears to make little sense to take into account those exclusively involved in indoor climbing. Making distinctions on the basis of frequency of practice is not possible in most countries due to the sparse data.

1.2 Socio-demographic approximation

Rock-climbing is still largely the preserve of men. In the many research projects carried out in the various German climbing areas, the proportion of men varies from 66% (EGNER *et al.*, 1997) to 78% (SCHURZ, 1999, 35). In France it is assumed that the proportion of men is 74% (BOURDEAU, 1993, 11). We can assume that in Europe today barely a third of climbers are female.

The average age of climbers in France and Germany is 28 (BOURDEAU, 1993, 11; SCHURZ, 1999, 35). The under-18 age group is very poorly represented, and a significant proportion of the climbers is from 19 to 34. Thus in France, 82% of the climbers are under 34 (BOURDEAU, 1993, 11). In Germany, over 50% of climbers are between 19 and 30 (SCHURZ, 1999, 36).

Climbers have a higher than average level of education. In Germany and France over two thirds of climbers have the German or French equivalent of A-levels (BOURDEAU, 1993, 11; SCHURZ, 1999, 36; EGNER *et al.*, 1997). Manual and other workers are very poorly represented. The proportion of climbers with secondary or Realschule (halfway between secondary and grammar school) education varies from 20% to 35% (SCHURZ, 1999, 36; EGNER *et al.*, 1997; BOURDEAU, 1993, 11). A large proportion of climbers is still in education. BOURDEAU (1993, 11), for example, observes that in France the student contingent is 29%. It is those climbers still in education or study who are the most flexible in terms of time.

According to the studies in 1993, climbers do not usually have children. In both France and Germany, the proportion of climbers without children was over 80% (BOURDEAU, 1993, 11; SCHURZ, 1993, 36). It is however doubtful whether this statement is still as true now as it was in 1993; many children can be seen in the children-friendly climbing gardens (such as in Arco). I would suggest that many climbers of the climbing boom now have children and continue to climb. KÖHLER and BRAM (1996, 3) observe that nowadays more and more entire families, including young children, are to be seen at the crags.

Climbers mostly travel by car to the climbing area. This is another reason behind the disproportionately low contingent of climbers under 18, in addition to the fact that, on average, in France climbers began to practice the sport at 19.4 years (BOURDEAU, 1993, 11). Only very few climbing areas can be reached by public transport, as by definition they are located outside populated areas. Research by BOURDEAU (1993, 63), SCHURZ (1999, 40) and EGNER (*et al.*, 1997) confirms that the overwhelming majority of climbers travel to climbing areas by car; the proportion is 68% in the Saxon Switzerland and 95% in the northern Eifel, Saxon Switzerland and Fränkische Schweiz together, and in the Verdon. STETTLER (1997, 135) also demonstrates that only 10% of people in Switzerland use public transport when going climbing. His study on the sport-motivated traffic behaviour of the Swiss reveals another interesting result: the average distance covered to practice the sport (in one direction) for mountain climbers and those on

skiing tours is 100 km - twice as high as for sport climbers. He bases this on the fact that sport climbers do not rely on having to travel to the Alps, but can find places to climb in lower mountain ranges, i.e. in the Jura, in the Pre-Alps and in indoor facilities.

The glorious times of the bicycle are over, when Hermann Buhl's bicycle ride after the first ascent of the north-east ridge of the Badile back to Innsbruck was terminated in the river Inn because of his tiredness.

2. The history of climbing

Climbing as a mountaineering sport can look back on a hundred years of history. In the quest for the historical roots of climbing practised for its own sake, one encounters the 'Columbus of Climbing', Antoine de Ville. At the same time as Columbus crossed the Atlantic in search of India, de Ville, on the instigation of Karl VIII, climbed Mont Aiguille⁵ and thus marked 1492 as the birthday of high-profile climbing (LÜTKEHAUS, 1998, 105). Two further climbing expeditions are also reported: the climbing of Mont Ventoux⁶ by the poet Petrarch in 1336 "... impelled to see this extraordinarily high point" (id., 106), as well as the climbing of the legendary Pilatus by six monks from Luzern against the express command of their superiors⁷ in 1387 (GEOGRAPHISCHES INSTITUT DER UNIVERSITÄT BERN, 1991, 23)

In the mid-19th century, several factors contributed to the development of 'classic mountaineering': on the one hand, technical innovations not only improved access to mountain areas, but also improved climbing equipment especially in relation to protection; on the other hand, the demythologisation of nature during the age of Enlightenment opened the way for the scientific observation of nature. The Romantic view of nature also played a part, as did the changes in lifestyle due to industrialisation (GOEDEKE/MAILÄNDER, 1999, 17).

The beginnings of climbing were in the Saxon Elbsandsteingebirge (ascent of the Falkenstein in 1864) and the English Lake District. England proved itself to be not only a cradle of the industrial revolution, but also of the sporting revolution: the mountain climbers of the British 'Alpine Club' (founded as the first Alpine association in 1857) discovered the Alps as their 'Playground

⁵ Altitude: 2097 m, 40 km south of Grenoble, the summit lying isolated off the Vercors. Nowadays a wire-secured path (III) leads up to the top.

⁶ Very windswept back of the Provençal Limestone Pre-alps (1912m)

⁷ The authorities held the superstitious belief that the body of Pontius Pilate was to be found in the bottom of one of the mountain lakes.

of Europe' and experienced the 'golden age of mountaineering' from 1854 and 1865. The founding of the German Alpine Association (DAV, 1869), the Swiss Alpine Club (SAC, 1863), and the French Alpine Club (CAF, 1874), fall within this period. Sports associations and athletics/gymnastics associations were founded, and, together with the tourist associations, the friends of nature, etc., they show how the newly developing culture of activity was focused on nature (cf. GEOGRAPHISCHES INSTITUT DER UNIVERSITÄT BERN, 1991, 24; GRUPE, 1994, 30).

In this early phase of climbing, whether in the low-level mountain ranges or in the Alps, the focus of interest was on achieving 'firsts', sometimes taking the form of a competition between countries. Whereas initially the goal was the ascent of free summits and towers, the ascent of ever more difficult routes became increasingly important. Soon these no longer presented sufficient challenge and the climbers turned their attention to the chimneys and crack lines on massif faces, and later to the rock faces. To this end, the crags in climbing areas outside of the Alps served as year-round training grounds for Alpine expeditions. In Germany, systematic climbing on the crags in the vicinity of the local section headquarters mainly began during these founding years of the local Alpine associations (cf. GOEDEKE/MAILÄNDER, 1999, 18).

The work of the mountain climbers from England, France and Germany was not confined to Europe during this period: the first ascents of Chimborazo (1880), Kilimanjaro (1889) and Mount McKinley (1913) were all achieved by Europeans, and from 1920 their activities extended to the Himalayas, the 'roof of the world'(KRÜGER/GRUPE, 1999, 81).

The ideal also held by the German pioneers of climbing was to ascend without the assistance of artificial aids. Nevertheless, Paul Press from Munich was alone as a prominent proponent of totally avoiding the use of the peg as a climbing aid. During the period between the turn of the century and the First World War the majority of pioneers of the 'founding period' 'nailed' most of the particularly hostile mountain passes, driving pegs into the rock. In the 1930s, the first difficult climbing routes were climbed in Calanques in the south of France (coastal crags between Marseille and Cassis). Until 1950, the routes which had been climbed in this way were confined to a few areas on the great mountain faces.

Following a period in the 1950s and 1960s when the use of artificial aids was prominent in climbing, climbers recognised that they were manoeuvring themselves into a cul-de-sac. Independently of one another, leading climbers in various places across the world returned to the virtues of free climbing,

which in the 1930s had extended from the Elbsandsteingebirge to the climbing areas of England and America. Between 1947 and 1975, English climbers in the Peak District, Americans in south California, north German climbers in the Weser-Leine area, and Kurt Albert in the Frankenjura, decided to use the rope only for protection and to this end to attach it to the peg, but for the ascent itself to only use the bare rock face. The adoption of this purist approach (called redpoint) did not however the 'chain of protection' in any way (cf. MAILÄNDER/GOEDEKE, 1999, 20). Jean-Claude Droyer propagated this way of thinking in France and encountered significant resistance not least from the CAF. Today, the notion of free climbing or redpoint prevails world-wide.

When Helmut Kiene and Reinhard Karl conquered the Pump crack in the Wilde Kaiser in 1977, they brought about the extension of what had previously been a six-stage UIAA scale of difficulty: the route was officially awarded a VII. The only protection they used in the cracks was nuts⁸. In the wake of this event climbing sport saw an unprecedented increase in performance. Whereas in the mid-1980s, the USA was considered the Mecca of free climbing, the 'scene' was now being shaped by climbers from France, England, Italy, Germany, Switzerland, Spain and Austria (KIND, 1998, 205). In 1983, the Englishman Jerry Moffat ascended 'The Face' in the lower Altmühltal, the first route of level of difficulty 10, and in 1993 Wolfgang Güllich climbed 'Action Directe' in the northern Frankenjura: level 11. In the Alps, the German climbers Thomas Huber and Stefan Glowacz also recorded the upper tenth level of difficulty on the routes 'End of Silence' and 'Des Kaisers neue Kleider" (DAV, 1999, 8).

Nowadays training in the local 'climbing gardens' outside the Alps continues to serve as a preparation for Alpine endeavours. In addition, climbing on relatively low rock faces has developed as a separate discipline and many climbers practise climbing for its own sake on mountains outside the Alps. In view of this change in perspective, previously neglected mountain areas have attracted interest, and new routes have been bolted in these areas in the context of secondary pioneering. At the end of the 1980s, this practice was the subject of criticism, as broader sections of the population became concerned with conservation (DAV, 1999, 9).

⁸ nuts are means of mobile protection, metal wedges which are removed by the second climber

3. Forms of climbing

Nowadays very different forms of rock climbing exist. On the crags, they differ from one another in terms of specific rules based on an informal agreement among climbers. Free climbing, however, is the basis for each of these forms. Nevertheless, it is possible to find different forms of climbing in the same area. There is also no strict limit between the different forms of climbing, but transition/mixture forms. Also the terminology varies from one country to another; for instance, in Switzerland the term pleasure climbing (*Plaisirklettern*) is more used than the term sport climbing (*Sportklettern*).

3.1 Bouldering

Bouldering refers to extremely difficult climbing at low altitude. In normal cases, a safety rope is not used. Almost every earnest climber hones his or her strength and skill by bouldering. However, only very few specialist climbers who concentrate exclusively on this climbing discipline (cf. DAV, 1999, 11).

In solo climbing, the rules are the same as for bouldering, but they are used on longer routes. Whereas in solo the rope may be used for protection, on free solo ascents the rope is left in the rucksack or at home. As a rule climbers have only one attempt at the ascent (cf. GOEDEKE/MAILÄNDER, 1999, 22).

3.2 Short climbing garden routes

The term 'climbing gardens' refers to low-altitude mountain areas that permit a route of one to two rope lengths⁹. Most routes in mountain areas outside the high-altitude European mountains and in climbing areas located near valleys in the high-altitude mountain ranges fall into this category. As the routes are short and the objective risk¹⁰ limited, in the last 15 years a total ban on the use of climbing aids has been in force. Ropes, bolts, and karabiners are only used for protection - not for ascent. According to the degree of protection on a given route, a distinction is made between sport climbing and adventure climbing (cf. GOEDEKE/MAILÄNDER, 1999, 22).

3.2.1 Adventure climbing

Adventure climbing refers to routes with no or very scarce in-situ protection, where the climber has to protect himself as he is climbing, using mobile

⁹ The length of climbing routes is measured in rope lengths. As a rule a rope length is 50 or 60 metres; however, often it is not fully extended.

¹⁰ objective risks is every danger existing in natural environment such as sudden weather change, avalanches, rockfall etc.

protection equipment such as nuts, friends, or slings. Performance is measured according to the degree of stress resistance necessary for a given route. Falls during the initial part of the climb can have drastic consequences. This form of climbing is practised on the gritstone crags of England, for example (cf. GOEDEKE/MÄILÄNDER, 1999, 23).

3.2.2 Sport climbing

In sport climbing, fixed bolts ensure complete protection. Performance is measured in terms of the difficulty in climbing, with progression paramount. Because of this level of protection, falls during the initial part of the climb are mostly trivial. On 'Southern French style' sport climbing routes, the spacing of bolts is very close. Top-rope climbing involves the climber climbing up a route secured from above with a rope, mostly for the purposes of training or for preparing for the 'real' ascent of the route (cf. GOEDEKE/MÄILÄNDER, 1999, 22).

3.3 Competitive climbing and climbing in artificial climbing centres

In the Soviet Union, climbing competitions began in the 1960s. The first international climbing competitions took place in 1986 in Northern Italy on a natural rock face. Since 1987, climbing competitions have only been carried out on artificial climbing rock faces in accordance with the rules of the UIAA. They are carried out as difficulty and speed competitions at international, continental, national, and regional levels (cf. GOEDEKE/MÄILÄNDER, 1999, 23).

In recent years, the use of artificial climbing walls has developed into an independent form of climbing sport. Climbers use them for training and for preparing to climb natural mountains. As they are located near to where people live, it is possible to practise sport climbing in the evening after work or in the winter. A small proportion of climbers practises the sport exclusively on artificial walls.

3.4 Multi-pitch climbing

If a climbing route extends to several rope lengths or if a descent is not possible without difficulty, I refer to multi-pitch climbing. Examples of this can be found in the Escalès sector of the Verdon gorge, the Elbsandsteingebirge, and the Lake District. This kind of climbing also makes

a distinction between sport climbing routes and adventure routes (see 3.2.1 and 3.2.2)

3.5 Alpine climbing

This form of the sport involves the climber being directly confronted with the objective dangers of the mountains: the rock is brittle, and falling rocks, ice, and weather conditions increase the demands on the climber. The routes are generally not protected with bolts. The climbing technique depends on the actual situation on the crag; the speed of the team is generally the deciding factor. Free climbing rules have also been in force in the Alps since the 1960s: initially they were only used on free climbing routes that had already been pioneered - later for the new routing. This is where physically demanding 'adventure routes' and Alpine sport climbing routes are found (cf. DAV, 1999, 12).

4. Supply: climbing areas

In principle, I distinguish in the context of climbing areas between Alpine mountain areas and extra-Alpine climbing areas which are mainly found in low-lying mountain areas. At high altitudes, it is extremely difficult to count the number of climbing areas, as every rock massif and summit is a potential climbing area. What criteria should be used to delimit the various climbing areas? In the literature there are no guiding principles; no detailed investigation has taken place for high-altitude mountains.

It would appear easier to count the number of climbing areas located at low altitude. Crag directories have been compiled for Germany and France: TAUPIN (1999), in his inventory, considers all climbing areas at altitudes below 1,600 m, without giving a more precise definition of 'climbing area'. In Germany, the DAV is in the process of compiling a directory of all crags at altitudes above 5 m. In this context, a crag, a stand-alone crag, or a geographical unit traditionally considered as a single climbing area, is considered to be a climbing area (MAILÄNDER, pers. comm. 21/1/1999). This definition of the term provides the basis for the present work, since it is the most popular understanding of the term *climbing area*. TAUPIN, without explicitly stating it, also bases his inventory on this definition. The size of climbing areas can, however, vary considerably: for example, the Czech Adrspach, consisting of 3,000 rock towers divided into 16 smaller districts, each with 100 to 200 towers, counts as a climbing area. By contrast, some

very small climbing areas in Belgium and Luxembourg consist of a single rock face.

In some places, people have already begun to make this relatively imprecise information more specific by identifying the number of routes available in each climbing area - or even by calculating the exact number of climbing metres. However, these figures are confined to individual climbing areas and to France as a whole. This study is therefore based on the traditional concept of the climbing area as the basic unit.

Larger climbing areas are usually subdivided into various sectors, each comprising a group of rock faces or individual crags. According to the form of protection, a distinction is made between adventure and sport climbing areas according to route length, distinguishing between short routes (one or two pitches) and climbing areas with multi-pitch routes. Sometimes a single climbing area will contain a combination of different kinds of route. As a rule, most climbing areas have one form of protection and a clearly recognisable set of climbing rules.

Last but not least, a climbing area is characterised by the predominant rock type, which influences the form of climbing and the type of protection. The size, quality of rock, and size of the catchment area, from which the climbers travel into the climbing area, also determine an area's significance. TAUPIN (1994) uses an elaborate scheme of one to five stars for evaluating the importance of a climbing area. This awards only three French climbing areas five stars, areas which are thus of 'international interest': the Verdon Gorge, Sainte-Victoire (Provence) and Calanques of Marseille. In Germany there is a four-point scale of importance: local, regional, national and international. All the case studies in this study concern climbing areas of at least national significance.

5. The economic significance of climbing tourism

5.1 Climbing tourism as a factor in diversification and economic restructuring

Rock climbers are often considered as low-budget tourists' (RAFA, survey 1/1999) and so receive virtually no attention in tourism concepts or planning. Things are different in France where, for some time, climbing tourism has been recognised as a factor in the economy. Local bodies promote it in a targeted way in order to achieve diversification in the tourist economy or

economic restructuring. Primarily in mountain regions, efforts are being made to create a counter-balance to the winter season, which depends on snowfall, and climbing is one of the activities promoted. In the Ardeche, the intention is to achieve diversification, redistributing the influx of tourists: climbing tourism offers the opportunity to relieve the burden on the Ardèche Gorge from water sport tourists in favour of other regions in the *département* (Haut and Moyen Vivarais, Chassezac Valley, etc.) This should go hand in hand with a seasonal staggering of tourism and improved management of tourism development. In other places, climbing - together with sport recreation activities such as walking, mountain biking, gliding and waterfall climbing - is a factor in the process of economic restructuring. For instance, in view of the decline of agriculture in Orpierre and the sharp decline in industrial activity in L'Argentière-la-Bassée, the objective is to diversify tourism both seasonally, and in terms of target groups (cf. BOURDEAU, 1993, 45).

5.2 Economic branches involved in climbing tourism

It has proved difficult to calculate the precise proportion of local turnover derived from rock climbers, as often a rock climber is not directly recognisable as such. There are hardly any studies on the subject and the few existing French projections tend to be exclusively based on estimates. For this reason, the questionnaire did not ask for precise figures, but rather undertook to discover whether there was the awareness that rock climbing tourism can represent a genuine source of income. If this awareness was existing, it would be also interesting to know the affected sectors of the economy.

According to BOURDEAU (1993, 61), the primary source of expenditure of rock climbing tourists are goods which are required daily, so local bakeries, cafes, bars and small restaurants derive some of their business from rock climbers. Often rock climbers preferred accommodation on campsites, simple accommodation, chalets and youth hostels. Camping rough seems to be less frequent today than in the 1980s (something we can corroborate from personal observation). Rock climbers, as a rule, arrive in climbing areas fully equipped and simply purchase what is lacking, or replace what is defective. Sometimes though, hiring out items of equipment such as harnesses or climbing boots can be an attractive business opportunity. Often places such as bars or sport shops selling local rock climbing guidebooks can become centres of attraction. However climbing guidebooks are usually purchased at home if they are available.

Although most rock climbers in Germany and France climb on their own (cf. SCHURZ 1999, 39; BOURDEAU 1993, 66), commercial rock climbing courses are also a source of income for organisers of rock climbing courses, freelance mountain guides and specialist trainers, as well as for holiday centres.

5.3 The daily expenditure of rock climbers and calculating the business generated by rock climbing tourism

On this subject there has also been scientific research only in France. BOURDEAU (1993, 63) emphasises that it is very difficult to gauge the local economic significance of climbing, and it varies significantly from area to area. Thus his research records the average daily expenditure as being between 65 and 150 FF (approx. 10-23 Euro). The mean figure of 100 FF/day (about 15 Euro) is then multiplied by the estimated number of climbing tourism days. For climbing areas with a high proportion of tourists, it is assumed that climbing tourism days represent half the overall figure. Thus the business generated by rock climbing tourism in the Verdon Gorge is 1.5 million FF (about 230,000 Euro); about 1.25 million FF (190,000 Euro) in southern Ardèche; and approximately 1 million FF (150,000 Euro) in Orpierre (BOURDEAU, 1993, 64).

5.4 Evaluation of the economic significance of rock climbing

Apart from commercial courses, climbing directly creates jobs in the manufacturing and sale of items of equipment and artificial climbing walls. In some countries, such as Switzerland (see II.9.3), the development¹¹ and the rebolting¹² of routes is a commercial operation.

Often the economic significance of rock climbing in a given area depends on the location of the nearest settlement, as well as on the supply network structure. In practical terms, this means that money is often not spent simply because there is nowhere to spend it.

It is precisely in the structurally weak regions of the southern French Alps, affected by emigration, that climbing has proven to be a genuine lifeline (see case studies on Verdon IV.4 and III 1.4.5 Orpierre), saving the villages in question from further migration and ageing-population problems. However as

¹¹ 'development or new routing refers to the creation of new routes (mainly by installing bolts, called bolting). This is distinct from the first ascent, which refers to the first time a route is climbed.

¹² 'Rebolting' routes refers to equipping mountain climbing routes with protection according to the technical regulations on protection. As a rule, this involves replacing more or less rusty old normal bolts with new protection bolts without altering the particular character of the route as defined by the person who pioneered the route. (cf. DICK et al. 1999)

a very general rule, climbing sport can also lead to an extension of the tourist season and a diversification in the opportunities available to tourists. The region of Arco (see case study Arco IV.2) is an important example: in conjunction with mountain biking and via ferrata tourism, climbing tourism increased the level of demand on existing accommodation, particularly out of season. Nature sports are there often the decisive factor in the local economy.

We can identify some beginnings also in Germany: for example in THUM'S guidebook for the northern Frankenjura (1995) the overview and detailed maps indicate all the small private breweries in the area with a tankard symbol. In the Eifel, rock climbers decided to intensify their protests against the closure of crags by boycotting cafes and hotels in the vicinity of the climbing area. They were relying on the managers and owners making their case to the authorities, as they would be set to lose a not insignificant proportion of their clientele as a result of the large-scale crag closures (LOHMANN, pers. comm. 20.3.1999).

6. The role in society of climbing as an outdoor sport

6.1 Climbing: outdoor sport - fashion sport - high-risk sport - extreme sport?

In general terms, climbing as an outdoor sport belongs to the category of outdoor sports practised in the open air and which may or may not be tied to particular equipment. Outdoor (nature) sports (German: *Natursport*) are generally understood to be leisure or sports activities practised out of doors. SEEWALD *et al.* (1998, 166) give a very detailed definition, all elements of which apply to climbing:

"In our understanding nature sports are therefore recreational, open air sports which are practised both in the countryside, relatively unchanged and unlandscaped by man, and in artificially altered environments (...), which do not employ technical equipment, or only use equipment not specially designed for that purpose, and which do not primarily focus on performance or comparative performance (and thus are not competitive), and are ideally (although not exclusively) practised without special technical sophistication, allowing responsible interaction with nature and creating a subjective feeling of closeness to nature."

The experience of nature is also an important aspect that is a hallmark of nature sports. It creates a feeling of being at home. One of the great German rock climbers, Reinhard Karl, writes:

"Climbing here (in Pfalz) is for me a physical and spiritual encounter with the countryside that has permeated me so much that it has become a part of who I am. This is my home. Here I feel that I belong: this is where my soul finds its identity." (KARL quoted in DAV LANDESVERBAND BADEN-WÜRTTEMBERG 1998, 32)

Often rock climbing is included in the category of 'trend sports'. According to SEEWALD *et al.* (1998, 166), trend sports may or may not be tied to a particular type of equipment and are subject to fashion - and thus to the developmental curve of a trend. Rock climbing itself cannot - on account of its tradition stretching back more than a century - be considered a trend sport. While the increase in the number of climbers - for example in Germany from 40,000 active people in the 1970s to about 80,000 (WITTY, 1998, 262) in the 1990s - could be interpreted as a trend curve, this development has only been made possible by the use of bolts and the associated orientation of climbing towards sport climbing. So it concerns only one form of climbing, namely sport climbing. It is also not entirely accurate to describe sport climbing as a trend sport either, since this implies that sport climbing will have a short life span. If that were true, the trend which has continued since the 1970s should already have gone out of fashion and been replaced by the next trend sport. This however is not the case. When FITZTHUM (Politische Ökologie 59/1999, 39) paints a horror scenario of a species of savage sport climbers in Germany and claims that the number of sport climbers in Germany has risen from 1,000 (in 1971) to 80,000 today, it must be replied that sport climbing did not even exist in 1971 and that the figure of 80,000 represents the total number of climbers today (of which sport climbers are only a part); the validity of FITZTHUM's figures must be questioned.

Often climbing is classed as a high-risk, adventure or extreme sport. EGNER *et al.* (1998, 122) justify describing climbing as an 'extreme nature sport' on the grounds that climbing is practised in 'extreme topographical locations', namely on 'overhanging rocks' - which is a very stereotyped understanding, since 'overhangs' represent a small proportion of the range of rock forms which are climbed. They also state that climbing is mostly considered to be extremely dangerous by those not involved - those actively involved do not consider the risks to be extreme, but rather 'experience a situation of extreme tension [when climbing]'. Interestingly EGNER *et al.* confine their statements to sport climbing, which of all the forms of rock climbing is by far the safest, with the least risks, since the high level of protection means that relatively risk-free climbing is possible in the most extreme situations. The following definition offers a better description of rock climbing: the objective of high-risk and adventure sport is...

"... to significantly raise the level of experience in sports activities by means of special external conditions (with the specific features of high-risk and adventure situations, the features of experience, and through making extreme physical and psychological demands on the sportsman) or even to make this experience the main objective of sports activities" (SCHNABEL/THIESS quoted from TRÜMPER, 1995, 208).

Aspects of risk include subjective factors, namely the physical and psychological demands made on the rock climber, and objective factors - in particular the equipment, the protection and, especially with regard to Alpine climbing, the objective dangers of the mountains. High-risk sports involve participants taking a high level of risk, despite a certain degree of calculation, whereas in adventure sports surprise and spontaneity are the predominant sentiments. While seeking danger is certainly one of the hallmarks of climbing, not all forms of rock climbing entail the same degree of danger.

As a rule, risky and adventure sports have developed from traditional open-air activities, accompanied by a large increase in the number of people actively involved. Table 3, presenting the diversification of sports and mass movements from the German *Bund Naturschutz* (Nature Conservation League) should assist the reader to see how much man is forcing his way into, what was once largely untouched, nature. However let us also be critical in our appraisal: as demonstrated in II.2, all forms of climbing, including sport climbing, are traditional nature sports with a history going back over a hundred years. Moreover, free climbing is today one of the basic climbing styles; the author's reference to free climbing and climbing indicates that he has not researched his subject in very much depth.

The snow shoe is another example of a traditional means of travel. When out in the mountains during the winter and spring, it was common in the past to pack firm skis in one's rucksack. When SEEWALD *et al.* (1998, 170) comment that sport has changed from the experience of nature to seeking exhilaration, they forget to mention that expeditions in the mountains, or at the start of the century, or last century, were much more dangerous and more extreme than today, thanks to modern technical possibilities and equipment. It would be useful to make a distinction between traditional sports and those that really are trend sports, such as skating, carving, or freeriding.

Generally in presentations such as this one, no clear reference is made to commercialisation. Canyoning, for example, is a very commercialised sport, and first came under fire as a result of this commercialisation - the once solitary gorge walkers from the region were soon pursued by hordes of

commercially led groups. Finally, no precise definition has been given for what period is meant by past and the current situation.

Table 3. From telemark to freestyle - categorisation of sports

Traditional mountain sports	Modern forms
Walking	Walking
Mountain climbing	Mountain climbing Trekking Expedition mountain climbing via ferrata climbing Rock climbing Free climbing Waterfall/ice climbing Ski mountain climbing Snow shoe walking
Alpine skiing	Alpine skiing (Off-piste Skiing) Summer glacier skiing Wall-of-death skiing Monoskiing Telemark Bigfoot Snowboarding High-speed skiing Heliskiing Skibob Firm skiing Freeriding Snow rafting
Cross-country skiing	Classical cross-country skiing "Freestyle" cross-country skiing, 'Skating' Grass cross-country skiing Cross-country skiing on scree/sand

Source: BUND 1988, 57 quoted in OPASCHOWSKI 1991, 67 and SEEWALD et al. 1998, 170 modified

Practitioners of these sports are not generally organised into associations, and it is therefore difficult to obtain accurate figures (TRÜMPER, 1995, 213). For this reason it also problematic to talk of a boom or a massive increase in the number of people actively involved. On the one hand, very few sports have time-series data to prove this; on the other hand, there is often a problem of

perception: for a long time, rock climbers in low-lying mountain regions were not recognised by the general public who understood climbing to be an Alpine sport (KÖHLER/BRAM 1996, 2).

Progress in sport, new developments in equipment, the commercialisation of recreational sport - all these factors have no doubt contributed to the strong development of nature sports. This must not however be used to argue against nature sports or lead to a false view of their value. Nor must we forget the social context.

6.2 Climbing as an outdoor sport in its social context

The growth of sport and its development into different branches is part of our contemporary culture. More and more people are involved in sport, both actively and passively, and the number of sports is rising. Sport climbing is part of this trend - as are climbing competitions. Society is becoming more sport-oriented. The practice of several sports one after the other during the course of one's life is as common today as simultaneously practising several sports. In the summer, climbers mainly practise outdoor sports such as mountain biking and mountain climbing, and skiing and cross-country skiing in the winter. Being sporty has become a question of lifestyle: people wear sports clothes as normal clothing; dynamism, youthfulness and fitness are called for in the world of work. "It is less forgivable not to be sporty than it is not to be musical" (cf. GRUPE 1994, 32).

This process of society becoming sportier is expressed in various forms of sport-awareness. Its most extreme form is the cult of success and performance in high-performance sport - with a strong media influence. In relation to mountain climbing, one need only consider the climbing competitions, or the many expeditions to Mount Everest. Hardly a day passes without another record being reported in the newspaper: the oldest person to climb Everest (Süddeutsche Zeitung [SZ], 18.5.99), the longest time spent at the summit of Mount Everest (SZ, 8.5.99) etc. At the same time it is expressed in the post-modern context as a new form of bodily experience: experience and enjoyment becomes the aim of sport - which explains the popularity of so-called fun sports. It is no longer performance and achievement that count, but rather the experience of one's own body and of nature, experience, enjoyment, a new body awareness, etc. This tendency is accompanied by social segmentation and stereotyping: your outfit is enough to show which sport you are involved in. Protection material and clothing have to be functional, but must also conform to the requirements of aesthetics and fashion. This hedonism can - in extreme cases - lead towards a

narcissistic self-admiration connected with fashionable outfits from outdoor catalogues (cf. GRUPE, 1994, 33; EGNER 1998, 126-7).

Urban lifestyle in anonymous cities increases alienation from nature. Today's society lacks movement, is characterised by monotony and routine, and has limited opportunities for self-realisation. Social realities such as globalisation and the breakdown of traditional, rigid patterns have made life confusing: it has become difficult to assess risk and we are increasingly dependent on decisions which are taken 'from above' without the option of being influenced. Under these conditions, the apparently intact world of nature becomes an alternative to the world of work - and sport can become a means towards self-fulfilment. Sport allows people to freely take clearly defined risks and (apparently) give their life meaning. This is where people can find a change from the norm and new spiritual and physical challenges (cf. SEEWALD, *et al.* 1998, 168-170).

In post-materialist society, protecting oneself from danger and the fight for survival take a back seat and it is the pursuit of experience which determines how people act. Conditions favour the development of a society of experience, and mobility is increasing. Thus recreation is becoming increasingly important, which can lead to 'recreation stress'. All these factors result in the development of an 'experience society', in which the experience of nature takes centre stage. Advertising promotes and strengthens these needs, and the sport and leisure industry markets them. We can thus observe a strong commercialisation of sport: besides the traditional organisation of sport in associations and societies, commercial service providers are now appearing in the form of mountain climbing schools or tourist agencies. Sport has become a significant economic factor (cf. GRUPE, 1994, 31; LORCH, 1995, 22; KRÜGER/GRUPE, 1999 81-83; SEEWALD *et al.*, 1998, 169). At sports equipment fairs it is easy to gauge the increasing range of products on offer for outdoor sports. For example, at the ISPO, the largest-scale European trade fair for sports equipment, which took place in February 1999 in Munich, two of the twelve halls were reserved for outdoor sports.

However, it is not only the impact of social developments on rock climbing as a sport that is worth mentioning - the effect of climbing on climbers themselves and the interest which they attach to climbing is also noteworthy. In no other sport do people rely on one another as much as in climbing. Climbing up a mountain in a roped party requires and demands that you are responsible and aware of your partner. In various countries, climbing has been employed in deprived inner city areas as an activity and an educational method for deprived youngsters. Rock climbing also requires an awareness of

nature. The rock climber learns to observe nature and to adapt to the prevailing conditions (conditions on the mountain, external dangers, weather): for example, in wet conditions, it is not possible to climb in the Elbsandsteingebirge because the rock is soaked; on limestone, friction slabs cannot be crossed. In strong sunlight, you should avoid taking a route which is exposed towards the south, unless you want to be roasted as the heat builds up. Each climb entails an incalculable number of major and minor challenges, according to the level of difficulty of the route. The aim is to conquer the route as a form of recreation, using a wide range of techniques. Flexibility, the enjoyment of using one's own body, and the pleasure of being involved in activity in the outdoors are values that may be practised and enjoyed when climbing (cf. DAV, 1999, 12; SCHWIERISCH, 1999, 97-100). As Lynn Hill¹³ says in the recent IMAX film, 'Extreme': "... nowhere else do I have as much power as in nature."

These positive, character-building aspects to climbing are recognised by sections of the general public and are seen in a positive light by company managers. For example, in the employment section of the *Süddeutsche Zeitung* (13/14 March 1999), want ads from three companies used pictures of rock climbers and the characteristics associated with them: team spirit, ambition, fun, and creativity - "Have the freedom to achieve excellence", "want to reach higher", "Cope with tasks" and "Taking on responsibility within a team" (job advertisements for Cap Gemini, Aquila Consult and BMW). Interestingly, this contrasts with the earlier observation that rock climbing is often perceived by society in a distorted or even false way.

7. The rock biotope

There is a fundamental distinction between the rock biotopes of low-lying mountain areas and those of high-altitude mountains. While in the European context, depending on the varying climatic conditions, more subtle distinctions can be made, we shall focus, as an example, on the two mountain biotopes above in order to present their significance for nature conservation¹⁴.

In contrast to the lowland landscape of Western and Central Europe, mountains have been comparatively little exploited by man (apart from

¹³ For a long time in the nineties the American Lynn Hill was ranked the best international female competitive climber in the world - today she remains one of the world's leading extreme climbers.

¹⁴ For more in-depth information please refer to KÖHLER/WITTY 1996 and BICHMEIER 1991 for low-lying mountain areas and NACHTIGALL 1986, RJESS/SCHAUER 1992 for the Alps.

quarries) and thus represent sites of special interest for fauna and flora. As undisturbed relics of the past, they provide habitats for less resilient species which have disappeared from cultivated areas. As a rare feature of the landscape, they provide habitats for rare plants and animals. Thus at least 27% of all endangered plants and animals live in dry environments (KÖHLER/WITTY, 1996, 19). In the Swiss canton of Baselland, 31% of the plant species are found in mountainous regions, which occupy only 1% of the canton's area (IG KLETTTERN BASLER JURA, 1995, 1).

Rock locations display a wide variety and are marked by a network of different biotopes. The edges of wooded areas and low woodland, semi-arid and arid grassland as well as bare rock often overlap with one another. Animals that particularly favour dry environments benefit from the diversity of biozones (WITTY, 1999, 113).

Rock biotopes are places of special environmental interest: substrata with little top soil provide only limited space for roots to grow. In particular, south-facing areas undergo great diurnal and annual variations in temperature and are arid. Only ground vegetation such as mosses, lichens, succulents (water storing plants) and annual plants are able to develop in patches (WITTY, 1999, 113).

7.1 The rock flora of the low-lying mountain biotopes

The German low-lying rock areas are a last remaining refuge for plants which are sensitive to the shade of trees, but especially well adapted to the rock habitat (extreme temperatures, dry): "For this reason the rocks which jut out above the trees have special significance for the protection of species" (WITTY, 1999, 113). In this regard, Alpine plants, which occupied the summits of the low-lying mountain areas during the last ice age and then largely retreated to a small number of locations in the Alps, should be mentioned. They now grow on the crags in low-lying mountain areas, but are most widespread in the Alps; for example the Alpine thistle (*Carduus defloratus*). Steppe plants, for example, Fescue (*Festuca rupicola*) or dwarf sedge (*Carex humilis*), settled after the ice age and can today be seen on the crags, although they are most widespread in the northern European steppes. In the ensuing interim warm period (6,000-1,000 BC), Mediterranean plants, such as the Shrubby Milkwort (*Polygala chamaebuxus*), or entire plant colonies, such as the Maidenhair spleenwort (*Asplenietea trichomanis*) settled in the dry places in the mountains. With the spread of forests, such as beech (*Fagus sylvatica*), only plants growing on the rocks above the

woodland are safe from competition and the struggle for light (WITTY, 1999, 114).

The distribution of many plant species depends on the kind of rock on which they grow. Whereas silicate rock can host a relatively large number of species of ground vegetation (lichens, mosses), limestone has a more diverse vegetation including taller plants (DAV, 1999, 14).

Through the natural processes of erosion, taluses or scree slopes are formed at the foot of mountains. These sensitive biotopes with little deep soil form the habitat of highly specialised, hygrophilic (damp-loving) and mostly shade-loving plants, such as Hart's-tongue (*Phyllitis scolopendrium*). The shady mountain terraces at the foot of the crag, lower-angle mountain crags and their cracks each represent specific habitats (DAV, 1999, 14). The steep sections of the rock face are the realm of thermophilic (warmth-loving) and heliophilic (sun-loving) plants, which are satisfied with the small quantities of water accumulating in soil in the small cracks, crevices and holes. Hawkweed (*Hieracium bupluroides*) and Yellow whitlawgrass (*Draba aizoides*) are typical examples of the alpine flora growing here (WITTY, 1999, 115). Various forms of lichen and colonies of algae grow on loose rock formations, depending on the sub-soil and the supply of bird droppings (DAV, 1999, 115). The thin soil developed on the top of crags creates a steppe environment: semi-arid grassland with a rich variety of species. Stonecrop (*Sedum spp.*) and Cheddar pink (*Dianthus gratianopolitanus*) are typical (DAV, 1999, 14).

7.2 Flora of the Alpine mountain biotope

The Alpine biotopes are extreme locations with short vegetation periods and low average temperatures. Crags are a feature of the Alpine region and increasingly dominate the landscape as the altitude increases. The vegetation cover becomes less dense as altitude increases. The altitude and the rock type (silicate/limestone) determine the distribution of vegetation. In the plant colonies of the taluses and moraines, Alpine toadflax (*Linaria alpina*) and Glacier crowfoot (*Ranunculus glacialis*, the highest nival plant in the Alps) for example, can be found. The plant colonies of the mountain crevices include Swiss Rock-jasmine (*Androsace helvetica*) and *Androsace vandrellii*, whereas bare, smooth rock surfaces are colonised only by algae and lichens (cf. REISIGL/KELLER, 1987,30-142; RIESS/SCHAUER, 1982, 132-136).

7.3 The rock fauna of the German low-lying mountain areas

For some animals, rock biotopes are the most important habitats, crucial for survival. Whereas some rock fauna only spend some periods of their life on the crags, others use the mountains year-round (WITTY, 1999, 116). Therefore, some representative samples of important mountain fauna groups will be mentioned.

Reptiles are typical year-round members of the rock ecosystem; smooth snakes and lizards find their sunny and warm habitats on crags and screes (DAV, 1999, 15).

Bats are a highly endangered group of mammal, which use the rock as a habitat for part of the year. They need deep rock cracks and caves in which to sleep and to hibernate. Occasionally, dormice are to be found in crevices and small caves. Stone martens also climb rocks in search of food, where they sometimes raid peregrine falcon nests. Chamois are another mountain mammal species found in low-lying mountain areas (DAV LANDESVERBAND BADEN-WÜRTTEMBERG, 1998, 14-15).

Among the bird species, three Red List species are worthy of mention. Peregrine falcons (*Falco peregrinus*) find the rocks ideal places to breed and nest, though during this time they are particularly sensitive to disturbance. Having been driven from their nests, subjected to the heavy use of pesticides in agriculture and to recreational activities, they almost died out at the end of the 1960s. Thanks to changes in agricultural methods and elaborate protection measures, populations have been able to regenerate. The eagle owl (*Bubo bubo*) is the largest German species of owl and competes for nesting space with the peregrine falcon. For its nightly hunting expeditions, its main requirement is a varied landscape. The jackdaw (*Corvus monedula*) prefers crags for nesting, but will also readily nest in buildings. The jackdaw colonies are most sensitive to being disturbed during nesting times (DAV, 1995, 15).

In addition, many small animals live in the rocks, such as snails, spiders, beetles, caterpillars and other kinds of insect (DAV LANDESVERBAND BADEN-WÜRTTEMBERG, 1998, 15).

7.4 The Alpine mountain fauna

In the rocky regions of the Alps, the populations of different species of animals are particularly influenced by intense exposure to light, and large

variations in temperature, wind, and the availability of food during the course of the year. The invertebrate species present include the snow and glacier flea and the alpine apollo (butterfly). Vertebrates include the raven, snowfinch, alpine jackdaw, golden eagle, ptarmigan, rock partridge, chamois, mountain goat and marmot (cf. NACHTIGALL, 1986, 13).

8. The conflict between climbing and nature conservation

8.1 The effects of climbing on the rock biotope

Damage in rocky areas can often not be clearly pinned on climbers, since hikers and walkers are also found at the top of crags, on plateaux, and at the base of crags (BICHLMEIER, 1991, 13). A fundamental distinction is to be made between direct damage caused by climbing itself and indirect damage resulting from the activities which take place before and after climbing. Direct damage includes, for example, damage caused by contact with the climber's feet, mechanical damage, and visual and acoustic disturbance. MAILÄNDER (1999, 134) identifies seven problem areas where damage can occur as a result of rock climbing:

- roads
- access/climbing access
- rest areas
- attack point (starting) area
- the rock face
- exit area
- path down from the top of the crag

When evaluating the impact of climbing, the decisive consideration is the vulnerability of the flora and fauna, and their ability to regenerate (BICHLMEIER, 1991, 13). Factors that may also influence the evaluation of the impact of climbing include how frequently the climbing area is visited, the width of the route, and the time rock climbers spend in a given place.

Heavily overgrown rocks are not normally of interest to climbers; rock surfaces that are not covered in vegetation are much more attractive. However, neither the width of the route nor the number of climbers affects the assessment of impact on nature if appropriate measures are taken to influence the behaviour of climbers at the top and foot of a route, crag, or mountain. The changing focus of climbing has reduced the potential damage to the crags - reaching the summit and subsequently clambering on

environmentally precious crag tops is no longer the objective; the aim is rather to climb an interesting route as a sports exercise.

Figure 1. The possible impact of climbing sport

Possible factors affecting the impact of climbing sport

Roads, access/the path up to the climbing area, the rest area, the starting area, the rock face, the finishing area, the path down from the crag, the initial and secondary pioneering of routes

Possible forms of impact:

Mechanical	Material	Visual/acoustic
<ul style="list-style-type: none"> • Where climbers tread • Pressure on the ground • Erosion • Manual damage 	<ul style="list-style-type: none"> • Accumulation of material from waste • Faeces • Removal of material, transfer 	<ul style="list-style-type: none"> • Noise, disturbance, movement (mainly concentrated in a short period of time) • Visual change in the structure of the biotope

Possible effects on:

Communities	Plant populations	Animal populations
<ul style="list-style-type: none"> • Changes to / destruction of communities • Influx of ubiquitous species and the creation of tips leading to an erosion of communities • Emigration of stenotopic species (not easily able to adapt) • Sites lose their character • Decline in the number of species and the number of individuals 	<ul style="list-style-type: none"> • Direct losses of individual plants • Habitat reduced with negative impact on plant populations as a result • Prevents vulnerable species from becoming established, displacement of the same 	<ul style="list-style-type: none"> • Animal species which are sensitive to disturbance directly driven away (e.g. eagle-owl) • Sensitive species prevented from settling • Direct loss of individuals • Loss of important communities with resultant effect on population • Loss of nesting and breeding grounds

Adapted from: BICHLMEIER, 1991, 14

8.2 Possible solutions to the conflict

8.2.1 Differentiated climbing rules

As explained in the previous chapter, conservation requirements in Alpine and low-lying mountain areas are not identical. Species also differ according to whether the rock is limestone or silicate; and there is no single rock biotope - as a rule, rock ecosystems are made up of various biotopes, each with different conservation requirements. All these factors necessitate differentiated strategies in order to meet the demands of both climbers and those of nature conservation.

Zoning regulations are consistent with this principle of differentiation. In northern Frankenjura, a three-zone concept is currently applied (MAILÄNDER, 1999, 131):

- zone 1 (quiet area): voluntary no climbing zone: depending on the significance of the rock biotope, particular crags or crag areas may be subject to a blanket or temporary no climbing rule (on some routes);
- zone 2 (conservation priority zone): status quo to be maintained. Nature conservation is a priority, but climbing is still permitted on existing routes, provided rappel anchors are used. No new routes;
- zone 3 (Climbing priority zone): first ascents are still possible, and climbing may still be performed on all existing routes.

Closures for a limited period of time or in a limited area are also an option. For example, during the time when birds are choosing their nests, and during breeding and rearing seasons of protected species living in the crags or cliffs (such as the eagle owl or the peregrine falcon) such time and area closures are common on known breeding grounds. The protection period should ideally end either if breeding does not occur or when it ceases. Usually such closures last from 1 February to 31 July.

A special rule for climbing groups is mainly applied in regions with a very limited number of crags (e.g., in the Eifel, the limited number of crags is often occupied for hours by large climbing groups from the Netherlands). Fixing a ceiling on the numbers of climbers by means of ticket sales and a ban on groups of over four people can contain this heavy demand (LOHMANN, pers. comm. 20.3.1999).

8.2.2 Possible infrastructural solutions

Unrestrained use usually leads to the sport being practised in ways that are damaging to the environment. Infrastructural measures allow the influx of visitors to be channelled (cf. MAILÄNDER, 1999, 131; HEINZE, 1998, 88-90):

- signposting the access path from the nearest train or bus station. If the site is not accessible by public transport, a transport link should be considered.
- the creation of parking spaces inhibits illegal parking in sensitive places. Part of the solution is to construct anti-theft bicycle racks in environmentally harmless locations.
- stabilising the paths leading up to the crag prevents erosion and the emergence of different paths through environmentally vulnerable areas. Locally available material should be used for this purpose. New paths should be created in areas that are less environmentally sensitive, and alternative paths and short-cuts closed by means of revegetation, fencing and other natural obstacles. The overall aim is to reduce the network of paths to the necessary level.
- creation of rest areas in environmentally harmless places.
- by creating common pathways up to and down from the crags for several climbing routes, the size of the starting and finishing areas can be reduced.
- care should be taken to use an economical number of small and non-reflective safety bolts when creating routes.
- the appropriate positioning of protection material can concentrate damage in one place or prevent it occurring: the course of existing routes can, for example, be changed retrospectively in order to avoid environmentally sensitive areas. Rappel anchors can be installed to avoid trees being used for abseiling or lowering off.
- reducing the number of routes on crags with a high number of routes can contribute to damage reduction.
- removing fixed protection from routes that are closed for the whole year, or have fallen into disuse, is a very effective means of managing climbing. Those not used to using mobile protection equipment will be unable to use these routes, and the regulation will be observed.
- installing lowering points underneath the vegetation zone at the top of the crag prevents climbers from alighting and thus protects the extremely vulnerable crag-top vegetation. The climber abseils down from the lowering point having completed the ascent, or is lowered down to the ground by his partner.
- involving climbers in care and maintenance work both offers a helping hand to nature conservation and increases acceptance of the measures among climbers. In the Frankenjura, for example, given the construction

measures mentioned above (which should take place in consultation with the nature conservation societies), it is common for climbers to participate in monitoring peregrine falcons nesting in areas where the nests are threatened, and to assist in clearing the rocks.

- it is recommended that corresponding signs be erected with information boards and standard signposts below the crag and at the car parks. This is where people can find out about the operational rules, temporary closures, and food and accommodation in the vicinity.
- the availability of appropriately priced accommodation, for example on nearby campsites, prevents wild camping and bivouacking. Nearby cafes, or other such establishments, ensure that the local region benefits economically from the climbers. This can also contribute towards the economic sustainability of climbing.

8.2.3 First ascents

"What a new record is to the hundred metres, the first ascent of a barely feasible route is to climbing. Without new routes, climbing - not only for the best climbers - would be as bereft of fascination and dynamism as football without the European championship or World Cup" (MAILÄNDER, 1999, 133)

In some parts of Europe, first ascents are no longer possible due to the lack of crags. In other regions there is still huge potential. However, the sustainability of the activity of creating new routes should be ensured. This could be achieved through an agreement, ideally in the context of a joint climbing and nature conservation working group, or between local nature conservation bodies or authorities and the climbing club. On limestone rock, care should be taken to install lowering points under the top of the crag in order to prevent this vulnerable area being trodden on. The climbing and protection ethics for the area in question should also be observed (cf. MAILÄNDER, 1999, 133).

8.2.4 Information, education and sensitisation of the climbers

Any form of climbing regulation requires climbers to be adequately informed, regardless of whether the regulation is national, regional or local. This should include every conceivable means of communication: climbing guidebooks, the climbing press and public media, information boards at the crags, signposts, information flyers, modern media (such as the internet, fax and telephone), the distribution of codes of conduct, and so on.

Another important area is training courses organised by the climbing associations to demonstrate how to climb in a way that does not damage the natural environment. Guides on commercial climbing courses and DAV trainers are important disseminating knowledge concerning climbing and nature conservation, and for sensitising climbers and promoting the acceptance of regulations (MAILÄNDER, 1999, 127). In Germany, the DAV educational team for nature conservation and environmental protection, founded in 1990, set itself the task of developing relevant teaching units and training courses. The DAV is the recognised European leader in Alpine environmental training.

8.2.5 Preparing alternative infrastructure near where people live

A key goal should be to limit, as much as possible, the traffic generated by climbing sport. In order to prevent climbers from travelling long distances to the nearest natural rocks during the week after work or at the weekend, there is emphasis on the creation of alternatives. These include indoor artificial climbing towers or walls that allow people train nearer to home. According to SCHURZ (1993, 44) over two thirds of climbers climb on artificial climbing walls; over 30% train on a weekly basis. However GOEDEKE (1992, 21) comments,

"... due to their inevitable limitations, these artificial constructions are merely training crutches, which soon become boring, because they cannot compete with the diverse challenge of sport on natural rocks. "

Since artificial climbing walls cannot provide the experience of nature; for the overwhelming majority of climbers such installations can only complement natural mountains during periods of bad weather, or for the reasons given above - they can never replace them. Disused industrial sites can sometimes be used for this purpose: the Duisburg section of DAV, for example, has rented 6,000 m² of coal slag heaps in the Emscher park, and in 1990 created a climbing park there, which is popular in this densely populated region with few crags.

Creating climbing areas in quarries is another way of complementing natural mountains. However not every quarry is suitable as a 'secondary replacement biotope' for relieving the pressure on natural mountains. The use of explosives during mining means that the stone is often cracked and the danger of loose rock can remain hidden for years. Often the surface structure is more uniform than natural crags and other uses compete with climbing (nature conservation, waste disposal, etc.) (cf. GOEDEKE, 1992, 36-37).

8.2.6 Supraregional spatial planning

The situation regarding closures in Germany during the 1990s meant that for the climbers living in the affected areas, especially in North Rhine Westphalia (NRW), the possibilities for practising the sport became very scarce. Research by the DAV concerning the effect of rock closures in NRW - to drive climbers elsewhere - was informative as to the whereabouts of active climbers (cf. DAV, 1994a). It became clear that about half of the climbers questioned went elsewhere, to climbing areas in Germany or abroad, and the climbing associations also organised their courses elsewhere - which led to overcrowding in alternative locations. This study demonstrates the need for supraregional planning, in order to avoid such negative repercussions. In Germany, in most federal states with crags, the climbing associations are in the process of developing and implementing climbing concepts together with the authorities and nature conservation bodies (MAILÄNDER, 1999, 130).

8.2.7 Observance and acceptance of the regulations

"Co-operation versus confrontation" is the crucial issue, and as is often the case, it has proved true in Germany that rules collectively agreed and implemented by those involved are observed more readily than rules decided by the authorities, observance of which is often difficult to monitor in inaccessible mountain areas. Such rules, which give climbers themselves a degree of responsibility - such as those regarding the installation of closure notices for the protection of birds, cleaning up pathways, or monitoring falcon nests - are defended by local climbers against visiting climbers, and enjoy a high degree of observance.

8.2.8 The role of ethics

Finally I would like to elaborate upon the extremely important role of climbing ethics. Particularly in climbing sport, where different forms are based on informal agreement among climbers, ethics is an inherent part of the sport. Climbing ethics can on be used either as a means of guiding the development of climbing, or as a basis for restrictions.

The sustainable practice of outdoor sports such as rock climbing is not only an environmental problem; it is a problem of society, a sociological issue. The hedonism often propagated in leisure sport - the 'fitness and fun in the sun' mentality (SEAWEED *et al.*, 1998, 135) - is out of tune with the times. We have seen the reaction to this mentality: bans, rules, fines, restrictions. These

cannot, however, provide either an ultimate or a satisfactory solution. SEEWALD *et al.* (1998, 220) therefore call for a change in the way we think as individuals and collectively; we need to see our environment not as something which surrounds us (German: *Umwelt*), but rather as something of which we are a part (German: *Mitweli*). Instead of our relationship with the environment being one in which we seek to exploit it, our attitude should be one of partnership. We should be considerate of the environment for its own sake, and conscious that human beings and the non-human environment are distinct parts of one whole (cf. SEEWALD *et al.*, 1998, 95). An ethic of human responsibility can grow out of this and must continue to be forward-looking and lead to preventative action being taken. In many areas this will logically lead to voluntary, self-imposed bans (cf. SEEWALD *et al.*, 1998, 96-97).

The principle of limitation means that we should not rely on getting environmental problems 'under control' using scientific knowledge and technical solutions, but rather should focus on prevention and consideration for the environment. In climbing sport, this can be expressed in practical terms through self-regulation: certain crag areas are excluded from new routing, or crags which have already been climbed are taken out of use because of their environmental value. In the Elbsandsteingebirge, this principle of self-restriction was successfully applied at the start of the century.

The principle of faithfulness to culture, promoted by SEEWALD *et al.* (1998, 221) as a bioethical maxim for open-air sports, can be very easily transferred to climbing. It means that local distinctions are preserved and do not fall victim to a rejection of culture. In relation to climbing sport, this means that local protection methods and climbing ethics principles concerning the new routing are to be respected and thus the uncontrolled spread of well protected sport climbing areas for the 'consumer climber' must be restrained. Well protected sport climbing areas draw large numbers of rock climbers, whereas more demanding adventure climbing areas with little or no protection have less mass appeal¹⁵. This means that it is possible to manage the numbers of climbers. For this reason, HEINZE'S suggestion (1998, 89) of banning mobile protection material such as pegs or nuts in order to avoid damage to crags would not seem to make much sense. A ban of that kind would lead to the proliferation of sport climbing areas - with a corresponding increase in the number of climbers - at the expense of adventure climbing areas, which have less impact on the environment as there are fewer ascents. The principle of

¹⁵ This does not mean that we can draw the general conclusion that a larger number of climbers creates greater damage. This depends first and foremost on the vulnerability of the climbing area. Alpine sport climbing areas, for example, are much less vulnerable than low-lying mountain areas.

faithfulness to culture is also consistent with the 'Recommendations on the Rebolting and First Ascent of Mountain Climbing Routes in the Alps' (DICK *et al.*, 1999) which were recently agreed by a group of major German and Austrian climbers - Alexander Huber, Andreas Orgler, Robert Renzler, Stefan Beulke, Pit Schubert, Karl Schrag, Nicholas Mailänder and Andreas Dick - with the aim of protecting the identity of the east-Alpine climbing culture.¹⁶ These recommendations were subsequently approved by a session of the administrative committee of the DAV and the OeAV on 13 March 1999. This is a valuable step towards the responsible management of climbing areas.

The principle of recognising natural cycles (SEEWALD *et al.*, 1998, 222) leads to temporary periods, while birds are breeding, during which no climbing takes place.

The principle of regionality (SEEWALD *et al.*, 1998, 221) should in turn be applied to official measures. It requires that sports activities should not entail travelling long distances. This in turn means that if there are local climbing areas, they should be available for climbing, as long as this does not compromise the environmental value, and considers the vulnerability of the crag in question.

9. Overview of the current debate surrounding climbing sport in Europe

This section considers the current climbing and nature conservation situation in European countries. On the basis of expert interviews, and the analysis of literature from current climbing publications, I will sketch a picture of the situation in Germany, France, Austria, England, and Switzerland.

9.1 Germany

Since the 1980s, climbers in Germany have been confronted with the closure of traditional climbing areas in the low-lying mountains. Increasing pressure and a strict interpretation of the nature conservation laws has removed many opportunities for them to pursue their form of recreation. When climbers considered that the powerful 600,000 strong DAV was not representing their interests, they founded the IG Klettern Frankenjura (Climbing in the

¹⁶ MAILÄNDER (pers. comm. 21.1.1999) goes into greater detail: "I see our hundred-year, sophisticated climbing sport culture as something worth holding on to. I am against slavishly imitating others - otherwise the whole thing loses its soul. Local climbing culture is good for people too. You can identify with it. It creates a homeliness, gives meaning and that makes life a lot more worth living than some sort of 'MacDonalds culture'".

Frankenjura Special Interest Society). The DAV then extended its remit to include the extra-Alpine low-lying mountain areas it had previously neglected, and approved an action plan for the conservation of low-lying mountain areas, which also involved the creation of a corresponding full-time position. It was recognised that many climbers were not aware of the environmental value of the crag biotopes, so that the development of new routes in unspoiled mountain regions and the increasing popularity of climbing led to damage and disturbance to sensitive eco-systems. The DAV is now aware of its role as an intermediary between climbers, the authorities, politicians and nature conservation organisations. "That is why every effort must be made towards the management of environmentally harmless climbing" (MAILÄNDER, 1997, 237-239).

Much has happened since then. A Germany-wide three-level organisational structure for the extra-Alpine climbing areas was developed; a mountain adoption scheme was implemented; care and development work began in climbing areas; and climbing-related projects, such as a crag directory, are in progress across Germany. The work of educating and informing active climbers is assured *inter alia* through the DAV Education Team for Nature Conservation and Environmental Protection, and through the mass media.

The situation in Germany is currently very much in a state of flux, varying significantly from one federal state to another. Whereas in North Rhine Westphalia, 90% of mountains once used for climbing are now closed, in Rheinland Pfalz no restrictions are expected. In Saxony-Anhalt, as well as in Lower Saxony, it is expected that most of the major climbing prospects will remain available. In Hesse, many climbers' wishes will be fulfilled. The situation in Saxony will be explained in greater detail in the Elbsandsteingebirge case study. In Bavaria, the situation for climbers has traditionally been very good - informal consultations and agreements between climbing associations and the Bavarian state government influence the situation. In Baden-Württemberg, while climbing is forbidden as a matter of principle, an exemption may be obtained for climbing on the 50% of the crags which have already been climbed. MAILÄNDER (pers. comm. 21.1.1999) assesses the situation as follows: "All in all it doesn't look too bad, to sum up you could say that we have come away with one black eye."

The Climbing special interest group, which is now organised at a national level, remains, together with the DAV, the authority that represents the interests of the climbers and critically assesses the work of the DAV. As a rule, its demands are further reaching than those of the DAV. However, it

does not have the same power, and nowadays it usually co-operates with the DAV.

In the future, due to European legislation (e.g., the Habitats Directive), similar problems might also arise in the Alpine regions. The DAV, OeAV, and leading climbers also feel their responsibility for the sustainable development of climbing in the eastern Alps with regard to climbing ethics. In most cases, practising climbing according to these ethics coincides with the aims of environmental protection in Alpine regions. Thus, the 'Recommendations on the Rebolting and First Ascent of Mountain climbing routes in the Alps' (DICK *et al.*, 1999) consider the sustainable development of Alpine climbing in addition to their principal aim of defining climbing ethics. These recommendations were produced by the leading Austrian and German climbers, and approved by the DAV and the OeAV at a joint session of their administrative committees on 13 March 1999. The recommendations envisage dividing the Alps into three zones, thus achieving 'low-impact visitor redirection':

- Wasteland/Adventure area (Zone 1): no rebolting work may be undertaken. When new routes are developed, the use of bolts is minimised. No pleasure routes and no climbing gardens.
- Open rebolting area (Zone 2): classic climbing routes may be rebolted, new routing may be achieved from below¹⁷.
- Pleasure area (Zone 3): pleasure routes may be created, including from above. Popular classic routes may be rebolted in these zones, but a general rebolting of all routes is not planned.

These recommendations are seen as proposals made by climbers with a view to the Alpine associations' implementation of a policy of spatial management, as an effective instrument for managing climbing, since well-protected routes are more frequented than those which are poorly protected. In the Alps, special working groups should then decide to which zone their region belongs, and then work towards ensuring that the corresponding rules are observed.

9.2 Austria

"At the moment we are living on a paradise island" - that is the assessment of R. RENZLER of the OeAV Alpine department (pers. comm. 3/2/1999). According to P. HASSLACHER of the nature conservation department of the OeAV (pers. comm. 3.2.1999), several factors are responsible for the fact that

¹⁷ The first ascent of a route from below means that the route must be pioneered from below.

the restrictions on climbing sport in Austria are only minimal. The Austrian Alps (which are more extensive than the German Alps) are not subject to any federal law on nature conservation "agreed far away in Vienna" (HASSLACHER, pers. comm. 3.2.1999) but only to the local nature conservation laws of the federal states. However, in contrast to Germany, these do not cover legal restrictions on climbing sport, but the hunting legislation does. Areas under wildlife protection and those subject to a hunting ban are only closed during winter months and generally only affect ski touring. Only in the no-hunting area in the Hoher Ifen (Kleinwalsertal) are climbers restricted to two days a week; otherwise, there is a total ban on access and climbing on the climbing faces in the Hoher Ifen. In Austria, there are no nature conservation bodies recognised by law in the same way as in Germany (Article 29 of the Federal Nature Conservation Law). The OeAV enjoys certain consultation rights at a federal state level in the field of nature conservation.

Fundamentally, the potential climbing resources in Austria are far from being exhausted. Climbing is universally permitted, since the right of access to open country covers this form of recreation. As a matter of principle, permission must be obtained in order to create a climbing garden, since this counts as construction work. As a rule, this does not present any problems. Only the Austrian Federal Forest Administration, as a major landowner, has recently begun to demand payment for access to the countryside. Since it has become a public limited company there has been a charge for the use of ski areas or using pathways for mountain biking. For this reason, pioneers of climbing gardens have gone elsewhere (HASSLACHER, pers. comm. 3.2.1999). In the federal states of Tyrol and Salzburg, tourism is a very important branch of the economy - restrictions on the right of access to the countryside would meet heavy resistance. On its own, however, climbing tourism is relatively insignificant in comparison with all the other forms of tourism (RENZLER, pers. comm. 3.2.1999).

The OeAV plays a major part in the new routing and rebolting of the climbing areas that it actively supports. It makes available bolts and knowledge concerning new equipment, and route development according to nature conservation guidelines. In some areas in the Alps, there are local working groups which direct the development of climbing sport and routes. In the low-lying mountain areas and the Alpine climbing gardens located near valleys (Martinswand, Peilstein, Hohe Wand etc.) the OeAV has now installed 30,000 bolts. An environmental planning programme by the federal state of Tyrol instigated the provision of financial support for recreation centres, providing basic facilities across the federal state. This programme

has identified the need for toilets and permission requested for the proposed sites (RENZLER, pers. comm. 3.2.1999).

There are now fears concerning European integration. Once legislation is issued primarily from Brussels, it will become clear who has the greatest lobbying strength. According to HASSLACHER (pers. comm. 3.2.1999). Alpine associations have failed to set up a lobby in Brussels.

The 'Recommendations for the Rebolting and First Ascent of Mountain Climbing Routes in the Alps' (DICK *et al.*, 1999), on the other hand, remain the subject of debate in Austria. HASSLACHER is of the opinion that, for the entire Alpine region, an overall concept must be put together, guaranteeing right of access to the countryside as a basic entitlement. The recommendations should be understood purely as climbing ethics for the preservation of adventure climbing, and not the source of potential restrictions in the form of environmental planning. In his view, the climbers' offer of self-regulation is a case of being too quick to conform. Presently, the greater issue is that of not being crushed between the hunting/nature conservation lobby on the one hand, and the tourism industry and associated commercial interests on the other. The Alpine associations may cover the Alps, but their rules are not enshrined in law.

"For me there is no question of the Alpine association nature conservationists cooperating with the plant conservationists, capercaillie freaks, snake representatives and all the others who want to close the Alps, because that will be the end of the association and it will just become a commercial company responsible for managing amusement parks located near the towns, as (Reinhold) Messner has said. If that happens we can build a dome over the Ischgl with skiing in the summer and a tropical swimming pool in the winter" (RENZLER, pers. comm. 3.2.1999).

9.3 Switzerland

In the low-lying mountain areas in Switzerland, the first conflicts between climbers and nature conservation occurred about five years ago in eastern Jura. The environmental authorities threatened crag closures on the basis of local changes in zoning arrangements. On the initiative of a climber, crag directories were compiled and negotiations begun. Eventually, the bans were not implemented; instead, consensual solutions were reached based on self-regulation. In the Basle area, climbers seized the initiative before conflict occurred, reacting partly in response to the growing influx of climbers from Germany. They developed the *Basle Climbing Code* and founded the Basle

Climbing Special Interest Group, which unites SAC sections, private climbing clubs and 'wild' climbers under one umbrella organisation. On the basis of a scientific mountain biotope study which they initiated, a zoning concept was developed and implemented - and is presently being tested. The authorities responded very positively to these initiatives. The conflicts were not however, limited to low-lying mountain areas: in the Bern Mittelland and in the pre-Alpine area there were also isolated cases of confrontation, which were mainly resolved through mutual agreements (MEYER, pers. comm. 27.8.1998).

Like the DAV in Germany, the SAC in Switzerland responded to the imminent conflicts slightly late in the day. Climbers in the sections of the SAC had already been taking care of the nearby low-lying mountain areas on an informal basis for 15 years, looking after the pathways and rebolting the routes. The problem now has to be addressed at a national level. The idea is to create a response team, made up of biologists, climbers, representatives of nature conservation organisations, and botanists, which can intervene (on site) as competent participants in negotiations. Actually, the current work is done by the SAC-"Beauftragter zum Schutz der Bergwelt" who informs and consults the representative of the sport climbing commission. A national (conservation) structure, similar to the German model, would not seem appropriate for Switzerland, since there are no problems between climbers and nature conservation in western Switzerland. Only in Germany do regional structures make sense, according to the principle of "letting sleeping dogs lie". MEYER (pers. comm. 27.8.1998) explains this disparity in terms of a difference in mentality: a study of environmental awareness showed that awareness, environmental knowledge and the readiness to change one's behaviour is much less prominent in western Switzerland than in eastern Switzerland, where the conflict is greater.

The commercial bolting of climbing areas and routes has now become more widespread in Switzerland. The most public figure may well be Jürg von Känel, who creates and publicises pleasure-climbing routes¹⁸ for mountaineering companies. An estimated 95 - 98% of climbers prefer fully equipped climbing routes, and this requirement must be taken into account (GROSS, 1998b, 19). Chalet owners are also beginning to install climbing routes on rocks near chalets in order to increase the diminishing number of guests. The sport climbing commission of the SAC provides, on request, the necessary materials for rebolting projects.

¹⁸ Pleasure climbing takes place on climbing routes that are well protected with fixed protection (bolts) and lead through solid mountain areas. They range from the lower to medium levels of difficulty on the sport climbing scale (cf. GROSS 1998C, 11)

With a membership of about 90,000, the SAC is a large association that sees itself as apolitical. Although the SAC has repeatedly emphasised that it is a nature conservation body, it is first and foremost a sports association, which unites all the different currents of mountaineering. According to Swiss law, the SAC is a free club, which (in contrast to the DAV) does not make any demands on its members (GROSS, pers. comm. 27.8.1999). According to GROSS (1998a, 9-10), it is the SAC's task to recognise trends and be involved in their development, even if it is sometimes at the expense of 'environmental views'. "The debate which in Germany has almost taken a fundamentalist direction" will lead to the preservation of hunting grounds for an 'elite minority' (GROSS, 1998b, 22; 1998c, 11). In recent times however more and more people have let their voice be heard, demanding a rigorous debate within the association, since 'anything else would be a capitulation to mainstream opinion' (MEYER, pers. comm. 27.8.1998).

"If we first and foremost manage that pioneers and climbers, before bolting new areas, make enquiries concerning nature conservation, in particular wild animals and birds, and if there are no problems - there should not really be any conflict." (MEYER, pers. comm. 27.8.1998)

9.4 France

In climbing circles, France is seen as the country of endless opportunities. Whereas for decades, the French climbing areas were created and maintained by climbers on their own initiative, since the end of the 1980s there has been increasing integration of climbing area management into planning at local, département and regional levels in order to meet the growing demand. The *Comités départementaux* of the FFME are working with various partners, often including representatives of the Ministry for Young People and Sport, on what are called '*plans départementaux/régionaux de développement d'escalade*', which are mainly implemented with the financial support of the *Conseils généraux*. The crisis in growth in the winter sports industry in the French Alps has opened the way for new forms of tourism, which complement the winter programme with corresponding summer activities not involving heavy-duty activity that is damaging to the environment, and which create development opportunities, thus counteracting the process of decline in rural areas and the one-sidedness of the tourist industry (BOURDEAU, 1993, 3, 26-28).

The potential of performance sport and of a development for mass sports was recognised early in France. A large number of well-protected climbing sites

were created, mainly in the favourable climate and mountain-rich south, thanks to the introduction of cemented bolts. Partly with state financial assistance, artificial climbing walls were installed in sports halls, and France very quickly attained a prominent position in the development of competitive climbing (KIND, 1998,205).

The two largest mountaineering associations, FFME and CAF, represent the interests of climbers and look after climbing areas. CAF is a registered nature conservation body. In order to avoid conflicts with landowners and to prevent landowners from being liable in case of accidents, the FFME produced a standardised '*convention d'escalade*' which pioneers of new climbing areas must agree with the landowner. This is increasingly widespread. Profits from the sale of local climbing guides are primarily used for the rebolting and maintenance of the climbing area. In a few départements, where initial conflicts with representatives of nature conservation have occurred, there are commissions for rebolting and nature conservation.

Despite the sharp rise in the number of climbing areas, Taupin estimates that the number of crags which are bolted for climbing in the south western half of France represent 5-10% of the total crag potential; in the north-western half of France, about 50% of the potential climbing crags are used (HANEMANN, 1997, 39). Currently about 7% of all climbing areas are affected by restrictions, of which over half are in the French Jura and the northern Vosges. A large proportion of climbing bans has been imposed due to liability considerations rather than in the interests of nature conservation. Besides these measures by landowners and/or the authorities (chiefly in the south of France), there is a large number of informal (unofficial) verbal agreements between climbers and nature conservationists and/or the authorities¹⁹. This is enough evidence to clearly demonstrate that in the south climbing plays a part in the economy and in tourism, whereas in the north-east, nature conservation bodies occupy a stronger position.

The most important instrument (for imposing climbing bans) is the '*Arrêté préfectoral de protection de biotope*' (APB). For protecting particular biotopes of protected species, the Préfet can use the APB to forbid all human activity that could compromise the biological equilibrium. The APB that has attracted the most attention is that which has, since 1990, banned climbing in the entire Petit Luberon massif for the protection of birds. In 1994, this led to a climbing area being illegally created and publicised, and subsequently

¹⁹ Well known agreements include, for example, the agreements in the Gorges de la Jonte (for the peaceful coexistence of climbers and birds of prey such as vultures and eagles) and in the Dentelles de Montmirail (bird protection).

having to be removed (cf. HANEMANN, 1997, 77-80; 89-93). Overall, however, nature conservation concerns have played a secondary role in the management of climbing areas. It is much more a case of bolting new climbing areas before the nature conservationists can impose an APB. Chipping²⁰ and crag cleaning are relatively widespread practices.

Efforts presently underway aim to facilitate consultation of the organised nature sport associations regarding approvals of APBs. There is a general tendency for resolving confrontations through cooperative solutions (TAUPIN, pers. comm. 4.11.1998):

"For a year in France, things have been going a lot better, there are no more nasty things going on, people are negotiating, sorting things out; things are greatly improved".

9.5 England

The BMC has more than 25 years of experience in negotiating access rights; the resultant climbing restrictions are largely observed (95% according to the BMC). The BMC perceives itself as representing the interests of its 42,000 members, and does not have the status of a nature conservation body. Since the early 1960s, a team of (at present) two full-time employees, 29 regional access representatives, and 70 other people have been dealing with problems related to access to climbing crags. It was soon established that cooperation, rather than confrontation, with nature conservation organisations, landowners, and national park authorities led to better solutions, and it was recognised that the issue of access is inextricably connected to conservation requirements. The first climbing restrictions during nesting seasons were imposed in Wales 20 years ago. People did not initially abide by the restrictions, "but it's part of life that you have to work with the conservation bodies because they are strong and well organised" (TURNBULL, pers. comm. 11.9.1998). Relations with both the largest landowner in England, the National Trust, and the largest nature conservation agency, English Nature, are very good. Private landowners often obtain information from these organisations before they deal with the BMC in connection with climbing on their crags. Sometimes, however, landowners use nature conservation as a pretext because they don't want any strangers on their property.

The BMC access fund, which has been in existence for eight years, funds nature conservation and care action in climbing areas as well as being responsible for information campaigns. Climbers and nature conservationists cooperate in carrying out maintenance work and nature conservation projects.

²⁰ Chipping means cutting hand grips or steps into the rock to make the route easier to climb

Every year, the BMC publishes current lists of temporary climbing bans during birds' breeding seasons, which are regularly reviewed during the climbing and breeding season and adapted as appropriate. The BMC has become a valuable and trustworthy negotiation partner for all nature conservation bodies. It has been recognised that jointly agreed rules meet with much greater acceptance than if they are just directly publicised by the BMC. For the coming years, the BMC has set itself the objective of treating traffic as a prominent issue.

III. Results of the survey of experts

1. National level in Europe

The following evaluation of the results, unless otherwise indicated, presents the answers given by the experts from the 21 European countries surveyed.

1.1 Demand: number and development of climbers

1.1.1 Number of climbers

There has not been any specific research into the number of climbers in any of the countries considered. As a rule, the respective climbing bodies only have estimates or extrapolations from surveys and their own membership figures. However, at least a rough idea of the number of climbers in Europe is desirable. First of all, a distinction between regular climbers and those sporadically involved in climbing is needed. For instance, TAUPIN (survey 1/1999) distinguishes between 300,000 regular climbers (at least once per month) and 700,000 sporadic climbers (once per year). This figure is already extraordinarily precise.

What is striking when comparing the distribution of climbers in Europe (Table 4) is the extreme concentration in one country: climbing in France very much seems to have become a sport for the masses; with approximately 1 million climbers, almost two-thirds of European climbers live in France. On one hand this is due to the inexhaustible supply of crags in France, on the other hand TAUPIN (pers. comm. 4.11.1998) suspects that it is also due to the fact that very early on safety measures to prevent falls were developed on the crags, and publicised (by him) in '*Aménagement et équipement d'un site naturel d'escalade*'. This led to France becoming the first country to boast a large supply of well-protected climbing areas. Furthermore, the first climbing competitions (at the time still on natural crags) were organised in 1985 in France and Italy, giving climbing a high public profile. Even if we only consider the 300,000 or so French climbers who climb regularly, this is still more than one and a half times the number in Austria, which is in second place with 200,000 climbers. Interestingly, Great Britain - which is outside the Alps - is in third place with 100,000 climbers, which shows how important climbing is in Great Britain. It is also interesting to see that the Netherlands, which does not have a single climbing site, has a remarkable number of climbers: 23,000.

Table 4: Number of climbers in European countries

	Rank	Country	Number of climbers (estimate)	Trend*
Major climbing nations	1	France	300,000 regular, 1 million in total	+
	2	Austria	200,000	+
	3	Great Britain	100,000	+
	4	Spain	>62,180 (80.000)	+
	5	Germany	80.000	=
	6	Italy	20,000 regular, 60,000 in total	+
	7	Switzerland	30,000	+
Climbing nations of medium significance	8	The Netherlands	23.000	+
	9	Belgium	15,000	=
	10	Sweden	9,000- 10,000	+
	11	Czech Republic	2,400 - 6.000	=
	12	Slovakia	2,300 - 3,000	+
	13	Greece	2,000	+
	14	Denmark	2,000	=
Less significant climbing nations	15	Slovenia	1,000	+
	16	Norway	1,000	+
	17	Finland	600- 1,000	+
	18	Ireland	500	=
	19	Romania	200	-
	20	Luxemburg	200	+
	21	Liechtenstein	50- 100	=
		Total	1,591.250 - 1,615.000 climbers	+

Source: Own research * + increasing, - decreasing, = stable

This gives an overall total of about 1,600,000 climbers in Europe based on the information provided by the experts from the 21 countries who took part in the survey. In addition, there are the climbers from the European countries which did not take part in the survey. Clearly, such a high number of climbers cannot be considered a marginal group.

The figures allow the countries to be roughly divided up into major climbing countries, those of medium significance, and less significant climbing countries.

1.1.2 Development in the number of climbers

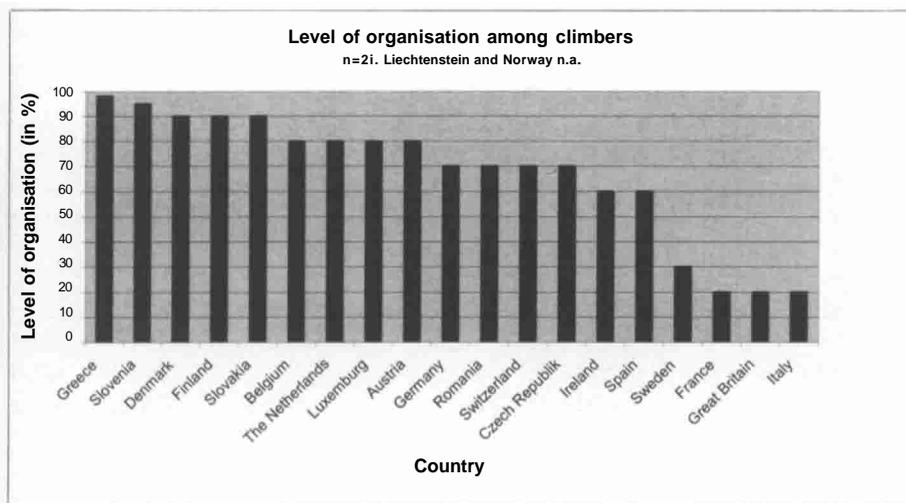
In answer to the question about trends in the numbers of climbers in the individual countries, only the Romanian expert indicated that the number of climbers is falling. Two-thirds of the 21 experts who answered this question indicated that the number of climbers continues to rise. Germany is the only major climbing nation to record a lack of increase in the number of climbers. The explanation for this is simple: as a result of the crag closures in recent years, the scope for practising the sport in Germany has - in contrast to other countries - become more restricted. However, the lack of scope to practise the sport on natural crags does not automatically mean a fall or lack of increase in the numbers of climbers. The best example of this is the Netherlands where the number of climbers is increasing, although there are no opportunities for climbing in their own country; the opportunities in neighbouring Germany in the Eifel are restricted by limitations and closures, as well a limitation of the group sizes (LOHMANN, pers. comm. 20/3/1999); and in neighbouring Belgium, a climbing permit is required. The increasing number of indoor facilities plays a large part in this growth of climber numbers.

The conclusion is that climbing in Europe continues to grow in popularity, and we can expect a continued increase in the numbers of climbers, even if not to the degree of the last 20 years. The great boom is over - that is the universal opinion of all experts who were questioned regarding most of the climbing countries. Only in Finland, Norway, Spain and Slovenia is a continued significant increase expected.

1.1.3 Level of organisation among climbers

The level of organisation of rock climbers is an appropriate means of determining the number of climbers that can be reached by climbing bodies. This result will determine whether or not there is a need for information campaigns and the use of media outside the climbing organisation. In most cases these figures are also only based on estimates. Only in Germany were the values confirmed by a large number of surveys (SCHURZ, 1999, 33). The data in Figure 2 should therefore be understood as indicative and not as absolute. There are no estimated figures available for Liechtenstein or Norway.

Figure 2: Level of organisation among climbers



Source: Own research

There is a clear discrepancy between the levels of organisation in each country. In France, for example, BOURDEAU (1993, 10) talks about the "de-institutionalisation which characterises all recreational sports" and explains that when calculating the numbers of climbers, it is not sufficient only to consider the members of the FFME. The FFME also includes mountaineers, ski mountaineers and walkers in its membership, and it is not possible to differentiate between them. There is a similar situation in other European nations, since mountaineering bodies generally unite all those who practise all forms of mountaineering sport, including climbers. A survey among members of the DAV showed that only about 8% of the members asked actually practised rock climbing as a hobby (SCHURZ, 1999, 33).

In France, Italy and, surprisingly, Great Britain, the level of organisation of climbers is comparatively low at 20%. By way of contrast, the stated level of organisation in Greece (98%), Slovenia (95%), Denmark, Finland and Slovakia (each 90%) is so extraordinarily high that there is reason to question the accuracy of the figures.

When comparing numbers of climbers, we can see that the countries with large numbers of climbers have the lowest degree of organisation, whereas nations with fewer climbers have an above-average level of organisation. It

may be that, in the countries in question, the sport has become an elite sport or that those who practise it are something of a closed circle. In countries with large numbers, however, the sense of belonging together, of needing to stick together, decreases as the number of those active in the sport increases. This phenomenon can also be explained in terms of that fact that countries such as Germany have a tradition of associations of this kind, whereas in countries such as France or Italy, society is more individualistic. In England the tradition of 'clubs' may offer an alternative to large-scale organisations and create a situation where, despite the low level of organisation, rules are treated as 'gentlemen's agreements' and are therefore respected.

SEEWALD *et al.* (1998, 167) compare the level of organisation of all land-based²¹ sports in Germany and come to the conclusion that climbing has a medium level of organisation at 60%. According to the DAV's latest estimates, the level of organisation among German climbers is as high as 70% (SCHURZ, 1999, 33). This would classify the level of organisation of German climbers as 'high' according to SEEWALD *et al.* (> 60% of all sportsmen and women). If we use this classification for all countries, we can see that the climbers in most European countries have a high level of organisation (average level of organisation: 65%). Yet, since this is not true of many major climbing nations - France, Spain, Great Britain and Italy - the statement is somewhat relative.

1.2 Supply: the distribution of climbing areas in Europe

The greatest difficulty in obtaining an overall figure for the number of climbing areas in Europe is the problem explained above, namely that the size of the basic unit for a climbing area varies considerably among different countries. The problem of data quality described in I. 4.4.4 should also not be neglected. Appendix 5 contains a list of the climbing areas in Europe.

Despite these difficulties, given that I investigate climbing tourism below, it seemed worthwhile to produce at least a rough estimate of the number of available crags to allow comparison. Unfortunately, Greece did not give any information as to the number of crags, which, given the topography of Greece, could be classed as 'infinite'. The Netherlands is also excluded from the analysis on the basis of not having any crags. Furthermore, in Spain and Norway it is almost impossible to quantify and record the infinite number of crags. In the countries that contain large sections of the Alps (France, Italy,

²¹ Seewald (*et al.*, 1998, 167) takes 'land-based sports' to refer to climbing/mountain climbing, gliding, golf, canoeing, motor sports which take place in the countryside, motor boat sports, cycling, riding, tobogganing, rowing, sailing/wind surfing, skiing, fishing, diving and water skiing.

Austria, Switzerland and Slovenia), the same applies to the Alpine climbing areas and the adventure areas. I have therefore not given precise information.

1.2.1 Number and distribution of climbing areas

Generally, just as with the numbers of climbers, there are large differences between countries in the distribution of climbing areas: from none in the Netherlands to over 9,000 in Spain. These are obviously determined by the natural orography of the surrounding area. Three groups can be recognised:

- countries with a large supply of crags (>1,000 climbing areas): France, Spain, Italy, Norway, Great Britain;
- countries with a medium supply of climbing areas (100-1,000 climbing areas): Germany, Finland, Austria, Sweden, Switzerland, Slovenia, Czech Republic, Slovakia;
- countries with a limited supply of crags (<100 climbing areas): Belgium, Denmark, Ireland, Liechtenstein, Luxembourg, Romania.

1.2.2 Distribution of the types of climbing area

If I classify climbing areas according to climbing area type, as described in 1.2.1, we see that these are also not evenly distributed across Europe:

- Exclusively sport climbing countries: Belgium, Liechtenstein, Luxembourg;
- Mainly sport climbing areas and Alpine climbing: France, Italy, Austria, Romania, Slovenia;
- Mainly adventure climbing areas: Denmark, Finland, Great Britain, Ireland, Czech Republic;
- Adventure and Alpine climbing areas: Norway;
- Mix of all area types: Germany, Sweden, Switzerland, Spain, Slovakia;
- No country has mainly boulder areas, but most of these are located in Spain, France, Great Britain and the Czech Republic.

1.3 Current trends in climbing sport

1.3.1 Preferences of climbers

In answer to the question concerning the popularity of the various types of climbing area, some countries outside the Alps unfortunately did not provide any information concerning Alpine climbing area types. Obviously Belgian and Dutch climbers also drive into the Alps.

Despite these gaps in the results of our survey of experts, the following trends are very clear:

- sport climbing areas are very much 'in': they enjoy increasing popularity almost everywhere.
- adventure climbing areas are 'out': in almost half the answers, their popularity is not increasing; in a third it is even declining.
- alpine rock climbing is the classic form with a consistent level of popularity
- alpine sport climbing is fashionable and is gaining in popularity

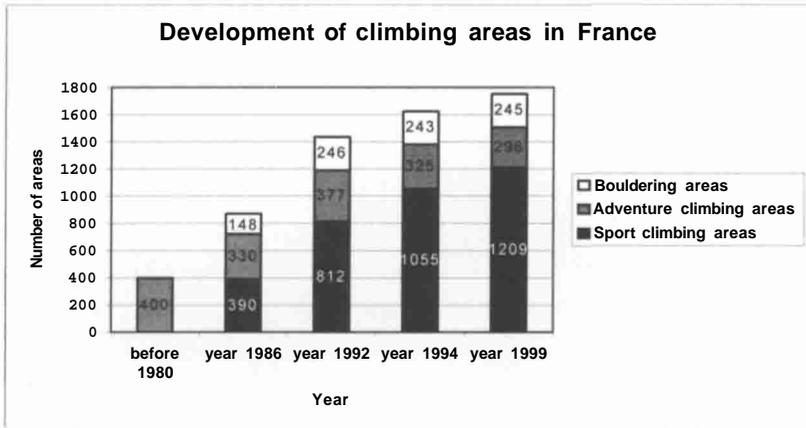
1.3.2 Development of the climbing areas

It is now necessary to evaluate whether these preferences are reflected in the development of climbing areas. A growing demand cannot, however, lead to the unrestricted proliferation of new climbing areas in the countryside. Restrictions, for example in countries such as Belgium, Denmark, Luxembourg, and Germany, mean that no more crags (and particularly no more entire climbing areas) are available to be bolted for climbing. On the other hand, Alpine (sport) climbing areas can only be created in high-altitude mountain areas. The following developments are observed in the rocky areas in Europe:

- the number of sport climbing areas is rising everywhere where crags suitable for climbing are still available (so, not in Germany, Liechtenstein, Denmark, and Ireland)
- the number of adventure climbing areas is rising only in traditional adventure climbing countries such as Great Britain, Norway, and Italy. In Denmark, an upward trend can also be observed. In Finland, climbing sport as a whole is experiencing a boom. In all other countries it is unchanging, or there is a slight decrease, as, for example, in France.
- the number of Alpine climbing areas is only increasing in France and Greece. In other countries, it is unchanging.
- the number of Alpine sport climbing areas is increasing in all Alpine countries, as well as Spain and Norway.

Thus the developments entirely confirm the preferences, indicated by the climbing experts, of climbers. The development of climbing areas over recent years can be illustrated based on the French example: a strong increase in the climbing areas during the 1980s, followed by a decrease in the 1990s, with sport climbing areas taking over the lead from adventure climbing areas (Figure 3).

Figure 3: Development of climbing areas in France



Source: Own idea based on TAUPIN, 1994, 305; TAUPIN, survey 1/1999; BOURDEAU, 1993, 19.

1.4 Cross-border climbing tourism

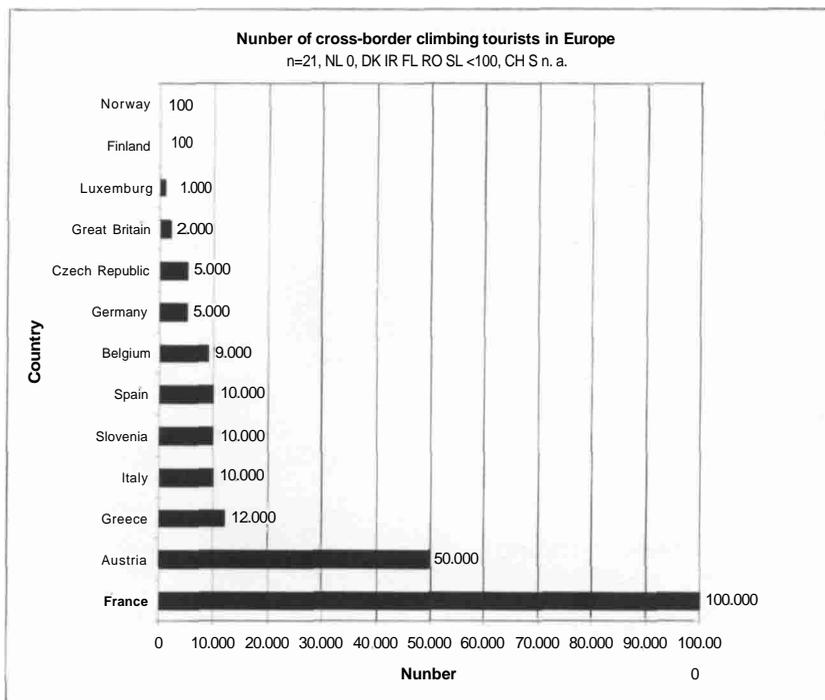
"Climbers are migrants, who almost always head south when they go climbing."
(BOURDEAU, 1993, 50)

The survey only asked about international, cross-border climbing tourism. In order to research internal climbing tourism within European countries, a survey using questionnaires in this way would not have been appropriate. While case studies or interviews with individuals in each climbing area would have been able to provide the missing information, they are outside the scope of this study.

1.4.1 European destinations of climbing tourism

Figure 4 only covers the countries that indicated that climbing tourism was a factor in their country. The Netherlands immediately stands out, as there are no climbing areas there. The number of foreign climbers is also insignificant in Denmark, Ireland, Liechtenstein, Romania and Slovakia. Unfortunately, neither the Swiss nor the Swedish experts were able to provide information concerning the numbers of climbing tourists.

Figure 4: International climbing tourism in Europe



Source: Own research

The analogy here with the numbers of climbers is striking. France, with over 70 million tourists in 1998, is not only the most popular tourist destination in Europe (Alpin, 3/99, 24), but also the most popular destination for climbers. It has reached a peak of 100,000 climbing tourists per year. Sport climbing tourism has become an important factor in the economy, especially in the south of France. That is also where most of the French climbing crags are situated, combined with favourable climatic conditions (BOURDEAU, 1993, 22). A long way behind, in second place, is Austria, which has a large influx of tourists, especially in the Austrian Alps, with an estimated 50,000 climbing tourists a year. In third place, surprisingly, is Greece with 12,000 foreign climbers. In the Meteora-monastery region alone, 10,000 nights are spent in hotels and guest houses every year.

The figures for Spain and Italy are questionable; estimates by several German climbers indicate that they should be significantly higher than the figures for

Greece. The climbing areas in Arco, the Dolomites, and Catalonia in the vicinity of Barcelona, have become Meccas for climbers from Germany and elsewhere. It would seem that the figures for Austria and Greece are too high.

Belgium, interestingly enough, is higher placed than Germany, with over 9,000 climbing tourists per year. The figures for Germany and the Czech Republic are the same with an estimated 5,000 tourists per year. In Great Britain, on the other hand, climbing tourism, with only 2,000 tourists per year, is quite insignificant. TURNBULL (survey 1/1999) relates this to most people's perception that it is always raining in Britain. It may also be that the level of protection common in Britain puts off sport climbers.

1.4.2 Countries of origin of climbing tourists

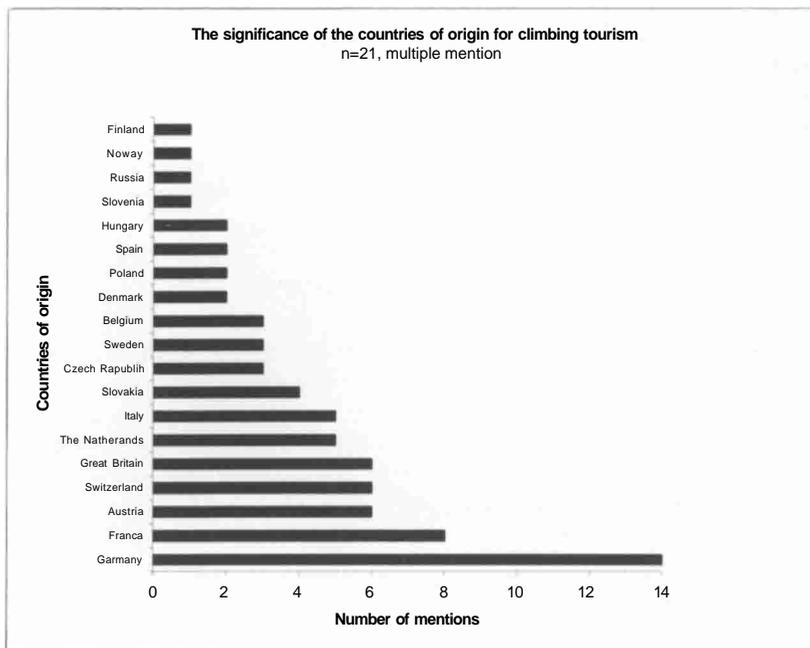
It would now be interesting to examine more closely the nationalities of the climbing tourists in order to obtain an overview of the different patterns of tourist flows, and thus explain the numbers of climbing tourists arriving in the destination countries - numbers which in some cases are surprising. The experts were asked about the countries of origin of the climbing tourists in their country. Figure 5 shows the results.

Germany is clearly mentioned more than other countries; almost twice as often as the second most popular country of origin, France. This once again confirms the Germans as world champions in travel. One may suspect that this is due to the closure of climbing areas in Germany, although there are not enough data to prove it.

The figures for climbing tourism allow us now to classify European climbing countries - although the extreme values mean that the classification is somewhat asymmetrical:

- countries that are both major destinations and major countries of origin for climbing tourism: France and Austria.
- destinations of medium importance for climbing tourism: Greece, Italy, Slovenia, Spain, Belgium, Germany, Czech Republic and Luxembourg.
- destinations that are not popular for climbing tourism: Norway, Finland, Liechtenstein, Denmark, Ireland, Romania, and Slovakia.
- finally, the Netherlands is a special case. The lack of climbing areas in their own country means that the 23,000 Dutch climbers are forced to climb abroad. This explains why the Netherlands is a major country of origin, but not a destination country for climbing tourism.

Figure 5: Significance of the European countries as countries of origin for climbing tourism



Source: Own research

1.4.3 The different flow patterns of climbing tourism

If we now analyse each of the nationalities mentioned above, an interesting climbing travel mosaic emerges.

The main travel destinations for Dutch climbers are the climbing areas of neighbouring Belgium and in Luxembourg - in these countries they are the most common nationality, and numbers are increasing. In France and Switzerland, they are in second place in terms of the numbers of foreign climbers. During 1998, for example, the BAC granted 9,000 permits to Dutch climbers.

German climbers are not tied to any one country, but are to be found in most European countries. In some countries - France, Italy, Austria, Switzerland and the Czech Republic - they represent a particularly significant group and

are thus mentioned as the largest contingent. In Spain and Luxembourg, they are also a significant group.

The internal climbing tourism of the Scandinavian countries is noticeable - Swedes and Norwegians often mention each other as the largest group of climbing tourists. While Swedes also represent the largest group of climbers in Finland, the Danes are a major group in Sweden.

Among the Slavic states and neighbouring countries a similar phenomenon can be observed: in Slovakia, Czech climbers are increasingly common in addition to Hungarians. In the Czech Republic on the other hand, besides the growing number of Germans, there is an increasing number of Poles. In Germany, the Czechs are the largest group of foreign climbers. In Slovenia, climbing tourists come mainly from the neighbouring countries of Italy and Austria - Austrian climbers are the largest foreign group of climbers not only here, but also in Italy and Liechtenstein.

The most popular travel destination for French climbers is Spain, and Spanish climbers also increasingly travel to France. In Belgium, Greece, and Norway, the French are very frequent visitors, and Italy has become an increasingly popular travel destination.

Overall, climbing tourism is neither increasing nor decreasing in Germany, Finland and Austria. On the other hand, Slovenia, Spain, and Norway show a rise in climbing tourism. As a rule, climbers choose their adjacent countries for climbing holidays instead of travelling to faraway places. The only exception is the German climbers, who are the largest group of foreign climbers in more distant countries such as Spain, Italy or Greece.

1.4.4 Economic importance of climbing

Are the large numbers of climbing tourists also economically significant in the climbing areas in the relevant countries? For most of the countries investigated (13 of 20), this question can be answered in the affirmative, with the qualification that this economic significance is mainly confined to a local area. The following trends are observed:

- in the countries with a large or medium influx of climbing tourists, this tourism provides a certain degree of income for the regional climbing areas: France, Greece, Slovenia, Italy, Belgium, the Czech Republic, Germany and Luxembourg. In Spain, this is also true at a local level. In Austria however, climbing tourism is of limited significance in comparison to tourism overall.

- there is a clear trend in the countries with little or no influx, and in those that did not provide statistics concerning climbing tourism. Great Britain, Ireland, Sweden, Switzerland, and Slovakia attest to the contribution made by regionally-derived climbing tourism income. In Romania, Denmark, Finland, Norway and Liechtenstein it is not considered to be significant.
- only seven countries that consider this income to be significant (e.g., Romania) identified branches of the economy which are dependent on climbing tourism. In most cases, these include local guest houses, food and equipment retailers, climbing schools, mountain guides and manufacturers of outdoor equipment such as Petzl (its centre is located at the foot of the Dent de Crolles, not far from Grenoble) or Edelrid. This smaller set of countries includes France, Belgium, Sweden, Great Britain, Slovenia, the Czech Republic and Slovakia.

1.4.5 Developing climbing areas in order to promote tourism

Until now there have been only four countries where local authorities or tourism bodies have specially developed climbing areas in order to promote climbing tourism. The first is France; TAUPIN (survey 1/1999) is aware of about ten climbing areas that have been created in this way. In addition, in 1990 the département of Ardèche was the first to produce a département plan for the development of climbing. A four-year plan, which is renewed on a regular basis, determines the investment to be made in promoting climbing. The département committee of the FFME is responsible for the implementation of the project and financing takes place through the département using EU funds, as well as through the local authorities. In contrast to the other ten climbing areas, the plan in the Ardèche is implemented in consultation with the local nature conservation bodies as well as the administration of the Ardèche Gorge nature conservation area. The plan specifies the climbing areas to be developed, the form of protection (adventure, sport), access, the maintenance and care of the climbing areas, accommodation, publication of a climbing guidebook and the construction of artificial climbing walls (BOURDEAU, 1993, 47). The other ten sport climbing areas include Orpierre, Mortain, Vallorcine-Le-Buet and Aussois.

In Orpierre, the bolting, since 1985, of the crags above the village has been the lifeline that has saved this village threatened by a rapidly ageing population and the problem of emigration. By spring 1996, about 350 sport climbing routes had been created, bringing the total number to an estimated 700-800. A network of signposted paths provides access to the routes and is equipped with information boards. A botanical interest trail leads into the 'Belleric' sector and is aimed at sensitising the public and raising awareness

of the proper way to treat the environment. Another conservation measure has been to identify pathways up to the crag in order to prevent erosion, and to fit protection barriers on the pathway down from the crag. Lowering points fitted below the top of the crags also prevent people from walking on top of them. The more remote climbing sites have been equipped with portacabin toilets, which are signposted and marked in the climbing guidebooks (WINTERLING, 1996,44).

The development of tourism in the region around Arco (Trentino, Italy) has also been deliberately promoted by bolting climbing areas in the vicinity. Case study IV.2 explains this in greater detail.

There are also similar areas in Spain and Norway, although more detailed information is not currently available.

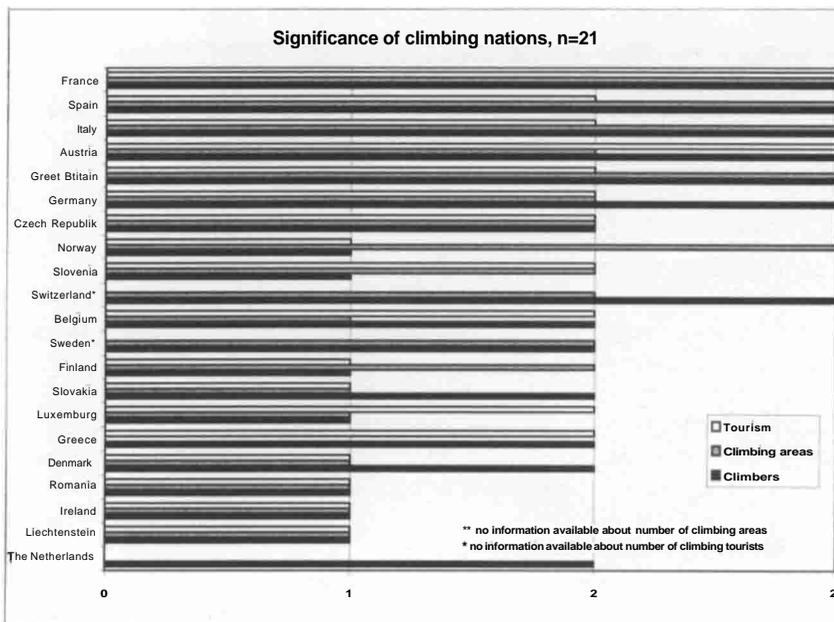
With the exception of the Ardèche, the creation of tourist climbing areas has never been carried out in co-operation with the nature conservation bodies or the responsible nature conservation authorities.

1.5 Ranking of the climbing nations

The significance of all the countries investigated for climbing has been so far measured in terms of the number of climbing areas, the number of national climbers and the number of climbing tourists from abroad. In order to produce an overall comparison of the significance of all the countries using these three criteria, the data must be broken down into quantifiable values. Three categories were identified and each country awarded a value between one and three for each of the categories. This yields a 'ranking' of the individual climbing nations in terms of their significance for climbing sport (Figure 6). Unfortunately the missing values for climbing areas in Greece, and the numbers of tourists in Switzerland and Sweden, bias the results somewhat. If these values were present, Switzerland, at least, would be able to improve on its present score. The ranking is as follows:

- major climbing nations: France, Spain, Italy, Austria, Germany, Great Britain, Switzerland, Czech Republic;
- nations of medium significance: Slovenia, Norway, Belgium, Sweden, Finland, Slovakia, Luxembourg, Greece, Denmark;
- less significant climbing nations: Romania, Ireland, Liechtenstein, the Netherlands.

Figure 6: Significance of climbing nations



Source: Own research

1.6 The right of access to open country

The aim of the first question on the questionnaire was to discover the legal means available for restricting the right of access to the countryside, and whether, and to what degree, such restrictions were presently in place.

Of the 21 countries investigated, seven had no legally binding right of access to the countryside: the Benelux countries (Belgium and the Netherlands), Great Britain and Ireland, and the Latin countries (Italy, France and Romania). Although it is not enshrined in law, climbing in France does not require a permit, but is a specific instance of the 'right to come and go' according to the principle that 'if something is not forbidden, it is permitted' (TAUPIN *et al.*, 1996, 139).

In England, people are waiting for the Labour Party to fulfil its election promise to enshrine the right of access to the countryside (the 'right to roam') in law. The BMC is part of the lobby that supports this proposal (BISHOP, pers. comm. 10/9/1998), which is now before parliament. The election of the

new Scottish parliament should also bring about a reform in Scotland of the present law on the right of access to the countryside that dates back to feudal times. At present, access is tightly restricted in Britain: crossing private land is only permitted on the paths marked 'public footpath'. Much land is privately owned, which meant that, in the early 1970s, the BMC was the first European mountaineering body to begin negotiations with landowners concerning access problems, in order to give its climbers access to crags (TURNBULL, pers. comm. 11.9.1998). In all the other countries, although the right of access to the countryside has not been enshrined in law, it has not had the same effect.

In most of the countries investigated, there is legal provision for the restriction of the right of access for certain reasons, independent of whether free access is guaranteed as a right or not. Only in Greece and in South Tyrol is access guaranteed by law, without any restrictions.

Within the group of countries which legally guarantee the right of free access to open country, the Scandinavian countries stand out because of their traditional '*allemansrätten*', which as a 'Nordic common right' (VEISTOLA, survey 1/1999) even guarantees everyone the right to climb in the open country. The Swedish expert ANDERSSON (survey 1/1999) describes this right in the following way: "It is an old practice and you could say it is a freedom through responsibility". This common law is threatened by the increasing trend for landowners to demand a fee for providing water or allowing camping in the vicinity of the crag (ANDERSSON, survey 1/1999).

The most commonly mentioned restrictions on the right of access to the countryside are in connection with private property, for reasons of nature conservation, and in military restricted areas. Local authorities in France and Italy can bar access in the interests of safeguarding public safety.

In Belgium, forestry laws can lead to a restriction of the right of access. In addition, the BAC has to rent all climbing areas from their public or private owners. The members of the BAC, and all foreign members of the alpine associations within the UIAA, can climb there free of charge on the basis of the reciprocity ruling²². The only exception is climbers from the Netherlands. Since they cannot offer anything in return, i.e., since there are no Dutch climbing areas, members of the KNAV have to apply for permits from the BAC in order to climb in Belgium (BAUVIR, survey 1/1999).

²² Within the member bodies of the UIAA the reciprocity ruling gives every individual member the same rights, e.g. rights to all the chalets of the other member organisations.

Since 1923 in Austria, 'freedom of access to pathways in mountain areas' above the forest boundary has been enshrined in federal state laws, and 'freedom of access to pathways in the forest' since the Austrian Forestry Law of 1975. The federal state hunting laws envisage the possibility of restrictions to the freedom of access to pathways for recreational purposes and the creation of temporary, or all-year, wildlife conservation areas and areas with hunting bans. These would lead, among other things, to restrictions on climbing sport (e.g. Hoher Ifen²³) (HASSLACHER, pers. comm. 3/2/1999).

In Slovakia and the Czech Republic, there is a special situation in relation to the right of access to the countryside. Following the division of Czechoslovakia in 1993, the Slovak parliament passed a new law that provided for a climbing ban in national parks and nature reserves. Since all major Slovak climbing areas were located in these parks, climbing in Slovakia was no longer possible. The Slovak mountain climbing body won exemption rulings for its members in some climbing areas (LINEK, survey 1/1999). In the Czech Republic the legal situation is similar, but not all climbing areas are located within national parks. Climbing permits were also granted outside the central conservation areas of national parks (ROBERTSON, 1998).

The situation in Germany is somewhat more complicated: the Federal Forestry Law guarantees the right of access to the countryside for the purposes of recreation (§14), as does the Federal Law on Nature Conservation (§27). The latter, however, leaves the federal states the freedom to determine limits on free right of access. Commercially organised climbing groups already face problems in this regard, at least in the climbing areas outside the Alps; the participants can claim the right of free access as they are involved in recreational activity, but the paid group leaders cannot (JANSSEN, 1999, 56). The identification of nature conservation areas can lead to a climbing ban, as was the case in Hönnetal (federal state of North Rhine Westphalia), for example. In national parks such as the Saxon Switzerland (which will be covered in greater detail below) climbing sport was only slightly restricted. However, climbing bans are generally not legal in landscape conservation areas. In nature parks, conservation regulations apply to the conservation area which they cover, and federal state laws can contain further laws and bans not covered in the Federal Law on Nature Conservation (German abbreviation: BNatSchG). In Baden-Württemberg, for example,

²³ The hunting ban area in Hoher Ifen envisages that in the interests of wildlife protection (wild chamois) climbers are only exempt from the ban on two days (Monday and Sunday from 10 a.m. to 4 p.m.). Otherwise there is a total ban on access and climbing on the crags of the Hoher Ifen (HASSLACHER, pers. comm. 2.3.1999).

climbing was tightly restricted in the Oberes Donautal nature park, although the park is mainly intended for recreational purposes. The decisive legal text for climbing sport is §20 c BNatSchG:

- (1) Activities which may lead to the destruction or other significant or lasting damage to the following biotopes are not permitted:
.... 5. Open crags, Alpine grassland
- (2) The federal states may allow exemptions if the damage to the biotopes can be compensated for, or the activities are necessary in the overwhelming interest of the common good...

This paragraph has been implemented in federal state legislation in various ways leading to a very diverse range of practices, particularly with regard to climbing. Thus in Bavaria, for example, climbing sport is fundamentally considered as not damaging to the crag biotopes. In Saxony, the law on nature conservation stipulates that climbing sport is always to be exercised in accordance with the Saxon climbing rules. All other forms of the sport are thus considered to be damaging to the environment. In Baden-Württemberg, the situation is different: climbing sport is considered a threat to the crag biotopes and thus is basically forbidden, unless expressed permission is granted by the authorities (JANSSEN, 1999, 60).

In conclusion, the situation in the individual countries in Europe varies greatly and is a result of the respective historical development and state of legislation. At the same time, the regulation of the right of access to the countryside is the decisive factor for climbing regulations.

1.7 Climbing regulations

Since the expert from Liechtenstein did not give any information regarding climbing regulations, and the Netherlands is excluded due to the absence of climbing areas, the following section will analyse the climbing rules in 19 European countries in greater detail. In Germany, these regulations only affect climbing areas outside the Alps, and in Switzerland they only apply to the German-speaking part of the country. It should also be noted that a climbing area can have several sets of regulations. Thus for example, zoning can mean temporary closures during the breeding season of protected birds. The figures given may not therefore add up to provide a figure for the entire country.

1.7.1 Voluntary self-regulation for reasons of nature conservation

Surprisingly, in several countries this form of restriction on climbing sport plays a more significant role than might be imagined. Again, this investigation is only based on estimated values. In the eight less significant climbing countries (with the exception of Finland), there is currently no voluntary self-regulation by climbers. In the other 11 countries, self-regulation is very much the case. The spectrum is also very broad, ranging from the extreme case of Belgium, where the climbers in all 34 climbing areas exercise self-regulation, to Austria and Italy where this is only true in one area in each country. Self-regulation is most widespread in Britain, where rules of this kind exist in 150 climbing areas. In Germany, agreement has also been reached on such rules in most areas in Bavaria and in almost all areas in Rheinland-Pfalz.

The reasons for this self-regulation are mostly related to plant and bird conservation. In England, the protection of rare forms of moss is also mentioned and in the Czech Republic, the prevention of erosion. In Great Britain, this has led to a voluntary climbing ban in 22 areas; in Italy, 15 areas are affected by such self-imposed restrictions; in France, only one. Temporary voluntary bans (during the breeding seasons of rare species of birds) and zoning (for plant and bird conservation) are the most common ways in which this self-regulation is implemented. Temporary voluntary bans are in place in Germany (40 areas), Finland (2), France (40), Great Britain (120), Italy (30), Austria (2), Slovenia (1), Spain (5) and the Czech Republic (30). Zoning takes place in Germany (30 areas), France (10), Great Britain (100), Switzerland (1), Slovenia (2), Spain (5) and the Czech Republic (13). In Belgium, Germany, Switzerland, and Finland the numbers of climbers are only limited in one area - climbers are only redirected to other areas in Germany and Switzerland. Germany, Belgium and Switzerland are the only countries which work with climbing concepts. In Germany, the Ministry for the Environment of Lower Saxony, the DAV and the Climbing Special Interest Group of the Federal State of Lower Saxony have agreed to a moratorium on the new routing in this low-lying federal state. The Spanish expert emphasises that in Spain all these restrictions were imposed at the initiative of the authorities (park administration) in consultation with the climbers, and that there is still no culture of self-regulation in the interests of the environment among climbers.

In Finland, Austria and Italy, the few regulations are highly respected. In Great Britain, climbers abide by 95% of the closures in the interests of bird protection.

1.7.2 Action by the authorities in the interests of nature conservation

Restrictions on climbing imposed by the authorities in the interests of nature conservation are more widespread than self-regulation, and are in force in 15 European countries. Only in Greece, Romania and Slovenia has no such action been taken on the part of the authorities.

Authority-imposed restrictions are most widespread in Germany and affect almost all climbing areas (250). In France, 130 climbing areas are affected by regulations developed by the authorities, however, the areas are generally not important for climbing. In Great Britain, the number of regulations of this kind is about 100. Here again, it is the protection of rare plants and birds that is given as the reason for this form of intervention.

In Norway, Slovakia, Belgium, and Spain, there are authority-imposed climbing restrictions, but I do not have information as to their extent and form. In France, these restrictions are expressed in the form of a total ban in 35 climbing areas. However, in view of the large number of climbing areas, this maximum number is proportionally much lower than the total ban in Belgium, which only covers five areas. Further total bans are to be found in Slovakia (3), Sweden (5), and Germany (6). Much more frequent, however, are temporary bans during the nesting seasons of rare bird species; these are most widespread in Germany (115), France (61) and Great Britain (100), but are also to be found in Sweden (20), the Czech Republic (13), Switzerland (5), Ireland (2), and Denmark (5). In Germany, France, and Great Britain, zoning regulations in the interests of plant conservation are mainly in the same climbing areas. Only in Germany are zoning regulations in place in all climbing areas (with the exception of the Alpine climbing areas). There are also isolated cases in Switzerland (3), Luxembourg (1), and the Czech Republic (13). Climbing plans involving redirecting climbers to other climbing areas have been implemented in almost all German and Belgian climbing areas. A special German version is the ban on developing new routes in the Eifel.

The legal basis for all the restrictions described above is the legislation on nature conservation and the forestry and hunting laws²⁴. On the question of observance of such authority-imposed measures, the experts repeatedly

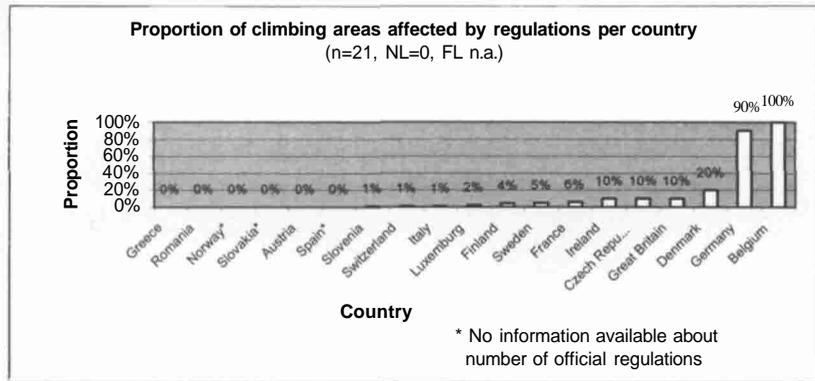
²⁴ There is a question as to whether hunting is nature conservation, or whether representatives of hunting put forward nature conservation arguments, in order to be able to practise hunting in peace by excluding those spending their leisure time in the countryside. Prioritising hunting above recreation helps to secure hunting permits.

emphasised that this depends on whether or not the measures were decided in consultation with climbers. The agreement of the climbers with various regulations depends on the extent of the regulations, the significance of the climbing area affected, and the plausibility of the regulation.

Only in Belgium and Finland do measures by the authorities meet with the approval of climbers. In Germany, only measures by the authorities that are considered reasonable are met with approval and then observed. Climbers are generally included in the decision-making process in Germany, Finland, Switzerland, and the Czech Republic. This does not guarantee that their interests will be taken into account, as decisions are still made in the face of climbers' opposition. Measures are implemented without consultation in Belgium, Luxembourg, Sweden, and Slovakia. In France, Great Britain, Italy, and Spain, there is sometimes consultation, sometimes not. As a matter of principle, measures decided upon by the authorities are very often taken in the face of climber opposition. This does not necessarily lead to the measures being disregarded, as demonstrated in Italy and Denmark, for example. Official measures are least well-observed in Spain and the Czech Republic.

Appendix 7 provides a graph illustrating the distribution of voluntary and official climbing regulations in European climbing areas in absolute figures. In view of the lack of statistical evidence, a quantitative comparison between voluntary and official regulations is not possible. It should, however, be remembered that in most European countries, official climbing regulations predominate over voluntary self-regulation. Both forms of regulation sometimes apply to a single climbing area. This demonstrates very clearly that climbing regulations are most widespread in Germany, Great Britain and France. These three countries combined have 80% of the total climbing area regulations. Italy, Belgium, the Czech Republic and Sweden have 15% of the climbing areas with regulations; the remaining 5% are distributed among 10 other European countries. Only in Greece and Romania are there no restrictions on climbing sport in the interests of nature conservation. If however I now consider the relative distribution of climbing area regulations related to the respective number of climbing areas per country (Figure 7), Germany and Belgium appear at the top of the league table: in both countries almost all (extra-Alpine) climbing areas are subject to climbing rules. In this context, we should emphasise that this analysis takes into account neither the significance of the climbing areas affected, nor the extent of the regulations in question.

Figure 7 Proportion (in %) of climbing areas affected by regulations per country



Source: Own research

1.7.3 Climbing regulations for reasons not related to nature conservation

In most countries, reasons unrelated to nature conservation also lead to restrictions on climbing sport (Figure 8). In some countries, these are even more significant than restrictions in the interests of nature conservation. However, it is almost impossible to quantify this due to the lack of data.

In Spain and Greece, crag closures are in place for religious reasons in the area around Monserrat and the Meteora convent respectively - and these are generally observed.

In Norway, Finland and Great Britain, prehistoric finds have led to crag closures, for example, in caves or areas with cave drawings. In the French département of Ardèche, the Ardèche Gorge is deliberately excluded from the bolting of climbing areas for attracting tourism - partly in the interests of protecting the prehistoric caves and finds (HANEMANN, 1997, 69).

In Germany and Italy, areas used by the military and subject to restrictions are also affected by closures.

Apart from nature conservation considerations, problems with private landowners was the second most common issue mentioned. In Finland, these problems have led to more closures than those in the interests of nature

conservation. In Belgium, France, Great Britain, Italy, Norway, Sweden, Spain and Slovenia, conflicts with landowners have caused problems for climbers.

Social conflicts with the local population can also lead to restrictions to climbing. For example, parking problems, waste, noise, etc. have resulted in climbing bans and sometimes in the introduction of climbing fees. In the most popular climbing areas in France, these problems are much more acute than the issues of nature conservation. In Slovenia, social conflicts have even led to one climbing area being abandoned:

"We stop climbing in the Podpec climbing area because the locals have physically attacked the climbers. The main problems are parking problems in the village and the locals accusing climbers of not respecting private property, fruit and trees" (PRAPROTNİK, survey 1/1999).

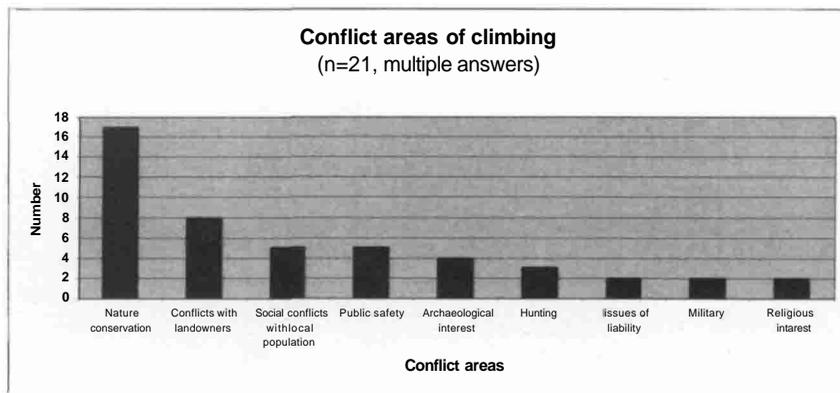
A further reason for crag closures is the threat to public safety from rockfalls or landslides where crag faces are unstable, such as in Belgium, France, Great Britain and Italy. Liability considerations have led to climbing bans mainly in France, since mayors/préfets fear that they will be held responsible for accidents (TAUPIN, pers. comm. 4/11/1998). In Finland, a fatal accident led to one climbing area being closed by the owner (VEISTOLA, survey 1/1999).

Restricted areas reserved for hunting have also contributed to restrictions on climbing sport in countries with powerful hunting lobbies, such as Austria, France and Spain.

In Finland spectators were transported to the best known climbing area *en masse* by bus, and then trampled the vegetation at the foot of the crag. This in turn had consequences for climbing (VEISTOLA, survey 1/1999).

Figure 9 clearly shows that, in most countries, restrictions to access to climbing areas are justified on nature conservation grounds (it was possible to mention more than one reason for restrictions being imposed). It does not however reveal anything about the position of the respective areas of conflict in the individual countries. It is entirely possible that nature conservation conflicts are only of major importance in Germany and Belgium, whereas conflicts with landowners, in France for example, have led to the introduction of a climbing convention, which is agreed between FFME and landowners. Conflicts with the local population are also more prominent in other countries.

Figure 8: Reasons for restrictions to climbing sport



Source: Own research

1.8 Climbing ethics

In eight countries, there are no ethical regulations concerning the development of new routes or the creation of new climbing areas. This only applies both to countries which have little significance for climbing, such as Slovakia, Liechtenstein, Luxembourg, Romania and Sweden, and to major climbing nations, such as France and Italy. In Italy, attempts are now underway to at least introduce regulations concerning the development of new routes.

In France, there are also efforts on the part of the FFME to direct the boom in bolting by means of the '*Charte fédérate de l'équipeur*' code of ethics (TAUPIN *et al.*, 1996, 2). However, articles in popular climbing magazines such as "Roc'n wall" vehemently defending the freedom of pioneers, for example to chip holds (cf. FERREIRA, 1998, 74-75), suggest that these efforts come from above and are not supported by the climbing community. The aim of this code of ethics primarily relates to area planning, since each new route should take place in the context of a local bolting plan, in order to keep adventure areas free and not to replace classic routes with new ones. Pioneers are required to "respect conservation areas" and "to be conscious of the environment in the way they act" - however this is not explained in greater detail. It is notable that this code contains both ethical rules for extra-Alpine climbing area and rules for alpine areas. Furthermore, in France the only

standard work on developing new routes and rebolting climbing crags was published in the mid-1980s - a second edition followed in 1996. The 144 pages contain detailed technical, legal and geological information to be heeded when bolting new climbing areas and routes (TAUPIN *et al.*, 1996). Pages 19-21 provocatively inform the reader, in great detail, of the most effective way to remove climbing plants, crag vegetation, mosses and lichens. As a result, the code of ethics printed at the front of the book is something of a farce. Only in the northern Vosges was agreement reached on a comprehensive code of ethics, when there was a threat of large-scale closures. The question arises as to how stringently observed this is²⁵. In the Ecrins National Park, there is a climbing convention which is confined to the regulation of the new routing (and so not climbing itself) - to this end it introduces a zoning arrangement (cf. HANEMANN, 1997, 59-61).

In Switzerland, the Basle Climbing Code operates only in Basle. It is very comprehensive and suggests the use of public transport. It calls for the observance of climbing regulations (including the use of lowering points and not stepping on the cliff-top), as well as not leaving any waste; the avoidance of noise, the exercise of restraint when rebolting routes, and asks pioneers to abstain from gardening crags. In 1997, the climbers of Valais compiled a 'Manifesto for practising climbing in a way which respects the environment' on the initiative of Mountain Wilderness Switzerland. This combines the French and the Basle climbing codes.

In some countries, there are climbing areas that are part of different climbing traditions, each with their own climbing ethics. An example of this is Germany: there are the universally applicable '*sanft kletterri*' (low impact-climbing) conventions approved by the Federal Committee for Climbing and Nature Conservation, as well as a rebolting concept. In addition, in the Elbsandsteingebirge, the Saxon climbing rules apply (these also apply in the Czech part of the Elbsandsteingebirge, although they are less stringently observed than in Germany); in the Südpfalz, there is another climbing tradition which predominates (sparse protection, ban on the use of chalk); in the Frankenjura, the 'Blaupunkt' rules apply. In each case, rebolting and the development of new routes in extra-Alpine areas must be approved by the relevant climbing and nature conservation working groups.

²⁵ In neighbouring Südpfalz, French pioneers caused a sensation by bolting a new route in southern French style on the Eppenbrunner Altschlossfelsen, on which the Pfalz climbers had voluntarily not made any first ascents since 1992. The pioneer's argument was that voluntary self-regulation does not constitute a ban and is thus not binding. The route, which also did not meet Pfalz ethical criteria, had to be dismantled following a binational meeting to resolve the matter, since the threat of a total ban on the crag in question would otherwise have been carried out (KLETTERN 3/99, 9).

The situation is similar in Great Britain: in the 'gritstone' (sandstone) climbing areas there are strict rules regarding bolting and protection, which oppose the use of bolts, whereas on limestone crags, aided climbing routes may be created. For this reason, the BMC always recommends people to contact local climbers. Universal ethical rules were compiled under the title 'Respect the Rock' and require climbers to avoid chipping holds, to protect the crag flora and fauna, to use lowering points to protect the vegetation on the top of crags, to avoid the use of chalk as much as possible, not to leave waste, to avoid making noise, and not to leave the pathways.

In Belgium, the usual rules of the climbing community apply, which also affect access to crags and parking.

In Finland, the rules are confined to the use of chalk and the development of new routes.

The rules in Greece call for minimal environmental impact and require the use of bolts to be minimised. They also stipulate that new routes must be bolted from below. In Denmark, bolts are forbidden, the regulations are otherwise concerned with the rebolting of existing routes. Bolts are also banned in traditional climbing areas in Ireland.

In Norway, bolts are disapproved of in most areas, contracts between landowners and climbers are required, and environmental impact should be as low as possible. Bolts are only tolerated in specific areas. The booklet '*Klatrefelthandboka*' explains about the bolting of climbing areas, which also includes providing the corresponding infrastructure such as paths, signs and camping options (cf. BRODERSEN, 1997).

In Sweden, it is forbidden to chip holds, and it is recommended that climbers be aware of local customs in relation to the use of bolts and the development of new routes. ANDERSSON (survey 1/1999) also once again emphasises the part played by *allemansrätten*: responsible behaviour with respect to nature means that the landowner is at least consulted before a crag is cleaned.

In Austria, there are working groups for individual mountain ranges, e.g. in the Tennengebirge and the Tannheimer Alps, which monitor observance of the regulations. They are concerned with rebolting as well as the development of new routes. German climbers and representatives of the OeAV have also jointly produced "Recommendations for the Rebolting and First Ascent of Crag Climbing Routes in the Alps" (cf. DICK *et al.*, 1999).

In Slovenia, bolts are not permitted, and routes must be created (but only where there are no nesting birds) according to the UIAA safety norms.

In Spain, ethics vary from area to area, but there are no fixed written rules. The main concern in the creation of routes is the regulation of safety aspects.

The result is a clearly discernible parallel: the countries with the strictest and most detailed rules for climbing, new routes, and rebolting also have the greatest degree of self-regulation on the part of climbers - partly as a result of the climbing ethics. This can be seen in Germany, Great Britain and Belgium, and also in the Czech Republic and Slovenia. Nevertheless, such self-imposed regulations on the part of climbers have not prevented the imposition of restrictions on the part of the authorities. Many of these climbing codes have come into being, or at least been written down, during the 1980s and 1990s, i.e. during the years of conflict - with the obvious exception of the Saxon climbing rules. It seems that these ethical rules have helped to diffuse the situation and forestall the implementation of a number of official regulations. In Great Britain, these regulations are obviously being observed as a gentleman's agreement, despite the lack of organisation among climbers, otherwise they would be replaced by official measures. If we consider Germany to be an exception, we can see that in countries where climbing ethics are less strict, or do not exist at all, the number of official regulations is greater than the number of self-regulatory rules (France, Italy).

Another parallel also emerges from this: in all countries in which there is a clear 'anti-bolt policy', the largest number of adventure climbing areas has been created. This is the case in Denmark, Ireland, Finland, Great Britain and Norway. In countries with area-specific climbing and bolting policies, on the other hand, there is a mixture of different types of climbing areas, as is the case in Germany or Spain.

1.9 The role of climbing bodies

1.9.1 The power to direct climbing and the organisation of climbers

In eight European nations - Austria, Belgium, France, Germany, Greece, the Netherlands, Slovenia, and Switzerland - the state has passed the authority to direct the development of climbing on to the climbing bodies. In this way, they automatically become negotiation partners in resolving issues related to climbing sport. This does not necessarily lead to a strengthening of their negotiating position - as demonstrated by the examples of Belgium and

Germany. In another eight countries, the climbers have organised themselves into interest groups or working groups in addition to the climbing bodies. This is true in Austria (Kärnten Special Interest Group, working groups), the Czech Republic (organisation by area), Germany (climbing special interest groups, crag sponsors, working groups), Italy (privately organised climbers), Norway (regional climbing clubs), Slovenia (clubs), Sweden (private climbing clubs), and Switzerland (Basle Special Interest Group).

It is notable that climbing is well organised everywhere, whether within, or outside the structure of, climbing bodies.

1.9.2 Consultation with the nature conservation bodies

In only about half of the European countries investigated do agreements presently exist between climbing bodies and nature conservation bodies. Such agreements are now being pursued in other countries, e.g., France and Romania. Logically, the countries with agreements are those which exhibit a higher proportion of climbing areas with regulations; Belgium, the Czech Republic, Denmark, Germany, Great Britain, and Sweden. There is however, more limited consultation in Italy, Switzerland, and Slovakia. This consultation generally involves local climbing associations, the nature conservation authorities or the administration of the conservation area affected, and the national climbing association and nature conservation bodies. In the countries where large proportions of the crags are under private ownership, private landowners are also involved in the discussions (Belgium, Denmark, Finland, Great Britain, Sweden). In France and Italy, the 'guide offices' are also involved in some discussions.

1.9.3 Activities of organisations in the individual states

About half the climbing bodies interviewed have, since the beginning of the 1970s, but especially in the 1990s, responded to the environmental debate, creating a position (voluntary or full-time) responsible for the environmental concerns of climbing and the problems of right of access to the countryside. This is an indication of the need for environmental management for climbing sport.

The British BMC has a long history on this issue: the post of Access Officer was created at the start of the 1960s, and today there are two full-time access officers, who liaise with a team of 29 'regional access representatives', and about 70 other people. They also have an 'access fund' at their disposal, which, over the course of the eight years since its creation, has facilitated the

investment of £65,000 in environmental projects, publications, path construction and signposting (TURNBULL, pers. comm. 11.9.1999).

Since 1997, a part-time position for 'access and nature conservation' has also existed within the Swedish Climbing Association. The following climbing bodies have chosen the same path or have appointed a voluntary worker: CAB (Commission for the Environment and Crags); FFME (Environmental Commission) and CAF (National Council for the Protection of the Mountain); KNAV (Environmental Committee since 1981); FASI and CAI; Groupe Alpin Luxembourgeois; OeAV (Nature Conservation Department); SAC (Officer for the Protection of the Mountain Environment), and the Spanish mountain climbing body.

The DAV is a recognised nature conservation body in Bavaria according to §42 of the Bavarian Law on Nature Conservation (German abbreviation: BayNatSchG); staff have been involved in nature conservation work since 1970. However, not until 1991, when the situation in relation to closures became a threat, were initially one and then two people entrusted with the maintenance of the climbing areas in the low-lying mountain areas. Currently, only one person is working on this topic. In addition, the Federal Commission on Climbing and Nature Conservation was created as the head of a three-tier voluntary organisation structure for caring for the extra-Alpine climbing areas. This commission is responsible for the environmental management of climbing areas at a local, regional and national level (MAILANDER, pers. comm. 21/1/1999).

Although there is no consultation with nature conservation bodies in half of the countries investigated, climbers or their associations are actively involved in nature conservation in almost all countries. The only exceptions to this rule are Ireland, Greece, Liechtenstein and Italy. Table 5 gives an overview of the individual activities.

Table 5: Nature conservation activities of the national climbing associations

Country	Action of the climbing body
Austria (Oesterreichischer Alpenverein)	Creation of infrastructure, e.g. portacabin toilets; Promoting the creation of climbing gardens; Securing of the pathways up to the crag, lowering points; Creating parking spaces; Display boards concerning environmentally friendly behaviour; Environmental education as part of overall training.

Country	Action of the climbing body
Belgium (Belgischer Alpen Club)	Care for the climbing areas (only to be found in Walloon); Waste collection; Making paths and constructing fences in climbing areas; Recommendations for sustainable and low-impact climbing; Initiation of a research project on crag flora; Initiation of concrete measures for caring for the landscape such as the restoration of arid grassland.
Czech Republic (Cesky Horolezecky Svaz)	Negotiations with the authorities for securing exemptions from the new law on access to the countryside; Influencing closures of summits; Bolting; (arc and reconstruction of walking paths.
Denmark (Dansk Bjergklub)	Annual meeting with the administration of Kullen National Park and the local administration for discussion leisure activities in the national park; These meetings are constructive with no major problems; In negotiation with the nature conservation authorities concerning climbing bans on the coastal cliffs on the island of Bornholm; Greenland is not considered, but has major potential as an Alpine climbing location.
Finland (Finnish Climbing Association)	Climbing and nature conservation are a new. local and marginal problem in Finland; Often informal agreements, since climbers work in the forest and park administrations, everyone knows everyone else; Informal discussions between climbers, authorities, WWF and BirdLife, Annual Bird Ringer Meeting, seminars on lichens.
France (Club Alpin Français, Federation Française de la Montagne et de l'Escalade)	Handbook on the creation of climbing areas; Recommendations; Work to inform and raise public awareness in conjunction with COSIROC; Concluding climbing conventions between crag owners and FFME to avoid liability. In the south of France often informal agreements.
Germany (Deutscher Alpenverein)	Principles and organisation for the care of extra-Alpine climbing areas in Germany 1995; Education and information of active climbers (nature conservation teaching team, code of conduct, information material, specialist press, internet and hotline, stamp of quality for climbing guidebooks); Climbing sport development planning / national climbing concepts (flexible response, national directory of crags); Care and development work in climbing areas (information boards, voluntary access ban on tops of crags, observing birds" nests and deliberately leaving certain crags untouched).

Country	Action of the climbing body
Great Britain (British Mountaineering Council, Mountaineering Council of Scotland)	Negotiation of temporary closures during birds' breeding seasons and education; Information about 'wild camping'; Rebolting of pathways threatened by erosion; Thinning out of rhododendron in conjunction with WWF; Bird protection and tagging; Environmental monitoring.
Italy (Alpenverein Sildtirol)	Waste removal; Creation and rebolting of pathways up to the crag; Promotion and rebolting of climbing gardens.
Luxembourg (Groupe Alpin Luxembourggeois)	Organisation of cleaning days; Round table discussions; Environmental day with the Minister of the Environment and environmental associations.
The Netherlands (Royal Alpine Association of the Netherlands)	Informing members about environmental problems abroad; Liaising with Alpine associations and nature conservation; Recommending members to be aware of local customs.
Norway (Norges Klatreforbund)	Handbook about the creation of climbing gardens; Crag cleaning recommended for safety reasons; Creation of infrastructure in the climbing area (camping opportunities); Recommendation to conclude contracts with the landowner.
Romania (Clubul Alpin Roman)	Has only started addressing the issues since climbing bans have been imposed; Attempt to secure access at least for club members; Application for responsibility for the climbing area; Commitment to the right of access to crags and mountain areas being enshrined in law.
Slovakia (Slovensky Horolezecky Spolok JAMES)	Dialogue with the authorities and the administration of the national park for securing exemption from the new law on access to the countryside; Publication of results in the association magazine; Few common activities; Waste collection campaigns in the Upper Tatra.
Slovenia (Planinska zveza Slovenije)	Informing climbers about climbing and nature conservation; Dialogue with bird conservationists; Creation of the Council of Rock Climbing in 1992 from the Alpine Association of Slovenia, ornithologists, the Institute for the Protection of Nature and Culture Heritage and the local council in Istria; Informal agreement was reached on setting boundaries and time limits in affected crag areas, and rules agreed for the protection of nature and private property; Publication of a newsletter.

Country	Action of the climbing body
Spain (Federacion Española de Deportes de Montaña y Escalada)	Activity focused on the organisation of races and expeditions; They do not see themselves as a lobby; Involvement in the negotiations about access to Monserrat; Secured hearing with the regional government when a new law about tourism to mountain areas and mountain sport (1998) was being approved. Information campaign about climbing and nature conservation: exhibition, articles in specialist publications, lectures outside the association (University); Organisation of the UIAA/IUCN seminar in Barcelona.
Sweden (Svenska Klatterförbundet)	Until now there have not been any joint projects with nature conservation bodies; Following several years of work, negotiations are underway with the authorities and landowners about the right of access to the countryside (Bisperg); Establishing contacts with political figures and authorities as a preventative measure; Initiation of research projects at the university; Creation of an access fund; Guidelines for the local climbing associations.
Switzerland (Schweizer Alpen Club)	Publication of articles in 'Die Alpen'; Mediation in acute conflicts; Financial assistance for programmes (Jura); Consultation and motivation of local climbers, SAC sections, involvement in producing the climbing code for the Basle Jura area; SAC is working on the issue of the right of mountaineering associations to have a steering role in relation to climbing.

Source: Own research

2. Background conditions at European and international levels

It is now relevant to consider the role of climbing sport and its environmentally sustainable management in the light of the various laws, Directives, and other instruments that exist at the international level. This should also include investigation into the ways in which these presently influence climbing - or could influence climbing in future.

2.1 Climbing regulations in the light of Agenda 21

2.1.1 Contents of Agenda 21

In June 1992, the United Nations conference on the Environment and Development in Rio de Janeiro approved *Agenda 21* as a plan of action for sustainable development on the basis of global partnership. In the context of the implementation of *Agenda 21*, non-governmental organisations (NGOs) and societal groups are called to take part in the follow-up process to the conference, in keeping with their environmental responsibility (chapter 1.3). In the context of maintaining biological diversity, regional studies should be carried out, where necessary, on the maintenance of biological diversity and the sustainable use of biological resources, with particular reference to socio-economic aspects (chapter 15.4.e). Chapter 23.2 emphasises that one of the basic requirements for achieving sustainable development is the comprehensive involvement of the general public in decision-making. New forms of participation are necessary in order to enable individuals, groups and organisations to take part in decision-making, and to guarantee them access to information about environmental programmes. This includes strengthening the role of NGOs as partners in sustainable development (chapter 27). Chapter 13 is devoted to the sustainable management of mountain areas. It states that "the local economy in mountain areas [should be diversified] *inter alia* through the creation and/or the extension of the transport infrastructure in keeping with an integrated management policy in mountain areas" (13.6.e). Since 1996, the UIAA has been represented in the ad-hoc group for the implementation of chapter 13 in the context of the Rio follow-up process, convened by FAO in its role as Task Manager for this chapter (PRICE, 1999).

2.1.2 Significance of Agenda 21 for climbing sport

Agreements among nature conservation bodies, authorities and climbing bodies, ensuring that climbing sport is practised in an environmentally sustainable way - and voluntary climbing area regulations - are very much in the spirit of *Agenda 21*. Jointly agreed voluntary climbing bans could also be included in this category. However, official closures in the interests of nature conservation, which are permitted without consultation of those affected, or even in the face of their opposition, are not in the spirit of *Agenda 21*. They are reconcilable with neither the principle of social sustainability - which is one of the three constituent components of the concept of sustainability - nor the principle of the involvement of civil society in the decision-making process.

Organisational structures, such as those created by the DAV or the BMC for the care of climbing areas, as well as climbing and nature conservation working groups which exist in both countries, could be viewed as a 'new form of participation', as postulated by *Agenda 21*. Transferring the authority to direct the development of climbing sport to NGOs, as is the case in some European countries, is also consistent with the strengthening of the role of NGOs as partners in working towards sustainable development.

Examples such as Verdon, Orpierre or the Ardèche demonstrate that climbing tourism can, in many aspects, greatly contribute to diversification, and indeed even to economic revival in mountain areas (cf. BOURDEAU, 1993, 45). Along these lines, WINTERLING (1997) elaborated a proposal for a sustainable and family-friendly nature sport tourism concept for the town of Betzenstein in the Frankenalb, which unfortunately has not thus far been implemented.

2.2 The EU's Habitats Directive and its impact in individual countries

2.2.1 Contents of the Habitats Directive

At present the Habitats Directive (Flora Fauna Habitat Directive 92/43/EEC) is the most significant piece of international legislation in relation to climbing in Europe. It was approved by the European Union's Council of Ministers on 21/5/1992, and member states are obliged to integrate it into national law²⁶. In the preamble, the main objective is defined as follows:

"The main objective of this Directive is to promote the maintenance of biological diversity, whilst taking account of economic, social, cultural and regional requirements. (...)

In order to restore or maintain natural habitats and species of special interest, special conservation areas are to be identified with a view to creating a common European environmental network according to a precisely defined timetable."

Appendix II of the Directive includes, among the habitats to be preserved, crags - of interest to climbers - together with their vegetation (sub-soils containing lime soil and pebbles, untouched grass on crag tops and bare limestone-rich rock) as well as scree slopes and taluses.

Article 6 (2) stipulates that member states are to identify the necessary means for preserving conservation areas to prevent their deterioration. In relation to

²⁶ It naturally only applies to those countries investigated that are EU member states.

areas of particular interest to society, article 8 (2) lays down the criterion that they should be maintained or restored to a good condition.

2.2.2 Effect of the Habitats Directive on the countries of the European Union

The *Natura Barometer* (26/1/1999) indicates that all EU countries have produced a list of areas as part of the procedure for identifying areas with a view to the creation of the NATURA 2000 network of conservation areas. These lists, however, remain incomplete (NATURA 2000/8, 1999/6).

In Germany, the Habitats Directive was belatedly implemented in national law in 1998 through the inclusion of §§ 19a to 19f in the Federal Law on Nature Conservation.

Of the 14 countries affected (the Netherlands is not included because it does not contain any climbing areas), Luxembourg and Italy did not provide any information on this subject. Belgium, Denmark, Ireland, and Liechtenstein indicated that none of their climbing areas are located in areas designated under the Habitats Directive. In the remaining eight countries, the opposite was true. However, Great Britain and Greece indicated that they did not expect any repercussions from the Directive, although the BMC expressed a desire to be watchful, in case restrictions do result. No restrictions are expected in Austria either, since a large proportion of the NATURA 2000 areas are already protected according to federal nature conservation laws.

In Germany the 'as if' principle is being applied in relation to the procedure for identifying conservation areas; people are behaving as if the criteria of the Habitats Directive were already in force. The experience obtained so far varies considerably from region to region: in the southern Frankenjura (Lower Altmühltal and Donaudurchbruch climbing concept 1998), the Habitats Directive has not led to any restrictions on climbing sport. In the Elbsandsteingebirge, in Saxony, negotiations are presently underway, as there is a threat of major closures. The DAV nature conservation department, is confident that the climbing concept of the DAV contributes to an improvement in the state of the environment in the spirit of the Habitats Directive, and that agreements of this kind can prevent an deterioration of the situation in relation to closures (SPEER, pers. comm. 1/2/199). Thanks to its position as a nature conservation body in Bavaria, the DAV can also be involved in the process of identifying conservation areas. The Bavarian proposals under the Habitats Directive for the Alpine biogeographical region - comprising the Berchtesgaden National Park, Karwendel, the eastern

Chiemgauer Alps, the Geigelstein, the Ammer mountains, Buckelwiesen in the Mittenwald area and the Upper Ifen - only include nature conservation areas and the national park. However, according to SSYSMANK *et al.* (1998, 402) this is not yet sufficient. In the final analysis, the crucial point will be how the Habitats Directive is implemented in the various federal states. SPEER (pers. comm. 1/2/1999) fears that "... once again we in Germany are going to implement European Directives 150%." The German Federal Office for Nature Conservation's handbook on implementation offers ground for such fears; climbing is mentioned several times, for example it is considered - together with erosion, excessively thick forests, intensive grazing and fertiliser use - as a factor presenting a major threat to habitat type 6110 - i.e., rocks containing limestone or bases with unspoiled *Alyso-Sedion albi* grassland (BfN 1998, 235).

The Finnish Natura 2000 coordinator, VEISTOLA (survey 1/1999), comments that everything depends on the programmes for maintenance that must be developed for each area. In Finland, a new climbing area was not bolted in a prospective Natura 2000 area, *"because it is not wise to clean a cliff if it is going to be protected."*

TAUPIN (pers. comm. 4/11/1998) expects there will be few repercussions in France in the regions where climbing is a 'tourist product' and thus a factor in the economy. However, in low-lying and hilly areas with fewer crags, closures present a real threat if the respective département committees of the FFME do not succeed in securing access to the Natura 2000 working groups.

In Sweden, on the other hand, the Habitats Directive has led to temporary or complete climbing bans being imposed in several conservation areas (in the interests of bird protection).

In Spain, 80-90% of the climbing areas are located in areas designated under the Habitats Directive. RAFA (survey 1/1999) therefore fears that "the impacts of NATURA 2000 will be an increase of restrictions widely, in terms of timing (nesting season) and in terms of most sensitive areas concerned."

In conclusion, several points can be made:

There is a real scarcity of information concerning the implementation of the Directive. This became clear during the DAV conference for nature conservation representatives in October 1998 in Offenburg, where the topic was European environmental policy. DAV's summary is "We don't know anything for certain." (SPEER, 1998, 34). Since no one has any experience of

implementation so far, it is area-specific care plans that will eventually show to what degree restrictions are to be imposed on climbing.

As a general rule, we can rely on the statement by the EU official, BONGAERTS, who attended the DAV conference for nature conservationists - that climbing will not be perceived as damaging in those areas designated under the Habitats Directive where it was already practised before the Directive came into force: it will be allowed to continue and will therefore be given exemption. The only constraining factor is the provision in the Directive concerning deterioration. This is supported by the passage in the Directive stating "The maintenance of biological diversity may, in certain cases, require the continuation, or even the promotion, of certain human activities" (NATURA 2000, 5, 1998). Apart from environmental agriculture, forestry, and fish farming, these activities include eco-tourism and associated recreational activities - which are not specified in greater detail. However, even here we must expect at least temporary closures during nesting seasons, or occasional zoning in various places for the sake of certain plants. When bolting new (sport) climbing areas, it will be significantly more difficult for the pioneer to prove that his activity will not be detrimental to the environment.

2.3 The Pan-European Biological and Landscape Diversity Strategy

In Sofia, in 1995, the European Conference of Environment Ministers approved the 'Pan-European Biological and Landscape Diversity Strategy' (PEBLDS). The objective of this strategy is "the preservation and sustainable use of the biological and landscape diversity on the entire European continent within the next 20 years" (JANSSEN, 1999, 68). In contrast to many other documents approved at an international level, the PEBLDS is not a legal instrument, but is rather to be implemented in national legislation (PRICE, 1997,9).

Action Theme 10 of the Strategy is devoted to mountain ecosystems. Under point 10.5, the English version of the PEBLDS calls for the following: "Promote schemes for 'no climbing, gliding, off-road or skiing areas/seasons' and legally enforce climbing bans of cliffs important for biological or landscape diversity (1996-1998)" (COUNCIL OF EUROPE, 1996, 47).

The French version, however, recommends:

"Encouraging the voluntary adoption of 'no-skiing, no-mountaineering zones or seasons' and making people respect the climbing bans on the major cliffs

which are extremely important for biological and landscape diversity (1996-1998)" (COUNCIL OF EUROPE, 1996, 47).

Both are official versions of the PEBLDS, but whereas the French version views voluntary restrictions and the observance of climbing bans on important crags as worthwhile goals, the English version calls for the promotion of restrictions and the legal implementation of climbing bans. The voluntary principle, as well as the limitation on particularly important crags, is contained only in the French text; the English text is open to unilateral action 'from above' on the part of the authorities, which could affect a large number of crags in Europe. It is interesting that this difference has never been publicly discussed, and that the UIAA has only informed mountaineering bodies of the more drastic English version. The ambiguity in the original versions leaves a lot of room for varying interpretations.

The PEBLDS evoked protest from the national mountaineering bodies as well as from the UIAA. There were fears of an increase in the number of official crag closures. In Germany and Great Britain particularly, where much experience had already been gained in this area and where the relevant organisational structures were already in place, people feared rearguard action. Involvement in the implementation of the PEBLDS was however assured.

In the context of implementation by the UIAA and the IUCN, a joint seminar was organised in May 1998 in Barcelona, which served to provide information regarding climbing area management in the various European countries. The 'Guidelines on access and conservation on crags and cliffs' (UIAA ACCESS AND CONSERVATION COMMISSION, 1998) were produced. These guidelines were to support the UIAA member bodies as they developed an effective access and nature conservation policy. The guidelines were to apply to areas outside the Alps, but may also be used in the Alps. A distinction was made between national, regional and local strategies, and the importance of informing climbers was emphasised. The objective is to keep impact on the environment to a minimum by means of appropriate management strategies. UIAA and IUCN recognise that access to crags, and the sustainable and responsible exercise of climbing should be basic rights; where there are conflicts between climbing sport and the aims of nature conservation, all restrictions to access should be based on the objective analysis of information, and on flexibility, dialogue and co-operation between climbers and nature conservation organisations. Climbers should observe restrictions that provide a balance between human influence and the

protection of species on the basis of scientific data (UIAA ACCESS AND CONSERVATION COMMISSION, 1998).

2.4 Alpine Convention

In 1991, the Alpine countries - Austria, France, Germany, Italy, Liechtenstein, Switzerland, Yugoslavia, and the European Community - approved the *Convention for the Protection of the Alps* (Alpine Convention) (PRICE, 2000, 13). The convention includes 12 subject areas. Of these 'Nature Protection and Landscape Management' and 'Tourism' affect climbing.

The Alpine Convention is a framework convention that sets objectives and procedures. It is to be complemented by 'protocols' that focus on implementation. However, neither the 'Nature Protection and Landscape Management' nor the 'Tourism' protocol have been signed by all the signatory states and none of the protocols has been ratified (PRICE, 2000). In article 6 of the 'Tourism' protocol, the parties commit themselves to integrating the requirements of nature conservation and landscape protection into the promotion of tourism. Complementing this, in the protocol entitled 'Nature Protection and Landscape Management', article 14 (1) specifies that local plant and animal species must be maintained in their specific diversity with sufficient populations, through the safeguarding of large habitats (CIPRA INFO 52/99, 16).

The Alpine Convention and its protocols are first and foremost directed against exploitation projects that would be damaging to the environment, but support sustainable tourism. Thus, the sustainable practice of climbing sport is very much in the spirit of the Alpine Convention, especially if it contributes to sustainable economic development of run-down Alpine villages threatened with economic decline and emigration.

2.5 The Club Arc Alpin (CAA)

In 1995, the Alpine associations of the Alpine states joined to form a European Alpine association, the CAA (Club Arc Alpin). It represents about a million members. According to the magazine "Mitteilungen des DAV" (1/1996), one of its objectives is:

"... the promotion of responsible mountaineering, which reconciles the interests of mountaineers with the needs of the circumspective use and sustainable development of the Alpine area and its life forms".

Furthermore, it should represent the interests of mountaineers at a European level.

The nature conservation representatives of the CAA met for the first time in June 1998. An overview of the right of access to the countryside in the Alps is currently being produced. The CAA is otherwise very reluctant to get involved. Unfortunately it has not yet recognised, or at least not yet assumed, its potentially important role as a lobby for mountaineers and those who practise outdoor sports at a European level.

2.6 The International Commission for the Protection of the Alps (CIPRA)

The International Commission for the Protection of the Alpine Regions (CIPRA: since 1990, the International Commission for the Protection of the Alps), was founded in 1952. Starting with a mixture of government and NGO members, it restructured itself during the 1970s to include only NGOs. Throughout, its stated objective was to ensure the production of a convention for the Alps. This objective was achieved with the signing of the Alpine Convention in 1991 in Salzburg, by the Ministers of the Environment of the Alpine countries, and of the EC (PRICE, 2000, 13). CIPRA has 80 member associations, including mountaineering, nature conservation and environmental associations. It has observer status in the Council of Europe and at the Alpine Conference, which is responsible for the Alpine Convention.

CIPRA considers mountaineers and mountain guides, past and present, as a key group for the preservation of the natural and cultural heritage of the mountain areas, to be included as active partners in Alpine-related nature conservation policy. CIPRA attempts a balanced combination of the following three strategies in order to minimise the effects of recreational sports on nature:

- appeal strategy using information and education;
- convention strategy using voluntary agreements between all parties involved;
- restriction strategy using generally binding regulations.

CIPRA values co-operative procedures (ROBERTSON, 1998). At the CIPRA annual conference in 1993 the topic 'Sport in the Alps' was on the agenda. However CIPRA does not see this topic as the central focus of its work.

2.7 World Mountaineering and Climbing Federation (UIAA)

The World Mountaineering and Climbing Federation (UIAA: *Union Internationale des Associations d'Alpinisme*) is the international umbrella organisation for all mountaineering organisations. It was founded in 1932 and today includes over 80 member organisations from 60 countries. It includes various commissions and is concerned with the issues facing mountaineering and climbing. Following a resolution of the General Assembly in 1993, an Access and Conservation Working Group (ACWG) was established in 1995. It had been recognised that the right of access to the countryside would be a key issue in the years to come. This working group had the following objectives (UIAA ACWG, 1998):

- the development of strategies for sustainable access to the countryside;
- development of a UIAA policy that the member associations could follow;
- improving the structures and contacts, within the UIAA, and to other organisations

In 1999, the working group became an independent commission with the following areas of responsibility:

- co-operation with the IUCN in the area of the 'Guidelines on access and conservation strategies';
- developing the concept of 'Mountaineering as a freedom sport, with important human and social values';
- co-operation with international organisations;
- supporting member associations in dealing with problems in relation to the right of access to the free country.

Two further important areas that have been identified are basic rights and the right of access to the countryside, and the economic significance of mountaineering. The stated aim of the UIAA is "to maximise the freedom of mountaineering access internationally..." (UIAA ACWG, 1998)

In 1997, the General Assembly of the UIAA approved the 'UIAA Environmental Objectives and Guidelines'. The following basic positions were formulated:

"The freedom to climb is part of the wider need of people to have access to land and water for the appreciation of the environment and the landscape, as recognised by the World Conservation Congress in 1996." (UIAA, 1997)

At the same time, the need to protect mountain areas is also emphasised. The UIAA recognises that while the overuse of sensitive areas, as well as careless behaviour on the part of mountaineers, has led to a deterioration of the

environment, these are relatively limited in scope, and less significant when compared to other forms of human intervention:

"Such overuse, is however, seen to be highly significant where it impacts (...) on cliffs and crags beloved by climbers, birdwatchers and botanists. It is essential that (...) climbers recognise these concerns and adopt best practice techniques" (UIAA, 1997).

UIAA sees a solution in a process of integration - where mountaineers actively contribute to the conservation of the mountain areas and support the local population. This includes, for example, supporting agreements for the conservation of the mountain environment, where these take into account the mountaineering interests, as well as the integration of environmental education into training programmes for mountain guides and trainers (UIAA, 1997).

The UIAA became aware rather late of its significance in the debate surrounding the right of access to the countryside and the conflicts between climbing and nature conservation. For example, only since 1996 has it been represented in the ad-hoc group for the implementation of chapter 13 (mountain areas) of *Agenda 21* as part of the Rio follow-up process. The question now is whether it will succeed in consolidating its relations with international organisations, such as IUCN, and in representing its objectives as a lobby for mountaineers.

3. Summary

With 1.6 million people active in the sport in the European countries investigated, climbers do not represent a negligible minority. Of this number, 1 million come from France alone, followed by the Alpine countries (apart from Slovenia), Spain and Britain. A limited number of crags, or the absence of crags, does not necessarily influence the number of climbers, as demonstrated by the Belgian and Dutch examples. A large number of climbers does not automatically create conflicts with nature conservation bodies, as adequately proven by the examples of France, Austria, Spain and Italy. If, however, the climbers have only a very limited number of crags at their disposal for practising their preferred form of recreation, this often leads to conflicts, as in Germany, Belgium, the Netherlands, and north-eastern France.

Climbing continues to grow in popularity in Europe, and in the coming years we can expect to see a continued rise in the number of climbers, if not to the

same degree as over the last 20 years. The experts agree that the large increase in climbing seen in most climbing nations in recent years is tailing off. Only in Finland, Norway, Spain, and Slovenia are continued significant rises expected.

The level of organisation among climbers is relatively high compared with other outdoor sports, and is estimated to be about 65%. However, at the national scale, this figure is inversely proportional to the number of climbers: i.e., in the major climbing nations, France, Italy, and Great Britain, it is particularly low at 20%. This indicates that the level of organisation cannot, on its own, determine effective climbing rules. Major influences are the prevalent attitude, the presence or absence of a tradition of societies, and the effect of climbers coming from other areas or countries. It has also been demonstrated that the organisation of climbers outside the official association, or a local uniting figure, can often have a greater impact locally than a national climbing association. The call for a greater degree of organisation among climbers is therefore not applicable across the whole of Europe.

There is a particularly large number of climbing areas in the Alpine countries, as well as in Spain, Norway and Great Britain. The distribution of various types of climbing area varies among the European countries. On the one hand there are purely sport climbing countries (Belgium, Liechtenstein, Luxembourg); countries with mainly sport climbing areas and Alpine climbing areas (France, Italy, Austria, Romania, Slovenia); and countries in which mainly adventure climbing is practised (Denmark, Finland, Great Britain, Ireland, Czech Republic), as well as in combination with Alpine climbing (Norway). On the other hand, there are countries with a mixture of all areas (Germany, Sweden, Switzerland, Spain, Slovakia).

The preferences of climbers for the various kinds of climbing are reflected in the landscape: popular sport climbing areas are increasing in number almost everywhere, whereas adventure climbing areas are only increasing in the traditional adventure climbing countries. Alpine rock climbing is continuing to enjoy a consistent level of popularity, whereas Alpine sport climbing is gaining in popularity and there is an accompanying increase in the number of new climbing areas.

As far as international climbing tourism is concerned, Germany is the most important country of origin, whereas France and Austria are equally important as both destinations, and countries of origin, for climbing tourism. Climbing tourism is primarily directed at neighbouring countries, only

German climbers are to be found in almost all European climbing areas. It is suspected (but cannot be proven due to the lack of earlier studies) that this can be traced to the effects of climbing bans. Generally, international climbing tourism originates in the countries of western and central Europe (Germany, Switzerland, Great Britain, the Netherlands) and is directed primarily at the sunny climbing areas in the south of Europe (Italy, Slovenia, Spain, Greece). Slovenia, Spain and Norway are becoming more popular destinations. In Italy and Spain, however, the extent of international climbing tourism is underestimated.

In well over half of the countries investigated, namely in the major climbing tourism countries, climbing tourism has only local economic impacts. So far, only in France, Spain, and Italy have climbing areas been created as part of a deliberate policy for promoting tourism. These are however, sport climbing areas, which are very attractive.

The right of access to the countryside is not enshrined in law in all European countries. Everywhere except Greece and South Tyrol, the law provides for a restriction of the right of access to the countryside for various reasons. In the Scandinavian countries, there is a special form of the right of access: the *Allemansrätten* are common laws which require climbers to be responsible in their treatment of the environment.

There is considerable variation in the distribution of climbing area regulations across Europe. As a basic rule, official measures are more widespread than self-regulation, although the latter enjoy wider acceptance. Compliance depends on whether the measures were adopted in consultation with climbers. The agreement of climbers in turn depends on the extent of the restrictions, the significance of the climbing area and the feasibility of the regulation. Expressed in percentile terms, the vast majority of climbing areas in Belgium (100%) and Germany (90%) are subject to nature conservation related restrictions. In absolute terms, a similar range of climbing regulations is in force in Great Britain, France, Sweden, Italy and the Czech Republic. These generally take the form of time restrictions on climbing, and zoning regulations, such as total bans, in the interest of the protection of birds and plants. Although nature conservation is the most commonly mentioned reason for restricting climbing sport across Europe as a whole, it is probably only in Germany and in Belgium that it is the most important consideration. Other considerations include: conflicts with landowners or the local population leading to restrictions on climbing; the threat to public safety from falling rocks; archaeological finds; hunting interests; issues of liability; military restricted areas, and; the religious significance of specific crags. In countries

such as Spain or France, which have a wealth of crags, it is difficult to create a culture of self-regulation. The effect of the media and other climbing instruments is frequently underestimated.

Climbing ethics play an important part in the various forms of climbing: the lack of a widespread climbing ethic promotes the creation of sport climbing areas, whereas in Germany, Switzerland and Great Britain there is great variation in climbing ethics from one area to another. As a basic rule in Germany the '*sanft klettern*' (low-impact climbing) rules are standard and area-specific regulations are additional. In countries with adventure climbing traditions, bolts are looked down upon and there is a strict climbing ethic. The countries with the most stringent and developed rules on climbing, the development of new routes, and rebolting, display the greatest level of self-regulation on the part of climbers, partly as a result of this ethic. This, however, does not offer any protection against official restrictions. Often the climbing code came into being, or was first recorded in writing, at an early stage in the conflict (with the exception of the Saxon climbing regulations and the British ethical concepts). It seems that these ethical rules have helped to diffuse the situation and to pre-empt a number of official regulations that would have otherwise replaced them. If we take Germany as an example, we can see that in countries with less strict or even no climbing ethics, the number of official regulations exceeds the number of self-imposed regulations (France, Italy). There is a general distinction between rules that apply to high-altitude mountains, and those that relate to extra-Alpine areas.

The climbing bodies have an important part to play in this context. While they have the power to direct the development of climbing in eight countries, this does not automatically place them in a stronger bargaining position. Formal agreements with the nature conservation bodies have been made in half of the European countries: those with the greatest need for regulation. Generally, someone is entrusted with the full-time or voluntary task of dealing with climbing and nature conservation issues, and the number of informal agreements may be slightly higher. However, in most countries, climbers are involved in nature conservation within their climbing bodies. The activities range from the practical maintenance of the climbing areas to clearing away waste, constructing pathways, initiating research groups and eco-monitoring, measures for caring for the landscape on behalf of the official nature conservation bodies (such as forest monitoring, deliberately leaving certain crags untouched, tagging and measures for preventing erosion), to the work of educating and informing climbers and the development of climbing concepts and crag directories. Activities at all levels - national, local, and regional - are important.

Agenda 21 requires the participation of all social groups in the environmental re-evaluation of the entire biosphere. Regulations by the authorities should be replaced by the vigorous participation of non-governmental organisations in a partnership for sustainable development. Socially sustainable climbing solutions are thus entirely in the spirit of *Agenda 21*. If, in areas with poor infrastructure, the local population benefits and all parties involved can be included, sustainability in the spirit of *Agenda 21* will be assured.

The implementation of the Habitats Directive in the countries of the EU continues to be a mystery to the climbing bodies. The way in which the Directive is implemented in the individual countries and the degree to which the climbing bodies are involved in drawing up the management plans will eventually indicate the degree to which climbing is to be restricted. As a general rule, however, we can expect that climbing will be allowed to continue in existing climbing areas within areas designated under the Habitats Directive if this does not lead to environmental deterioration. Even here, at least temporary bans are to be expected during the nesting seasons of rare birds, or zoning arrangements for the sake of certain plants. When bolting new (sport) climbing areas, it will be more difficult for the pioneer to prove that climbing will not lead to deterioration of the environment.

Towards the implementation of the *Pan-European Biological and Landscape Diversity Strategy*, the UIAA and the IUCN have jointly formulated joint guidelines on access to crags and their protection. They should support the UIAA member bodies as they develop an effective access and nature conservation policy.

The CAA does not yet appear to be aware of its role as a lobby for climbing at a European level; no action has yet been taken in this direction. Nor does the CIPRA consider climbing to a primary focus of its work. Only in 1995 did the UIAA begin to be aware of its important role as mediator and lobbyist, as well as an important source of information. A working group on access and conservation was established in 1995, and a new commission on access and conservation began work in 1999.

IV Case Studies

1. Fontainebleau (France)

*The forest of Fontainebleau, the 'lungs of Paris'
'charming location for climbers from across the whole world'
ALPIRANDO 213, 45*

Experts:	D. Taupin, President of COSIROC and climbing guidebook author
Location:	Forest of 25,000 ha, 60 km south of Paris
Owner:	Office National des Forêts (ONF), (National Forest Administration)
Conservation status:	Site classé (classified site) since 1965
Information about climbing area:	50 climbing areas, 200 climbing 'circuits' ²⁷ , average length of route 4 m.
Climbing metres:	60,000
Level of difficulty:	1-7
Rock and protection:	Sandstone blocks, boulders
Number of climbers:	> 3 million climbing days per year, increasing
Climbing season:	Year-round, as long as it does not rain
Distinctive features:	'pof' ²⁸ as a replacement for chalk, rule on wiping feet
Nature conservation	Erosion, rocks are becoming unstable, wild camping forbidden
Accessibility by public transport:	The shortest time to walk from the station in Bois-le-Roi to the nearest climbing area is 1 hour 30 minutes

History of the development of the climbing area

People have been climbing in Fontainebleau since the last century. The 'bleausards', as the local climbers call themselves, used Fontainebleau to prepare themselves for their alpine conquests. Most all of the climbing areas in Fontainebleau were already known by the Second World War. In 1943, the occupying Germans burned down almost two thirds of the forest; the

²⁷ Circuit: a series of boulders, which are climbed in a fixed order and thus form a marked circuit

²⁸ Pof is a kind of resin similar to the resin used on violin strings, it is water-resistant and grips even when it is wet. In contrast to chalk it is biodegradable (when exposed to sunlight).

maquisards had a weapon store there and were using the forest as a hideout. This was how the sand plateaux, which to this day dominate the landscape, were created (e.g. Cul de Chien). In 1947 the first marked 'circuits' came into being, and affected climbing in Fontainebleau for 25 years. The focus of climbing today has moved away from the circuits to the conquest of particular sequences on certain crags. Following the construction (1961) of the motorway, which cut a wide swathe through the forest, the Committee for the defence of climbing areas and rocks (COSIROC) was founded in 1962, in order to prevent the urbanisation of the area. The COSIROC successfully fought for state purchase of the area (in 1973). Since 1979, the forest has been administered by the ONF (National Forestry Office) (cf. COSIROC 1998, 5-6; AlpiRando 213/9, 46-58).

For a long time, the forest of Fontainebleau was managed for wood production. Only in recent years have those responsible within the ONF recognised its significance for public recreation. Various bodies are currently campaigning for the conversion of the forest into a national park, but this is not supported by the FFME or COSIROC. They consider that status as a '*Forêt de Protection*' (protected forest) would make much more sense. This conservation status would mean much stricter regulations for the protection of the forest and forbids clearing, monitors the various exploitation rights, and regulates the right of access. CAF and COSIROC fear that a national park would draw even more visitors; with 13 million visitors a year, the forest has already reached maximum capacity. While in the central zone, strict protection provisions are in force, which also restrict tourist activity, in the buffer zone tourist activity is promoted. In any case, restrictions on access are to be expected (cf. COSIROC, 1996; ANVL, 1998; BELLERET, 1996).

Climbing area management

During the 1980s, a dispute arose in connection with the marking (*fléchage*) of the circuits. Following marking operations and removals, it was agreed that there were enough circuits, and that any additional signposting of circuits would have to be approved by the ONF through the COSIROC. Climbing is, however, permitted everywhere (TAUPIN, pers. comm.4/11/1999).

COSIROC coordinates the maintenance of all climbing areas in Fontainebleau. A joint COSIROC-ONF working group meets every one or two months. About 25 people renew the markings and take care of other necessary tasks. ONF is responsible for pathway maintenance (TAUPIN, pers. comm. 4/11/1999).

In 1978, the roads within the forest were closed to traffic and large visitor car parks were created at the various entrances, where there are information boards with general information about Fontainebleau and behaviour in the countryside, as well as specific information about erosion. They are not specifically targeted at climbers, but are for all visitors to the forest (TAUPIN, pers. comm. 4/11/1999; personal observations).

In 1995, ONF removed all waste bins from the area - no incineration plant was willing to collect the rubbish. Since then the waste problems have become less acute. In the same year, COSIROC and ONF took joint action to prevent erosion, involving 120 volunteers. These measures have since been carried out every year in all areas of Fontainebleau (COSIROC, 1998, 6).

Despite all warnings and recommendations to use the special pof instead of chalk, chalk use is increasing. The long-term effect, particularly on sandstone, is that holds become increasingly smoother, as the chalk blocks the pores in the sandstone (COSIROC, 1998, 34).

Significance for tourism

While the main objective of the Fontainebleau forest is to offer public opportunities for recreation, the surrounding villages have not recognised climbing as a potential tourist factor. In this area, climbing sport is not linked with an organisation. Only in more remote villages in the '*grande couronne bleausarde*' ('the great Fontainebleau crown') - Moret, Meaux, Dammarie, etc. - is climbing part of publicity campaigns. This is surprising, since, according to BOURDEAU (1993, 60) climbers represent 50% of the visitors to the Fontainebleau forest every year. 90% of these climbers come from the Greater Paris area. The proportion of foreign climbers is increasing, especially Germans and Britons, and also Swedes (BOURDEAU, 1993, 60).

There is only one camping site in Milly-la-Forêt and no local facilities, apart from two small cafes. All crag groups are marked and named on the IGN map (scale: 1:25 000).

2. Arco (Italy)

*"Unlimited climbing opportunities in the Sarca valley,
the centre of modern sport climbing. "*

KLETTERN 3/98, 48-55

Experts:	A. Seneci, President of the company Sintroc (manufacturer of artificial rock climbing walls) F. Leoni, pioneer, climber
Location:	Sarca valley from Sarche to the northern end of Lake Garda
Owner:	Local councils and private individuals
Conservation status:	none
Information about climbing area:	about 40 different climbing areas with over 1500 routes, one pitch length up to 700 m
Climbing metres:	no statistics available
Level of difficulty:	all levels of difficulty
Rock and protection:	limestone, sport climbing routes
Number of climbers:	between 300 and 1000 climbers at weekends, increasing
Climbing season:	all the year round
Distinctive features:	special southern climate, sport climbing routes mostly fitted with lowering points, strong media presence
Nature conservation	not known
Accessibility by public transport:	Difficult: train to Trento, bus to Arco, in any case one needs transport once in the area (mountain bike)

History of the climbing area

Since the beginning of the 1960s, people have been climbing in the area around Arco. Initially, large rock faces (Colodri, Monte Casale, etc.) were pioneered in classical Alpine style. The first sport climbing routes were created at the beginning of the 1980s by Mariacher, Larcher, Bassi, and others, in some places directly on the bank of Lake Garda (Spiaggia delle Lucertole, San Siro, Massone, etc.). With the rise in popularity of sport climbing, the alpine routes became less important. In 1987, the first *Arco Rock Master* was held, an international climbing competition with the aim of

drawing the attention of climbers to Arco, and to initiate climbing tourism. The mayor at the time, himself an enthusiastic climber, had been looking for opportunities to market climbing for some time (LEONI, pers. comm. 2/10/1998, ESCHMENT 1995, 24).

It has become clear that there are not enough routes available in the Arco region, especially for the lower levels of difficulty. A. Seneci, the organiser of the *Rock Master*, was thus commissioned by the Autonomous Province of Trento to extend ten existing climbing areas in a way which satisfied the needs of tourists, whilst not damaging the environment. This was carried out in the context of programmes for the environmental revaluation of the province and creating jobs for the unemployed. The objectives were to improve the protection on existing routes, bolt new routes for lower levels of difficulty, improve the paths up to the crags, create parking spaces, provide infrastructure such as waste bins and toilets, as well as creating play areas and erecting sign-posts and information boards. This should increase the number of climbers, improve safety and allow climbing sport to be practised in an environmentally sustainable way, and change the visitor structure in favour of families and higher earners. Between 1990 and 1993, the project was implemented in Massone, Nago, Passo S. Giovanni, Spiaggia della Lucertole, Baone, S. Siro, Crosano and Placche Zebrate. These areas were selected because they are located on council land and are not subject to any environmental restrictions. A forest researcher made sure that the project was implemented in an environmentally sustainable way. For the ongoing care of climbing areas, some villages employ a mountain guide to be responsible for the regular rebolting of routes. Others have remained inactive, and so some of the installations have fallen into disrepair (such as in Massone) (SENECI, interview on 19/1/1999). In other places, extreme care measures were taken, such as on the Placche Zebrate, or in Nago, where the council even restored the natural roughness of the rock using sandblasting equipment (MARSCHNER/RÖKER in Rotpunkt 21/1994, 78).

The loose association between climbers and pioneers from the Sisyphos area has undertaken the task of bolting the upper Sarca valley - with 260 new pitches from June 1996 to March 1998 (CICOGLIA/MANICA in Klettern 3/98, 48-55).

Climbing area management

According to Seneci and Leoni, there have never been, and continue to be no conflicts with nature conservation bodies. The pioneering work of Seneci at the start of the 1990s contained some very good principles for

environmentally sustainable climbing in the spirit of sustainability: the construction of pathways and terraces at the foot of the crags prevented the development of wild paths up to the crags and erosion. The toilets contributed to keeping the landscape clean and the lowering points prevented people alighting on the summit of the crags and damaging the vegetation. The extension of existing areas is also preferable to the bolting of new areas. Providing jobs for the unemployed was a desired economic effect, and the improvement in the infrastructure increased the financial income generated by the climbers. There is no conflict with the local population.

Unfortunately there is no co-ordinated procedure in the climbing areas of the Arco region, which consists of many individual operations which either totally over-react (sand-blasting of rocks) or neglect the climbing areas (the installations in Massone falling into disrepair). In Massone in particular, some measures could improve life for both climbers and locals. Most climbers drive along the picturesque and wind-swept road through the olive grove to the car park directly under the crag. This has not expanded to accommodate the weekend rush, and soon the climbers parking along the small road block the way for agricultural traffic. It would be easy to close the road for general traffic, as the distance is not great and can easily be covered by mountain bike (which many climbers take with them anyway), or even on foot. The toilets are in drastic need of attention, as are the small terraces that are gradually collapsing. However, the Sisyphos group is only concerned with the bolting of new sectors and areas, and not with the corresponding infrastructure. Particularly in an area such as Arco, concentrated sustainable climbing area management could improve many aspects of the situation.

Significance for tourism

The region around Arco is developing into a modern climbing centre. Sport climbing is only one element in outdoor tourism, which has become established here and continues to grow: mountain biking, climbing via ferrata, walking, canyoning etc. According to the owner of the municipal camping site in Arco, 90% of the campers practise outdoor sports. Within the last ten years, the numbers of people staying there have risen sharply. Furthermore the volume of guests in guest houses and hotels in the low season has also improved by 70%. Climbers represent a large proportion of that figure, although there are no breakdown figures available for accommodation and tourism according to the various sports.

Table 6: Figures for accommodation from the tourism statistics for Garda Trentio

Year	Number of foreign and national tourists staying at least one night	Number of foreign tourists staying at least one night
1989	2,114,200	1,385,271
1996	2,388,345	1,778,098
1997	2,349,670	1,745,089

Source: APT del Garda Trentino, Comunità del Garda - Ufficio Studi

The statistics indicate that the number of tourists is continuing to rise. 60% of the foreign tourists are German. To take a specific example, during the low season or when the weather is poor in Munich, Arco is a weekend destination for the Munich-based climbers.

Climbing sport has developed into an important economic factor for the region around Arco. The livelihood of some mountaineering shops, campsites and local establishments largely depends on climbing tourism. The local councils are also investing in the development of climbing sport, and private initiatives are working on the extension of climbing opportunities. However there is no overall concept that, if it existed, could integrally include the sustainable practice of sport climbing. Currently, the only priority is to attract as many climbers as possible to Arco.

3. The Roaches (England)

"This plan regards the whole estate as a nature reserve but a very accessible one "

"The overriding policy of the Park is to favour climbing where possible. "

M. Croney

Experts:	D. Bishop, BMC Access Representative for the Western Peak District M. Croney, Peak District National Park Authority
Location:	Peak District National Park, Staffordshire Moorlands
Owner:	Peak District National Park
Conservation status:	National Park
Information about climbing area:	> 450 routes in the Roaches, Five Clouds and Hen Cloud, increasing (10,000 in the entire national park), maximum height of crag 30 m
Climbing metres:	no research available
Level of difficulty:	all levels of difficulty
Rock and protection:	gritstone (sandstone), no fixed protection on the routes, adventure climbing with mobile protection equipment
Number of climbers:	no statistics available, strong demand, increasing numbers
Climbing season:	May to October
Distinctive features:	people are advised against top roping and abseiling, because they damage the rock and destroy existing routes. Groups are not encouraged
Nature conservation	Damp areas around the crag with ground breeding birds, bird and plant conservation, lichen, mosses, major erosion on pathways, parking spaces, overuse, disturbance
Accessibility by public transport:	Shuttle bus every 20 minutes from reservoir

History of the climbing area

People have been climbing in the Roaches since the end of the last century. Following the death of the landowner, in 1977 the Roaches Estate was sold to two farmers who grazed sheep on the sensitive moorland and banned climbing in 1979 because it disturbed the animals. In 1980, the administration of the Peak District National Park acquired the Roaches Estate on the instigation of the nature conservation and recreational sport bodies and created an 'open access area' around the crags (Peak District National Park Authority, 1993, 4).

Climbing area management

While there have been informal agreements between the BMC and the Peak Park Authority for a long time, it was only in 1998 that these led to the creation of an official working group. Climbers practise strict self-regulation. The BMC advised climbers against top roping and abseiling, as these are too damaging to the rocks and existing routes. Furthermore, the BMC is seeking to reduce the number of groups and to use a recently produced brochure to encourage groups to act in a more environmentally sustainable way.

The 1993 *Peak National Park Management Plan* for the Roaches noted a deterioration of the estate, particularly as a result of recreational activities. For this reason, it declared its primary objective to be the protection and improvement of the habitats and species of the park. Recreational activities should only be permitted where compatible with the objective of conservation. The plan emphasises that these conservation requirements must be balanced against the national and international interest of this area for climbing sport and its long tradition. Climbing continues to be permitted on the Roaches, Five Clouds and Hen Cloud. On other crags in the area (mostly of limited significance for climbing), climbing is forbidden because of their importance for the protection of endangered species. Through agreements with the BMC a voluntary ban on climbing on Five Clouds and Hen Cloud operates between 15 March and 1 July. The plan adds:

"If BMC are unable to agree, it is recognised that an involuntary ban would be inappropriate and impractical. It would therefore be proposed to advise climbers of the ornithological interest and request no climbing takes place" (PEAK DISTRICT NATIONAL PARK AUTHORITY 1993, 24-34).

Eventually it was this last provision which was implemented, as the BMC did not consider itself able to justify a voluntary climbing ban to the climbers for the sake of the possible resettlement of the ring ouzel (which had not nested

there for several years). It then published the park's request in its magazine. The regulations are largely observed. Relations between the BMC and the national park are characterised by mutual accommodation and many years of good experience - which is very typical for climbing in England (BISHOP, pers. comm. 10/9/1998).

The parking problem (also caused by the many walkers) was dealt with by marking parking spaces and the park authority's introduction of a shuttle bus. The bus operates from May to September between 9 a.m. and 6 p.m. and runs between the reservoir and the estate at 20-minute intervals. For climbers, these times are not ideal, since they often arrive to go climbing after work before dusk.

Significance for tourism

While the economic significance of climbing itself cannot be precisely determined, climbers represent the main clientele of the cafe at the foot of the crag. The park itself and the tourism bodies from the surrounding villages target climbers in their advertising. Since 1992, the BMC has run a chalet on the land, and there are camping sites in the surrounding area.

4. Le Grand Canyon du Verdon (France)

*"... and all the riches of this temple of climbing
are contained in one word: freedom. "*

ALPIRANDO 210, 26

Experts:	B. Gorgeon, Technical Advisor to the Regional Board for Youth and Sport (DRJS), President of Lei Lagramusas, climbing guidebook author
Location:	Département Alpes de Haute-Provence, the Grand Canyon of the Verdon stretches for over 30 km from Moustiers-Sainte-Marie to Pont de Soleil
Owner:	The councils of La Palud-sur-Verdon, Rougon, Moustiers-Sainte-Marie
Conservation status:	Site classé (classified site); regional nature park since 1997
Information about climbing area:	800 routes, measuring between 10m and 320 m in length, however only half of this is in use and maintained.
Climbing metres:	80,000
Level of difficulty:	V - VIIIb+ difficult to very difficult climbing, only since 1989 have some climbing gardens been created for beginners as the result of pressure from climbing schools
Rock and protection:	limestone, sport climbing routes, mobile protection equipment necessary
Number of climbers:	In 1988 about 25,000 to 30,000 climbing days per year, constant/growing
Climbing season:	April to mid-November, high season from June to September
Distinctive features:	For half of the routes, you have to abseil down to the start of the route
Nature conservation	Birds in the gorge, danger of forest fires in the summer
Accessibility by public transport:	no

History of the climbing area

In 1963, climbers from Marseille pioneered the first routes. Climbing sport is developing "*sans soutien local, mais également sans opposition*" (Georgeon, conversation 27/10/1998), i.e., completely spontaneously and without local support, but also without opposition. In 1979, Verdon gained worldwide publicity through the media. Until 1982, the major routes were bolted using a lot of material. With the advent of top-roping, routes were bolted on the great slabs and bolts were installed, creating relatively short routes. Between 1971 and 1987, the number of routes increased from 38 to 675. Today there are two climbing groups: the majority are sport climbers, who climb on the upper 50 to 100 metres of the sport climbing routes; a smaller number climb on the long, sparsely protected routes. Many of the routes created in the 1970s are no longer in use (BOURDEAU, 1993, 44; GORGEON, 1992).

Climbing area management

In 1983, B. GORGEON founded the Lei Lagramusas (Lizards) association, as part of his work for the DRJS and with the approval of the local council, as a local structure for the maintenance of the climbing areas in the gorge. The local council supports the work of the club, which also benefits from subsidies from local bodies, the département, the region, and the European Development Fund. This money is largely used for the protection of routes and for providing information, as well as for climbing in schools. A convention signed by the local council and Lei Lagramusas settled the issue of responsibilities in 1992. The maintenance of the climbing areas (marking, rebolting, and marketing) and legal liability are the responsibility of the club. Zoning arrangements differentiating between adventure areas and climbing gardens are planned for reasons connected with liability. Since 1985, new climbing areas have been bolted after consultation (through Lei Lagramusas) with the authorities. The association represents the climbers in the regional park (created in 1997) (GEORGEON, pers. comm. 27/10/1998)

Self-regulation is used here as a means of prevention: "*We have always pre-empted confrontation by having an attentive attitude*" (GEORGEON, pers. comm. 27/10/1998). Climbers have voluntarily chosen not to climb or bolt new routes in the Falaise de l'Imbut or the Lac de Sainte Croix, to avoid disturbing the special bird population. This is a part of the gorge without pathways and which is not easily accessible.

There is only one climbing ban in force on the land belonging to Rougon council, in the place where vultures are to be reintroduced. This affects an

adventure sector that is rarely climbed. Lei Lagramusas is trying to reach an agreement, on the basis of the success in the Gorges de la Jonte, which would allow climbers and vultures to co-exist²⁹ (GORGEON, pers. comm. 27/10/1998).

There are virtually no conflicts with representatives of nature conservation or with local people. The surrounding countryside is expansive and relatively free of people. The climbers claim a small part of it (about 10 - 20% of the crag potential has been exploited in the accessible part of the gorge). The usual problems are cause for complaints: waste, the felling of too many trees on the crag and, despite bans, the chipping of some holds - as well as the discoloration of the crag due to bolts and the increase in the number of holes in the crag. For some years only '*chevilles amovibles*' (removable bolts) have been used, in order to counteract the long-term discoloration of the crags and if necessary to remove the bolts (in the case of closure for nesting birds or to allow crags to regenerate). If required, the bolts can be reinserted in the old holes, as the thread remains in the rock. All these problems are unobservable to non-climbers (GORGEON, 1992).

The club only has limited scope for monitoring observance of the agreements, as 30-40 members are not enough to maintain an area this size. They monitor the creation of new routes or sectors by bolting themselves. The important tasks at present are the rebolting and marking of routes. Until now the routes have not been well marked - in keeping with the slogan, "Verdon - you have to deserve it." As climbing is becoming an increasing component of tourism and is of growing economic importance, the demand for well-marked routes must be met (GEORGEON, pers. comm. 27/10/1998)

Thanks to forward-looking climbing area management, conflicts have been successfully avoided in Verdon, and climbing has been carried out in an environmentally sustainable way, deliberately leaving areas in the countryside untouched. The most popular sectors are directly accessible from the parking spaces on the scenic road, virtually eliminating the problem of paths up to the crag.

Significance for tourism

The Alpes de Haute-Provence département saw mass emigration at the start of the century. It was tourism that first triggered an economic upturn. The population of La Palud sur Verdon, a very isolated village in the heart of the

²⁹ In the Gorges de la Jonte vultures were introduced several years ago and they co-exist peacefully with the climbers in the Gorge. Unfortunately I could not find anything published on this subject.

Verdon Gorge, is 70% directly dependent on tourism; the remaining 30% of jobs are indirectly related to tourism. Between 1982 and 1991, the population rose by 41%, from 172 to 243. This increase in population occurred at the same time as the great climbing boom in the Verdon. About 60% of the climbers are from abroad: Germany (41%), the Netherlands (13%) and Scandinavia (10%) are the major sources. The foreign visitors are good customers during the low season. Climbers are the only group of tourists who stay for any length of time. The sport shop and the cheapest camping site in Palud sur Verdon derive 80% of their business from climbers. Owners of gîtes and campsites, as well as the local bakeries and cafes, estimate that climbers represent 50-60% of business. Overall, climbing is seen in a very positive light for the local economy - climbers are not seen as a burden. On the other hand, the owners of holiday homes complain about the loss of peace and tranquillity. The IGN 1:25,000 scale map 3442 OT marks individual sectors with a symbol. Various travel guidebooks and group tours also indicate that the 'curiosité locale' is climbing. A tour of the 'Route des crêtes' is incomplete until, from the vantage point of Belvédère de la Carelle, you have seen a couple of climbers clambering up the Escalès sector (hopefully without knocking them rocks onto their head) (GORGEON, 1992, BOURDEAU 1993, 60-76).

5. The Elbsandsteingebirge: The Saxon Switzerland (Germany)

"Historically this is the cradle of hard core rock climbing sport. "
GOEDEKE 1992,62

Experts:	D. Heinicke, guidebook author, K & N working group for the Elbsandsteingebirge N. Mailänder, DAV mountaineering and environmental conservation project
Location:	Saxon Switzerland national park, western part of the Elbsandsteingebirge
Owner:	> 85% state owned
Conservation status:	National park since the end of September 1989 (last administrative action of the East German government)
Information about climbing area:	Traditional climbing area with 1099 summits and 3 massif rock faces, > 14,000 climbing routes
Climbing metres:	No information available
Level of difficulty:	All levels of difficulty from I to XIIa (Saxon scale)
Rock and protection:	Sandstone, rings and slings
Number of climbers:	Approx. 10,000 local, trend: increasing slightly
Climbing season:	March to October
Distinctive features:	Origin of free climbing sport
Nature conservation	Landscape marked by soaring towers, massive table mountains and deep gullies, mosses, ferns, eagle-owls, peregrines. According to the regulations of the National Park, people must stay on the pathways, there is a ban on wild camping, leaving waste, noise, removing plants, fire and disturbing the animals.
Accessibility by public transport:	Good accessibility by local express train (S-Bahn) from Dresden to Schöna, ferries across the river Elbe; buses and a railway system within the national park itself.

History of the climbing area

The first ascent of the Falkenstein as a sports activity dates back to 1864. By 1911, the Saxons had reached Saxon grade VIIc with the Hermannswand on the small Falkner in the Heringsgrund. There were more and more first ascents from the start of the 1960s, and in 1994 another 400 were reported. Bernd Arnold set the pace for pioneering in this area in the 1970s and 1980s (STÖHR, 1996,33).

Climbing area management

The theory behind the Saxon climbing rules (see below) was formulated in 1910, but was only organised into principles in 1948, and the rules were first written down in 1965. They originate from the conflict between climbers and nature conservationists, which first became an issue in the Elbsandsteingebirge at the turn of the century. At the time, agreement was reached on a zoning solution, according to which - apart from very few, very specific exceptions - climbing may only take place on free-standing towers. This ruling was widely accepted because of the large number of these towers, which gave plenty of scope for climbing, even during the GDR period. The voluntary ban on artificial climbing and bolting routes from above led to a clear limit on the concentration of routes. At the same time, the extension of the network of pathways allowed the influx of visitors to be channelled. Observance of the Saxon climbing rules is a question of honour, even for guests (HEINICKE, pers. comm. 6/10/1998)

In the 1960s the first sign-posts were set up (and later publicised), indicating climbing bans because of birds breeding.

The permission of the National Park or the SBB is required when creating routes on new summits, as well as for first ascents on crags that cannot definitely be classified as summits.

The activities of the Saxon climbers are not confined to this model solution - they are important partners of the nature conservationists, as they see both sport and nature as part of their tradition. Many climbers (up to 600 at a time) have taken part in repairing slab zones damaged by erosion and clearing pathways. For 15 years, they have organised an annual waste collection campaign entitled '*Aktion sauberes Elbsandsteingebirge*' (HEINICKE, pers. comm. 6/10/1998).

Since the creation of the Saxon Switzerland National Park in 1989, the primary conservation objective has been written into the park regulations. Education and public recreation should be made possible, provided this does not conflict with the primary aim of conservation. A joint 'climbing and nature conservation' working group unites the mountaineering associations, nature conservation bodies, the administration of the National Park, and the government executive of Dresden. In 1996, it produced the *Mountaineering and Nature Conservation Concept*, the first joint publication of the SBB and the park administration.

In 1997 the park administration and the three major mountaineering bodies in Saxony produced a position paper entitled, 'Mountaineering for the Future in the Saxon Switzerland National Park'. It identifies the need for the development of a common climbing concept that would take into account the conservation objectives of the Park; reduce the conflict areas between mountaineering and conservation in space and, in time, minimise the restrictions on mountaineering; present verifiable, nature conservation arguments; and test alternatives. This should be followed by a specialist nature conservation and mountaineering assessment of all climbing summits in the national park. In addition, climbers are now officially exempt from the ban on bivouacking in the open: the traditional '*boofen*' (sleeping in the open under overhangs) is permitted in the area of approved climbing crags, as long as this is in connection with climbing sport and does not compromise nature conservation. A joint working group was commissioned to execute these tasks.

The national park is currently working on extending the boundaries of the central areas from 23 to 75% of the overall area of the park, in connection with a cessation of activity in these areas, in order to meet the IUCN criteria. According to the walking paths concept presented in autumn 1998, the Elbsandsteingebirge would be 'over-exploited by mountaineering' and the conservation objectives of the national park would be seriously under threat. For this reason, it is planned to close a third of the pathways (c. 190 km), which would make entire climbing areas inaccessible. In the view of the SBB, however, this is not the same as a ban on access to the crags, since climbing - according to the Saxon climbing rules on free-standing summits - is enshrined in the Saxon federal state law on nature conservation. Negotiations are still underway (MAILÄNDER, pers. comm. 21/1/1999). We can only hope that the Saxons will again come to a model solution, which will take into account the distinctive features of the region and considerate of an obligation to the long-standing climbing tradition in this region.

The Saxon climbing rules are as follows (summary according to HEINICKE *et al.*, 1991,44-57):

- all ascents must be completed without the help of artificial equipment, i.e. the progression of the climber must rely only on his own strength exerting pressure on natural points of contact;
- the surface of the rock may not be altered, with the exception of fitting safety rings in the case of first ascents;
- chalk and other similar substances may not be used;
- nuts and similar safety equipment are not to be used; rope slings are allowed;
- first ascents may only be performed from the bottom up, and in doing so the necessary safety rings are only to be fitted by the climber or with the help of protection slings;
- rings are to be fitted so that sufficient protection is assured with the smallest number of rings and the greatest distance between rings (ring distances are given);
- first ascents are to be reported to the SBB working group 'Neue Wege';
- loose material and plants on climbing paths and on summits may only be cleared if they present a danger to the climber;
- climbing on brittle rock during or immediately after rainfall is not permitted;
- climbing bans are to be observed;
- climbing is only permitted on approved free-standing summits, on massif rock faces there is a climbing ban in force. Exceptions: Königstein, Lilienstein, GroBer Zschirnstern.

Significance for tourism

The significance for tourism of climbing sport in the Elbsandsteingebirge is difficult to estimate because this area is also a popular destination for large numbers of walkers and other recreationists. However, the significance of climbing sport extends abroad and Dresden has long been one of the major mountaineering cities of Europe. A range of campsites, climbing shops, and other establishments is also, to some degree, dependent on climbing tourists. The national park does not explicitly target climbers in its publicity. According to a traffic survey by the SBB, over 50% of the visitors to Saxon Switzerland use public transport, a bicycle or a combination of both (Der Neue Sächsische Bergsteiger Nr. 4/1996).

6. Grimsel Eldorado (Switzerland)

*Even when there is no daylight the whole year round
The sun is laughing in Lauteraar.
Saying*

Experts:	C. Rémy, pioneer and climber A. Urweider, President of the Grimsel association
Location:	Bärenritzflüe behind the Grimselsee
Owner:	Oberhasli power stations plc. (KWO)
Conservation status:	National, canton and special nature conservation area since 1958, moorland area of national significance, canton area with hunting interdiction, in the Federal directory of landscapes and natural landmarks of national significance (BLN)
Information about climbing area:	One of the 15 climbing areas at the Grimsel, 18 routes, 500 m in length
Climbing metres:	9000
Level of difficulty:	V - VIII+
Rock and protection:	Granite, slab climbing, alpine sport climbing area
Number of climbers:	Summer season 1982: 1500 roped parties, fewer today
Climbing season:	June to September (Grimsel pass closed during the winter)
Distinctive features:	Especially mild climate on the 'sunny Aar'
Nature conservation	The nature conservation area regulations forbid the alteration of the landscape, the disturbance of animals, use for forestry or mountain grazing, picking plants, leaving waste, fires and camping, parking and traffic outside of the roads. Exceptions include the rights of the KWO as a proprietor and bivouacking while mountaineering.
Accessibility by public transport:	Train to Meiringen, post bus stops at all climbing areas along the pass. 1 ½ hours by foot from the Grimsel hostel to the Eldorado.

History of the climbing area

The history of the Grimsel in the 20th century is dominated by the construction of power stations. In 1925, the Oberhasli power stations company (KWO AG) was founded. It acquired the Grimsel, including all its glaciers and alpine summits, from the Grimsel local authorities. By 1980, eight reservoirs and nine power stations harnessed the hydroelectric power of the Oberhasli. In 1958, the landscape was given conservation status. In 1988, KWO submitted plans for the construction of 'Grimsel West'. This construction plan made all previous installations look small in comparison. A 800 m wide, 200 m high concrete wall in the middle of the Grimselsee would flood the 'Sunnig Aar' moorland and cembra pine forest, as well as 3.5 km of the Unteraar glacier (important as a point of reference for glaciology and research about past ice ages). This project did not pass the test of environmental sustainability. In 1996, a revised project was submitted. These plans again evoked opposition, led by the Grimsel association founded in 1987. Even the SAC calls the project "the most brutal intervention ever planned in the Alpine landscape" (Intervention by the SAC against the planned construction of the KWO in 1988). Mountaineers are concerned about the planned flooding of the pathway leading to the Lauteraar chalet and the Aar bivouac, and the negative effect on the internationally renowned Eldorado climbing area, since it would only leave the upper sections of the climbing routes available for climbing (URWEIDER, pers. comm. 30/8/1998).

According to Swiss law, all existing conservation instruments are relative i.e., they can be weighed up against the benefit of generating energy. While the protection of moorland is absolute, and the Grimsel is one of the most important Swiss moorlands, it was not included in the national directory - the central interests of the federal state needed to be clarified in relation to the provision of electric power. In 1997, however, the project was postponed until 2015, by which time the KWO must prove that Grimsel West is necessary. The present objective of the Grimsel Association is to include the Aar glacier on the UNESCO World Heritage list, as this would ensure it absolute protection (URWEIDER, pers. comm. 30/10/1998).

In 1998, Claude and Yves Rémy discovered the slabs at the end of the Grimselsee. They created five routes of levels-of-difficulty 6 and 7 respectively - which remain some of the most beautiful climbing in Switzerland. Motörhead (VII-) is now a modern classic. The area was publicised in the catalogue of the mountaineering company Mammut in 1982 and there was a heavy influx of climbers in the same year. Today, however, the number of climbers is falling because of the relatively long distance

between bolts for an alpine sport climbing area (RÉMY, pers. comm. 30/8/1998).

Climbing area management

In this very sensitive location, from the point of view of distinctive natural features, there are no conflicts between climbers and nature conservation. There are no special regulations apart from the nature conservation regulations concerning general behaviour in the countryside, for example, as in relation to camping/bivouacking or waste. There is generally no scope for conflict between the climber and the crag biotope at higher altitudes; the crags are not usually inhabited by birds or animals. Above the Eldorado on the Juchlistock is the highest eagle's nest in Switzerland, but the climbers down on the crags below do not disturb the eagles. The chamois are well protected and come very near the climbers (the sunny Aar has such a favourable climate that it is a nursery for the entire chamois population of the Grimsel area). Nor does the small bivouac assembled by climbers just under one of the slabs worry the nature conservationists: *"It doesn't disturb me at all. After all, they aren't climbing where there are endangered plants"* (URWEIDER, pers. comm. 30/8/1998). The path into the climbing area leads through the special moorland, but the large stone slabs very cleverly run through the marshy areas, so that no one would think of leaving the path. It is also noticeable that, without being asked, climbers automatically put their the rucksacks down on the rock at the foot of the mountain and not on the sensitive plants.

The climbers are committed to the protection of the Grimsel landscape. About 50 of the 2,300 members of the Grimsel association are foreign climbers and, in Switzerland, entire sections of the SAC are collective members. The Rémy brothers in particular have helped with the campaign against the project, for example marking with a line of multicolored balloons in the Eldorado the height of the proposed reservoir. Every year, during the event *"Feuer in den Alpen"* (fire in the Alps) they open a new route in the Eldorado slab. Nature conservation circles assess relations with climbers as very positive (URWEIDER / RÉMY pers. comm. 30/8/1998). The Grimsel association itself organises tours of the mountains, ski tours, and climbing tours in the Eldorado.

The KWO is responsible for the maintenance of the paths along the shore of the reservoir, since they flooded the old path and also dug a tunnel through the mountain. The stone slabs of the pathway lead directly past the foot of the Eldorado.

Significance for tourism

The Eldorado may be internationally renowned, but due to a lack of infrastructure, it is only of limited economic significance.

7. Wilder Kaiser (Austria)

*Favourite climbing area of the Tyrolians and Munich mountaineers
Venue of the 'Bolt War'*

Experts:	K. Schrag, member of the Wilde Kaiser working group Dr. R. Goedeke, climbing guidebook author
Location:	Northern Limestone Alps, between Kufstein and St. Johann
Owner:	Property of the local authorities of Buchberg, Ebbs, Ellmau, Going, Kirchdorf, Kufstein, St. Johann in Tirol, Scheffau, Walchsee
Conservation status:	Nature conservation area since 1963
Information about climbing area:	The 1990 Kaiser guidebook lists 500 routes (+variants)
Climbing metres:	No information available
Level of difficulty:	All levels of difficulty
Rock and protection:	Limestone, traditional alpine climbing area
Number of climbers:	No statistics available
Climbing season:	Start of June to the end of September
Distinctive features:	Long access to the routes
Nature conservation	The nature conservation regulations forbid the picking of flowers, the hunting of wild animals, altering the shape of the landscape, leaving the pathways, making noise, leaving waste, wild camping and construction
Accessibility by public transport:	Train to Kufstein, bus to Ellmau, St. Johann and Griesner Alm. Good, depending on connections.

History of the climbing area

By the middle of the 19th century, the first routes in the Kaiser were climbed. In 1898, the first climbing guidebook was published in book form. The list of Kaiser pioneers of the ensuing period until the middle of the century is like

an Alpine Who's Who: Fiechtl, Dülfer, Preuß, Schmitt, Wiessner, Aschenbrenner, Leuchs, Göttner, Buhl, Spiegl, Rebitsch. In the 1960s and 1970s, Thaller, Hasse and Pit Schubert, among others, were active in expertly pioneering the classic routes by artificial climbing. It was only once the 'Pumprisse' on the Fleischbankpfeiler had been climbed by Reinhard Karl and Helmut Kiene in 1977 that level VII was introduced into the Alps and the UIAA scale - previously limited to six levels of difficulty - was extended upwards. At the same time, the era of mobile protection equipment was also dawning in the Alps. The pioneering wave of the 1970s and 1980s reached a high point during the summers of 1983/84. Whilst at this time people were queuing to climb the most popular routes, demand slowly diminished during the 1980s. Darshano, Müller, Kronthaler and Hoffmann were some of those who pioneered the toughest routes in free climbing. The mid-1980s saw the arrival of bolts in the Wilde Kaiser. There have, however, been very few sport climbing routes bolted since then, and bolts are only used on very few climbing routes - mostly in strategic places which cannot be secured with mobile protection equipment (SCHUBERT / ZEIS, 1990, 10).

Climbing area management

In summer 1990, the 'bolt war' broke out in the Wilder Kaiser. The DAV safety group decided to remove the old, very poor pegs of the Rittlerkante on the Bauernpredigtstuhl by fitting belay bolts and intermediate bolts. Local climbers subsequently sawed these off. This happened several times on the Zettenkaiser East wall and on the Predigtstuhl north ridge. The DAV and the OeAV invited the various parties involved to discuss the issue. This demonstrated the enormous tension between the local climbers (who proposed the minimal use of bolts and called for classic routes to be left as they were pioneered, and who did not stand for interference from outsiders) on the one hand, and the Alpine associations and sections (responsible for the Kaiser, and considered it necessary to rebolt the routes to reduce the risk of accidents) on the other.

In 1994, the Wilde Kaiser Working Group, which includes representatives from local climbers, the DAV, and the OeAV, was founded. The working group decides, on its own initiative, to rebolt selected classic routes according to certain criteria they define. Since then, no more bolts have been sawn off. Routes that are difficult to secure using mobile protection are protected with bolts at strategic points as well as at the belays. The working group displays a certain degree of restraint in its bolting work. The work is financed by DAV and OeAV. First ascents are not affected by this ruling. Recently the first sport climbing route, 'Whiskey and Cigarettes', was created

on the Leuchtsturm. During the first year it was climbed 50 times (SCHRAG, pers. comm. 26/1/1999, WILDE KAISER WORKING GROUP).

It should be noted that, through its policy on bolts, the Wilde Kaiser Working Group is practising environmentally sustainable climbing area management in the Wilde Kaiser, since the number of future climbers depends on the bolting situation. The more routes that are protected and rebolted, the more climbers will return to the Wilde Kaiser from the sport climbing areas.

The Alpine association sections are responsible for maintaining the pathways in the Wilde Kaiser; some of them are in need of maintenance work. No one is responsible for the paths up to the climbing routes, which are a network of trails mainly running through the screes at the foot of the crags.

From a climbing point of view, the polish on the crags is disappearing and they are returning to their initial roughness because they are being climbed so seldom. The fact that the chamois do not retreat far indicates that climbing does not disturb them. It has been shown that the distance retreated by animals hunted elsewhere is significantly reduced in conservation areas (GOEDEKE, pers. comm. 24/8/1998).

To summarise; there are no conflicts between climbers and nature conservationists, despite the fact that the Wilde Kaiser is a conservation area. This can be traced to the fact that the number of fauna in the crags falls as the altitude increases - which also reduces the potential for conflict. The only possible area of conflict is the paths up to the foot of the crag. Thanks to its stringent rebolting ethic, the working group also holds the key to managing the number of climbers - strict climbing ethics limit numbers.

Significance for tourism

Only Kirchdorf includes climbing sport in its publicity brochure. For the tourism offices in the other villages, climbing tourism is a secondary concern. The construction of a golfing green in Ellmau (directly on the boundary of the nature conservation area) demonstrates that these villages are focusing their attention on Tyrolean tourism. However, the decline in climber numbers has meant a reduction in the number of guests and a change in the clientele for the owners of the traditional climber huts (Gaudeamus hut and Stripsenjoch hut). The owners of the huts are therefore interested in the rebolting of the routes, in order to win back their former clientele (SCHRAG, pers. comm. 26/1/1999).

8. Conclusions from the case studies

The case studies have proved very useful for practically illustrating the theoretical insights. The results are summarised in the following paragraphs.

In the past, climbers have consistently taken action to maintain and protect crag areas, and continue to do so. Thus they are important participants in the work of nature conservation. Climbers are interested in the maintenance of climbing areas and take part in maintenance measures. Climbers take care of their climbing areas. Often there is an informal or official working group which is responsible for the care of the local climbing area. If such a working group is inexistent, then at least the pioneer has unwritten rights in relation to preserving the character of the routes he or she created. Therefore we can speak of a high degree of self-regulation and self-organisation among climbers.

Climbing ethics and their implementation, in the form of a greater or lesser degree of protection, are important for managing the numbers of climbers. The higher the standard of protection, the more climbers will frequent the area.

Particularly at higher altitudes, climbing only rarely damages the natural environment. Even in areas with serious conservation requirements, such as the Grimsel, climbing is considered to be environmentally sustainable. Due to weather constraints, the climbing season is very much shorter than in climbing areas outside the Alps - which also relieves the pressure on the biotopes.

In heavily frequented extra-Alpine climbing areas, there is often a significant need for sustainable climbing area management. In more recently created sport climbing areas in particular, there are fewer emotional ties to the climbing area than in traditional climbing areas. A contributory factor is that the overwhelming majority of climbers are not from the immediate vicinity and thus do not identify with the area in the same way. This calls for climbing associations to be innovative in devising ways of involving local people in site maintenance.

It is difficult to ensure the sustainable maintenance of climbing areas when the climbing area exceeds a certain size and the circle of local climbers is very small, or if no-one takes responsibility, as for example in the climbing areas created in a sort of tug-of-war situation, with non-climbers providing the necessary infrastructure for profit or other reasons, but not providing

ongoing maintenance. This calls for innovative concepts that include those active in the local economy.

Very few climbing areas are accessible by public transport. Where they are, the timetables are often not adapted to the requirements of climbers. The use of mountain bikes could open up valuable opportunities for public transport - opportunities that should be taken.

Last but not least, the case studies provide some perspective. If the impact on the natural environment of a power station project, including a dam, or of a golf green is compared with the impact of climbing on the mountain biotope and surrounding biotopes, it must be conceded that, in some cases, there is a discrepancy between the sanctions imposed on climbing and permission granted for construction plans.

V. Recommendations for Sustainable Climbing Management in Europe

Based on the data obtained, proposals are made for the sustainable management of climbing in the Alpine and extra-Alpine climbing areas of Europe. The situation in Germany demonstrates the necessity of resolving the situation at a European level in order to prevent climbers being driven elsewhere and to allow local, sustainable climbing to take place. However, this should in no way pose a threat to the animal and plant populations or the various biotopes. It is important for the climbing associations to be aware - to seize the initiative in order to influence climbing sport in the direction of minimal environmental impact. This requires implementation in each country in ways that meet distinctive local needs.

1. Objectives for sustainable climbing in Europe

1.1 Legal objectives

The right of access to the countryside should be enshrined in law in all European countries. It should be included as a human right, as the experience of nature is necessary for involvement in nature conservation "You can only protect what you know" (SCHWEITZER, quoted in Witty 1998, 261)

A goal for climbing should be to secure respectful and sustainable access to all crags in the spirit of the Scandinavian *allemansrätten*. Only in this way can both access to European common land and its conservation be guaranteed.

When implementing the Habitats Directive, climbing should be allowed to continue in existing climbing areas.

Article 7 of the Sports Charter of 1976, deleted in 1993, should once again be included in the Council of Europe's *European Sports Charter*. This reads as follows:

"Measures, including legislation where appropriate, shall be introduced to ensure access to open country and water for the purposes of recreation".

Sport should be enshrined in national and regional constitutions as an aim of the constitution. In North Rhine Westphalia and Lower Saxony, for example, this is part of the federal state constitutions.

1.2 Environmental objectives

When climbing, climbers must always consciously minimise environmental impact and thus ensure the sustainability of climbing. To achieve this, climbing associations must also have competence in nature conservation. This is a reason for ensuring the exchange of information at an international level.

Service providers who offer commercial climbing courses should respect the needs of nature and ensure the long-term sustainability of climbing sites by setting the interests of nature over their own interests.

Climbers should be offered the opportunity of sustainable climbing on crags near where people live. Climbers should not have to travel long distances to practise their sport, thus contributing to overcrowding in alternative locations.

Climbing associations should be particularly concerned about the form of transport chosen by their members: public transport in combination with bicycle/mountain bike is preferable to the car. Climbing associations should have the deliberate objective of linking popular climbing areas to public transport networks.

1.3 Organisational objectives

Climbers should aim to create appropriate forms of organisation for maintaining climbing areas, which should liaise with nature conservation organisations, or be integrated into their work. Consultation with nature conservation bodies and authorities should become standard practice. Commercial services offering climbing activities must be included in this specialist work.

It must be ensured that the interests of climbers are represented at a European level. The UIAA and the CAA must be conscious of their important roles as mediators and for passing on information.

National climbing associations should consult and exchange information with one another, and this should lead to close co-operation in the area of sustainable climbing area management.

1.4 Sport ethics objectives

The significance of climbing ethics should be recognised and utilised as a major contributing factor, to sustainable climbing in particular, in relation to managing the numbers of climbers and creating new areas. The revival of climbing ethics is worthwhile.

The diverse forms of climbing, local climbing traditions, and climbing on all kinds, qualities and heights of crag and at all levels of difficulty must be ensured and maintained. At the same time, space for future generations and scope for the future development of climbing must also be safeguarded.

Climbers must respect local ethical norms.

The character of climbing as a free sport is to be preserved. In this spirit, regulations should be confined to environmental necessity and should mainly be implemented in busy climbing areas.

1.5 Research objectives

Research data are important as a basis for making decisions concerning plausible and sustainable climbing regulations. There is a significant need for such research.

The development of standardised methods for defining the maximum capacity of mountain biotopes as a basis for environmentally sustainable climbing area management is a matter of priority.

Long-term bio-monitoring studies must be carried out in order to observe the development of climbed, unclimbed, and disused crags.

Across Europe, all the data relevant to climbing sport must be collated and a database created which will be accessible to all involved.

1.6 Economic objectives

Climbing tourism should be integrated into overall concepts of environmentally sustainable tourism and used as a means for developing the weak infrastructure of rural areas and areas affected by migration. This could occur in combination with other forms of outdoor sport such as mountain biking.

Commercial service providers offering climbing courses, manufacturers of climbing equipment and those selling equipment should be included in the development of these concepts.

1.7 Social objectives

Climbing should be made socially sustainable, both in terms of the rules of climbing as a sport and in terms of the way in which it is practised.

Climbing must not interfere with local agriculture or industry, but should be integrated into the local economy.

Climbing rules must be socially sustainable.

All those involved (landowners, conservation bodies and authorities, the local and/or regional climbing association, commercial service providers, etc.) must be included in the work of managing of climbing areas.

2. Means of implementation

Climbing associations have a very important part to play in implementing the above objectives. The direction of climbing sport towards sustainability is in their hands.

2.1 Implementing the legal objectives

The international mountaineering bodies, CAA and UIAA, have decisive roles to play in lobbying at an international level. Both at the Council of Europe in Strasbourg and at the European Commission and European Parliament in Brussels, representations of the mountaineering bodies should be established, corresponding to those which already exist for nature conservation. A specific individual should be entrusted with the responsibility for the lobbying work, establishing the necessary contacts and creating link to the UIAA and/or the CAA and to the individual mountaineering bodies.

At national and regional levels, the climbing bodies must gain access to the bodies which are responsible for the implementation of the Habitats Directive and represent their interests in relation to the implementation of the Directive. Lobbying work and alliances with like-minded groups should also achieve

the objective of enshrining the right of access to the countryside in national legislation.

The *allemansrätten* are based on the need for people to treat the natural environment in a responsible way. Propagating this way of thinking is mainly to be achieved through educational work, information campaigns, and the publication of recommendations on how to treat the natural environment. Here again, the climbing associations have a decisive role to play.

2.2 Implementation of the environmental objectives

In order to ensure environmentally sustainable climbing, it is crucial for climbers to recognise that their form of recreation can have damaging consequences for rock biotopes, and also to be aware of how they can minimise this damage. In order to disseminate this knowledge among climbers, all means of communication should be employed: modern media such as the internet, climbing magazines, information booklets, and leaflets, but also climbing guidebooks and maps. In a Europe without borders, this information must be presented in several languages, especially in climbing areas with an international clientele; this is an important requirement to ensure that the information is heeded. The recently published '*Fluebible*' for the Basle Jura is an example of how rigorously researched, environmental, climbing, cultural and historic information may be presented in a climbing guidebook in an appealing, readily-comprehensible way (in French and German). It is also absolutely essential that alpine environmental education be included in courses for trainers and mountain guides in view of their role in expanding the number of climbers.

Popular climbing areas, in particular, should be assessed in terms of their importance for climbing and for nature conservation and, when producing regulations, these aspects should be weighed against one another. Depending on environmental requirements, climbing associations or local climbing clubs should take measures to manage the numbers of climbers, maintain the infrastructure and also, for example, practise self-regulation for the sake of breeding birds or rare plants. Measures to direct the numbers of climbers can target groups or training courses, for whom special, particularly appropriate, climbing areas are available.

At the international level, another area that must not be neglected is the dissemination of knowledge. For example, some time ago in France, the

removable bolt was developed, which can increase the effectiveness of temporary climbing bans during bird breeding seasons - even in areas with more relaxed climbing rules - without having to hammer out the bolt each time and then reinstall it. Installing lowering points at the top of crags for protecting the vegetation at the top is not known in all countries. In countries in which climbers have only recently had to face crag closures, there is often a lack of knowledge about the environment or sustainable climbing area management. In this area in particular, the UIAA's Access and Conservation Commission is the central structure that should collate and publicise such expertise, as well as offering support in case of difficulties.

Various options are available to make public transport more appealing to climbers. Climbing associations should work with those managing public transport with a view to improving accessibility to particularly popular climbing areas, adapting timetables to the requirements of climbers (in climbing areas located near populated areas, there needs to be a service in the evening before sunset) and catering for bicycles. Climbing bodies should also use climbing guidebooks, the internet, or special booklets to publicise the fact that climbing areas are accessible by public transport. The creation of specialised car pool networks for climbers is also a step in the right direction.

2.3 Implementation of the organisational objectives

Climbers must take responsibility for the maintenance of their climbing areas. A structure for maintenance should be created which caters for the respective national, regional, and local distinctive features, and should ensure environmentally sustainable climbing area management in consultation/co-operation with the nature conservation bodies/authorities. The involvement of well-known or local climbing celebrities, pioneers, or commercial service providers offering climbing courses will increase the degree to which the regulations are observed. For example, local working groups can assume the maintenance of crags or become crag sponsors. In the Alps, some working groups of this kind do exist, mainly consisting of local climbers and pioneers. These should maintain close contact with the nature conservation bodies and authorities and landowners, or integrate them into their working groups. Environmentally sustainable climbing area management can be assured through partnership and co-operation.

³⁰ A threaded pin is cemented into the rock, to which the board with the eye is attached using a screw and washer. If the bolt is no longer needed, the board, screw and the washer are removed, so that only the threaded pin remains in the rock - it is barely visible to the naked eye.

In order to ensure the lobbying work of the mountaineering bodies at an international level, I again draw attention to point 2.1. Representation of the interests of climbing in Brussels and Strasbourg with the necessary personnel is essential.

In order to guarantee the exchange of information between the bodies at a European level, and to create an information network, a central information and exchange point should be created within the UIAA and/or the CAA.

2.4 Implementing the sports ethics objectives

The unrestrained increase in sport climbing areas is no longer appropriate. For this reason, in several European climbing nations, the debate concerning climbing ethics has begun again. This debate is important and should be initiated by climbers or associations in all countries.

It is essential that codes of behaviour and ethical codes be recorded in writing and widely distributed, in order to instil environmentally sustainable behaviour in climbers.

In the spirit of the 'needs limitation' called for by SEEWALD *et al.* (1998, 222), climbers can no longer allow themselves to lay claim to every crag area, install bolts in the southern French style, publicise the crag, and then leave it at the mercy of the influx of consumer climbers. Other concepts and a responsible degree of self-regulation are now required. Climbing ethics give climbers the opportunity to achieve an ideal use of space and to declare certain areas 'adventure areas', where climbing is permitted, but the development of new routes is subject to certain rules, which would preserve such unspoiled areas for future generations. In this way it is possible to manage the numbers of climbers. As DICK *et al.* (1999) write:

"The size and quality of the equipment of a climbing route with fixed protection is an effective instrument for managing climber numbers: well-protected routes are climbed more frequently than those which are poorly protected. In environmentally sensitive areas therefore, equipping routes with fixed protection is something to be kept to a minimum. In areas with large capacity on the other hand, good protection of popular climbing routes can create scope for a large number of climbers."

As we have seen, climbing is made up of a large number of traditions and styles, which mainly originate in a particular region and are tied to particular areas. In keeping with the principle of 'cultural faithfulness' (SEEWALD *et al.*, 1998, 221), these should be preserved. In some areas, climbing ethics even

provide the basis for preserving climbing sport. For example, climbing in Saxony is only permitted according to the very strict climbing rules.

Space must be created to leave scope for the future development of climbing. It is not in the wider European interest for writers such as SENN (1996, 199) to direct pioneers of new routes abroad because creating new routes in Germany is no longer justified from a nature conservation policy point of view. It is evident that any pioneering work is going to be limited by the number of crags available. However, when there are crags available and climbing is environmentally sustainable, it is not a responsible move to send abroad pioneers who come from a country that has made a decisive contribution to the development of climbing sport.

2.5 Implementation of the scientific objectives

This study has shown that there is a major need for research in many areas.

In very few countries, are there reliable statistics on the number of national climbers – let alone international climbing tourists. This opens wide the door for those lobbying for the restriction of the right of access to the countryside. There is often an impression that even climbing bodies are unaware of the significance of climbing tourism. In very few countries has there been any research into the number of crags available, or the number of climbing areas. It would be desirable if the methods used in Germany or France were used to obtain data for all European countries.

The most urgent task facing scientific research is the acquisition of scientifically-based information that can serve as a basis for making decisions concerning climbing rules. This would include, for example, the development of standardised methods for defining the capacity of the mountain biotopes as a basis for environmentally sustainable climbing area management, or carrying out long-term bio-monitoring studies, in order to observe the development of climbed, unclimbed, and disused crags.

2.6 Implementation of the economic objectives

In villages located near climbing areas, climbing should be integrated into the local tourism/development concept and the sustainable practice of the sport ensured in consultation with the nature conservation bodies and authorities. Climbing sport can create demand for the tourism infrastructure in low season and can be used to diversify the existing tourist programme. In rural areas with poor infrastructure, and areas affected by migration, climbing

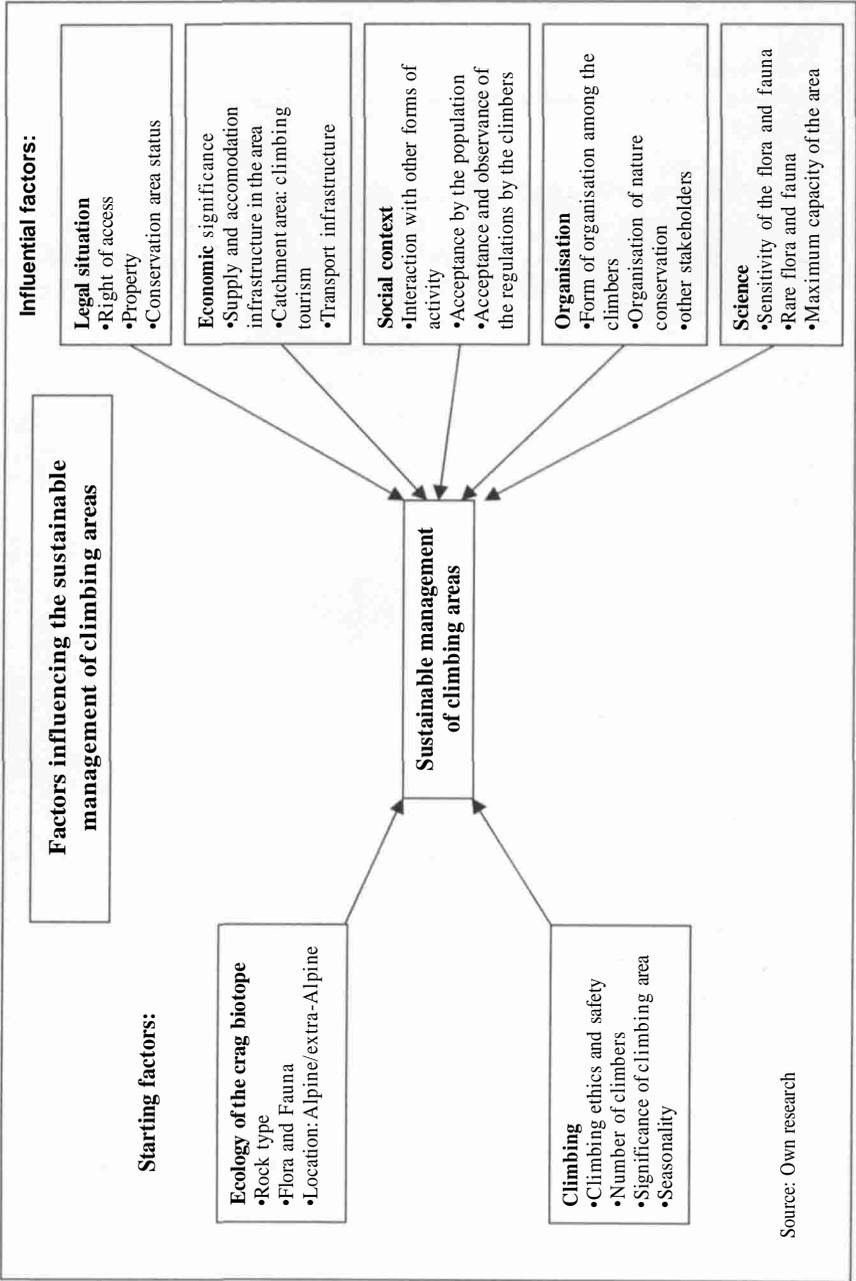
tourism, in combination with other nature sports, is an appropriate means for contributing to the economic development of these regions.

Commercial service providers offering climbing courses, manufacturers of climbing equipment, and equipment retailers should be integrated into such concepts.

2.7 Implementation of the social objectives

The social sustainability of climbing rules can be achieved if they are developed in a partnership between nature conservation bodies, climbing associations and other involved parties, and are implemented by the climbing associations. The interests of local people must also be integrated into these regulations, for example in relation to parking, keeping roads clear, and wild camping. Particularly in the case of large, well-frequented climbing areas, it is worth integrating climbing into the local tourism concept, so that, for example, wild camping is prevented by the creation of campsites, and local cafes and restaurants are publicised in climbing guidebooks.

Fig. 9: Factors influencing the sustainable management of climbing



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APPENDIX 1: PEOPLE INTERVIEWED AND SITES VISITED

Name	Position, location	Date	Comment
Bishop, D.	BMC Access Representative for the Western Peak District, GB - Crewe	10 Sept. 1998	Visit to the Roaches, tape recording
Bontemps, P.	National Commission for the Protection of Mountains. CAF, F - Paris	3 Nov. 1998	Interview
Croney, M.	Peak District National Park Authority, GB - Bakewell	14 Sept. 1998	Interview, Tape recording
Dr. Goedeke. R.	Climbing guidebook author and member of the German Federal Committee on Climbing and Nature Conservation, Braunschweig	24 Aug. 1998	Visit to the Wilde Kaiser
Gorgeon, B.	President of the Lei Lagramusas. Technical Advisor for Youth and Sport, F - La Palud sur Verdon	27 Oct. 1998	Interview, tape recording
Gross, E.	Chief editor of the SAC magazine. <i>Die Alpen</i> . Representative for the SAC Sport Climbing Commission on Environmental Protection. CH - Bern	27 Aug. 1998	Interview, tape recording
Hasslacher. P.	Nature conservation expert of the OeAV, Vice President of CIPRA International Innsbruck	3 Feb. 1999	Interview, tape recording
Heinicke, D.	Climbing guidebook author, Saxon Mountaineering League, Dresden	6 Oct. 1998	Telephone conversation
Leoni, F.	Mountaineering shop "Vertical World Sport", pioneer and climber, I - Arco	2 Oct. 1998	Interview, Tape recording
Lohmann. B.	Trainer for the DAV section in Krefeld, climber in the Eifel region and in the Emscher Park	20 Mar. 1999	Interview, visit to the Eifel and the Emscher Park
Mailänder, N.	<i>Climbing and nature conservation project</i> in the nature conservation department of the DAV, Munich	21 Jan. 1999	Interview, tape recording
Meyer, J.	SAC representative for the protection of the mountain environment. CH - Bern	27 Aug. 1998	Interview, tape recording
Dr. Price. M.	Mountain Regions Programme, Environmental Change Unit, University of Oxford	9 Sept. 1998	Interview
Rémy, C.	Climber and pioneer on the Grimsel. CH - Vers l'Eglise	30 Aug. 1998	Telephone conversation
Renzler, R.	Alpine department of the OeAV, A - Innsbruck	3 Feb. 1999	Interview, tape recording
Revaz, M.	Deputy head of CIPRA International, FL - Schaan		e-mail
Schmarda. T.	Environmental representative of the South Tyrol Alpine Association, I - Bozen	9. Oct. 1998	Interview
Schrag, K.	Department for mountaineering and safety for the DAV. member of the Wilde Kaiser working group. Munich	26 Jan. 1999	Interview and visit to Arco. tape recording
Seneci, A.	President of the company Sintroc, I - Arco	19.Jan. 1999	e-mail

The sustainable management of climbing areas in Europe

Speer, F.	Nature conservation department of the DAV, Munich	1.Feb. 1999	Interview, Tape recording
Taupin, D.	President of the COSIROC, President of the Commission on the Environment of the FFME, F - Orsay	4 Nov. 1998	Visit to Fontainebleau, tape recording
Turnbull, D.	BMC Access Officer, GB - Manchester	11 Sept. 1998	Interview, tape recording
Urweider, A.	President of the Grimsel Association, CH - Oberhasli	30 Aug. 1998	Interview, tape recording

Appendix 2: List of experts who answered the questionnaire

Country	Name	Position
Austria	Renzler, R.	Alpinreferat des Oesterreichischen Alpenvereins OeAV
Belgium	Bauvir, L.	Responsable de la Commission "Environnement et protection des sites rocheux", Belgische Alpenclub BAC
Czech Republic	Lisak, P. Svinhos, J. Stein, K.	Climbing guidebook author, Cesky Horolezecky Svaz Präsident Elbsandstein Landschaftsschutzverwaltung Böhmisches Schweiz
Denmark	Bonding, J.	Präsident des Dansk Bjergklub DB
Finland	Veistola, T. Konola, J.	Natura 2000 [Coordinator. Finnish Association of Nature Conservation Climbing instructor, Finnish Climbing Association
France	Taupin, D.	Président de la Commission Environnement. Fédération française de la Montagne et de l'Escalade FFME
Germany	Mailänder, N.	Projekt Bergsport und Umwelt, Deutscher Alpenverein DAV
Great Britain	Turnbull, D.	Access and Conservation Officer, British Mountaineering Council BMC
Greece	Fatourou, K.	Hellenic Federation of Mountaineering and Climbing. EOOA
Ireland	Bergin, J.	Chairperson Mountain advisory group. Mountaineering Council of Ireland
Italy	Scolaris, M. Antonioli, F.	Sportmanager, FASI Responsable pour les sites d'escalade du centre et le rapport grimpeurs-ambiantalistes, Club Alpino Italiano CAI
Liechtenstein	Büchel, E.	Liechtensteiner Alpenverein LAV
Luxembourg	Welter, J.	Responsable Ecologie. Groupe Alpin Luxembourgeois GAL
The Netherlands	Spijker, J.	Präsident der Umweltkommission NMGA, NK.BV
Norway	Brodersen, C.	Chairman of the Construction Division, Norges Klatreforbund
Romania	Badralexe, S.	General Secretary, Romanian Federation of Mountaineering and Climbing
Scotland	Dales, M.	Mountaineering Council of Scotland. McofS
Slovakia	Linek, V.	Mountaineering Commission, SHS James

Slovenia	Praprotnik, M.	Commission for Sport Climbing, Planinska zveza Slovenije PZS
South Tyrol	Schmarda, T.	Arbeitsgemeinschaft Sportklettem, Alpenverein Südtirol AVS
Spain	Rafa, M.	President of the Mountain Protection Commission & UIAA, Catalanian Alpine Club
Sweden	Andersson, M.	Access and nature conservation, Svenska Klattringsforbundet
Switzerland	Meyer, J.	Beauftragter Schutz der Gebirgswelt, Schweizer Alpen-Club

Appendix 3: Conferences referred to

Title	Organiser	Date	Place
Parliamentary Conference on a Pan-European Policy for Mountain Regions*	Council of Europe Committee of the Regions	11-13/9/1997	Rodez, France
Discussion on the rebolting and pioneering of Alpine climbing routes*	The section Bayerland of the DAV with Reinhold Messner, Andreas Orgler, Dr. Richard Goedeke, Swami Prem Darshano. Pit Schubert, Heinz Zak, Andreas Dick, Irmgard Braun. Fritz März, Nicholas Mailänder, Manfred Sturm, Hans-Martin Götz, Alexander Huber, Malte Roeper	9/12/1997 and 28/4/1998	Munich
Climbers, Mountains and the Environment. Managing Access for Environmental Protection"	UIAA (International Mountaineering Association) and IUCN (The World Conservation Union)	1-3 Ma; 1998	Barcelona, Spain
Meeting of the CAA experts on Nature conservation **	CAA (Club Arc Alpin) = Union of the Alpine Associations of the Alpine countries	5-6 June 1998	Innsbruck, Austria
European Environmental Policy *	DAV conference for nature conservation experts with H. Bongaerts from Directorate General XI of the European Commission	8-11/10/1998	Offenburg and Strasbourg

* Took part in person

** Used conference papers

Appendix 4: Questionnaires and Interview guidelines

Climbing area:

Date:

Expert:

Climbing guidebook/s:

Guideline for conversation concerning case studies

Topic area	Sub-questions
General information about the climbing area	Geographical location (distinctive features, etc.) and distance to centres of population Number of routes Length of routes Number of sectors Protection Age
Visit to climbing area	Number of climbers Seasonally Significance of climbing area Foreign / national climbers
Property issues	Landowner
Natural features	Protected flora/fauna Geology Significance for nature conservation
Infrastructure	Pathways Toilets Car parks Waste bins Camping sites Public transport Cafés restaurants
Rules	Conservation area status European regulations Measures by the authorities Self-regulation
Maintenance of the climbing area	Parties involved Conflicts Solutions Acceptance
Distinctive features, comments etc.	
Various observations	(course of the route, damage caused by people walking, rubbish, lowering points, number of climbers, weather...)

Country:

Expert:

Position of the expert/s:

Guideline for conversation with national expert

Topic area	Sub-questions
Right of access	Enshrined in law Restrictions Rules on sticking to pathways etc.
Number of national climbers	Development in recent years Future development Present state of affairs
Climbing areas	Number and development Prevalent ethic Preferences of climbers
Role of associations	Level of organisation of climbers Climbing organisations Activities Power to manage climbing Positions of the association
Management of climbing areas	Parties involved Conflicts and their causes Regulations
Parties involved	Landowner State Nature conservation association/authority Climbers
Pioneering of new areas	Commercial bolting of new routes Ethics Conventions, regulations
Regulations	Basis for regulations (flora, fauna, etc.) Form of regulations (closures, concepts etc.) European regulations
Documentation	literature, studies, publications, information leaflets etc.
Other	Distinctive features, comments etc.



UNION INTERNATIONALE DES ASSOCIATIONS D'ALPINISME

INTERNATIONALER VEREIN DER
ALPINISTEN VERBÄNDE

INTERNATIONAL UNION OF
ALPINIST ASSOCIATIONS

Dr. Fritz März, Vice President

UNIONE INTERNAZIONALE DELLE
ASSOCIAZIONI ALPINISTICHE

UNION INTERNACIONAL DE
ASOCIACIONES DE ALPINISMO

München, im Dezember 1998

Lieber Verwaltungskleenerer,

um europaweit effektiv gegen die um sich greifenden Kletterverbote vorgehen zu können. benötigt die UIAA zuverlässige Informationen zur Sperrungssituation. Frau Brigitte Hanemann hat sich bereit erklärt, im Rahmen ihrer Diplomarbeit diese naturschutzpolitisch wichtigen Daten zusammenzutragen.

Diese Arbeit knüpft an das im Mai von der UIAA gemeinsam mit der IUCN in Barcelona abgehaltenen Seminar an. das die Umsetzung des "Kletterparagrafen" (10.5) in der *Pan-European Biological and Landscape Diversity Strategy* zum Thema hatte.

Bine unterstützen Sie Frau Hanemann in ihrer für unser weiteres Vorgehen wichtigen Arbeit. Die Zeit drängt! Bitte schicken sie deshalb den beigelegten Fragebogen bis **spätestens zum 10. Januar 1999** ausgefüllt an die unten angegebene Adresse. Vielen Dank für Ihre Unterstützung!

Cher grimpeur-bureaucrate,

Afin de prendre des mesures efficaces contre l'augmentation des interdictions d'escalade en Europe, l'UIAA a besoin d'informations fiables à propos de la situation actuelle des restrictions de la pratique de l'escalade. Mme Brigitte Hanemann s'est mis à notre disposition pour collectionner ces données politiquement importantes dans le cadre de son memoire de fin d'etudes.

Cette etude constitue la suite du séminaire organisé conjointement par l'UIAA et l'IUCN au mois de mai à Barcelone au sujet de la mise en œuvre du "paragraphe d'escalade" (10 5) de la *Stratégie paneuropéenne biologique et paysagère*

Nous vous prions de soutenir Mme Hanemann dans son travail qui est décisif pour notre activité future. Le temps presse! Ainsi. nous vous prions de retourner le questionnaire ci-joint dûment rempli jusqu'au **10 Janvier 1999 au plus tard** à l'adresse indiquée en bas. Merci beaucoup de votre aide!

Dear climbing bureaucrat,

to take effective steps against the growing access problems in Europe, the UIAA needs reliable information on the closures in all countries already or potentially affected. Ms. Brigitte Hanemann is in the process of gathering this politically important data in the context of her MA-thesis.

This work is a follow-up to the UIAA/IUCN seminar held in Barcelona, the principal topic of which was the implementation of the "climbing paragraph" within the *Pan-European Biological and Landscape Diversity Strategy (10.5)*.

Please support Ms. Hanemann in her work, which is of decisive importance for our future activities. Time is an issue! So please return the accompanying questionnaire by January 10th 1999 to the address at the bottom of this page. Thanks a lot for your help!

Dr. Fritz März. Vice President

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QUESTIONNAIRE
ECOLOGICAL CLIMBING SITE MANAGEMENT IN EUROPE

Country: _____
Name: _____
Association: _____
Functions within the association: _____

Freedom of access to nature

1. In my country the freedom of access to nature is guaranteed by law.

yes

no

possibilities of restrictions result from: _____

Number of climbers

2. In my country the estimated number of native climbers is actually:

3. This number has been obtained by:

estimates by climbing associations

scientific study

estimates based on sale of climbing equipment

count of climbers in different climbing sites and extrapolation

other, that is: _____

4. How many climbers are members of a climbing association? (in %) _____

5. How many members has your association? _____

6. The estimated number of foreign climbing tourists per year in my country is actually: _____

7. This number has been obtained by:

estimates by climbing associations

scientific study

estimates based on sale of climbing equipment

count of climbers in different climbing sites and extrapolation

other, that is: _____

8. These foreign climbers are mostly from the following countries:

most frequent nationality: _____

other frequent nationalities: _____

other nationalities: _____

9. Is the number of climbers of one particular country increasing or decreasing especially during the last years?

Decreasing: _____

Increasing: _____

Type and number of climbing sites:

10. Please indicate the number of climbing sites of each type: (if no numbers available, take estimations)

type of climbing site	number
bouldering sites	
sport climbing sites with short, highly protected climbs	
adventure climbing sites with short climbs without or with little protection	
sport climbing sites with highly protected, continuous climbs	
adventure climbing sites with continuous climbs without or with little protection	
alpine sport climbing sites	
alpine climbing sites	
Total number of climbing sites	

11. These numbers have been obtained by:

- own estimates
- the following book / article: _____
- other: _____

Evolution of climbing

12. Number of climbers

- In my country
- the number of climbers is increasing
 - the number of climbers remains steady
 - the number of climbers is decreasing

13. The evolution of climbing preferences

In my country

the preference of highly protected sport climbing sites

- is increasing
- is decreasing
- is constant

the preference of adventure climbing sites without or with little protection

- is increasing
- is decreasing
- is constant

the preference of alpine climbing sites

- is increasing
- is decreasing
- is constant

the preference of alpine sport climbing sites

- is increasing
- is decreasing
- is constant

14. The evolution of climbing sites

In my country

the number of highly protected sport climbing sites

- is increasing
- remains steady

the number of adventure climbing sites without or with little protection

- is increasing
- remains steady

the number of alpine climbing sites

- is increasing
- remains steady

the number of alpine sport climbing sites

- is increasing
- remains steady

Effects of the European directive about fauna, flora and habitat (NATURA 2000)

15. Are some of the climbing sites of your country located in zones concerned by this directive?

- yes
- no (*go to question 16*)

What are the effects on climbing? _____

Climbing regulations

16. Are there climbing restrictions for environmental reasons in your country in form of "self-restriction" of climbers?

- yes
- no (*go to question 17*)

Number of concerned sites: _____

In the following climbing sites: _____

Reasons: Protection of plants
 Protection of birds
 other, such as: _____

Type of restriction: complete renunciation
 temporary renunciation
 zoning
 climbing quotas
 deviation
 climbing concept
 other, such as: _____

number of sites: _____
number of cliffs: _____
number of sites: _____
number of sites: _____
number of sites: _____
number of sites: _____

Do the climbers respect the climbing regulations?

- yes
- mostly
- not very often
- no

The sustainable management of climbing areas in Europe

17. Are there important climbing restrictions for environmental reasons in your country in form of measures imposed by authorities?

yes no (go to question 18)

Number of concerned sites: _____

In the following climbing sites: _____

Reasons: Protection of plants
 Protection of birds
 other, such as: _____

Type of restriction:	<input type="checkbox"/> complete climbing ban	number of sites: _____
	<input type="checkbox"/> temporary ban	number of cliffs: _____
	<input type="checkbox"/> zoning	number of sites: _____
	<input type="checkbox"/> climbing quotas	number of sites: _____
	<input type="checkbox"/> deviation	number of sites: _____
	<input type="checkbox"/> climbing concept	number of sites: _____
	<input type="checkbox"/> other, such as: _____	

Do the climbers respect the climbing regulations?

yes mostly not very often no

Do the climbers agree with the climbing regulations?

yes no

Were the regulations made in agreement or against the resistance of the climbers?

in agreement with the climbers without agreement against the climbers resistance

They are based on the following legal regulations: _____

18. Are there any restrictions of climbing for other than ecological reasons?

yes no (go to question 19)

Reasons: _____

Type of restriction: _____

19. Are there ethical or other rules concerning routing and creating new climbing sites?

yes no (go to question 20)

Please list the rules:

Economic importance of climbing

20. Is the income due to climbing tourism important for the climbing regions?

yes no

21. Is the number of climbing tourists important in your country?

no yes, the total number of climbing tourists per year is _____

22. Do any branches of the economy depend on climbing tourism?

yes no (go to question 23)

Which? _____

Appendix 5: Comparative representation of the grading systems

UIAA grading system	Saxon grading system	French grading system	British grading system
I / II	I	1	
II	II	2	
III- / III	III	3	
III+/IV-	IV	3+	2c
IV / IV+	V	4a, 4b	3a, 3b
V- / V	VI	4b, 4c	3b, 3c
V+ / VI-	VIIa	5a, 5b,	4a, 4b
VI- VI	VIIb	5c, 6a	4c, 5a
VI+	VIIc	6a, 6a+	5a, 5b
VII-, VII, VII+	VIIIa, VIIIb, VIIIc	6b, 6b+, 6c	5b, 5c
VIII-, VIII, VIII+	IXa, IXb, IXc	6c+/7a, 7a+, 7b	5c, 6a, 6b
IX-, IV, IV+	Xa, Xb, Xc	7b+/7c, 7c+, 8a	6b, 6c, 7a
X-, X, X+	XIa, XIb, XIc	8a+/8b, 8b+, 8c	7a, 7b

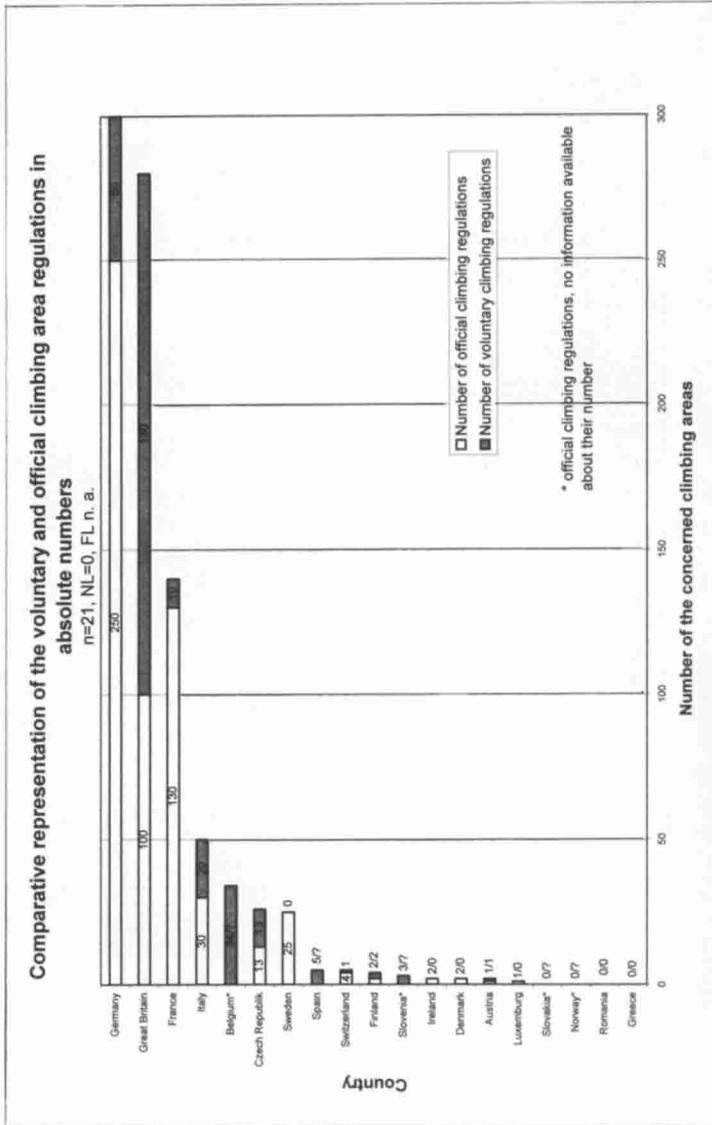
Source: Goedeke 1992, 69, Taupin 1994, 32, own research

Appendix 6: Overview of the distribution of climbing areas in Europe according to type of climbing area

Country / type of climbing site	Bouldering	Sport short r.	Advent. short r.	Sport long routes	Advent. I. r.	Alpine Sport	Alpine	Advent/Sport Mix	Total
Greece	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	no answer
The Netherlands	0	0	0	0	0	0	0	0	0
Luxemburg	2	2	0	0	0	0	0	0	4
Liechtenstein	2	3	0	0	0	0	0	0	5
Denmark	1	1	8	0	0	0	0	0	10
Ireland	0	0	10	0	10	0	0	0	20
Belgium	0	28	0	6	0	0	0	0	34
Slovakia	1	30	5	5	5	0	3	0	49
Romania	8	18	10	5	0	5	5	0	51
Slovenia	1	70	3	4	Alps	7	Alps	0	85+Alps
Finland	30	3	40	1	3	0	0	20	97
Austria	10	90	0	23	0	20	30 (Alps)	0	143 (Alps)
Czech Rep.	200	15	50	20	2	0	0	0	287
Germany	3	0	0	0	45	0	20	220	288
Switzerland	50	200	50	50	25	25	Alps	0	400+Alps
Sweden	15	0	0	0	4	0	10	500	529
Italy	35	1000	50	300	Alps	200	Alps	0	1585+Alps
France	252	800	20	400	280	30	600 (Alps)	0	1782 (Alps)
Great Britain	500	213	1500	0	500	0	0	0	2713
Spain	1000	2000	2000	1000	2000	500	500	0	9000
Norway	0	0	0	0	countless	10	countless	150	countless
Total	2110	4473	3746	1814	2874	797	High mountains	890	countless

Source: Own research

Appendix 7



IUCN – The World Conservation Union

Founded in 1948, The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organizations in a unique world partnership: over 900 members in all, spread across some 139 countries.

As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The World Conservation Union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

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