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**U.K. MOUNTAIN BIKING TOURISM – AN ANALYSIS OF
PARTICIPANT CHARACTERISTICS, TRAVEL PATTERNS AND
MOTIVATIONS IN THE CONTEXT OF ACTIVITY AND
ADVENTURE TOURISM**

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ADVENTURE TOURISM**

by

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**Thesis submitted in partial fulfilment
of the Degree of
Master of Science
in
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The data received from the organisations listed below have been used solely in the pursuit of the academic objectives of the work contained in this Dissertation and has not and will not be used for any other purpose outwith that agreed to by the provider of the data.

Name (Print): Michal Szymon Gajda

Signature: _____

Date: 28 May 2008

List of Data Providers

VisitScotland

Forestry Commission of Great Britain

International Mountain Biking Association (IMBA) UK

IMBA UK registered members

Declaration

I declare that the work undertaken for this MSc Dissertation has been undertaken by myself and the final Dissertation produced by me. The work has not been submitted in part or in whole in regard to any other academic qualification.

Title of Dissertation:

UK Mountain Biking Tourism – an Analysis of Participant Characteristics,

Travel Patterns, and Motivations in the Context of Activity and Adventure

Tourism

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Date: 28 May 2008

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ABSTRACT

The present paper advances the understanding of the UK mountain bikers in the context of adventure tourism. An online questionnaire survey of IMBA UK members (N=99) examined their general and socio-demographic characteristics, travel behaviour and importance of adventure components in the activity. It also identified the most popular and most frequently used mountain biking destinations managed by the Forestry Commission GB. The survey findings were by and large consistent with similar studies conducted in North America and New Zealand. The analysis of the collected data enabled to note non-spurious relationships between different variables, as well as classify the respondents into four clusters: enthusiasts, dabblers, activity groups and learners. The segmentation of mountain bikers, will give mountain biking operators, and accommodation and services providers a degree of insight into their customers. They will be able to formulate strategies to cater for the identified segments effectively. In addition, the study will provide a vital point of reference for future research into mountain biking, which will be needed considering the current trends and growth of this adventure tourism activity.

Key words: special interest tourism, adventure tourism and recreation, mountain biking, the United Kingdom, the Forestry Commission GB, market segmentation.

CHAPTER 1 – INTRODUCTION

1. Aims and objectives

Adventure tourism sector has recorded immense growth on a global scale over the past two decades (Canadian Tourism Commission 2008, Mintel 2005, Swarbrooke et al. 2003, Travel Industry Association of America 1998, VisitScotland 2007). Despite its popularity, researchers and adventure tourism practitioners have not been able to provide an exact and satisfactory definition of this segment of travel and tourism industry (Hall 1992, Hudson 2003, Page et al. 2004, Shephard & Evans 2005, Swarbrooke et al. 2003, Weber 2001). This results from such factors as the multitude of adventure tourism activities, participant's perception of adventure, as well as the overlapping of adventure tourism and adventure recreation. It is generally acknowledged that one of the defining features of adventure tourism is risk and uncertainty of outcome (Ewert 1989, Page et al. 2003, Shephard and Evans 2005, Sung et al. 1997), though some researchers claim the quest for insight and knowledge are its underlying features (Walle 1997, Weber 2001). Studies of adventure tourism have been very limited by far but it appears to be an evolving area of research (Ryan 2003, Ewert & Jamieson 2003, Page, Bentley, & Laird, 2003 Fluker and Turner 2000, Walle 1997; Weber 2001, Berno et al. 1996). It is adventure tourism behaviour that has been the focus of adventure tourism studies. Some researchers analysed the needs, motivations, and expectations of adventure tourists (Csikszentmihalyi 1990, Ewert 1985, 1987, 1989, Hall and Weiler 1992, Iso-Ahola 1980, 1987, Walle 1997), while others investigated their participation patterns, characteristics, experiences, and perception of adventure (Sung et al. 1997, Sung 2001, Sung 2004, Trauer 2004). It is emphasized throughout the literature on adventure tourism that further investigation into adventure tourists' motivations and behaviour is essential (Page et al. 2004, Pomfret 2006, Weber 2001).

Mountain biking is increasingly contributing to adventure tourism sector, with global levels of participation, noting substantial growth over the past twenty years (IMBA & Shimano 2008, Koepke 2005, Mintel 2005). In spite of that, research into mountain biking and its participants is scarce, whereas studies

in the context of adventure tourism are literally non-existent. What hinders investigation of this adventure tourism activity is the number of categories that mountain biking has evolved into. The mountain biking tourism in the UK is said to be in the development stage (FCS 2005), though the volume and value of the market have grown considerably over the past two decades. Statistics on the UK mountain bikers are practically non-existent. The only two sources of information on mountain biking in the UK are the VisitScotland Cycling Statistics Report from 2003 and the Forestry Commission of Scotland Cycling and Mountain Biking Report from 2005. One of the major weaknesses highlighted in the FCS report (2005) is lack of market segmentation and understanding of different market needs/ wants.

It is widely acknowledged in the marketing field that it is knowing customers and then predicting and meeting their expectations that is the key to success. Therefore, tourism practitioners need to recognize detailed characteristics of tourists and their patterns in consuming tourism products and services in order to effectively identify their target segments (Kotler, Bowen, and Makens 2002, Swarbrooke and Horner 1999). From the tourism marketing perspective, analysis of tourists' decision-making process should be based on tourists' characteristics and/ or their consumer and travel behaviour. According to Sung (2004 344), "understanding adventure travellers should be centred on distinct travel psychographics emphasizing specific needs, motivations, and expectations (Fluker and Turner 2000) or individuals' subjective experiences and perceptions of adventure need (Weber 2001)."

This paper aims to advance the understanding of the UK mountain bikers and the UK mountain biking tourism. The main objectives of this study are:

1. drawing a profile of the UK mountain bikers based on their general , demographic and socio-economic characteristics;
2. evaluating travel patterns of the UK mountain bikers and trip-related factors in decision making;
3. measuring the popularity of the Forestry Commission riding centres;
4. identifying motivations of the UK mountain bikers in the context of adventure tourism;

5. identifying the UK mountain biking market clusters in the context of adventure tourism;
6. conducting analysis of the UK mountain biking market segments.

The collected information will be used to present recommendations for mountain biking tourism operators, practitioners, as well as accommodation providers. The study does not aim to conduct an in-depth analysis of mountain bikers' motivations. It also does not intend to measure riders' satisfaction with the mountain biking facilities managed by Forestry Commission or other public and private organisations responsible for provision of services in those locations. In addition, it has to be noted that the present study comprises only the official riding centres administered by the Forestry Commission. As regards mountain biking sites managed by other public or private organisations or wilderness trails, they are not the direct focus of the survey for a number of purposes. Firstly, the multitude of mountain biking sites in the UK is beyond the capabilities of the researcher. Secondly, the Forestry Commission is the only organisation in the UK which has issued publications addressing the status quo of the UK mountain biking, as well as reports spelling out strategies for the future development of this tourism activity. Such materials will serve as an essential point of reference for the researcher. Finally, the present paper appears to be the first study of mountain biking in the UK in the context of adventure tourism. The Forestry Commission in cooperation with VisitScotland have been proactively developing the riding centres, which are the focus of the present study, as adventure tourism destinations.

2. Research method

2.1. Research method selection

The present research involves collection and analysis of both secondary and primary data. Secondary data analysis indicated that the existing literature and research on the subject is very limited, however, it remains a fundamental part of the project providing information, which will be used to support the validity of the primary research findings. Primary research will involve quantitative data collection and analysis, which will allow to present the findings from closed questions in the form of tables and graphs.

The study is a combination of a descriptive, explanatory and evaluative research. The key objective of the descriptive part is presenting the characteristics and travel patterns of the UK mountain bikers. In order to conduct further analysis of the gathered information, the key variables were identified beforehand based on literature review. They were later incorporated into the questionnaire design. In order to address the issue of the representativeness of the collected data, considerable attention has been given to the sampling.

Different qualitative and quantitative research methods were taken into account for the purpose of the present study. As regards qualitative methods, focus groups would allow to explore the topic in-depth, thus, insight into the participants' motivations could be gained. It would also be possible to test theories developed by adventure tourism researchers. Nevertheless, arrangement of focused groups' discussions requires considerable amount of co-operation, time and resources, which were beyond the researcher's capabilities (Finn et al. 2000). In addition, as noted by Morgan (1988), in order to effectively use focus groups at least two researchers are needed. Apart from the pragmatic issues, it was also decided that, since the research into U.K. mountain bikers is practically non-existent, it would be more beneficial to analyse their general characteristics and travel patterns, rather than conduct an in-depth study of the adventure aspect only. This way, the present

research could serve as a vital point of reference for future studies. Consequently, this approach was abandoned and quantitative methods became the focus of the researcher.

Two methods of generating quantitative data for analysis were considered: a structured interview and different types of questionnaire surveys. The former would involve using a standardised set of questions, which would be answered on a face-to-face basis. This method offers a number of advantages including increased comparability of responses, reduced interviewer bias, and the possibility to analyse data easily (Finn et al. 2000, Veal 1997). However, as pointed by Finn et al. (2000 75), “one of the main problems with any interview is that it involves the establishment of an asymmetrical relationship between the interviewer and the interviewee”. In addition, there were concerns about prejudice, as well as interviewees giving responses satisfying the interviewer. Finally, issues connected with the selection and sampling were identified in that approach (Fielding 2002). Consequently, questionnaire survey was selected as the most convenient and appropriate research method. This decision was also based on previous studies of mountain biking. It was concluded that if the study was to have points of comparison with other research, the data had to be collected in a similar mode.

The two types of survey taken into consideration were a mail survey and an e-survey. The former is reported to be the most effective method of surveying a membership organisation (Veal 1997). This delivery method was not undertaken though, due to the cost of printing 360 questionnaires and the accompanying letters, as well as purchase of envelopes and stamps. These expenses would increase substantially if reminders were to be sent. Therefore, it was decided that an e-survey would be employed.

The advantages of an e-questionnaire included low cost of conducting the survey and the possibility of instant analysis of the collected data (Veal 1997). An additional benefit was the possibility of designing a visually attractive questionnaire. Furthermore, online surveys were selected as they are eco-friendly, owing to the non-use of paper (Survey Monkey 2007), an approach

reflecting the basic principles of the Forestry Commission, the administrator of the locations which are a focus of this study. An e-survey is also more advantageous for the respondents as they are allowed to take their time to answer the questions. At the same time, completing a survey online is quicker in comparison with filling out a postal survey (Survey Monkey 2007).

The biggest disadvantage can be the general perception of some e-surveys as part of the increasing volume of 'junk e-mail', which might play a role in response rates (Veal 1997). The spam and personal data protection concerns were addressed by selecting a legitimate and reputable organisation (IMBA U.K.) to distribute the e-questionnaire. Another disadvantage of a web-based survey, just like a postal one, is its limited administration, which can negatively affect the response rate (Survey Monkey 2007). Further drawbacks of using a web-based survey include technical faults and multiple submissions by the same respondent. Although it was impossible to prevent the former issue, the latter was solved by the use of a tool allowing only one response per computer.

2.2. Sample selection

The participants for this study were mountain bikers in the United Kingdom who are registered members of the U.K. branch of International Mountain Biking Association (IMBA). This group was selected based on a similar commercial survey conducted by Green (2003) among IMBA U.S. members. All respondents were expected to have taken at least one mountain biking trip (one-day or multi-day). The study used the members e-mailing list of IMBA U.K., with the total of 360 active mountain bikers, to serve as the sampling frame. IMBA U.K. is a primary association of mountain bikers in the U.K., cooperating with the Forestry Commission in development of new high-quality trails in Wales, Scotland and England, and creating partnerships with other U.K. cycle organisations. Consequently, this membership group can be regarded as actively involved in mountain biking in the U.K., and although it does not comprise the country's total population, it is likely to reflect characteristics and behaviour of U.K. mountain bikers in general. The sample

frame of 360 members seems to be reasonable in terms of accuracy. The response rate to the survey was targeted at 25 per cent or more.

Other samples considered in the present study included registered members of U.K. mountain biking Internet forums, as well as visitors to one of the FC managed mountain biking facilities in Scotland. The former approach was abandoned as a result of concerns about the representativeness of the study. Firstly, no evidence of such a research approach in the past has been found, not only in the area of mountain biking but in the field of leisure and tourism in general. Secondly, there were concerns about low response rate and difficulties in measuring it. As regards the latter, an issue of limited geographical diversity, as well as financial limitations were identified.

In summary, selecting members of IMBA UK as a sample frame can be justified for a number of reasons:

- IMBA is a leading organisation coordinating and developing the discipline of mountain biking;
- the sample of IMBA U.K. members yields geographical diversity;
- a similar survey was conducted by Donna Green in cooperation with IMBA U.S. in 2003 with approximately 1,400 IMBA members invited to participate and the response rate of 33 per cent;
- willingness of cooperation on the part of the IMBA U.K. team.

2.3. Survey instrument

A two-page, self-administered fully electronic questionnaire was designed using an online survey tool [surveymonkey.com](http://www.surveymonkey.com). The questionnaire design process offered by Veal (1997) was adopted in the present work. Firstly, literature review was conducted to identify conceptual problems and research questions. Secondly, a list of information required to address the issues as created. Thirdly, questionnaire was selected as a method which would meet the information requirements. The questionnaires used by Green (2003) in a survey on IMBA U.S. members, as well as a study by Cessford (1995) on

New Zealand mountain bikers served as a blueprint in the questionnaire design process. The factors examined in the questionnaire can be divided into five groups corresponding to the research objectives:

1. mountain bikers general characteristics (type of mountain biking participated in, level of advancement, frequency of participation);
2. mountain bikers' demographic and socio-economic characteristics (age, gender, household size, education, occupation and income);
3. the Forestry Commission locations used by mountain bikers (identification of the most popular mountain biking centres in Great Britain);
4. travel patterns of mountain bikers and trip-related factors in decision making (importance of promotional channels and of various destination features in destination choice, spend, means of transport and accommodation used, use of tour operators);
5. the importance of adventure components in mountain biking and the motivations of mountain bikers.

The e-questionnaire consisted of 21 questions, 15 of which concerned the respondent's mountain biking experience, while the remaining 6 their demographics (see Appendix 4). The demographics section was presented on the second page, as inserting all 21 questions on a lengthy single page might discourage respondents from completing the survey. 19 questions were closed, while only 2 open-ended. It was decided that pre-coded questions are a more reasonable option since the questionnaire was respondent-completed and, as reported by Veal (1997), open-ended questions are too time consuming, which can negatively affect response rate. As regards question techniques, 2 kinds of rating scales were employed, namely Likert scale with simple YES/ NO answers, as well as semantic differentials indicating the degree of importance of a particular feature using 5-point scale (1 – not important, 2 – quite important, 3 – important, 4 – very important, 5 – extremely important). These two scales were not only easy to construct and administer, but also respondent friendly. Several questions were checklist or multiple choice type, and only 2 were open-ended, though they did not require

descriptive answers. The ordering format was based on Veal (1997), who suggested sequencing questions in the following order: easy, relevant and personal. The questions were kept compact and simplified wherever possible, and clarity of layout was assured by using the online survey tool.

Introductory remarks specifying the purpose of the survey were included on top of the questionnaire, while confidentiality and anonymity were ensured in remarks preceding the demographic section of the questionnaire. In addition, a thank you page was created at the end of the questionnaire. These measures, coupled with the survey participation request posted on IMBA U.K. forum in advance, were employed to maximise response rate. In order to ensure validity of the questionnaire-based data, 'dummy' categories were included. In question 4, listing the Forestry Commission managed mountain biking centres, 3 non-existent locations were added – Mammoth (ENG), Gutter Valley (SCO) and Badger Trail (WAL). In question 8, the same feature was repeated twice under different wording ('Strong mtb community/ culture' and 'Strong mountain biking community/ culture'). This approach is suggested by Veal (1997) as a tool of measuring the degree of error in responses.

In the pre-testing stage of the questionnaire design, a 21-question draft was e-mailed to 10 members of IMBA UK forum who had earlier declared that they would be interested in completing it. The purpose of the pre-test was to determine whether the instructions and questions were interpreted in a manner which had been intended (Finn et al. 2000). Specifically, wording, sequencing and layout of the questionnaire were to be tested (Veal 1997). Most of those who replied described it as "easy to complete and not time consuming". Nevertheless, problems in two questions were indicated. Firstly, extending the list of Scottish mountain biking sites in question 4 was suggested. Upon reviewing the Internet sources, a total of 8 sites were added to the list. Secondly, it was signalled that question 13 asking about an approximate spend per trip was not precise enough. This issue was addressed by specifying the areas of spending that the respondents should consider (travel, food, drink, accommodation).

Following the pre-test, a pilot survey involving “a small-scale administration of the survey procedure as a whole”, was conducted (Finn et al. 2000 102). The importance of this stage of the survey design process is emphasised throughout the literature on research methods (Finn et al. 2000, Veal 1997). Not only does it serve to improve questions, format, and the scales of the survey instrument but above all it enables to establish the validity and reliability of the survey (Finn et al. 2000, Veal 1997). The internal reliability of the survey was tested by means of the *split halves* technique (Finn 2000). The pilot questionnaires were randomly allocated to two 10-person groups of IMBA U.K. forum members, and their answers were then evaluated. 6 questionnaires were returned, providing an estimate of the response rate (30 per cent). The results obtained from both groups were comparable, thus it was concluded that the questions are reliable. The completed questionnaires were later reviewed to ensure that all the questions have a single meaning. As no problems were indicated, and no content or editorial alterations were necessary, it was decided that the pilot questionnaire was completely appropriate for the main survey.

2.4. Data collection

The process of data collection was considerably facilitated due to the use of an online survey instrument. Time and money were saved as it was not necessary to seek permissions, obtain lists, organise printing, purchase insurance, or prepare identity badges. The only major task was the purchase of the data processing tool, which was quick and relatively cheap.

The online survey was employed for data collection between 26 March and 13 April 2008. According to the findings of University of Texas (2007), 10 days is a sufficient amount of time for respondents to complete an online survey. However, due to a 2-week Easter holiday taking place in many parts of Britain at the time of conducting the survey, the period of data collection was extended to 20 days. On 26 March 2008, 360 members of IMBA U.K. were sent an e-mail inviting them to complete the survey. It involved the

respondents being directed to a specified Internet link and completing the questionnaire online. The link to the e-questionnaire was uploaded on IMBA U.K. website along with the same message as in the email. A considerable volume of respondents completed the questionnaire within the first two days of receiving the email invitation, which confirmed findings of Yun & Trumbo (2006, cited in Survey Monkey 2007). The first reminder was posted on IMBA U.K. forum a week after commencing the survey; however, it did not seem to boost the number of responses. Therefore, 4 days before the planned closing date, an e-mail was sent by IMBA U.K. thanking those members who had already completed the questionnaire, and encouraging others to participate in the survey. This reminder was particularly effective as it resulted in further 30 responses (30 per cent of the total).

The total of 102 surveys were collected, with 99 respondents completing both pages and 3 respondents aborting the survey after completing the first page. For that reason, the three incomplete responses were deleted from the total count, yielding 99 completed questionnaires. The response rate of 27.5 per cent was recorded, thus the target of the study was met.

2.5. Data interpretation

Valid and complete surveys were downloaded into spreadsheet format and modified for statistical analysis. The final data analysis was conducted employing the SPSS 16.0 (Statistical Package for Social Scientists) software package. Firstly, the data was described using two SPSS procedures – *frequencies*, indicating counts and percentages for individual variables, and *means*, presenting averages for numerical variables. Secondly, explanatory part was carried out by means of *crosstabs* and *comparing means*. Both tools enabled to identify associations between variables, as well as non-spurious relationships. Those were supported by reference to the theoretical framework presented in literature review. Eventually, in the evaluative part, the survey findings were compared with other studies and benchmarks. In order to facilitate analysis of the data, the information collected from the questionnaires was presented in the form of graphs and tables.

3. The structure of the paper

In Chapter 2, literature and research into adventure tourism and mountain biking will be reviewed. Firstly, an attempt to define adventure tourism will be made. Secondly, research into adventure tourism will be examined, focusing on motivation-based studies, as well as surveys of adventure tourists' characteristics and travel patterns. The next section will focus on the status quo of mountain biking on the global level based on the existing literature. Finally, the UK mountain biking scene will be overviewed, and the Forestry Commission riding centres in England, Wales and Scotland will be presented.

In Chapter 3, the collected data will be described, explained and evaluated. Firstly, mountain bikers' demographic and socio-economic characteristics such as age, gender, household size, occupation and income, will be analysed. Secondly, mountain bikers' general characteristics, including types of mountain biking participated in, level of advancement and frequency of participation, will be examined. Thirdly, the most popular and most frequently used Forestry Commission mountain biking locations will be identified. Then, travel patterns of mountain bikers and trip-related factors in decision making will be explored. Here, the importance of promotional channels and various destination features in destination choice, spend, means of transport and accommodation used, as well as use of tour operators will be under investigation. Finally, mountain biking will be set in the context of adventure tourism. The importance of adventure components in mountain biking coupled with respondents' characteristics and travel patterns will enable segmentation of the UK mountain biking tourism market.

CHAPTER 2 – LITERATURE REVIEW

1. Activity and Adventure Tourism

1.1. Definition

It is widely acknowledged that activity and adventure tourism is one of the fastest growing segments of niche/ special interest tourism (Hall & Weiler 1992, Loverseed 1997, Shephard & Evans 2005, Swarbrooke et al. 2003, VisitScotland 2007). According to Ewert (1985), this growth started in the late 1970s and early 1980s throughout the western world, however it was in the early 1990s that the actual trend towards activity-based recreation and tourism emerged (Hall in Hall and Weiler 1992). It is estimated that nearly 50 per cent of U.S. adults, or 98 million people, engaged in adventure activities during their trips (Travel Industry Association of America 1998). In Canada likewise, eco-adventure trips are generally categorized as the second most popular type of travel behaviour after visiting friends and relatives, noting growth of 15 per cent a year (Canadian Tourism Commission 2008). Mintel Activity Holidays (2005) report indicates that at least 35 per cent of the UK population have been on an activity holidays. Popularity of this type of tourism can be further evidenced by a variety of magazines, journals, equipment production, outfitters, retailers and commercial operators catering for adventure tourists that have virtually flooded the market over the last two decades (Mintel 2005, Swarbrooke et al. 2003).

Unfortunately, in spite of its growing popularity and expansion in the travel and tourism industry, it has not been agreed what exactly constitutes this sector, a problem emphasized throughout literature related to adventure tourism (Hall 1992, Hudson 2003, Page et al. 2004, Shephard & Evans 2005, Swarbrooke et al.2003, Weber 2001). This lack of a consistent definition hinders precise measurement of the adventure travel market (Page et al. 2004). This problem results form at least three factors. Firstly, adventure tourism encompasses a multitude of land-, air- , water-based and mixed activities (Fennel 1999, Hall 1992, Page et al. 2003, Pomfret 2004), as presented in Table 1.

Table 1: Conventional and contemporary adventure tourism activities

Land based	Water/ Marine based	Air/ Aviation based	Mixed(land/water/air)
4x4 Driving	Body boarding	Ballooning	Adventure racing
Abseiling/ Rap- jumping	Caving	Bungee jumping	Charity challenges
Backpacking	Canoeing	Cliff jumping	Conservation expeditions
Caving	Canyoning	Gliding	Cultural experiences
Climbing	Cruise expeditions	Hand-gliding	Gap year travel
Cycling	Jet-biking	Micro-lighting	Hedonistic experiences
Dog sledding	Jet-boating	Paragliding	Spiritual enlightenment
Flying-fox operations	Kayaking	Parachuting	Wildlife watching
Hiking	Para-sailing	Scenic aerial touring	
Hunting	Sailing	Skydiving	
Horseback riding	Scuba diving		
Jungle exploring	Snorkelling		
Motorcycling	Surfing		
Mountain biking	Water skiing		
Mountaineering	White water rafting		
Orienteering	Windsurfing		
Overland route			
Quad biking			
Scrambling			
Skiing			
Snowboarding			
Snow mobiling			
Snow shoeing			
Trekking			
Via Ferrate			
Wilderness experiences			

Sources: Hall 1992, Page et al. 2003, Pomfret 2004

The difficulty in delineating what constitutes adventure tourism also comes from the fact that it is the participant's characteristics and his/ her perception of adventure that determine the definition. Adventure levels are based on the subjective perception of risk and the form of travel which is seen as adventurous, and which is related to the individual's background and his/ her earlier life experiences. Therefore, adventure tourism may represent different things to various groups of participants at different risk levels (Shephard & Evans 2004, Weber 2001). In addition, Shephard & Evans (2004) indicate the necessity for adventure tourism operators to ensure a balance within their specific adventure tourism niche as another definitional problem. Deliberately exposing their clients to dangerous situations would not only be irresponsible but it could also have financial and legal consequences attributable to possible lawsuit following accident and other injurious circumstances (Shephard & Evans 2004).

However, what appears to be the greatest problem in constructing a definition of adventure tourism is its distinguishment from adventure recreation, the issue prevalent in other types of tourism (Ewert 1987, Hall 1989, Johnston 1992, Page et al. 2003, Weber 2001). Since most forms of tourism are closely related to recreation, for instance, in terms of resources, facilities, social and environmental impacts, as well as influences on participants, adventure tourism is commonly regarded as an extension of adventure recreation (Ewert 1989, Hall and Page 2002, Williams 2003). Williams (2003) notes that due to developments in travel technology and advertising the same products to both tourists and recreational day visitors, it is increasingly difficult to make clear distinctions between the two groups. What generally distinguishes adventure recreation and tourism is the trip taken by participants from their home settings and the extent of their engagement in proper, commercialized, adventure oriented activities. In adventure recreation activities, the participant is responsible for creating and managing the adventure experience while, as the activities turn into commercialized ones, the tourism operator takes responsibility for the management and provision of the adventure experience/ package. Nonetheless, it does not mean that the contribution of participants acting independent of commercial operations is to be deemphasized. In fact, it

is acknowledged that commercialized adventure activities are frequently used only as an introductory phase to some types of adventure travel after which the participant acts autonomously (Weber 2001).

In defining adventure tourism, it is useful to refer to ten core characteristics of adventure proposed by Swarbrooke et al. (2003):

1. Uncertain outcome
2. Danger and risk
3. Challenge
4. Anticipated rewards
5. Novelty
6. Stimulation and excitement
7. Escapism and separation
8. Exploration and discovery
9. Absorption and focus
10. Contrasting emotions

A combination of them can be connected with tourism, thus forming an expectation and realization within the adventure tourism context (Swarbrooke et al. 2003). One aspect ignored here is the participant's contact with natural outdoor environment, outside of his/ her home-base (Hall 1992). However, it is risk that is generally viewed as the defining feature of adventure tourism (Ewert 1989, Page et al. 2003, Shephard and Evans 2005, Sung et al. 1997). Therefore, the definition acknowledged by most researchers remains the one offered by Ewert (1989 8), who depicted adventure tourism/ recreation as 'the deliberate seeking of risk and the uncertainty of outcomes'.

Since adventure activities range from non-hazardous to high risk, the concept of 'Soft adventure' or 'Hard adventure' is used for grouping them (Shephard and Evans 2005). The former relates to activities pursued by individuals attracted to a perceived risk and adventure but with little actual risk, thus no previous experience is necessary and anybody physically fit and able can get involved. On the other hand, in hard adventure both the participant and the

service provider are aware of a high risk level, as well as requirements of previous experience, competence, and skills essential for this kind of activity to cope with the unexpected outcomes. According to Morpeth (2001), in soft adventure tourism, education, as well as environmental and cultural appreciation are the most important aspects of the experience, whereas in hard adventure tourism, challenging environments and risk taking are the key factors.

Table 2: Examples of soft and hard adventure tourism

Soft adventure	Hard adventure
Wilderness jeep safaris	Climbing and mountaineering
Supervised and escorted trekking	Long distance back country trekking
Cycling holidays	Downhill mountain biking
Sailing holidays	Paragliding
Learning to surf and to windsurf	Heli-skiing holidays
Camping	Canoeing and kayaking

Source: Sung et al. 2000

For the purposes of this research, the definition proposed by Wales Tourism Board (Keeling 2003) will be used, as not only does it set adventure activities in the tourism context but it also offers a helpful categorization of visit types. Adventure tourism is defined as “holiday and day visits that involve participation in active or adventurous outdoor activities, either as a primary or secondary purpose of visit” (Keeling 2003 1). It includes three types of visits:

1. Adventure holidays – holidays and short breaks with adventure activities being the primary purpose of visit.
2. Holiday participation in adventure activities – involvement in adventure activities during a holiday, as secondary holiday activities, along with other activities.
3. Adventure day visits – day visits with adventure activities being the primary purpose of visit.

Adventure tourism can include participation in adventure activities organised by a local service provider or organised independently, as well as single- and multi-activity participation (Keeling 2003).

1.2. Research

It is acknowledged that little research has been conducted on adventure tourism and this area of study is still evolving (Ryan 2003, Ewert & Jamieson 2003, Page, Bentley, & Laird, 2003 Fluker and Turner 2000, Walle 1997; Weber 2001, Berno et al. 1996). Generally, adventure tourism studies were aimed at understanding adventure tourist behaviour. First line of research, motivation-based, investigated why people engage in adventure travel thus analysing the needs, motivations, and expectations of adventure tourists (Csikszentmihalyi 1990, Ewert 1985, 1987, 1989, Hall and Weiler 1992, Iso-Ahola 1980, 1987, Walle 1997), whereas second line aimed to analyse their participation patterns, characteristics, experiences, and perception of adventure (Sung et al. 1997, Sung 2001, Sung 2004, Trauer 2004).

Motivation has received much of the research on adventure travel (Crompton 1979, Dann 1981, Galloway 1998, Veal 1997). This is not surprising, as, according to many researchers (Gunn 1998, Wahab 1975), motivation is a starting point in analysing tourist behaviour, as well as the driving force behind all actions (Crompton 1979, Iso-Ahola 1982). Although considerable attention has been given to this concept, a commonly accepted conceptual framework is still lacking. What hinders studying motivation is the fact that it comprises a variety of private needs and wants that are difficult to measure (Gee et al. 1984, French et al. 1995).

Before reviewing the literature on the motivation-based studies, it is essential to classify the motivations connected with adventure travel. Hall (1992) proposes categories of risk seeking, self-discovery (insight seeking), self-actualization (self-fulfilment), contact with nature (setting), and social contact (socializing). Sung (2004) extends Hall's classification and groups the motivations into two involvement domains. Centrality domain includes self-

awareness, self-discovery, achievement, and self-actualization, components central to the traveller's value system, while self-expression domain comprises control, affiliation, and social contact (Sung 2004). According to Sung (2004) these can serve as a set of effective explanatory parameters which can provide an explanation of adventure specific behaviour. Sung, Morrison, and O'Leary (1997) use a set of six factors characterising the notion of adventure: environment, experience, risk, motivation, and performance, to explain participants' specific behaviour in different adventure trips.

Motivation studies of adventure tourists indicate that their involvement is stimulated by complex motives such as risk- and challenge seeking (Ewert 1985, Walter 1984). Risk, regarded as the key element of adventure distinguishing it from other forms of recreation, is frequently addressed in the literature on adventure tourism and adventure recreation (Ewert 1987, 1989, Ewert and Hollenhorst 1994, Hall 1992, Meier 1978, Weber 2001).

Johnston (1992), who proposes the theory of 'risk thresholds', claims that staying below the risk threshold leads to positive feelings from risk seeking, whereas exceeding it results in negative feelings towards particular activities. What researchers emphasise is the correlation of risk with personal competence. It is acknowledged that the extent to which risk is taken depends on the skills and experience of the participant (Iso-Ahola 1987, Martin and Priest 1986, Robinson 1992). Since adventure tourism comprises 'soft' and 'hard' activities, perception of risk among adventure travellers may vary (Mintel 2001). Consequently, the outdoor adventure recreation has been conceptualised by traditional risk recreation theories from two perspectives: perceived risk and perceived competence (Weber 2001). Bentley et al. (2001) developed a conceptual model for risk factors in adventure tourism based on the existing research on adventure tourism and recreation. The model presents the relationship of risk with other key motivators of adventure travellers (see Appendix 1) in order to highlight that a number of integral elements of adventure tourism, such as the participant experience, equipment and environmental factors, as well as management and organisational factors,

affect the extent of risk and level of accidents and safety concerns (Page et al. 2005).

Some researchers, however, demonstrate that risk does not necessarily have to be the key feature of adventure tourism and recreation. Walle (1997) claims that two adventure types can be distinguished: risk seeking adventure and insight seeking adventure. In the former, the participant seeks risk as an end in itself to experience self-fulfilment at a higher level, whereas in the latter, the adventurer wants to gain knowledge and insight (Walle 1997). However, a number of studies contradict Walle's claim of pursuing risk for its own sake by indicating that adventure travellers express the utmost concern about safety, and would not neglect it only to satisfy their higher level needs (Ewert 1994, Ewert and Hollenhorst 1994, Hall and MacArthur 1994). As noted by Weber (2001 362), what adventure travellers seek is "to match their skills and competence with the situational risk". Consequently, "both risk and insight seeking have to be present, in varying degrees, for an adventure to take place" (Weber 2001 363).

Another significant factor in adventure recreation is challenge (Iso-Ahola 1980, Johnston 1987). What preoccupies researchers is the concept of 'flow', i.e. a feeling experienced by an individual when a challenge is met. Flow occurs when the participant's skills and competence match the requirements of an activity or situation. According to Csikszentmihalyi (1990) there are seven components of flow: a centring of attention; transitoriness; increased perception; forgetting oneself and being completely immersed in the demands of the activity; loss of time and space orientation; satisfaction; and temporary loss of anxiety and inhibition. Consequently, experiencing flow can be linked with self-actualisation (self-fulfilment), one of Hall's (1992) five categories of motivation. Arguably, it is meeting a challenge and experiencing flow that is the paramount motive for adventure activities participants (Hall and Weiler 1992). Whether the primary motive for adventure tourists is risk-seeking or self-fulfilment, there is no doubt that adventure tourism operators' role is not limited only to the provision of the right setting. As injury to participants or their death could have a considerable impact on their operations, balance has to

be found between safety, the competence of the participant, and real and perceived risk to produce a desirable adventure experience (Carpenter and Priest 1989, Hall and McArthur 1991, Vester 1987).

Some studies claim that contact with nature is a significant motive in outdoors adventure tourism (Millington et al. 2001, Weber 2001). According to Hall and Weiler (1992), however, with the exception of a few adventure tourism segments, such as trekking and overland route, the environment serves only as the background for the activity. Nonetheless, the environmental setting has to be maintained since it constitutes the resource on which the experience depends (Hall and Weiler 1992).

What is of particular importance is the fact that motivations of adventure participants may change as their experience in a particular activity increases (Ewert 1985, Hall and McArthur 1991). A study of mountain climbers in the USA showed that even though challenge was present throughout the adventure experience, motives shifted from extrinsic ones, for instance escape, when the participant's competence was low, to more intrinsic reasons such as stimulation, personal testing and ability to take decisions for more experienced climbers (Ewert 1985). Also research on participants in commercial white-water rafting in Australia carried out by Hall and McArthur (1991) acknowledges these findings. It was demonstrated that most of the participants were first-time rafters and that those who had been on more than three commercial rafting trips would rarely use rafting companies. It was observed that participants were experiencing rafting as a one-off adventure activity, while those participants who wanted to continue white-water rafting would either do so privately or join non-profit clubs, rather than use commercial operators. This also proves that commercial adventure tourism packages might be used as a 'safe' entry to self-organised adventure travel or recreation (Hall and McArthur 1991).

The second line of research, analysing differences in travel behaviour and understanding tourists decision-making process, as well as a range of trip characteristics has only emerged recently, and even though it is much more

influential from the perspective of adventure tourism practitioners, it has received very limited attention. In spite of that, the existing critiques (Sung et al. 1997, Sung 2001, Sung et al. 2004, Trauer 2004) offer a useful analysis of consumer and travel behaviour of adventure tourists based on market segmentation. Based on a number of studies, it is possible to create a general profile of the adventure traveller: men, middle aged, well-educated, professional, and well-off (Higgins 1996, Loveseed 1997, Wight 1996). However, as Sung (2001) points out, this information presents little value for adventure tourism providers. In her opinion, by “using traveller and consumer characteristics for market segmentation purposes can be seen as one way to classify traveller subgroup segments to develop a traveller typology” (Sung 2004 346). This is particularly essential in the light of a great range of adventure tourism segments and different levels of participation. According to Sung (2004), factors that should be taken into consideration when classifying different travel groups include: demographic and socioeconomic profiles, trip-related factors (location and activity), and perception of adventure in travel decision making. It is the perception of adventure that is especially important as this factor can be affected by tourism providers through marketing (Ewert and Hollenhorst 1994; Hall 1992; Oden 1995; Sung et al. 2000; Weber 2001). Using those factors Sung (2004) developed segmentation of U.S. adventure traveller subgroups. The six clusters included: general enthusiasts, budget youngsters, soft moderates, upper high naturalists, family vacationers, and active soloists. Analysis of perception of adventure by the six subgroups revealed that activity, experience, and environment are perceived by as the most important, which confirmed results of another study (Sung, Morrison, and O’Leary 1997). Sung (2004) suggests that by examining perceived significance of adventure travel components by different subgroups, it is possible to gain insight into some underlying factors in adventure tourism participants’ varied levels of involvement when choosing different trips. Consequently, adventure travel providers and marketers are able to formulate effective strategies, as well as create and deliver adventure tourism products and services to target those segments (Hall 1992, and Oden 1995, Sung 2004). It appears that Sung’s study (2004) presents a powerful explanation of

consumer and travel behaviour of adventure tourists thus filling gaps in the literature on adventure tourism.

It has to be noted that typologies of adventure tourists have been developed for the UK market as well. For instance, a report prepared for Wales Tourism Board in 2002 presents a useful classification of the UK adventure tourism market (Keeling 2003). The segmentation distinguishes between eight groups of adventure tourists: samplers, learners, enthusiasts, dabblers, corporate groups, education and youth groups, special occasion buyers and activity clubs. A detailed description of each of these segments, including market size and growth potential, importance to activity operators, as well as receptiveness to destination marketing, is presented in Appendix 2. Some tourism operators use only the core segments of this typology in their classification of adventure tourists, i.e. samplers, learners, dabblers and enthusiasts (VisitScotland 2007).

2. Mountain Biking

2.1. Origins and definition

Mountain biking is generally classified as an adventure tourism segment (Ewert 1987, Hall 1992, Page 1997, Pomrfet 2004, Sung et al. 2000), increasingly contributing to special interest tourism sector (Ritchie 1998). According to Cycling Association of Yukon, Canada, what particularly stimulates this growth is destination mountain biking (Koepke 2005).

Bicycles have been ridden off-road since their invention, therefore major controversies have arisen as to mountain biking origins and the claim to the birth of the discipline has been laid by numerous riders and clubs. It is believed that the foundations for mountain biking were laid at approximately the same time - 1950s - by the Rough Stuff Fellowship in the UK, the Velo Cross Club Parisien in France and John Finley Scott in the USA. As a sport,

however, mountain biking is believed to have originated in Marin County, California and it is widely acknowledged that Gary Fisher and Joe Breeze were its original founders (Mountain Bike Hall of Fame 2008, Worland 2003). In 1982 the first two commercially manufactured bikes went on sale in the USA, and soon the product recorded massive popularity ensuring steady growth in popularity of mountain biking in the 1980s (Mountain Bike Hall of Fame 2008). In 1988, the International Mountain Biking Association (IMBA) was founded with a mission to “create, enhance and preserve trail opportunities for mountain bikers worldwide” (IMBA 2008). Since then it has been at the fore of coordinating and developing the discipline in the US. Nowadays, the organisation has its associations in Australia, Canada, Italy, Mexico, Spain and the UK (IMBA 2008).

Mountain biking is defined as a type of cycling taken primarily on “off-paved roads, purpose-built single track trails, fire roads, access roads and multi-purpose trails” (FCS 2005). Although it is categorized into three major types: cross-country, downhill and free-riding, it continues to evolve into new forms, such as street, dirt jumping, North Shore, epic and trials (FCS 2005, Koepke 2005). Cross-country remains the most popular category, often described as recreational as it involves riding in the backcountry, with the emphasis on endurance and skill. Here, riders use lightweight bikes, designed for different types of terrain and the rides, lasting a few hours or longer, include climbs, downhill parts, technically challenging sections and a range of landscape (Cessford 1995). Downhill riders, on the other hand, concentrate more on the risk factor, descending steep and rough terrain at speed using heavy bikes with long-haul suspension. For that reason, it is necessary for them to wear body armour and full-face helmets. They are transported to the top ski lifts, motor vehicles, or helicopter and the rides are usually short (Cessford 1995). As regards free-riding, the focus here is on extreme riding requiring a high level of technical skills to handle steep descents with obstacles such as jumps, steps and drop-offs that are frequently purpose-built (Cessford 1995). Trials are regarded as the most technically demanding form of mountain biking, in which the rider jumps over natural and/ or man-made obstacles, and does not touch the ground with their feet. The bikes used in trials have small,

low frames with specific geometry, no suspension, low gears, thick rear tire, and, usually, no saddle (Trials-online 2008). Dirt jumping refers to riding bikes over shaped mounds of dirt or soil and getting airborne. Bikes used in dirt riding have small frames, front suspension, fast-rolling and slick tires, low seatposts, oversized handlebars, and commonly singlespeed (Dirt-jumping 2008).

In defining mountain biking, it is essential to mention the terms “doubletrack“ and “singletrack“. The former denotes routes wide enough for passenger or all-terrain vehicles, whereas the latter a trail or path that can only accommodate people travelling in single file. It is singletrack that is the most sought after experience among mountain biking participants as it “provides users with a closer connection to nature, segregation from motorized vehicles, and a more challenging or varied experience than double track or roads can provide” (Koepke 2005 3).

2.2. Global levels of participation

Mountain biking became one of the fastest growing outdoor activities with participation levels increasing by over 400 per cent between 1987 and 2000 (Koepke 2005). In the US, there are approximately 50 million mountain bikers (IMBA & Shimano 2008), while regular participation between 1994 and 2003 ranged between 4-6 per cent of the adult population (Green 2003, Koepke 2005). Similar statistics (approximately 4 per cent) apply to Canada (Koepke 2005) and the UK, where cycling and mountain biking accounted for 4 per cent of an estimated 1.3 billion countryside leisure day visits for 2002/03 (Mintel 2005). Other mountain biking nations include Germany (3.5 million mountain bikers out of 7.2 million recreational cyclists), Switzerland and Austria, with the total number of mountain bikers estimated at 800,000. Popularity of this discipline is also significant in Spain, Italy, France, Belgium, and the Netherlands, as well as South Africa, Australia, and New Zealand. SPARC research in New Zealand conducted in 2001 indicates that 12 per cent of 25 to 34 year olds and 6 per cent of all adults (177,200) go mountain biking annually (Cessford 1995).

2.3. Participants' demographics and characteristics

There is an absolute dearth of research on mountain bikers, while studies on them in the context of adventure tourism are non-existent.

2.3.1. Demographic and socio-economic profile

It is generally accepted that mountain bikers are predominantly male (Cessford 1995, FCS 2005, Green 2003, Reiter and Blahna 2002) with some surveys having as many as 86 per cent of male respondents (Green 2003). However, according to Koepke (2005), a gender shift has been taking place, with female participation increasing by 33.9 per cent between 2002 and 2003 in the US, against 5.6 per cent growth overall, a trend that is bound to continue in the future. As regards participants' age, some inconsistencies have been noted (Koepke 2005), however, most riders are in their mid-20s to mid-40s, with the 35-plus group comprising close to 30 per cent (Green 2003, Koepke 2005, Reiter and Blahna 2002). It proved more difficult to determine the marital and parental status. IMBA US study indicated that 35 per cent of respondents were married or cohabitating with children another 34 per cent were single; and 31 per cent were married or living without children (Green 2003). Another survey showed that more than two-thirds of riders were married or partnered (Koepke 2005). Moreover, mountain bikers are highly educated, with as many as two-thirds having at least college education (Koepke 2005, Reiter and Blahna 2002), while their incomes are consistently high (FCS 2005, Greens 2003, Koepke 2005, Reiter and Blahna 2002). These findings might suggest that two prevalent mountain biker groups can be distinguished: fairly affluent young to middle age professional people and university/ college students (Reiter and Blahna 2002).

2.3.2. Frequency of participation

Research has indicated that the majority of mountain bikers participate in the activity frequently (Green 2003, Koepke 2005, Reiter and Blahna 2002). US

surveys determined that bikers ride an average of 4-6 times per week in the season (Koepke 2005). In addition, 1.3 out of 8 million US mountain bikers stated that mountain biking was their favourite activity, while those from New Zealand admitted considerably higher participation in mountain biking than in other activities. It has also been found that those who ride mountain bikes frequently are likely to be involved in the activity on a long-term basis, thus their dedication increases with years of involvement in mountain biking. On the other hand, those who ride infrequently tend to abandon the activity at some point (Koepke 2005).

2.3.3. Destination choice – sources of information, accommodation used and length of stay

Based on research carried out among 464 IMBA members, word of mouth and recommendation from family and friends are the most important factors influencing a choice of mountain biking destination (Green 2003). These findings were confirmed by a survey conducted among 576 mountain bikers in Moab, Utah (Reiter and Blahna 2002). Other common sources of information included Internet research, mountain bike magazine articles, as well as a mountain bike race or event (see Table 3).

Table 3: Factors Influencing Destination Choice (Green 2003)

Factor	Importance Rating (out of 5)
Reputation of destination	4.0
Recommendation from a friend/relative	4.0
Internet research	3.4
Mountain biking magazine article	3.2
Mountain bike race or event	3.2
Guidebook	3.1
Bike club	3.1
Article in a general outdoor magazine	2.7
Brochure	2.6

Travel agent	1.6
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As regards accommodation choice, 45 per cent of respondents preferred camping, 40 per cent used small lodges or inns, while 8 per cent hotels. Furthermore, 40 per cent of destination mountain bikers travelled with friends and family, and 31 per cent with friends only. The average length of all destination mountain biking trips was 4.6 nights, with most days spent mountain biking exclusively. Finally, respondents would seldom book a mountain biking trip through a tourism operator, while the overwhelming majority would use their own bike (Green 2003). Similar results were found in the Moab survey (Reiter and Blahna 2002).

2.3.4. Desirable features of a mountain biking destination

IMBA study also evaluated the significance of a number of attributes that make a destination more appealing for mountain bikers. It revealed that what participants value most are: variety and difficulty of terrain, the number of trails, and scenery. The least desirable feature was availability of other outdoor activities, which indicates participants’ tendency to focus particularly on mountain biking during their trips (Green 2003). Table 4 presents detailed findings of the IMBA study.

Table 4: Desirable Features/ Attributes in a Mountain Bike Destination

Feature	Importance Rating (out of 5)
Variety/difficulty of terrain	4.5
Number of trails	4.4
Scenery	4.3
Reputation as a mountain biking destination	3.9
Cost of trip	3.7
Weather	3.7
Strong mountain biking community/culture	3.5
Ease of getting to the destination	3.4
Other facilities (bike shops, accommodation etc)	3.3

Availability of other outdoor activities	3.1
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Those results are absolutely consistent with a survey carried out among New Zealand mountain bikers (Cessford 1995). This study also revealed that while for experienced participants speed, excitement and risk was the most essential factor, less experienced riders valued the attributes of relaxation and easy riding (Cessford 1995).

What a number of studies demonstrated is that participants' spending patterns depend on the quality of the riding experience in a particular destination. It is generally acknowledged that mountain bike tourists' "willingness to pay" (WTP) is high in world-class destinations (Cessford 1995, FCS 2005, Green 2003).

3. Mountain Biking in the UK

3.1. Participation levels

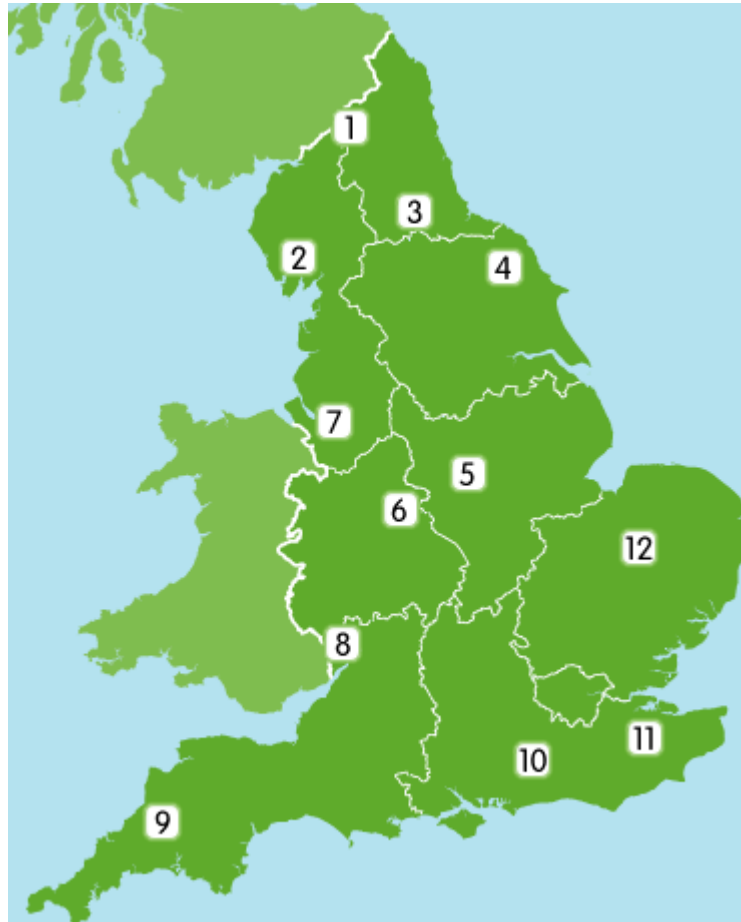
When compared to the USA, New Zealand or Australia, the UK mountain bike market is still in its initial development phase (FCS 2005). Consequently, detailed statistics on mountain biking in the UK are not available. Nonetheless, it is acknowledged that there has been a remarkable growth in the volume and value of mountain biking in the past two decades (FCS 2005, IMBA 2005). In 2001, it was estimated that 5.7 per cent of the UK population participated in mountain biking, and by 2005 the figure almost doubled with 5.5 million people riding off-road. Every year over 2 million mountain bikes are sold in the UK (IMBA UK 2005).

3.2. England

In England, the Forestry Commission manages 12 mountain biking centres (see Map 1), which tend to attract family cyclists, though there are also a few

destinations offering challenging single-track routes, as well as future plans to develop more such trails (FCE 2008). Research on mountain bikers in England is practically non-existent.

Map 1. FC England Mountain Biking Destinations



1. Kielder
2. Grizedale
3. Hamsterley Forest
4. Dalby Forest
5. Sherwood
6. Cannock Chase
7. Delamere
8. Forest of Dean
9. Haldon

10. Alice Holt
11. Bedgebury
12. Thetford

Source: FCE (2008)

3.3. Wales

The 7 purpose-built mountain biking facilities developed by the Forestry Commission in Wales (see Map 2) have been benchmarked while developing mountain biking destinations in Scotland and Yukon, Canada (FCS 2005, Koepke 2005). Mountain bike visits to Wales were recorded at 133,000 in 2003. Research revealed that 41 per cent of visitors are local residents, 24 per cent day-visitors, while 35 per cent on extended holidays. The economic impact of mountain biking tourism in Wales is estimated at £3.3 million (Snowling 2004).

Map 2. FC Wales Mountain Biking Destinations



1. Coed y Brenin
2. Nant yr Arian
3. Afan Forest Park
4. Glyncoirwg
5. Cwmcarn Forest
6. Garwanant
7. Brechfa
8. Glasfynydd
9. Marin

Source: FCW (2008)

3.4. Scotland

Scotland, generally regarded as the U.K. outdoor capital, is a renowned world-class mountain biking destination (FCS 2005). Particularly recognised are the 7Stanes sites, inspired by the success of Forest Enterprise Wales mountain biking destination at Coed-y-Brenin (Koepke 2005). The project has been launched and managed by the Forestry Commission Scotland in cooperation with a number of national, regional, and local organisations, and is co-financed by the European Union (FCS 2005). The 7Stanes include Glentool, Kirroughtree, Dalbeattie, Mabie, Ae, Glentress and Innerleithen, and Newcastleton. It is undoubtedly Glentress that is the project's major success, attracting over 250,000 forest visitors and at least 150,000 mountain bikers every year (FCS 2005, see also Table 5). It has been tagged as the U.K. mountain biking 'mecca' (IMBA UK 2008, FCS 2005).

Table 5: Forest Visitor Number Estimates (2000-2004)

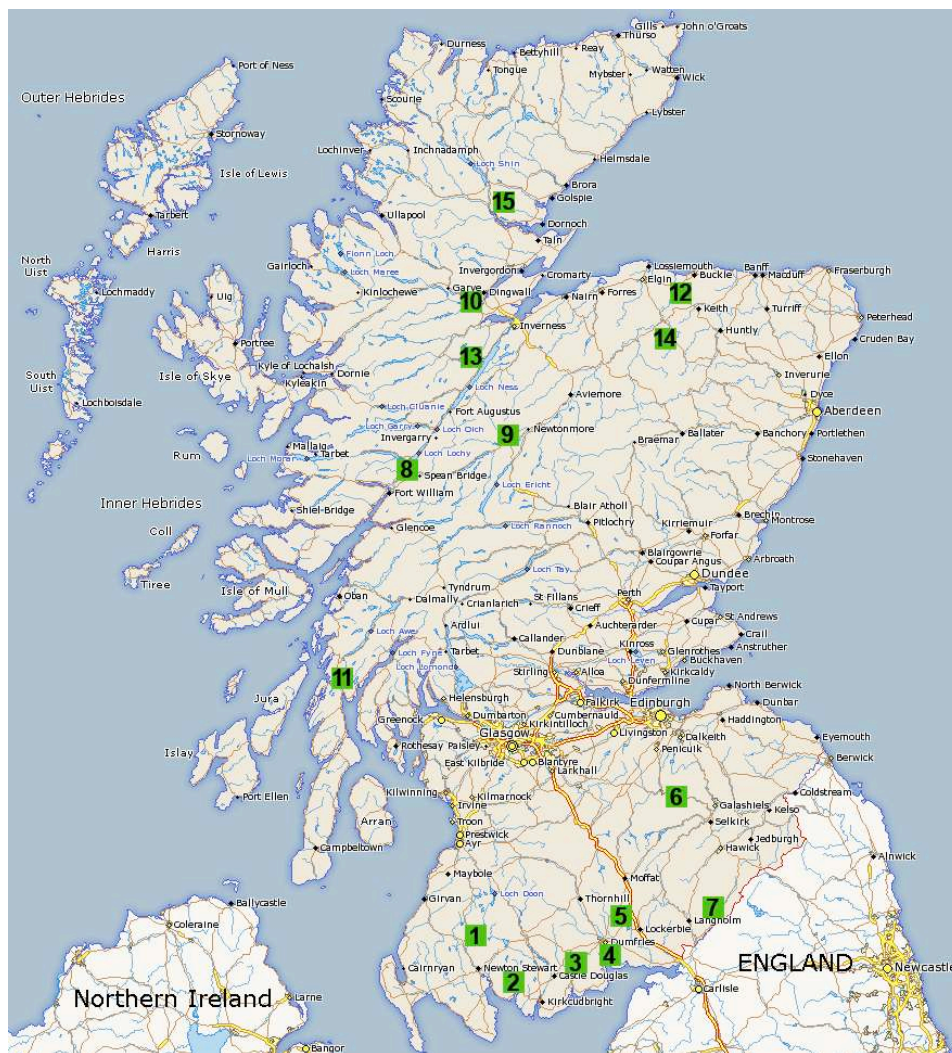
7stanes Site	2000 (pre-7stanes) Estimates	2004 FCS Estimates	% change 2000-2004
Dalbeattie	12,678	22,864	80
Mabie	74,864	92,861	24
Kirroughtree	23,582	33,000	40
Glentool	14,345	20,733	44
Glentress	105,470	240,349	128

Note: These are all visitors, not just cyclists

Source: FCS (2005)

However, the development of mountain biking tourism in Scotland is not limited only to the 7Stanes. The FCS also administers a number of recognised mountain biking centres throughout Scotland (see Map 3). In addition, Fort William Leanachan Forest is a renowned downhill, cross-country, trials and 4-cross venue, hosting a number of events including Union Cycliste Internationale (UCI) World Cup (in 2002, 2003, 2004, and 2007).

Map 3. FC Scotland Mountain Biking Destinations



1. Glentool (7Stanes)
2. Kirroughtree (7Stanes)
3. Dalbeattie (7Stanes)
4. Mabie (7Stanes)
5. Ae (7Stanes)

6. Glentress and Innerleithen (7Stanes)
7. Newcastleton (7Stanes)
8. The Witch's Trails
9. Laggan Wolftrax
10. Learnie Red Rock
11. Fire Tower Trail
12. Moray Monster
13. Balnain Bike Park
14. Carron Valley
15. Kyle of Sutherland

Source: Map of Scotland (<http://itraveluk.co.uk/maps/scotland.html>)

Though statistics on the mountain biking market in Scotland are non-existent, it is estimated that the 7Stanes alone can have an impact of £6 million on the Scottish economy every year (FCS 2005). VisitScotland Cycling Statistics Report (2003) indicated that 100,000 trips (600,000 bednights) were taken by UK residents to Scotland, with cycling as the main purpose of the trip, which had the economic impact of £20 million. The report also demonstrated that 59% of travellers were keen/ enthusiastic cyclists, and the average spending per trip was £200 (or £33 per night). The majority of cyclists were between 35 and 44 and came from the AB categories, with 32 per cent being Scots and 63 per cent English. As regards cycling as part of a trip, there has been an estimated 900,000 trips (4.8 million bednights) generating £200 million. Here, 58 per cent of visitors were Scottish residents, while 39 per cent were English. The study also revealed that the average length of stay of 'cycling trips' in Scotland was five nights (VisitScotland 2003).

It is generally acknowledged that there has been a steady increase in the number of cycling/ mountain biking trips in Scotland (FCS 2005, VisitScotland 2003). This growth can be evidenced by comparing the VisitScotland cycling factsheets from 2001 and 2003 (see Table 6), as well as forest visitor numbers recorded at the 7Stanes locations before and after the project development (see Table 5).

Table 6: Trends in cycling in Scotland 2001 to 2003

2001 Number of Trips	2003 Number of Trips	Change between 2001- 2003	2001 Expenditure	2003 Expenditure	Change between 2001- 2003
Cycling as main purpose of trip	100,000	100,000	£8m	£20m	+150%
Cycling as part of holiday trip	700,000	900,000 (+28%)	£147m	£199m	+35%

Source: VisitScotland (cited in FCS 2005)

Undoubtedly, Glentress and Fort William remain the priority for the FCS and VisitScotland. Having invested £2 / £3 million in Glentress, it is now time to focus on trail and product development to ensure improved visitor servicing (FCS 2005). SWOT analysis of the mountain biking product (see Appendix 3) revealed that one of the weaknesses is lack of market segmentation, as well as understanding of various market needs (FCS 2005), therefore, if the objectives set by FCS (2005) and VisitScotland (2007) are to be achieved, it is essential to address these issues.

3.5. Facilities not administered by the FC and unauthorised trails

It has to be highlighted that although the aforementioned FC administered riding centres receive substantial exposure in the media (due to heavy promotion by a number of national, regional and local tourism organisations), there are a number other purpose-built singletrack facilities throughout the U.K developed by both public organisations and private enterprises (FC 2005, IMBA 2008). In addition, a multitude of unauthorised routes, frequently used by the majority of the U.K. mountain bikers, are scattered throughout the U.K. (Crowther 2005, Rough Stuff Fellowship 2008). Particularly in Scotland, the use of such trails is on the increase due to the enactment of the Land Reform Act (2003), giving anyone statutory rights to most land and inland water (FCS 2005).

CHAPTER 3 – SURVEY RESULTS AND ANALYSIS

1. Mountain bikers' general characteristics

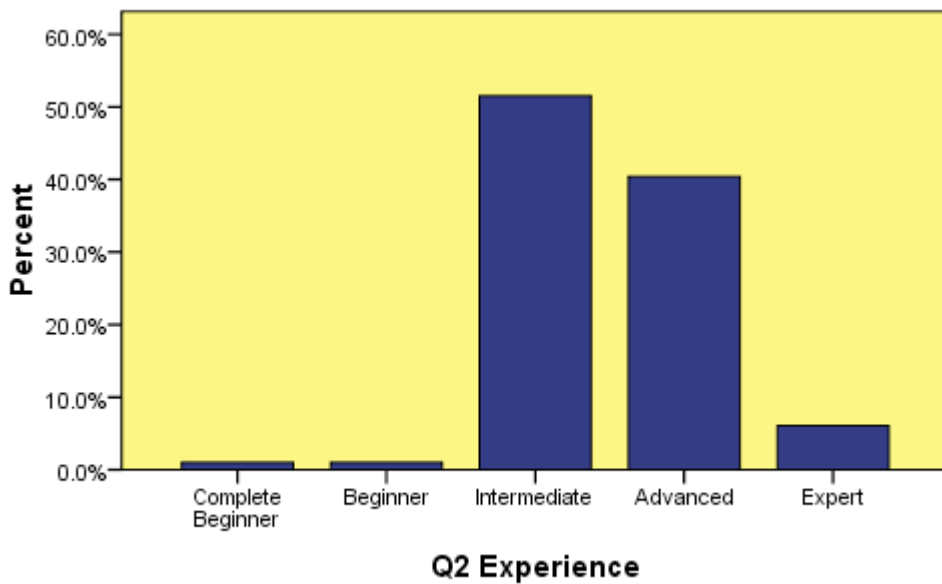
Almost all the respondents were cross-country riders, while less than a quarter went downhill, freeriding, and/ or dirt road/ rail road riding. The least popular type of mountain biking was trials riding, which obviously results from the fact that it is considered the most technically challenging type of mountain biking taking hours of practice and frequent falling. Table 7 presents the percentage of survey respondents participating in those types of mountain biking.

Table 7: Types of mountain biking participated in

Cross-country	97.0%
Downhill	22.2%
Freeriding	21.2%
Dirt road/ rail road	18.2%
Trials	8.1%

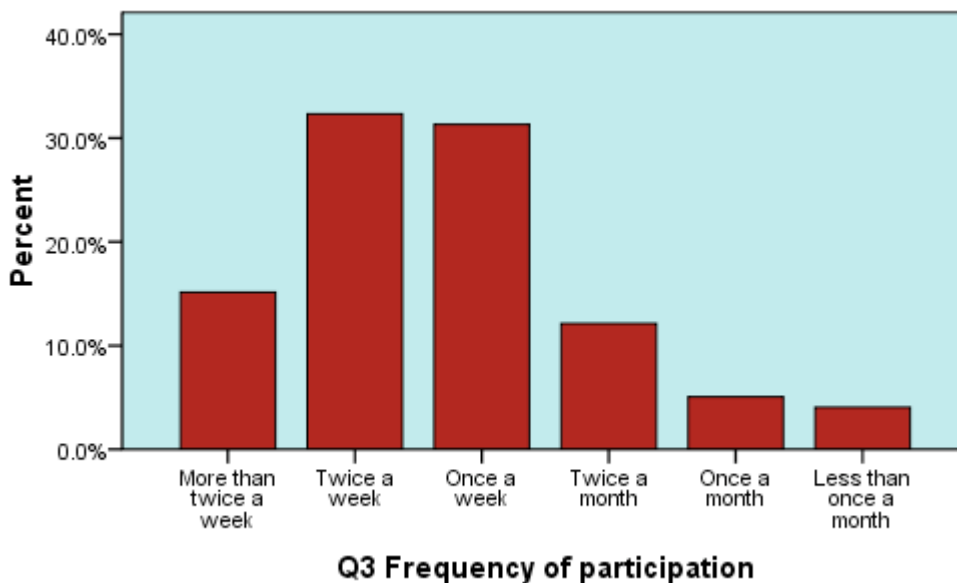
Respondents who took part in the survey were relatively experienced or experienced riders. More than a half described themselves as intermediate mountain bikers, while another 40 per cent considered themselves advanced riders (see Graph 1). It is likely that beginners were underrepresented in the survey, which seems to result from the character of the organisation which served as a sampling frame. IMBA UK is generally regarded as an elitist organisation, actively involved in a number of issues connected with development of mountain biking in the UK. The association's members have a great awareness of those issues, which they developed over the years of mountain biking. Therefore, they are essentially an experienced group of riders. This explanation can be evidenced by a US study of mountain bikers using trails of the Chequamegon Area Mountain Bike Association (Wisconsin), which demonstrated that only 2.5 per cent of respondents categorized themselves as novice riders (Sumathi and Berard 1997).

Graph 1: Respondents' experience



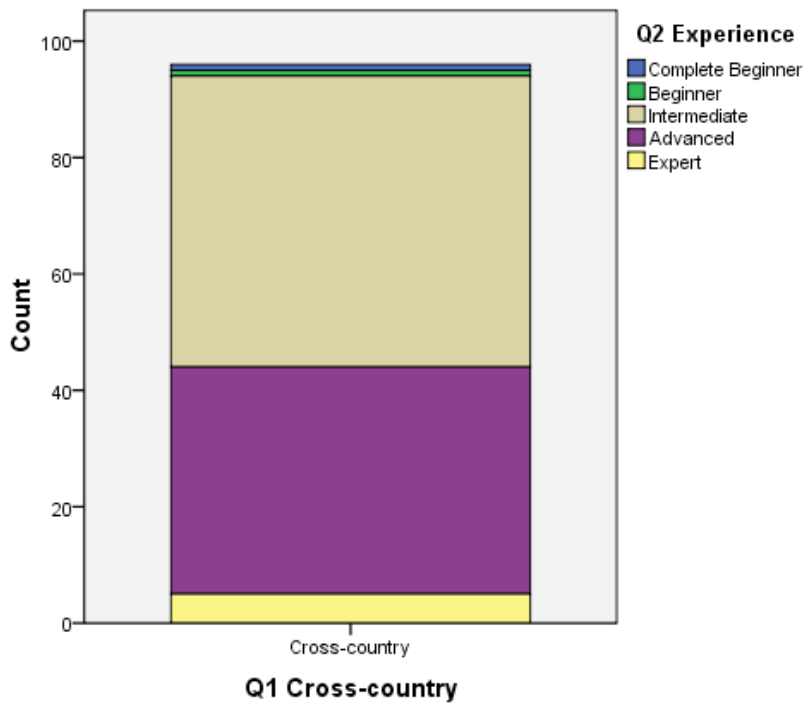
As regards frequency of participation, respondents take part in mountain biking regularly, with 63 per cent riding once or twice a week, while another 15 per cent more than twice a week (see Graph 2). As reported by Koepke (2003), those who ride frequently are very likely to remain involved in the activity on a long-term basis. Undoubtedly, respondents taking part in the survey can be considered active mountain bikers. The study findings on rider patterns are clearly consistent with the existing research (Green 2003, Koepke 2005, Reiter and Blahna 2002).

Graph 2: Frequency of participation

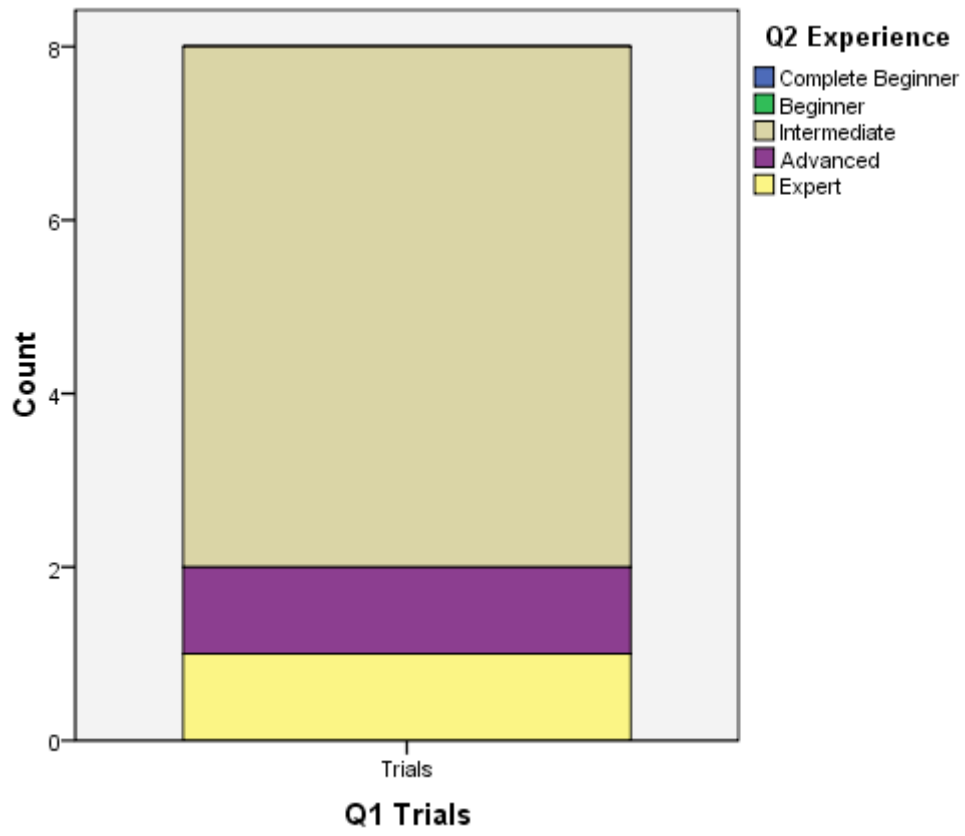


No correlation between the level of experience and the type of mountain biking participated in has been found. For instance, cross-country displayed proportionate representation of all levels of advancement (see Graph 3), while trials participants were mostly intermediate riders, even though this kind of biking is generally regarded as the most technically demanding (see Graph 4).

Graph 3: Cross-country riders vs. Experience

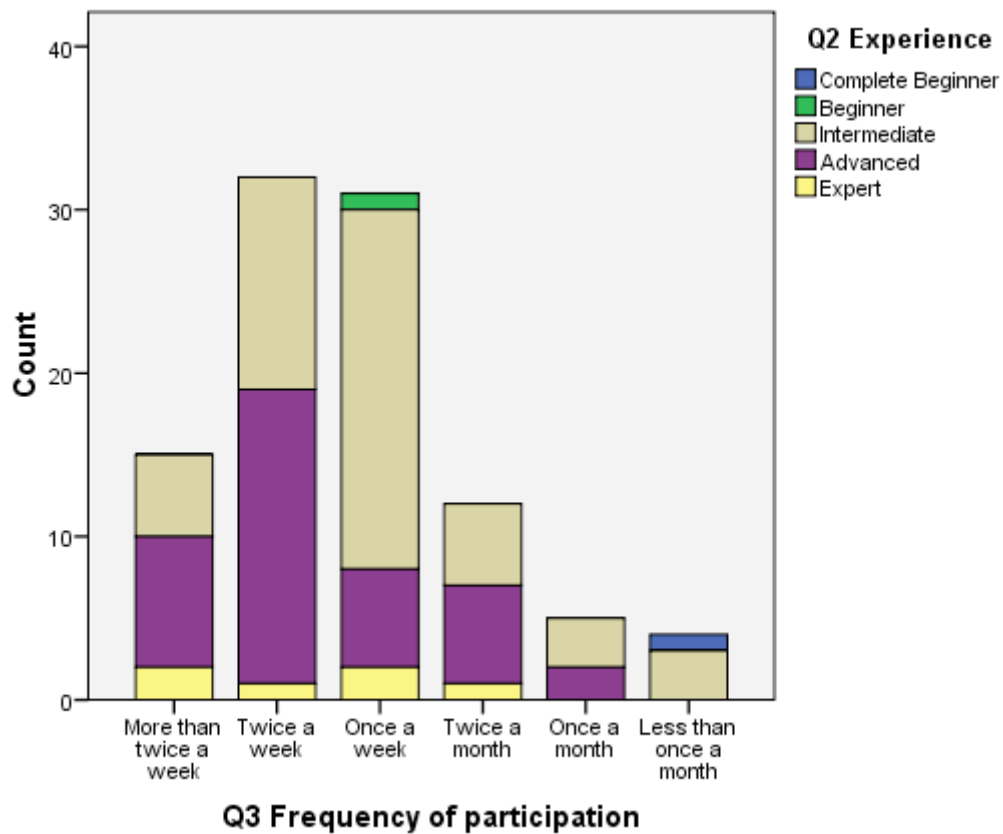


Graph 4: Trials riders vs. Experience



As regards the relationship between experience and frequency of participation (see Graph 5), advanced riders are those who participate in the activity most frequently (twice a week or more).

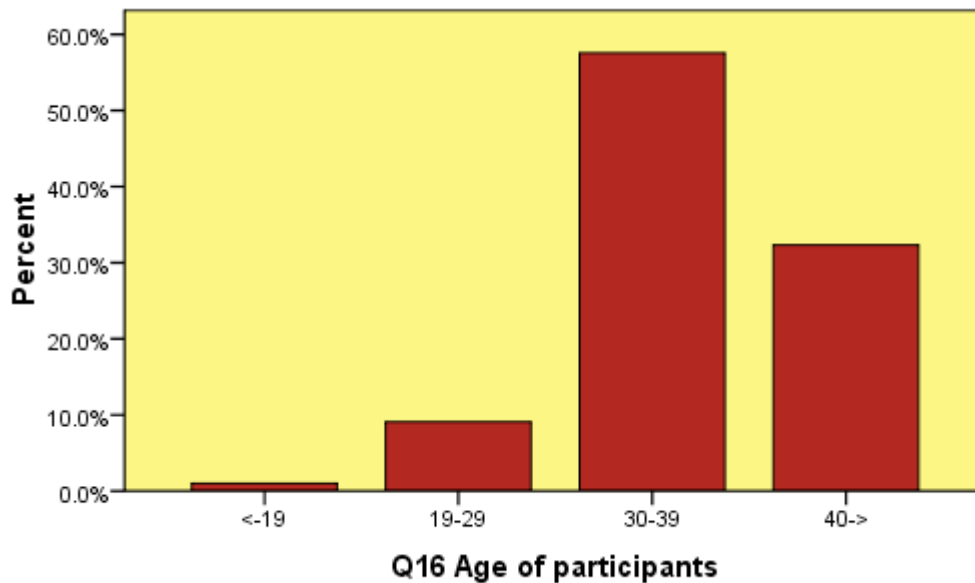
Graph 5: Experience vs. Frequency of participation



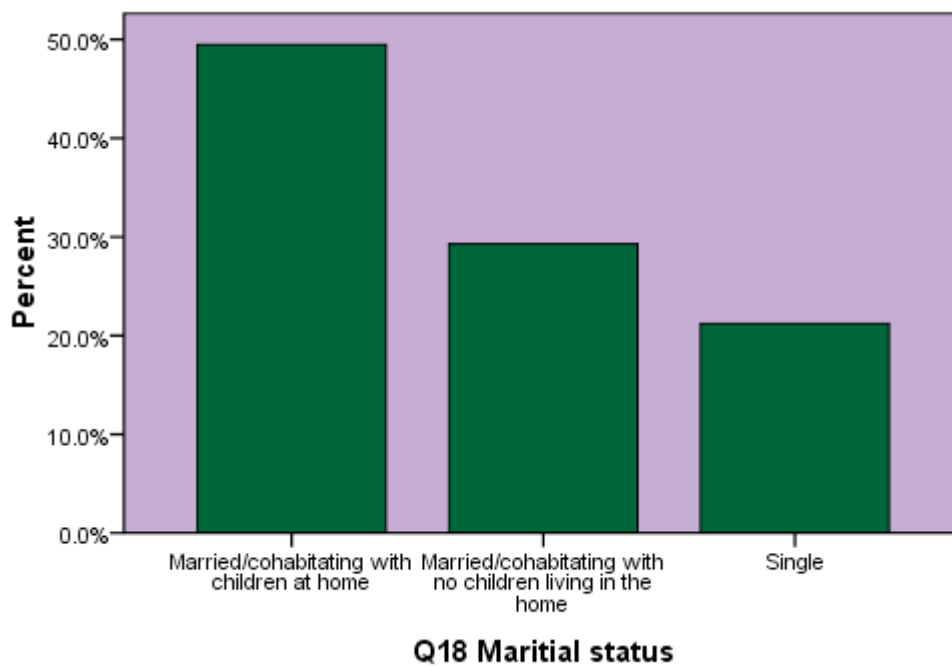
2. Mountain bikers' demographic and socio-economic characteristics

Mountain bikers participating in the study were predominantly males (97 per cent), most of whom between ages of 30 and 40+ (see Graph 6), married and cohabitating with children (see Graph 7).

Graph 6: Age of participants

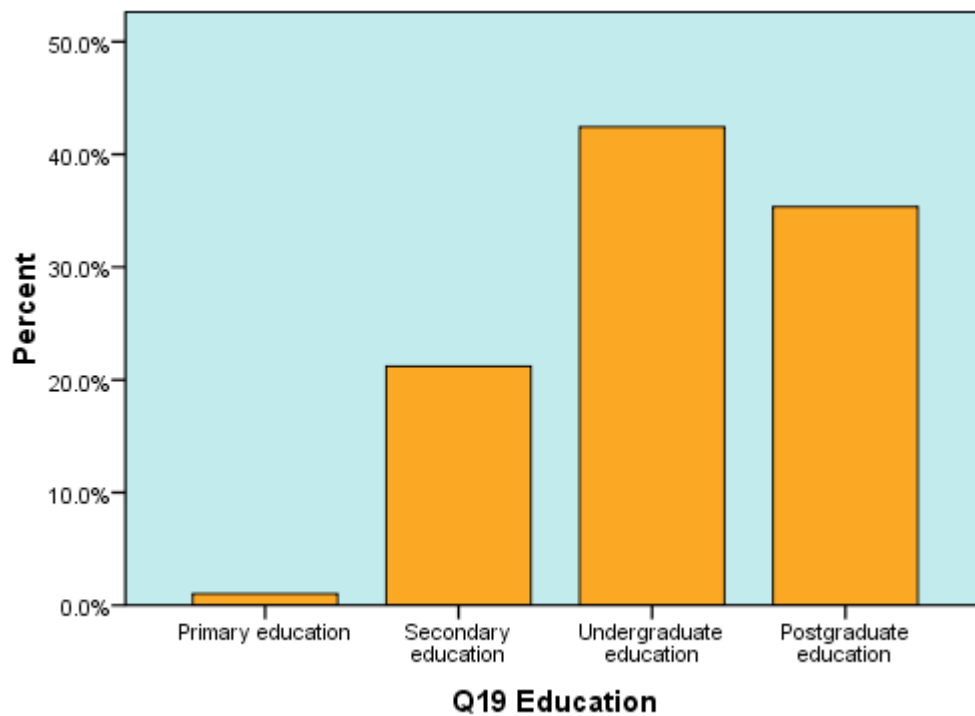


Graph 7: Marital status



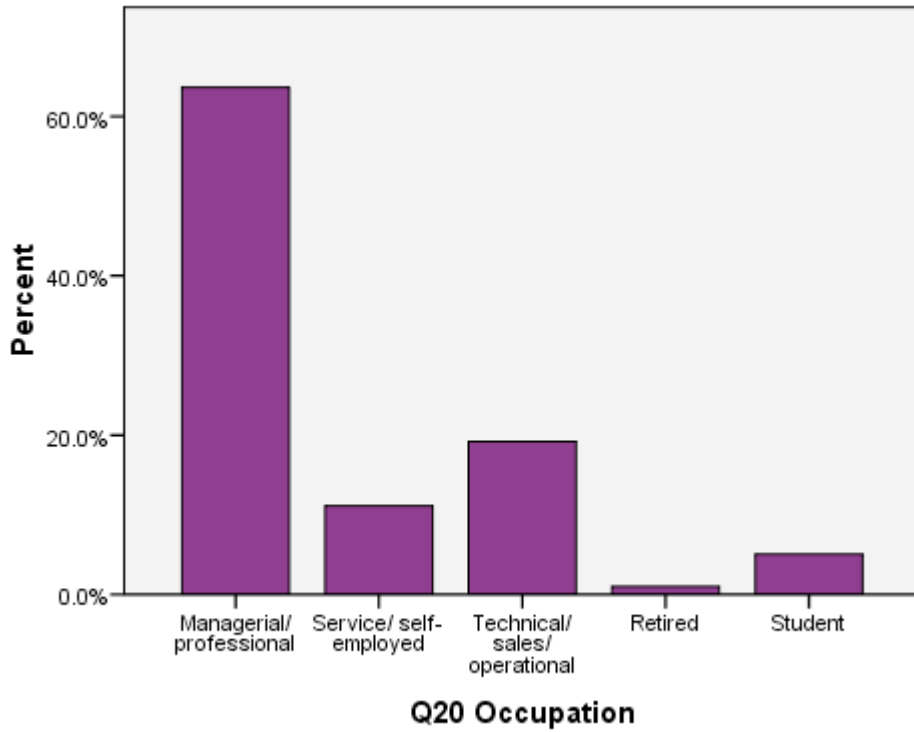
A high proportion of the respondents was highly educated, with as many as 78 per cent having completed at least undergraduate studies (see Graph 8).

Graph 8: Education

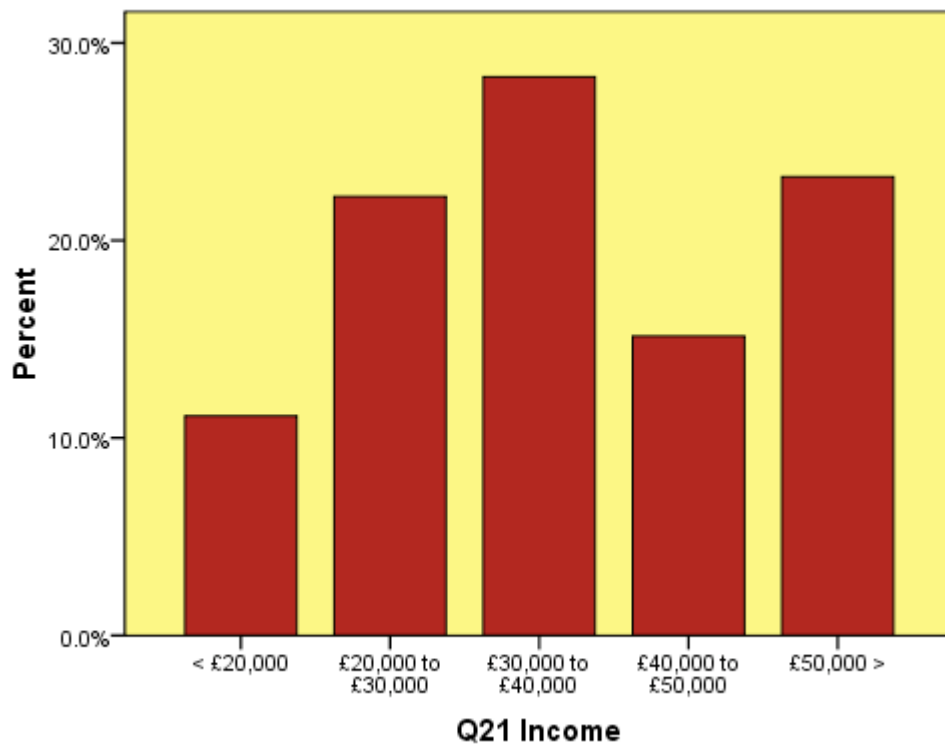


Their occupations were mostly managerial/ professional (see Graph 9), and their average gross annual income was £ 30, 000 – 40,000 (see Graph 10).

Graph 9: Occupation



Graph 10: Income



Consequently, the general profile of the UK mountain biker is men, middle aged, well-educated, professional, and well-off. As there are no statistics on the U.K. mountain biking market, the task of establishing whether the collected data provides a representative profile of U.K. mountain bikers is significantly hampered. Nevertheless, the data on the age and economic status are highly consistent with VisitScotland Cycling Statistics (2003). In addition, comparisons with studies of mountain bikers conducted in the US and New Zealand demonstrate similarities in regard to age (Cessford 1995, Green 2003, Koepke 2003, Reiter and Blaha 2002, Sumathi and Berard 1997, The City of Kelowna 2007), education levels, occupation and income (Green 2003, Koepke 2003, Reiter and Blaha 2002, Sumathi and Berard 1997), as well as marital status (Green 2003, Koepke 2003).

The greatest inconsistency in the present study appears to be the low proportion of females (only 3 per cent). A review of studies carried out by Koepke (2003) indicates that they generally represent between 12-16 per cent of the survey sample. Also, the percentage of students appears to be rather low (5 per cent), as in some studies this group constituted as much as 13 per cent (Reiter and Blahna 2002). This can be explained again by the character of IMBA UK, which is regarded as an association of experienced and active riders. Most studies indicate that women are usually in the entry-level group (Koepke 2003).

No relationship has been noted between age of participants and their experience level. Similarly, no associations between age and the type of mountain biking have been identified. In addition, it has been observed that factors such as marital status, occupation and income do not seem to have any influence on frequency of participation in mountain biking.

3. The Forestry Commission locations used by mountain bikers

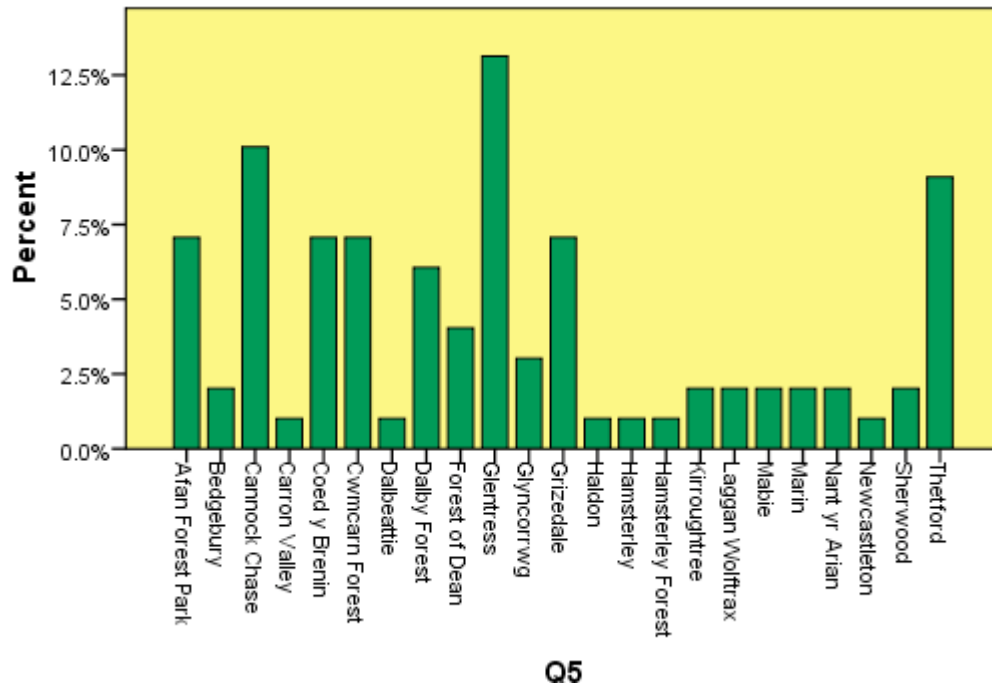
Respondents indicated Coed y Brenin and Glentress & Innerleithen as the two most popular FC mountain biking locations (see Table 8; see Appendix 5 for full list). The only location that was not visited by riders participating in the survey was Balnain Bike Park. As regards the FC sites in Scotland, it has been noted that the 7Stanes riding centres are at least twice as popular as other Scottish locations added more recently (see Appendix 5).

Table 8: Types of mountain biking participated in

Coed y Brenin (WAL)	52.5%	52
Glentress&Innerleithen (SCO)	41.4%	41
Mabie (SCO)	38.4%	38
Marin (WAL)	36.4%	36
Grizedale (ENG)	36.4%	36
Dalbeattie (SCO)	35.4%	35
Afan Forest Park (WAL)	34.3%	34
Cannock Chase (ENG)	33.3%	33
Cwmcarn Forest (WAL)	33.3%	33

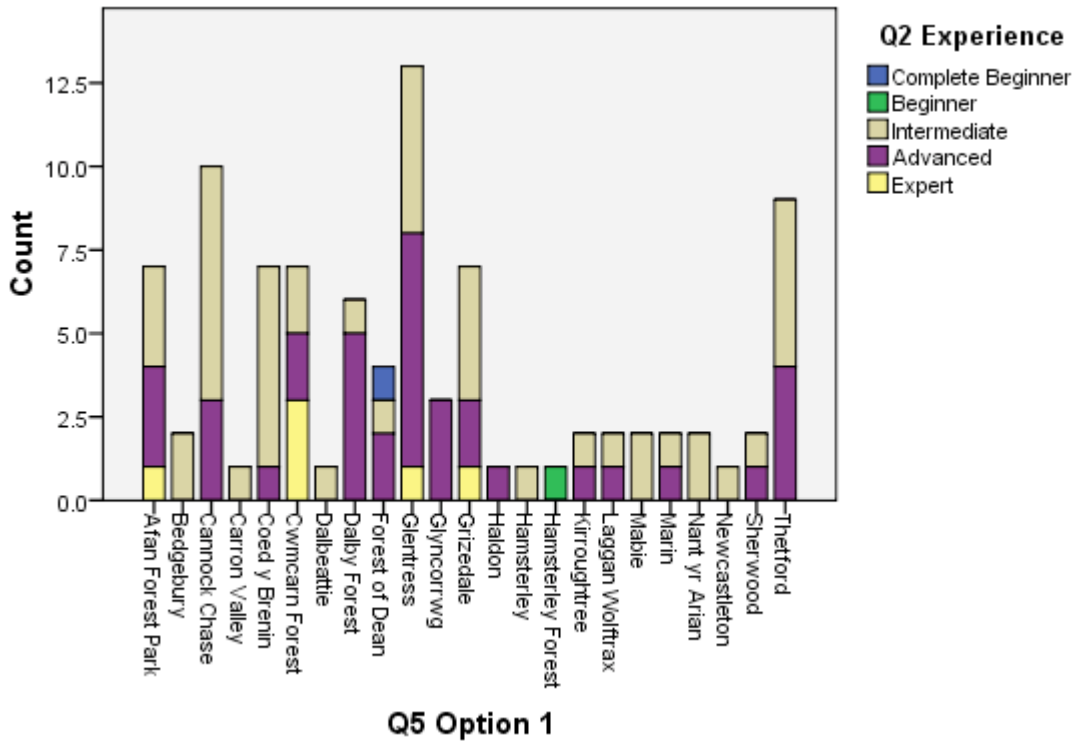
Not all sites indicated in question 4 were as popular among those most frequently used for mountain biking. Although Glentress & Innerleithen proved to be the most frequently used by respondents, locations such as Coed y Brenin, Dalbeattie, Mabie, and Marin were not selected as destinations where respondents ride frequently (see Graph 11).

Graph 11: The most frequently used FC managed mountain biking sites



As regards locations used by the most experienced bikers Dalby Forest topped the list, followed by Coed y Brenin, Cwmcard Forest, Glentress and Thetford (see Graph 12).

Graph 12: The most frequently used destinations vs. Experience



Cross-country riders indicated Glentress, Cannock Chase and Thetford as the locations they use most frequently, while downhillers favoured Glentress, Cwmcam Forest and Afan Forest Park. Coed y Brenin, Cwmcam Forest and Glentress were most frequently used by freeriders, while dirt road/ rail road bikers preferred Glentress and Thetford (see Appendix 6). The findings clearly confirmed the status of Glentress as the ‘hottest’ place in the UK to do mountain biking.

4. Travel patterns of mountain bikers and trip-related factors in decision making

In question 7 respondents were asked about importance of different factors that influence their choice of a mountain biking destination. A 5-point scale was used with 5 being “extremely important” and 1 being “not important”. Mean scores were calculated for each factor (see Table 9). Not surprisingly, recommendation from friends and relatives, as well as reputation of destination were the most influential factors, indicating the power of word of mouth emphasized in other studies of mountain bikers (Green 2003, Blaha & Reiter 2004). In addition, article in a mountain biking magazine as well as Internet research proved to play a significant role in a mountain biking destination choice. On the other hand, travel agents seem to exert almost no influence on mountain bikers destination choice. The results proved to be very similar to the findings of the IMBA US survey (Green 2003), while the order of importance of the listed factors almost identical with the US study.

Table 9: Factors influencing the choice of a mtb destination

FACTOR	Mean
Recommendation from friend/relative	3.29
Reputation of destination	3.07
Article in a mountain biking magazine	2.84
Internet research	2.83
Guidebook	2.37
Mountain bike race or event	2.3
Bike club	2.16
Brochure	1.82
Article in a general outdoor magazine	1.62
Travel agent	1.06

In question 8, the same 5-point scale was applied to evaluate how much importance riders place on a number of features of a mountain biking destination. Mean ratings were calculated for each feature (see Table 10).

Variety/ difficulty of terrain was rated as the most significant attribute, followed by the number of trails, reputation as a mountain biking destination and scenery. What respondents found fairly important was ease of getting to destination and cost of trip. Strong mtb community, other facilities and weather were desirable features of a mountain biking destination. Destination reputation, trip cost, and weather play a fairly important role in making a destination appealing for mountain bikers. The low significance was given to the availability of other outdoor activities at a site appears to confirm mountain bikers complete focus on their favourite activity. The results are in line with the US IMBA survey (Green 2003), although UK riders seem to place greater importance on ease of getting to destination than their US counterparts. This might result from the fact that car ownership is not as widespread in the UK as it is in the US. The above findings prove that if destinations aim to attract mountain bikers, it is essential that they highlight those attributes in their marketing efforts (Green 2003).

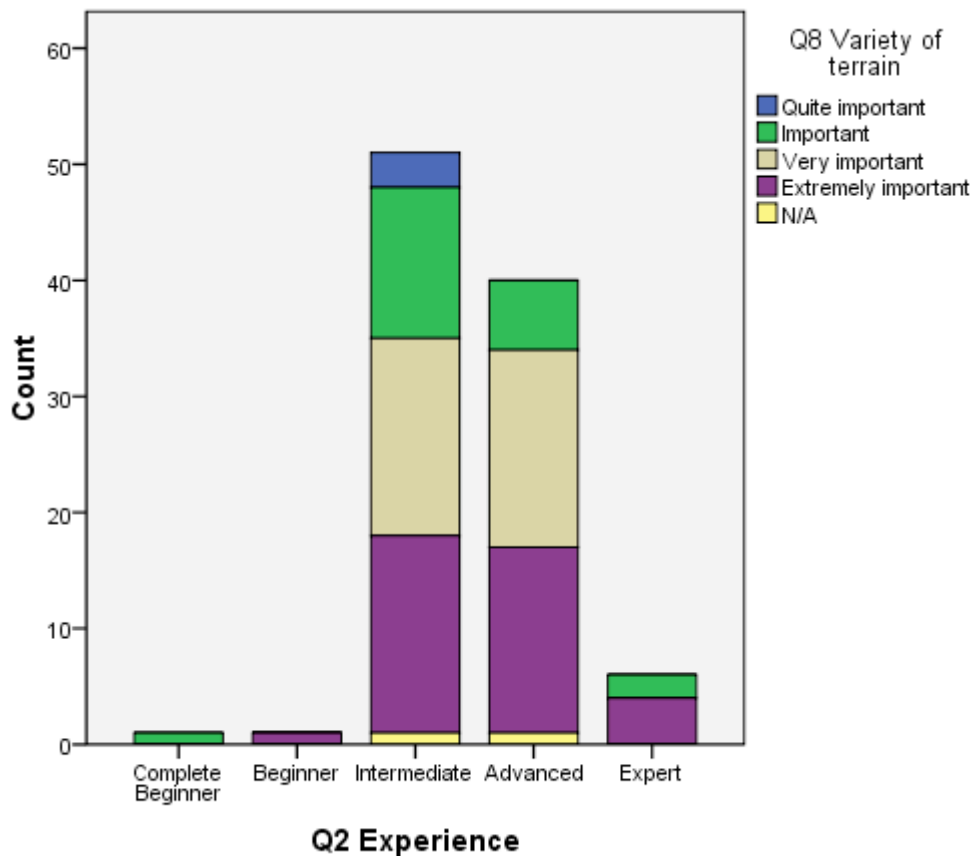
Table 10. The most important features of a mtb destination

FEATURE	Mean
Variety/difficulty of terrain	4.1
Number of trails	3.44
Reputation as a mtb destination	3.29
Scenery	3.26
Ease of getting to destination	2.71
Cost of trip	2.38
Strong mtb community/culture	2.27
Other facilities (bike shops, accommodation, etc.)	2.21
Weather	2.19
Availability of other outdoor activities	1.47

No non-spurious relationships have been identified between mountain bikers' level of advancement and importance of any of the aforementioned attributes except for variety/ difficulty of terrain (see Graph 13). This feature seems to become more important as the riders experience increases, which can be

explained by the need of advanced and expert riders to test their skills on a difficult and challenging terrain.

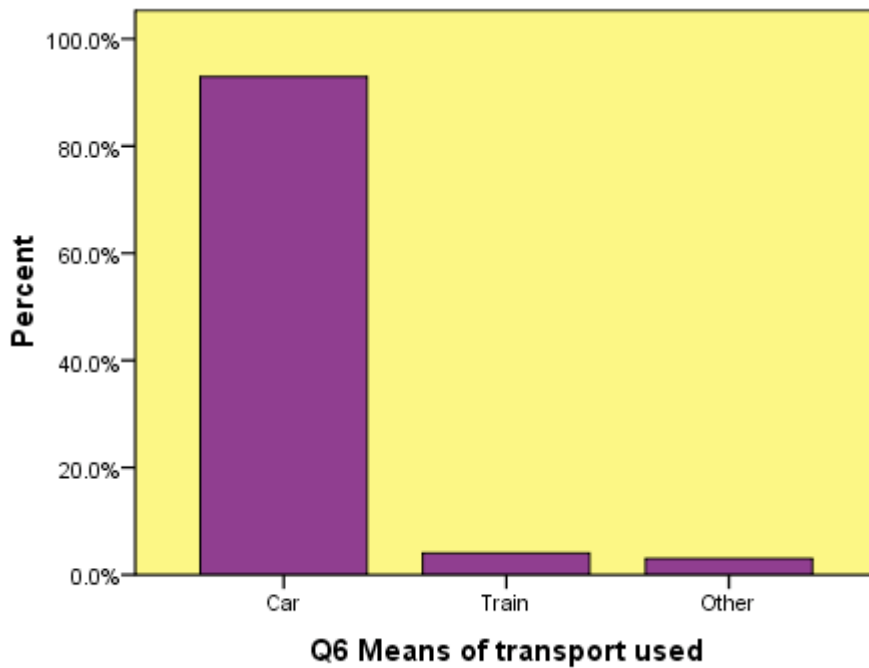
Graph 13: Variety/ difficulty of terrain vs. Experience



Survey respondents were asked a number of questions about their riding habits:

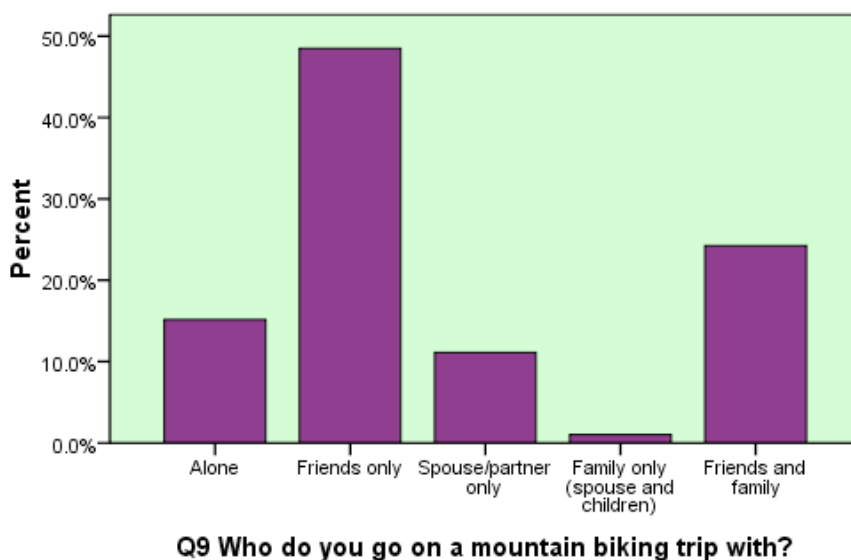
- Almost all the respondents indicated car as the means of transport used when travelling to a mountain biking destination (see Graph 14). This confirms the findings of the FCS report (2005), which noted that forest visitors are forced to come by car as a result of a lack of sustainable transport links to forest destinations.

Graph 14: Means of transport used



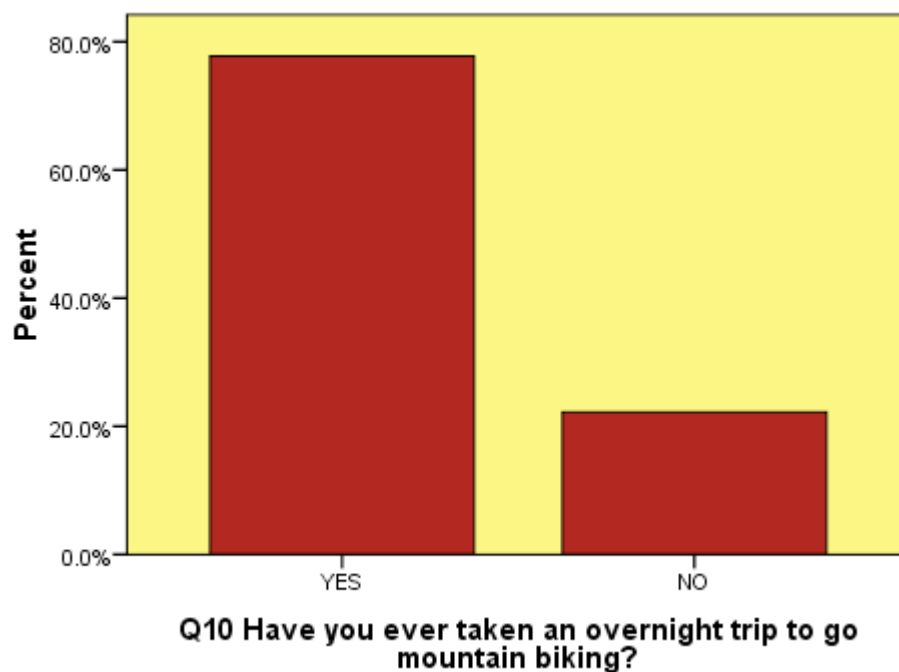
- Almost a half of the respondents claimed that they go on mountain biking trips with friends only. Less than 15 per cent ride alone, and almost no-one goes mountain biking with their families (see Graph 15). No non-spurious relationships between Question 9 and the level of advancement have been identified.

Graph 15: Who do you go on a mountain biking trip with?



- Almost 80 per cent of the respondents have taken an overnight trip to go mountain biking (see Graph 16), which suggests that mountain biking tourism in the UK is significant. Identical figures were found in the US study (Greens 2003), however the study of mountain bikers in New Zealand showed that only 41 per cent had done overnight mountain biking trips (Cessford 1995).

Graph 16: Overnight mountain biking trips



- A great majority of survey respondents prefer to use their own bicycles on multi-day trips, as only about 8 per cent rented a bike on such trips. This is highly consistent with the study of US IMBA members as well as other mountain biking research.
- Almost all the respondents who have taken a multi-day mountain biking trip have never used services of a tour operator, which confirms findings of other studies (Green 2004, Koepke 2005). This can be explained by the fact that commercial operators are used only as an introduction to an adventure activity. Since almost all the respondents

in the study were intermediate and advanced riders, they had enough experience to act autonomously.

- The average spent on a multi-day trip was £59 per day and included expenses on accommodation, travel, food and drink.
- Bed & breakfasts or small lodges/ inns were the types of accommodation preferred by two thirds of survey respondents, while the remaining third used camping or other accommodation (e.g. visiting friends and relatives). See Table 11 for details. In comparison with the US study, the percentage of respondents choosing to camp on a mountain biking trip is low (US – 45 per cent vs. UK 16.5 per cent). This seems to result from weather conditions in Great Britain which most of the time are unsuitable for camping.

Table 11: The type of accommodation preferred on a multi-day trip

Bed & breakfasts	41.8%
Small lodges/inns/motels	25.3%
Camping	16.5%
Other	15.2%
Hotels	1.3%

5. Mountain biking as an adventure tourism activity

5.1. The importance of adventure tourism components in mountain biking – the mountain bikers motivations

Importance of adventure elements in mountain biking is presented in Table 12 using the mean rating.

Table 12: Importance of mountain biking features

Stimulation/ excitement/ experiencing 'flow'	3.94
Riding/socializing with friends	3.54
Escapism and separation	3.52
Scenery and contact with nature	3.45
Exercise/fitness workout	3.44
Exploration and discovery of new areas	3.41
Developing and improving skills	3.33
Speed and risk	2.96

Respondents listed stimulation/ excitement/ experiencing 'flow' as the most important feature of mountain biking. The remaining components were also classified as important/ very important for all mountain bikers. Speed and risk were at the end of the list, though still regarded as quite important/ important. These results differed from the New Zealand study findings in some respects (Cessford 1995, see Appendix 7). Firstly, speed and risk was the top mountain biking feature for New Zealanders. Secondly, riding/ socializing with friends was not as important as for the UK riders, though still important. Finally, escapism and separation ('peace/ quiet/ solitude' in the NZ study), was the least important feature for mountain bikers in the New Zealand study. Nevertheless, the degree of importance of the remaining features of mountain biking was very similar. The above differences might result from the fact that the percentage of beginners in the New Zealand survey was 12 percent (against 2 per cent in the present study). This enabled to note the variation in the importance of the mountain biking features for riders with different level of experience (Cessford 1995). Underrepresentation of beginners in the present

study hindered indication of changes in rider preferences for the aforementioned features occurring as experience increases.

The respondents' motivations are particularly surprising in the context of the definitions of adventure tourism offered by scholars and researchers into the field. Since mountain biking is classified as an adventure tourism activity, and the results of the present study have confirmed that beyond all doubt, speed and risk have been expected to top the list of adventure features in mountain biking. As indicated in literature review, a number of researchers considered risk to be the defining component of adventure, distinguishing it from other types of recreation (Ewert 1987, 1989, Ewert and Hollenhorst 1994, Hall 1992, Meier 1978). It seems, however, that the mountain bikers participating in the survey do not seek risk deliberately, thus contradicting the definition offered by Ewert (1989), which has been approved by most researchers in adventure tourism. The explanation of this is considerably hindered as mountain biking cannot be unambiguously classified as 'soft adventure' or 'hard adventure'. This results from the fact that the activity has evolved into a number of categories, some of which are described as 'soft adventure' (e.g. cross-country), while other are 'hard adventure' activities (e.g. downhill). Even the alternative explanation of the role of risk in adventure tourism offered by Walle (1997), who distinguished between risk seeking adventure and insight seeking adventure, does not seem to solve the problem. It would be very irresponsible to assign the survey respondents to one of these two groups, as neither do they seek risk only or knowledge and insight only. It is likely that, as noted by Weber (2001), both elements have to be present for an adventure to happen.

A useful explanation of the role of the risk for mountain bikers in the study could be the conceptual model of risk factors in adventure tourism presented by Page et al. (2005). What the model shows is that the participant experience, equipment, environmental factors, as well as management and organisational factors, have an impact on the degree of risk in adventure tourism (see Appendix 1). The survey respondents were all experienced or very experienced riders and almost all of them declared that experiencing

flow, stimulation and excitement is the most important component of mountain biking. As indicated by researchers, flow occurs when a challenge is met, thus when the participant's skills and competence match the requirement of an activity (Iso-Ahola 1980, Johnston 1987). Riders participating in the survey had high level of competence and were able to match their skills with the risk undertaken in an effective way as their aim was to experience flow, not risk. As regards, the management factors, the mountain biking centres, which are the focus of this study, have been developed based on best practice models from all over the world. Safety of participants, thus minimising the risk of accident, injury or death, has been one of the major objectives of the Forestry Commission of England, Scotland and Wales when developing the mountain biking locations.

The survey findings also seem to contradict the theory proposed by Ewert (1985), who observed that motivations change from extrinsic reasons, such as escape, when adventure tourist is inexperienced, to more intrinsic and personal reasons, for example exhilaration, personal testing, and ability to make decisions as experience grew. Although almost all the mountain bikers participating in the survey were experienced or very experienced riders, they indicated escape and separation, an extrinsic reason, as the third most important component of mountain biking as an adventure tourism activity. Developing and improving skills, a clearly intrinsic motive, though still regarded as important, was at the end of the list. It has to be highlighted that the intrinsic motives for participating in mountain biking were not the subject of this study, thus the above observation would need to be confirmed in future research.

It is not surprising, however, that mountain bikers indicated stimulation/ excitement/ experiencing 'flow' as the most important component of the activity. As highlighted in literature review experiencing flow is connected with self-actualisation (self-fulfilment), one of Hall's (1992) five categories of motivation. Therefore, arguably, it is meeting a challenge and experiencing flow that is the dominant motive for mountain biking participants.

Generally, however, the findings of the survey are in line with the frameworks presented in literature review. For pragmatic reasons, it was impossible to incorporate every single element of adventure tourism theories into the survey questionnaire. However, those that were included have been confirmed with the survey findings. For instance, 5 out of 10 core characteristics of adventure offered by Swarbrooke et al. (2003) incorporated in the questionnaire (risk, challenge, stimulation and excitement, escapism and separation, exploration and discovery), were all regarded by the respondents as important/ very important. Also the aspect of participant's contact with natural outdoor environment added by Hall (1992), plays a crucial role for the mountain bikers.

However, what seems to be the most insightful explanation of participants' behaviour in mountain biking is the classification developed by Sung, Morrison, and O'Leary (1997) using a set of six factors characterising the notion of adventure: activity (exercise/ workout, exploration/ discovery), environment (scenery/ nature), experience (stimulation/ excitement/ flow), risk (risk and speed), motivation, and performance (improving skills). Accordingly, the riders participating in the survey indicated that they engage in mountain biking for the purpose of experiencing flow/ excitement and stimulation (experience), through participation in the activity of mountain biking, which is a means of exploration/ discovery and exercise (activity), in a particular setting (environment). The study proved that contact with nature is also a significant motive for mountain bikers and it seems to serve as a resource upon which the experience depends (Hall and Weiler 1992).

As regards non-spurious relationship between mountain bikers' characteristics and importance of adventure components in mountain biking, two crosstabulation procedures were performed. In the first one – experience vs. importance of adventure components in mountain biking, no correlations have been identified. The second one – the type of mountain biking participated in vs. importance of adventure components proved to be spurious as a number of respondents specified two or three types of mountain biking that they participated in (e.g cross-country, downhill and trials). For that reason, it was

impossible to indicate whether their perception of importance of mountain biking components as an adventure tourism activity should be seen from the perspective of, for instance, cross-country biker, downhill rider or trials participant.

5.2. The segmentation of the UK mountain biking tourism market

The general profile of the mountain bikers participating in the survey is entirely consistent with that of the adventure tourist: men, middle aged, well-educated, professional, and well-off (Higgins 1996, Love seed 1997, Wight 1996). Undoubtedly, this information might present limited value for adventure tourism providers. However, it allows to propose a classification of the UK mountain biking market segments.

The task of classifying mountain bikers into subgroup segments based on adventure traveller typology developed by Sung (2004) failed. Although demographic and socioeconomic profiles, as well as trip-related factors (location and activity) provided valuable information, data on mountain bikers' perception of adventure appeared to be insufficient. Analysis of the study findings indicated that it would be very unlikely to classify the mountain bikers participating in the survey by means of the 6-cluster segmentation offered by Sung (2004). Particularly, the demographic profiles and travel patterns of the respondents did not match any of the subgroups (general enthusiasts, budget youngsters, soft moderates, upper high naturalists, family vacationers, active soloists). The most likely explanation is that the typologies of the US adventure tourists developed by Sung (2004) would have to be adapted for the UK market in order to conduct a meaningful clustering of the UK adventure tourists.

It was therefore necessary to apply the typologies of adventure tourists developed for the UK market. For the purpose of this study, the classification of adventure tourists prepared for Wales Tourism Board has been employed (see Appendix 2). The findings on the participants' characteristics, as well as

their travel patterns have allowed to match them with four adventure tourism market segments:

- Enthusiasts – experienced mountain bikers participants, undertaking the activity regularly, including participation in mountain bike races;
- Activity Clubs – mountain biking clubs organising trips away for their members;
- Dabblers – riders knowledgeable about mountain biking but participating on an occasional basis.
- Learners – mountain bikers learning the activity, or improving their skills, with a view to participate in the activity independently in the future.

It is estimated that approximately 90 per cent of the survey respondents belong to the first two clusters, while the remaining 10 per cent to the third and fourth segment. This is based on the respondents frequency of participation (90 per cent undertakes the activity regularly, while the remaining 10 per cent on a more occasional basis) and their level of advancement (a half of them are experienced and knowledgeable mountain bikers, while over 45 per cent highly skilled). It is difficult to state exactly what percentage of the respondents belongs to the first and the second segment respectively. However, the percentage of respondents indicating the importance of bike club in choosing a destination (30 per cent), as well as the fact that over 50 clubs and associations are affiliated with IMBA UK, indicate that it is rather high. Based on the profile of each of these three segments, it is clear that they participate in the activity largely on an independent basis, thus they are unlikely to use activity operators (see Appendix 2). Almost all the survey respondents indicated that they organize their trips without using tour operators and almost all of them use their own bike while on a biking trip. In terms of marketing, all of the three clusters are difficult to reach by destination marketing, the only exception being coverage in specialist magazines (see Appendix 2) and the Internet, which is regarded as a key source of information for many adventure tourists (Keeling 2003). The survey participants showed that brochures, general outdoors magazines or tour

operators were the least important factors in choosing a mountain biking destination. Instead, they were influenced by recommendation from a friend/relative, reputation of a destination, article in a mountain biking magazine and Internet research and their bike club.

CONCLUSIONS AND RECOMMENDATIONS

The aim of this paper was to advance the understanding of the UK mountain bikers and mountain biking tourism so that tourism operators and practitioners

can formulate successful strategies and target this adventure tourism segment effectively. The first objective of the study was achieved as the data on the general, demographic, socio-economic characteristics of the respondents enabled to create a rather uniform profile of the UK mountain bikers. What has been revealed here is that the UK mountain biking product continues to attract mainly enthusiasts/ higher social class users should, which should be regarded as its weakness (see Appendix 2). Consequently, the Forestry Commission has to prioritize attracting a higher number of entry level markets to participate in mountain biking.

The second research objective – evaluating travel behaviour of the UK mountain bikers and trip-related factors in decision making – was also met as clear patterns were distinguished. In addition, the potential of the UK mountain biking tourism has been demonstrated. This trend coupled with the socio-economic profile of the mountain bikers offers numerous opportunities for mountain biking operators, marketers, developers and accommodation/ facilities providers. Firstly, it is important that the mountain biking destinations offer top quality riding experience, as the great majority of riders are characterised by high levels of disposable income and education, thus they are willing to pay as long as their expectations are met. This can be substantiated by the fact that most respondents in the study had preference for good quality accommodation (bed and breakfasts, lodges, inns). Secondly, customer spend, thus providers' profit, can be maximized as each segment will be provided with the right services. For instance, in the case of experienced mountain bikers, who are very likely to take overnight trips, accommodation providers need to offer secure overnight storage for bikes, as well as washing machines and dryers. In addition, links with restaurants and retailers would benefit other operators (VisitScotland 2007). As regards developing new destinations, there is a need for riding centres offering various types of terrain and levels of difficulty, numerous trails and attractive setting. It is also essential that the developers of the new mountain biking centres, as well as operators of the existing ones create sustainable transport links to those destinations, as almost all the riders use cars when going on a mountain biking trip. Marketers need to be aware that experienced mountain

bikers respond to destination marketing only to a limited extent. What matters is word of mouth, thus it is vital that mountain bikers' expectations are met at all times in order for a destination to build-up its clientele. In addition, articles in mountain biking magazines are a powerful marketing tool, thus using models of best practice in managing a destination and exposure of its unique selling points are the best way to attract attention of editors. Finally, providing all the necessary information online, preferably on the destination's own website, is likely to attract more visitors, as Internet research is frequently used by mountain bikers when choosing a destination.

The third objective – measuring the popularity of the Forestry Commission riding centres – was also accomplished, producing two rankings of the most popular and the most frequently used riding centres. These rankings can be used by the Forestry Commission in a review of their mountain biking facilities, particularly in terms of marketing. A number of the FC destinations seem to be of little interests for active and experienced mountain bikers, thus it is likely that greater marketing effort or development of new trails could improve their popularity. Carrying out satisfaction surveys on these sites could serve as a good starting point in reviewing the marketing strategies. It is also essential to use the strategies and practices employed in creating the 7Stanes as a benchmark for other mountain biking centres, since the study revealed that the 7Stanes sites are at least twice as popular as other FC centres in Scotland.

The fourth objective – identifying motivations of the UK mountain bikers in the context of adventure tourism – has been fully achieved. The study revealed that it is meeting challenge and experiencing flow that is the paramount motivator for mountain bikers, whereas risk, though still important, is the least significant factor. This finding is particularly insightful in the light of the theory and research into adventure tourism, as it suggests that motivations of adventure tourists may differ depending on the activity, and that it is not safe to assume that it is either risk or insight seeking that are the key motivators in adventure tourism. It has to be noted that the present study only aimed to *identify* the most important motivators for mountain bikers. Therefore, it is

essential to substantiate these findings by further research into mountain bikers' motivations, preferably by means of in-depth questions incorporated into an interview or a focus group survey.

As regards identifying the UK mountain biking market clusters in the context of adventure tourism, the task was challenging but fully realised. Using the mountain bikers' profile coupled with their travel patterns and trip related factors, segmentation of the UK mountain biking market was conducted. The data analysis enabled to cluster mountain bikers into four categories: enthusiasts, dabblers, activity clubs and learners, thus addressing one of the weaknesses of the mountain biking product emphasized in the Forestry Commission of Scotland SWOT analysis (see Appendix 2).

The final objective – conducting analysis of the UK mountain biking market segments was also achieved. It is the UK mountain biking marketers that will benefit from this analysis, as they can use different marketing initiatives to target each segment more effectively. For instance, mountain biking enthusiasts and activity clubs are very unlikely to respond to destination marketing. Coverage in specialist mountain biking magazines and mountain biking events/ races is likely to generate response from these markets, however its effectiveness has to be monitored at all times (Keeling 2003). As regards learners and dabblers, they can be potentially targeted by destination marketing but only to a limited extent (e.g. brochures, web-site information). Learners are also likely to be reached by accredited activity centres and approved. It is therefore essential for facilities, and accommodation providers to cooperate with accredited learning centres in order to capitalize on the potential for selling their services to novice mountain bikers (Keeling 2003). As highlighted in Wales Tourism Board report, this segment should be the point of focus since it is likely to produce repeat visits as learners improve their skills through training and become independent participants (Keeling 2003). Also the Forestry Commission of Scotland admits that family and novice bikers constitute a small percentage of forest users, and attracting greater number of them should be seen as an opportunity (see Appendix 2).

It is vital that the marketing initiatives targeting these segments are reviewed in the future as mountain bikers may move from one segment to another. For instance, a learner cluster transfers to an activity club cluster after gaining experience in the activity, or an enthusiast group transfers to a dabbler group (as a result of another activity becoming popular) but they will continue using research techniques relevant to the segment they are in and not the segment they have moved to (VisitScotland 2007).

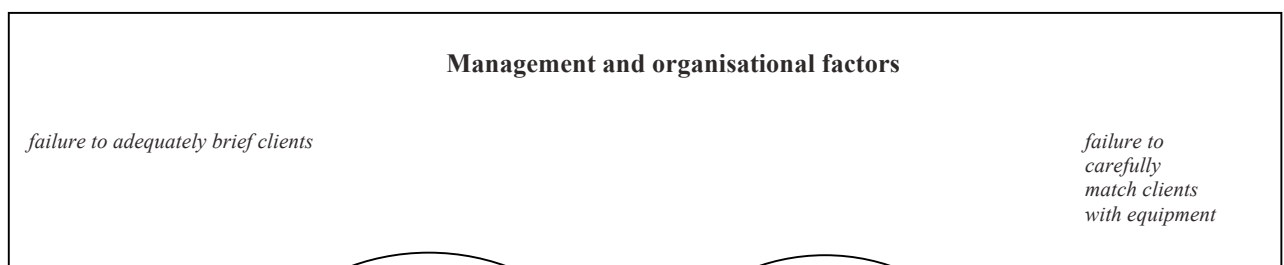
As regards representativeness of the present study, it is possible that sampling of participants from IMBA's membership mailing list might cause concern. The study participants were selected from a priori known group characterized by a similar degree of interest and involvement in mountain biking. As the respondents were subscribed with a paid membership, they can be seen as more active riders. Consequently, it appears that they have distinctive group characteristics or travel patterns connected with mountain biking than the general public. However, it was not the general UK population but mountain bikers taking overnight trips thus participating in adventure tourism that was the target of this study. Moreover, female riders appear to have been underrepresented in the study, in spite of their increasing participation in the activity. Therefore, the study results should be extended and generalised to the general public with an extent of caution. In spite of the study's focus on the FC riding centres, most questions included in the survey questionnaire were related to the respondents' mountain biking experience in general. As a result, the findings and recommendations may be equally applied to riding centres that are run by organisations other than the Forestry Commission. There are no concerns about the validity of the study as the 'dummy' categories used in the questionnaire design revealed no errors in responses of the study participants.

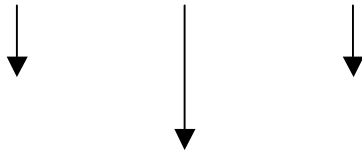
The present study can serve as a point of reference for both academics and practitioners conducting research into mountain biking tourism in the future. It is recommended that the findings of the present study are verified in similar surveys. Also, it would be insightful to extend the reach of future research into UK mountain biking beyond the Forestry Commission centres, as a volume of

riders use sites run by other public or private operators, as well as wilderness trails. Furthermore, it is important to ensure that entry-level riders are proportionately represented in future studies, as this would allow to analyse the motivations of mountain bikers and the way they may shift as the level of advancement increases. In addition, it is advisable to conduct further investigation into the differences between the segments proposed in the present paper. Finally, researchers should focus on mountain bikers taking overnight trips as this group is characterized by high spend and can benefit local communities in particular. This type of information could also be used to develop sustainable adventure tourism destinations catering for different mountain biking market segments.

APPENDICES

Appendix 1: Conceptual model of risk factors for accidents in adventure tourism





Extra organisational influences



weather forecasting; absence or/and under-funding of regulatory bodies/codes of practice; workforce available; commercial pressure etc.

Source: Page et al. (2005)

Appendix 2: The main segments of the UK adventure tourism market

Market Segment	Market size and growth potential	Importance to activity operators	Receptiveness to destination marketing
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Samplers	<ul style="list-style-type: none"> • A relatively small market segment. • Low propensity to repeat visit: many Samplers will only ever undertake an activity once. • Some potential for growth. 	<ul style="list-style-type: none"> • A market that will invariably use an activity operator, but not a priority market for most operators as it comprises mainly individuals, couples and very small groups, which many operators have difficulty in catering for on an economically-viable basis. 	<ul style="list-style-type: none"> • A segment that can potentially be reached through destination marketing, with the promotion of multiactivity holidays and taster courses, and inclusion of information on activity operators in destination brochures and on websites.
Learners	<ul style="list-style-type: none"> • Not an especially large segment, but an important one because of its transitional nature: this segment is likely to generate repeat visits as people progress to further training and independent participation. • A key market for Many activity operators – most Learners will use an accredited school, centre, or instructor. 	<ul style="list-style-type: none"> • Some operators may have difficulty in catering for this market because of the predominance of individuals and small groups, making the economics of running courses difficult at times. 	<ul style="list-style-type: none"> • A market that can potentially be reached through destination marketing, although to a more limited extent than the Samplers market – sports governing bodies will play a stronger role in directing people to suitable schools and instructors.
Enthusiasts	<ul style="list-style-type: none"> • A sizeable market segment with growth potential. • A high propensity to repeat visit. • A high propensity for out of season visits for many activities. 	<ul style="list-style-type: none"> • Participation in activities is largely on an independent basis. Enthusiasts are highly skilled, well equipped, and knowledgeable about where to undertake their chosen sport. This segment is unlikely to use activity operators, therefore, other than for the hire of equipment for some activities, eg 	<ul style="list-style-type: none"> • A segment that is unlikely to respond to destination marketing, as it is already very knowledgeable about where to go to undertake adventure activities. • Could potentially be influenced through coverage in

		diving.	specialist magazines, and by adventure sports events.
Dabblers	<ul style="list-style-type: none"> The largest market segment. 	<ul style="list-style-type: none"> Not generally of great importance to activity operators because of the largely independent nature of participation in activities. Some Dabblers may use local clubs or activity operators for equipment hire, or the use of their facilities. 	<ul style="list-style-type: none"> A market that can potentially be reached through destination marketing by featuring adventure activities in destination brochures and on websites, and through the provision of good quality pre-visit information on adventure activities.
Corporate groups	<ul style="list-style-type: none"> A small market, but high spending, and more likely to visit midweek and out of season. A market thought to have good growth potential. 	<ul style="list-style-type: none"> A growing market for many activity operators, and one that they are keen to attract because of its high value and off peak potential. 	<ul style="list-style-type: none"> A market segment that can potentially be reached by destinations through targeted marketing activity.
Education and youth groups	<ul style="list-style-type: none"> A significant market segment, with a high propensity for repeat visits: most educational establishments and youth groups will use the same activity centre each. 	<ul style="list-style-type: none"> The core market for LEA outdoor education centres, and an important market for many commercial activity centres. 	<ul style="list-style-type: none"> A market segment that is unlikely to be reached through destination marketing because of well-established visiting patterns and direct booking with centres.
Special occasion buyers	<ul style="list-style-type: none"> A small but growing market segment, actively being targeted by specialist agents such as Red Letter Days and Activity Superstore, and with packages now sold through high street retailers, 	<ul style="list-style-type: none"> Generally a minor market for activity operators, and one that not all operators are interested in. 	<ul style="list-style-type: none"> Not a high priority for destination marketing. A market segment that is probably best left to specialist agents to develop.

	such as Boots and WH Smiths.		
Activity Clubs	<ul style="list-style-type: none"> • A significant market – clubs provide a key means for many individuals to engage in adventure sports. • Might be influenced by coverage in specialist magazines and by adventure sports events. 	<ul style="list-style-type: none"> • Trips are generally organised on an independent basis. Clubs are usually experienced and knowledgeable about where to go to undertake activities. They are, therefore, unlikely to use activity operators to any great extent. • Some clubs may use local clubs or activity operators for the use of their facilities or hire of equipment. • Not a high priority for destination marketing. 	<ul style="list-style-type: none"> • Not a high priority for destination marketing. • Might be influenced by coverage in specialist magazines and by adventure sports events.

Source: The UK Adventure Tourism Report prepared for Wales Tourism Board, Keeling (2003)

Appendix 3: SWOT analysis of the Forestry Commission of Scotland forest cycling and mountain biking product

Strengths

- Scotland is recognised as a world-class cycling and mountain biking destination;
- The 7stanes sites, and Glentress in particular, represent a very good product. The 7stanes has growing brand awareness / recognition;
- A large diverse forest network, with many forests close to large centres of population or key tourist destinations;
- A good mountain bike experience for intermediate and advanced riders has been created;
- The World Cup Downhill, Cross-Country and 4-Cross spectator event at Fort William and the forthcoming World Championships in 2007;
- Forest cycling and mountain biking links well with VisitScotland / Active Scotland product, community and other strategies;
- The existing / extensive provision of forest roads and paths;
- Throughout FCS there is a good network of enthusiastic FCS staff who are keen to develop the cycling product further;
- The successful creation of commercial business opportunities for trail support services and 'spin-off' for communities;
- Children's Saturday Club, tuition and skill facilities offered at key sites, new markets being visibly created;
- Central facilities at Glentress (upgrade planned), Laggan Wolftrax and Kirroughtree (now need upgrading);
- The positive economic impact of cycling on rural communities;
- A growing network of private sector trail designers, each with their own skill base / individuality;
- Growing experience of trail design and management / maintenance within FCS;
- A growing number of active communities involved in cycling, in particular in partnership with FCS;
- The National Cycle Network Sustrans and its potential to stimulate local communities and links to forests;
- A growing network of local cycling clubs with a mountain bike section who are taking regular trips to purpose-built cycling facilities;
- Outdoor activity centres have enhanced mountain biking as part of their menu of activities offered;
- Cross-country cycling is recognised as an Olympic and Commonwealth discipline;
- Cycling has a recognised governing body, Scottish Cycling, with affiliated cycle club structures including the SDA and SXC;
- The range of local / community and regional events offered in forests throughout Scotland.

Weaknesses

- Product development has been largely supply and enthusiast-led rather than market demand-led. It has not been objectively researched and evidence-based;
- There has been a lack of a strategic approach to product development;
- There has been a concentration on the micro trail design issues rather than the macro planning / management and sustainability issues;
- Product inconsistency issues are evident;
- Lack of market segmentation / understanding of different market needs / wants;
- Trail development has been rather exclusively concentrated on intermediate and advanced skill levels rather than entry level – novice / family;
- A rather poor integration of cycle / mountain biking with other forest recreation users at some sites;
- A uniform trail grading system has not yet been fully adopted, so there is visitor confusion;
- A limited understanding of trail design implications has led to increased costs, quality and ongoing maintenance issues;
- The trail branding re 7stanes and the rest of Scotland is now confusing for the marketplace;
- At a FCS level there is only a limited understanding of the emerging cycle products and their corresponding markets (ie lack of consumer research);
- There is no understanding of how future sites might work together / clustering to attract overnight visitors;
- The current spate of new developments is responding to interest from small local user groups rather than the wider visitor market;
- No assessment has been made of ongoing maintenance liabilities;
- 7stanes marketing and branding has improved and has been successful but there is no strategy to evolve other brands countrywide, sub-brands hierarchy, etc overall marketing is still poor;
- There is only a limited understanding of the linkage of cycling to wider tourism destinations in the strive for economic gain;
- Local Forest Districts have good autonomy but consistency of management policies and practices re cycling across Scotland is poor;
- There is no national project prioritisation. Community developments must fit and be prioritised at a national level;
- The cycling products currently lack a fully integrated and consistent approach to information, interpretation and signage;
- There is a lack of market research and ongoing site monitoring evaluation; There is a lack of understanding of recreation impacts on conservation interest;
- Front of house services are generally poor ie the ones which have been developed at Laggan Wolftrax and Glentress are temporary (although the consultants are aware of future proposals re Glentress);

- There is a lack of sustainable transport links to forests so need for visitors to come by car.

Opportunities

- Showcase Scotland and national forests for a new audience;
- For Scotland to become a recognised international cycling, visitor destination and events venue;
- To become a leading world-class forest cycle and mountain bike brand known nationally and internationally;
- Capture the growth in demand for FCS recreation i.e. cycling, walking and other activity holidays and day visits etc;
- Opportunity to grow the number of people who cycle / mountain bike in Scotland;
- Develop world-class national and regional forest cycling and mountain biking facilities building on the success of the 7stanes;
- Maximise economic benefit and demand sustainability by ensuring purpose-built facilities are integrated as part of wider tourism destinations;
- Build on the strengths / characteristics at individual forests to ensure a distinctive and unique experience is offered;
- Opportunity to develop a range of diverse cycle products to satisfy a wide range of markets and their needs / wants;
- Opportunity to invest in new visitor services and facilities;
- To develop standards and good practice / guidance and expertise;
- To cross-sell other forest 'products';
- Opportunity to promote cycling on the National Forest Estate re support health, wellbeing and social initiatives;
- Respond to local demand and support well thought out local initiatives at the appropriate level;
- Attract to the National Forest Estate a greater number of entry level – family and novice cycle markets;
- Encourage existing, intermediate and advanced cyclists to visit the National Forest Estate more often, repeat visits and stay longer;
- Encourage cycling to play a greater part in economic development in a number of rural areas;
- Opportunity to promote the forest and its wider appeal / offering the forest experience to a new range of markets;
- Build on the opportunity created pre / post-legacy – World Cup Mountain Bike Championships in 2007;
- Maximise the opportunity to stage regional and community cycling and mountain biking events on the National Forest Estate.

Threats

- Product continues to attract mainly enthusiasts / higher social class users;
- Disturbance to wildlife / other users / neighbours;

- Competition of cycling / mountain biking in Scotland from other destinations ie Wales, Ireland / North of England;
- The inability to provide a long-term sustainable cycle / mountain bike trails / network / products;
- A lack of commitment to a strategic approach to the development and management for forest cycling and mountain biking could lead to duplication, product inconsistency and internal competition;
- Possible future litigation due to poor design or improper management / policies and practices;
- A decline in the trend to cycle / mountain bike off-road or a change in cycle market habits / trails / fashion;
- A dramatic fall in the number of possible funding avenues;
- A dramatic change in bike technology;
- A change in Scottish Executive national policy re health and social inclusion;
- A significant change in the role and remit of the Forestry Commission;
- Failure to invest in key supporting infrastructure / services and maintenance.

Source: FCS (2005)

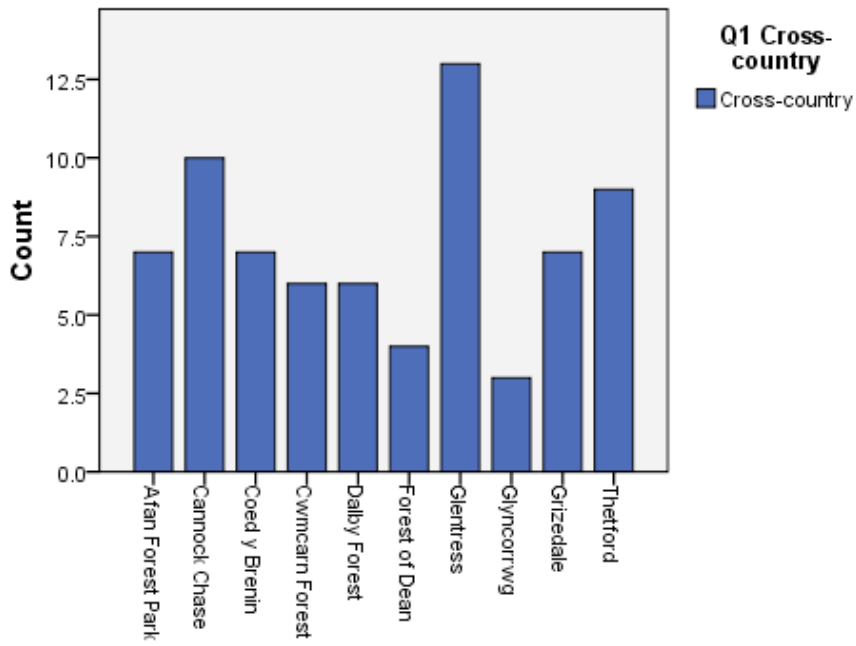
Appendix 5 – The survey questionnaire

Appendix 5: Popularity of FC managed mountain biking destinations

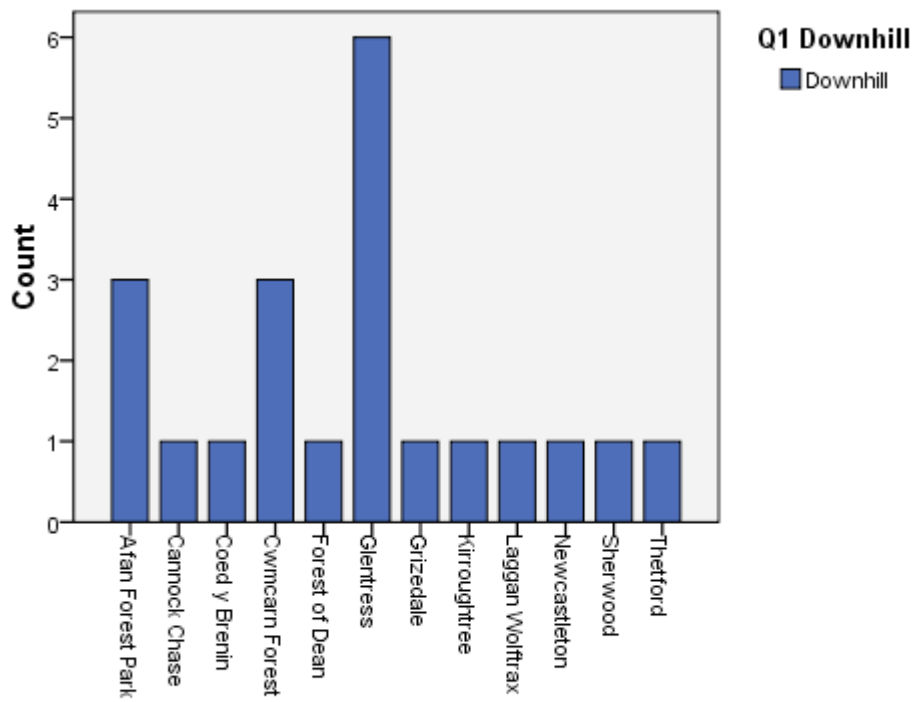
In which of the following Forestry Commission managed destinations have you done mountain biking so far?

Kielder (ENG)	15.2%	15
Grizedale (ENG)	36.4%	36
Hamsterley Forest (ENG)	13.1%	13
Dalby Forest (ENG)	24.2%	24
Sherwood (ENG)	21.2%	21
Cannock Chase (ENG)	33.3%	33
Delamere (ENG)	10.1%	10
Forest of Dean (ENG)	22.2%	22
Haldon (ENG)	5.1%	5
Alice Holt (ENG)	4.0%	4
Bedgebury (ENG)	9.1%	9
Thetford (ENG)	26.3%	26
Glentool (SCO)	14.1%	14
Kirroughtree (SCO)	29.3%	29
Dalbeattie (SCO)	35.4%	35
Mabie (SCO)	38.4%	38
Ae (SCO)	28.3%	28
Glentress&Innerleithen (SCO)	41.4%	41
Newcastleton (SCO)	11.1%	11
The Witch's Trails (SCO)	14.1%	14
Laggan Wolfrax (SCO)	18.2%	18
Learnie Red Rock (SCO)	6.1%	6
Fire Tower Trail (SCO)	3.0%	3
Moray Monster (SCO)	5.1%	5
Balnain Bike Park (SCO)	0.0%	0
Carron Valley (SCO)	9.1%	9
Kyle of Sutherland (SCO)	2.0%	2
Coed y Brenin (WAL)	52.5%	52
Nant yr Arian (WAL)	25.3%	25
Afan Forest Park (WAL)	34.3%	34
Glyncorrwg (WAL)	19.2%	19
Cwmcarn Forest (WAL)	33.3%	33
Garwanant (WAL)	4.0%	4
Brechfa (WAL)	12.1%	12
Glasfynydd (WAL)	3.0%	3
Marin (WAL)	36.4%	36

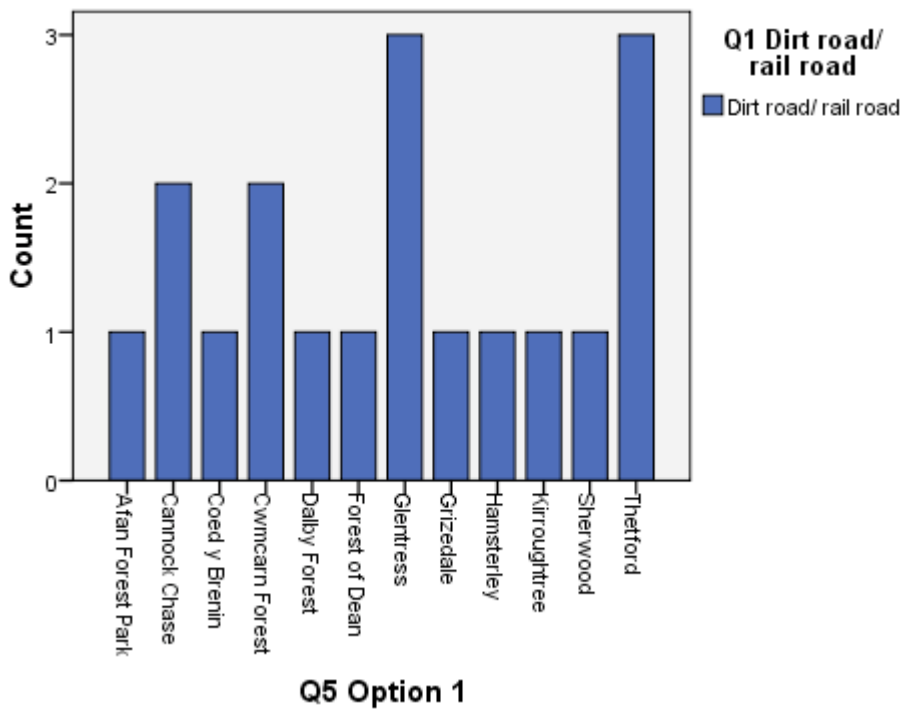
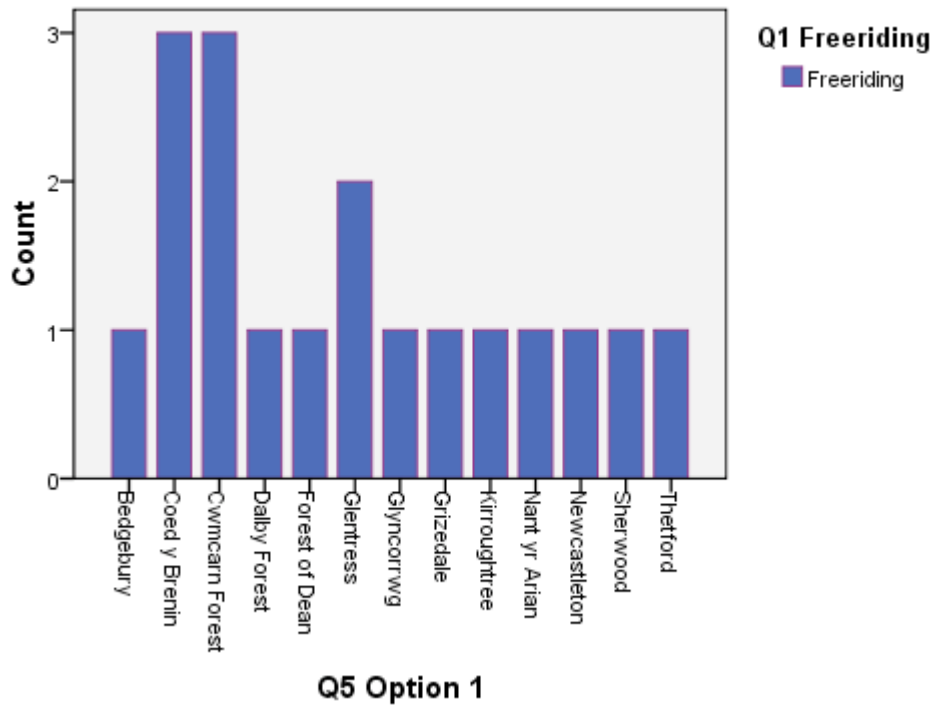
Appendix 6: The most frequently used destinations vs. Type of mountain biking



Q5 Option 1



Q5 Option 1



Appendix 7: Top Three Features of Mountain Biking

MOUNTAIN BIKING FEATURES (the top three features)	TOTAL %	Beginners (combined)	Moderately experienced	Have much experience	Expert/very experienced
Speed/excitement/risk	43	17	43	46	51
Exercise/fitness workout	42	59	48	44	23
Appreciating views/scenery/nature	38	47	37	39	31
Exploring new areas	33	34	42	33	23
Riding/socialising with friends	33	37	34	33	30
Racing and race training	28	0	4	21	44
Physical challenge (hard riding)	24	12	24	26	27
Skill challenge (technical riding)	22	4	17	21	41
Developing and improving skills	15	5	22	15	11
Commuting around town/transport	7	17	8	9	7
Relaxation/easy riding/cruising	7	31	7	2	3
Peace/quiet/solitude	2	19	7	2	3
Overnight trips/touring options	2	4	1	4	4
Other	2	4	2	2	2

Source: Cessford (1995)

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