

**PERCEPTION OF VISITORS ON THE IMPACT OF  
CONSERVATION AND TOURISM IN KINABALU  
PARK, SABAH**

**NADIATUL SARAH MUHAMMAD RAIS**

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CONSERVATION AND TOURISM IN KINABALU  
PARK, SABAH**

by

**NADIATUL SARAH MUHAMMAD RAIS**

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## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENT</b>	<b>ii</b>
<b>TABLE OF CONTENTS</b>	<b>iii</b>
<b>LIST OF TABLES</b>	<b>vii</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>ABSTRAK</b>	<b>x</b>
<b>ABSTRACT</b>	<b>xii</b>
<b>CHAPTER 1 - INTRODUCTION</b>	
1.0 Introduction	1
1.1 Research Introduction	1
1.2 Research Background	4
1.3 Research Problem	5
1.4 Research Objectives	9
1.5 Research Questions and Hypotheses	9
1.6 Significant of Research	10
1.7 Arrangement of Chapters	11
<b>CHAPTER 2 - LITERATURE REVIEW</b>	
2.0 Introduction	12
2.1 Visitors' Perceptions	12
2.2 Sustainable Tourism in Protected Area	15
2.3 Impact of Tourism in Protected Area	18

2.4	Conservation at Protected Area	22
2.4.1	Types of Conservation	25
2.4.2	Tourism's Contribution Towards Conservation	27
2.5	Conclusion	30

### **CHAPTER 3 - METHODOLOGY**

3.0	Introduction	31
3.1	Study Site	31
3.2	Research Framework	38
3.3	Conceptual Framework	40
3.4	Questionnaire Design	42
3.5	Sampling Design	43
3.5.1	Survey Sample Size	43
3.5.2	Simple Random Sampling	44
3.5.3	Sample Size Calculation	44
3.6	Pilot Study	44
3.7	Data Collection	45
3.7.1	Primary Data Collection	45
3.7.1(a)	Site Observation	46
3.7.1(b)	Informal Conversation	46
3.7.2	Secondary Data Collection	47
3.8	Conclusion	47

## **CHAPTER 4 - RESULTS AND DISCUSSION**

4.0	Introduction	48
4.1	Demographic Profile	48
4.2	Information about Respondents' Recreation Activities and Experience in Kinabalu Park	51
4.2.1	Number of Visitors and Climbers	54
4.3	Respondents' Opinion on Environmental Value Orientation	71
4.3.1	Issue and Challenges	75
4.4	Reliability Analysis	93
4.5	Independent Sample T-test and One-way Analysis of Variance (ANOVA)	94
4.5.1	Independent Sample T-test and One-way Analysis of Variance of Environmental Conditions	96
4.6	Discussion	102
4.7	Conclusion	104

## **CHAPTER 5 - CONCLUSION**

5.0	Introduction	106
5.1	Summary of Research Findings	106
5.2	Summary of Hypotheses	110
5.3	Research Contribution	111
5.4	Implication of Research	112
5.5	Limitation of Research	113
5.6	Recommendation for Further Research	114
5.7	Conclusion	115

**REFERENCES**

117

**APPENDICES**

**LIST OF PUBLICATIONS**



## LIST OF TABLES

		<b>Page</b>
Table 4.1	Demographic profile analysis	48
Table 4.2	Total number of visitors at Kinabalu Park from 2005 to 2015	54
Table 4.3	Total number of visitors at Park HQ from 2005 to 2015	57
Table 4.4	Total number of climbers from 2005 to 2015	59
Table 4.5	Park management strategies	61
Table 4.6	Comparison of fees for Kinabalu Park and Sarawak's National Park	62
Table 4.7	Ranking of visitor activities	84
Table 4.8	Analysis of prohibited acts seen in the park	84
Table 4.9	Impacts on the environment due to the visitor's activities	86
Table 4.10	Rank of impacts	91
Table 4.11	Reliability analysis chart	94
Table 4.12	Reliability statistic	94
Table 4.13	Result of normality	95
Table 4.14	Result of ANOVA of environmental conditions	97

## LIST OF FIGURES

		<b>Page</b>
Figure 3.1	Map of Sabah, Location of Kinabalu Park	35
Figure 3.2	Map of Kinabalu Park	36
Figure 3.3	Kinabalu Park's entrance	37
Figure 3.4	Mount Kinabalu	37
Figure 3.5	Research framework	39
Figure 3.6	Conceptual framework	41
Figure 4.1	Percentage of respondent's purpose of visit	51
Figure 4.2	Percentage of respondent's length of stay at Kinabalu Park	52
Figure 4.3	Percentage of respondent's opinion on number of visitors	53
Figure 4.4	Total number of visitors at Kinabalu Park from 2005 to 2015	55
Figure 4.5	Total number of visitors at Kinabalu Park from 2005 to 2015 by origin	56
Figure 4.6	Total number of visitors at Park HQ from 2005 to 2015	57
Figure 4.7	Number of visitors at Park HQ from 2005 to 2015 by origin	58
Figure 4.8	Total number of climbers from 2005 to 2015	59
Figure 4.9	Number of climbers from 2005 to 2015 by origin	60
Figure 4.10	Percentage of respondent's level of satisfaction	67
Figure 4.11	Percentage of respondent's returning to Kinabalu Park	72
Figure 4.12	Percentage of respondent's opinion on environmental protection and biodiversity conservation	71
Figure 4.13	Percentage of respondent's opinion on establishment of Protection for natural areas	72

Figure 4.14	Percentage of respondent's opinion on the conservation work	73
Figure 4.15	Percentage of respondent's opinion on information about Kinabalu Park	74
Figure 4.16	Percentage of respondent's knowledge on environmental issue	75
Figure 4.17	Percentage of respondent's opinion on temperature at Kinabalu Park	80
Figure 4.18	Percentage of respondent's opinion on vegetation at Kinabalu Park	81
Figure 4.19	Percentage of respondent's opinion on environmentally sustainable	82
Figure 4.20	Percentage of respondent's opinion on visitor activities cause impact towards environment	83
Figure 4.21	Percentage of prohibited acts seen in the park	85
Figure 4.22	Percentage of respondents' perception on overall level of the environmental impacts	92

# **PERSEPSI PELAWAT TERHADAP KESAN PEMULIHARAAN DAN PELANCONGAN DI TAMAN KINABALU, SABAH**

## **ABSTRAK**

Taman Kinabalu adalah kawasan yang dilindungi dan salah satu destinasi yang mesti dikunjungi jika melawat ke Sabah. Ini adalah kerana landskap pergunungan yang indah, pelbagai jenis ekosistem dan mempunyai spesies flora dan fauna endemik yang tinggi. Memandangkan Kinabalu Park telah dibuka untuk orang ramai selama lebih daripada 50 tahun, aktiviti pelancongan semakin sibuk sejak itu. Secara tidak langsung pelancongan memberi kesan terhadap alam sekitar di Taman Kinabalu. Persepsi pelawat dianggap sebagai aspek penting bagi imej negara kerana setiap pelawat mungkin mempunyai pendapat yang berbeza bagi impak pemuliharaan dan pelancongan terhadap Taman Kinabalu. Persepsi pelawat tentang keadaan persekitaran dan juga pengalaman pelawat yang melawat taman ini telah dikaji. Untuk mengumpulkan data, 400 soal selidik telah diedarkan kepada pengunjung di Ibu Pejabat Taman Kinabalu. Berdasarkan 383 borang soal selidik yang dikembalikan, majoriti responden adalah lelaki dengan 54.6%, kumpulan terbesar ialah 18-24 tahun dengan 36.6%, kebanyakan responden adalah rakyat Malaysia (38.1%) tetapi bukan dari Sabah dan 50.9% daripada mereka telah menamatkan diploma atau peringkat ijazah muda mereka. Tiga kumpulan pekerjaan utama adalah pelajar (27.9%), diikuti oleh responden yang bekerja di jabatan pentadbiran (22.2%) dan 12% responden yang bekerja di jabatan pengurusan. Tujuan utama responden melawat Taman Kinabalu ialah untuk bersiar-siar (38.6%) dan lebih daripada separuh daripada responden berkata bahawa mereka berpuas hati (58%) dengan lawatan mereka. Kadar

keseluruhan impak keseluruhan di Taman Kinabalu berada pada tahap "agak" teruk. Menggunakan ANOVA, terdapat perbezaan yang ketara terhadap persepsi pelawat mengenai keadaan persekitaran di Taman Kinabalu berdasarkan sosio-demografi (umur, asal, dan pekerjaan) dan pemboleh ubah perjalanan (tujuan lawatan).

# **PERCEPTIONS OF VISITORS ON THE IMPACT OF CONSERVATION AND TOURISM IN KINABALU PARK, SABAH**

## **ABSTRACT**

Kinabalu Park is a protected area and one of the must go destinations when visiting Sabah due to the beautiful mountainous landscape, various types of ecosystem and the high endemic species of flora and fauna. As Kinabalu Park has already been opened to public for more than 50 years, the tourism activities are also getting busier since. Subsequently, tourism does give impact to the environment of the park. Perception of visitors are considered a crucial aspect of the country image as each visitor may see the same level of conservation and tourism impact differently in Kinabalu Park. The visitors' perceptions of the environmental condition and also visitors' experiences visiting the park were studied. In order to collect the data, 400 questionnaires were distributed to the visitors at Kinabalu Park Headquarters. Based on 383 questionnaires that were returned, the majority of the respondents were male with 54.6%, the largest age group was 18 to 24 years old with 36.6%, most of the respondents were Malaysian (38.1%) but not from Sabah with 50.9% of them have completed their diplomas or degree level. The three major occupation groups were students (27.9%), followed by respondents working in administration department (22.2%) and 12% of the respondents working in management department. The main purpose for the respondents visiting Kinabalu Park was for sightseeing (38.6%) and more than half of the respondents said that they were satisfied (58%) with their visit. The rate of overall level of impact in Kinabalu Park was on "somewhat" level. Using ANOVA, there were significant differences on visitors'

perceptions on environment conditions at Kinablau Park based on socio-demographic (age, origin and occupation) and travel variable (the purpose of visit).

# **CHAPTER 1**

## **INTRODUCTION**

### **1.0 Introduction**

This thesis presents the findings of the study on visitors' perceptions on the environment condition of Kinabalu Park, where tourism activities are actively done and is a popular tourism destination in Sabah.

The purpose of this chapter is to provide a general introduction about this study. The chapter starts with an introduction of the study, then followed by research background and problem. The tourism industry gives positive impacts as well as negative impacts towards the tourist destination. The visitors' experiences and perceptions leads to the presentation of research objective, research questions, hypotheses of study and followed by the significance of study. Lastly, a detail of thesis outline.

### **1.1 Research Introduction**

Sabah, the land below the wind, falls within the Indo-Malayan faunal realm. Which contains some of the world's richest concentrations of terrestrial and marine biodiversity, with much of this biodiversity being concentrated in the lowland rain forests and offshore reefs. One of the prides of Sabah is the Mount Kinabalu, located at Kinabalu Park. With the height of 4,095m, Mount Kinabalu is the highest mountain between the Himalayas and New Guinea. It is a hotspot area of the flora and fauna biodiversity because it consists of various types of plants and organisms species with resemblance to flora and fauna from



the Himalayas, China, Australia, Malay Peninsula, as well as pan-tropical region. Mount Kinabalu also has a beautiful mountainous landscape that attracts the visitors to enjoy the scenery (Conservation Outlook Assessment, 2017).

Mount Kinabalu has the greatest number of plant species, for its size in the world. Within the area of about 30 by 40 kilometers, more than 5500 plant species have been recorded, including nearly 900 orchid species. Compare that with the number of plants known from Europe (12,000) or Australia (24,000) that are 6000-8000 times larger in area. The various types of plants are ascending through lower montane forest to sub-alpine zones (Conservation Outlook Assessment, 2017).

In 1964, Kinabalu Park was initiated to protect Mount Kinabalu, its plant and animal species, where it is managed by Sabah Parks. Due to the high number of endemic species of flora and fauna which can be found only within Kinabalu Park, it has been declared as Malaysia's first World Heritage Site in 2000. United Nations Educational, Scientific and Cultural Organization (UNESCO) have identified Kinabalu Park as a Centre of Plant Diversity for Southeast Asia (Conservation Outlook Assessment, 2017). It is in the top six biodiversity centers in the world. Internationally, Kinabalu Park falls in category II (for national parks) of the IUCN Category System for Protected Areas. The Parks contains high biodiversity with representatives from more than half of the families of all flowering plants. Majority of Borneo's mammals, birds, amphibians and invertebrates that are endangered, threatened and vulnerable can be found in the Park (Conservation Outlook Assessment, 2017). The Park was initiated with the objectives in conserving the biological and physical resources, lead scientific research and enhancing

educational values, increasing recreational and visitor activities, preserving cultural and historical values and instituting management procedures to support other strategic.

Tourism activities, for example at Mount Kinabalu, the climbing activity give impacts toward the environment at that ecosystem, due to the number of visitors and climbers entering the Kinabalu Park on a daily basis. The number will increase during the public or school holidays. For the year 2012 based on the visitors statistics done by the Sabah Parks, the number of visitors to Kinabalu Park is at 285,466 of which 53,882 of them are climbers. The number of visitors has been increasing from year to year.

In order to maintain and improve the tourism activity, conservation of the ecosystem and sustainable tourism must be implemented. Conservation is the act of preserving, guarding or protecting the biodiversity, environment, ecosystem and natural resources by management. Mount Kinabalu is diverse with flora and fauna species and it is one of the attractions for the visitors to come. Therefore, to maintain the attraction of that place, conservation must be done and sustainable tourism is implemented. Sustainable tourism based on United Nation World Tourism Organization (UNWTO) is a development guidelines and management practices that are applicable to all forms of tourism in all types of destination, refer to the environment, economic and socio-cultural aspects of tourism development and suitable balance must be achieve to guarantee its long term sustainability. Furthermore, it is also attempting to make a low impact on the environment and local culture, while helping to generate income.

## **1.2 Research Background**

Kinabalu Park has become one of the popular destination sites by the domestic and international visitors since it received the World Heritage Site title by UNESCO. The park is very diverse in flora and fauna and many other areas in the park have not been explored yet and research about it need to be done by the park management and experts. Often, every time they make expeditions in the Kinabalu Park area, they will find new species of flora or fauna. The park must be in sustainable condition in order for the future generation to experience the mountain scenery and also the biodiversity of the park.

Activities originating outside the park represent a potential threat to the maintenance of on-going ecological and biological processes operating in the park. It is these on-going ecological and biological processes that have contributed to evolution or speciation, hence the biodiversity richness of the park, Kinabalu Park having been referred to as a 'species pump'. Agricultural incursions into the park and fire escape from neighboring land are potential threats of concern but are being addressed. Tourism activities have the potential to threaten on-going natural processes (Conservation Outlook Assessment, 2014).

This research is to determine visitors' perceptions on the environmental condition of the park during their visit and if they are aware of any conservation work being done in the park. Thus, more effort needs to be done by the management of the park to manage the tourism activities in Kinabalu Park and at the same time to conserve and give awareness to the visitors about the national park.

### **1.3 Research Problem**

The image perception of visitors are considered a crucial aspect of general country image and it is an important factor for visitors to choose their destination (Jalil, 2010; Kamenidou et al., 2009). Indirectly, environmental impact perceptions on a destinations is often different from reality (Priskin, 2003). Each visitor may see the same level of impact differently (Hillery *et al.*, 2001). This is because of gender, age, education, origin of visitor (Priskin, 2003), value orientation (Raadik & Cottrell, 2007), previous experiences, tourism motivation, and various information sources (Baloglu & McCleary, 1999).

Tourism is widely recognized as a means to stimulate local economic development through creating jobs and increasing foreign revenue (Geneletti & Dawa, 2009). Tourism, however, not only give positive impacts but negative impacts as well. In addition to negative impacts on local air, water, and soil quality, social and cultural fabrics are also affected (Buckley, 2012). Tourism also can cause the same forms of pollution as any other industry such as solid waste and littering, noise, release of sewage, water, air emissions and even visual pollution (UNEP, 2002). Nonetheless, when developed in a sustainable manner, tourism can fulfill economic needs while maintaining cultural integrity, biological diversity, essential ecological processes, and life support systems (Diamantis & Ladkin, 1999).

Destinations with environmental resources that translate well into tourism opportunities, such as in Kinabalu Park, can be negatively impacted by conflicts and multifaceted governance issues. The lack of management regulations can produce threats to the protected areas, either as degenerative environmental pressures or the prevention of

community development. Protected areas are becoming very attractive places for the development of tourism due to their natural richness and special potential for outdoor activities and valuable assets such as their potential role in protecting cultural and natural (Eagles, et al., 2002). Biodiversity has been found to have a significant and positive correlation with inbound visitor receipts, indicating that the relationship between biodiversity and tourism development is important (Freytag & Vietze, 2013). The lack of proper tourism management and policies, however, can damage sensitive ecosystems in protected areas, having implications that range from a decrease in visitor satisfaction to a decline in the number of visitors, both of which result in the loss of economic benefits that tourism may bring (Olafsdottir & Runnstorm, 2009). For instance, Kinabalu Park as the research site in this study, issue on legal framework is a serious concern in 2017 Conservation Outlook Assessment. It stated that the Park Enactment Act 1984 and Parks (Amendment) Act 1996, together with a set of Regulation in Periodic Reporting 2002 is appropriate legislation at the State level but it is inadequate to use the outdated 1992 Kinabalu Park Development Master Plan to guide the management of the park. The 2000 IUCN Technical Evaluation notes the existence of an outdated 1993 management plan and several reports since have raised the need to update the master plan and to prepare a comprehensive plan for management of the park. Despite this, there is no evidence to suggest that any steps are being taken based on 2017 Conservation Outlook Assessment. Protected areas that have limited control over access points or include inhabited communities pose unique challenges in the management of such areas (WTO, 2004).

Since Kinabalu Park opened to visitors on 1964 till now, the numbers of visitors at Kinabalu Park are increasing year by year because of the tourism activities provided and the attraction of the park itself. In 2008, the number of visitors at Kinabalu Park is 232, 213 visitors and 5 years later in 2012, 285,466 visitors came to Kinabalu Park (Sabah Park, 2012). The number of climbers are also increasing because the tourism at Kinabalu Park is promoted well and due to the visitors want to enjoy the scenery of Kinabalu Park. There is no limit to the number of visitors per day that can enter the park and enjoy the activities provided. Only for climbing and overnight stay in the Kinabalu Park are limited based on the number of accommodations available. According to Goh (2007), the number of accommodations available for the climber at Laban Rata is 138 beds.

Tourism gives negative impacts towards the environment of the park when the level of visitors is greater than the environment's ability to cope with this use within the acceptable limits of change. Kinabalu Park is a national park that is diverse in flora and fauna so if uncontrolled tourism is done, it will increase the pressure on them. There are still many other areas in the park which have not been explored yet and if the environment is under pressure, there is high possibility that the species will be extinct before it can be found. Often, every time they make expeditions in the Kinabalu Park area, they will find new species of flora or fauna such as ferns, mosses, orchids, snails, leeches, spider and frogs. For example, the 2012 expedition findings shows that tropical mountains are locations where very old species survive but they found out that most of the species are young (Takunai, 2012). If the carrying capacity of the park is exceeded, it may harm the environment of the park. Moreover, new plants and animals have been evolving and still do. Changes in environmental conditions may alter the composition of species and their

population sizes in communities and ecosystem (Miller & Spoolman, 2010). The fulfillment of human needs cause environmental change of some sort. Every time there are some developments in that area such as road and building construction, it will rebound on the environment. Mostly there are arguments on about whether the actions are damaging or not; whether the environment is harmed and whether development is sustainable. Environment is always being trade off as the result of development for tourism.

Hence, the purpose of this study is to examine the visitors' perceptions on whether the environment condition of Kinabalu Park is affected by the tourism activities done at the park. With the feedback by the visitors, the park management can review their management plan and improve it to suit the current situation. Not all of the park staffs interact with the visitors, so they will not know the visitors' opinions about the environment and the ongoing conservation work in the park.

There are concerns stated in 2017 Conservation Outlook Assessment about the lack of monitoring to assess visitors impacts and the lack of a scientifically determined daily visitor carrying capacity (Goh & Yusoff, 2010; Latip & Rais, 2016). Based on the report of 2017 Conservation Outlook Assessment for the world heritage site, due to the increasing of visitors at Kinabalu Park, the property indicates that management of tourism impacts will need to become more effective to avoid degradation of the park environment. In order to improve the quality of visitor experience further improvements of site interpretation must be considered. It also stated that the lack of monitoring is a minus to quantitative evaluation of impacts from the visitation to the values of the park. Furthermore, it is also associated with appreciating and observing nature, scientific

endeavor and education. This type of tourism is should be done with minimal development of infrastructure and restrictive management.

#### **1.4 Research Objectives**

The objectives of this research are:

1. To examine visitors' opinions on their visit experiences, environment conditions and issues of Kinabalu Park.
2. To investigate whether visitors' perceptions on environment conditions of Kinabalu Park differ based on their socio-demographic and travel variable.

#### **1.5 Research Questions and Hypotheses**

1. How are the visitors' experiences visiting Kinabalu Park and what are their opinions on the environment conditions and the conservation efforts? Are they aware about any issues related to environment?
2. Is there any significant difference on visitors' perceptions on environmental conditions at Kinabalu Park based on socio-demographic (gender, age, origin, education level and occupation) and travel variable (purpose of visit)?

Based on research question no. 2, six alternative hypotheses have been developed:

Hypothesis 1: There are significant differences between the genders of visitors on perception of environmental conditions.

Hypothesis 2: There are significant differences between the age group of visitors on perception of environmental conditions.



Hypothesis 3: There are significant differences between the origins of visitors on perception of environmental conditions.

Hypothesis 4: There are significant differences between the education levels of visitors on perception of environmental conditions.

Hypothesis 5: There are significant differences between the occupations of visitors on perception of environmental conditions.

Hypothesis 6: There are significant differences between the purposes of visitors' visit on perception of environmental conditions.

### **1.6 Significance of Research**

The main focus of this study is on visitors' perception on the impact of conservation and tourism in Kinabalu Park, mainly at the Kinabalu Park Headquarters. This study will help the industry, especially the park management to improve their conservation work and Kinabalu Park. In the same time, this study will help the industry to identify the level of tourism impact on the environment in Kinabalu Park. The results of the study is expected to help the Sabah parks and government as well as those interested in general to be aware of what is actually happening on the environment conditions and tourism industry at Kinabalu Park. From the outcome of this study also will help to assist Sabah Parks to come out with better management plan on conservation work and tourism impact. Besides that, this study also benefit researchers in enhancing their knowledge on impact of conservation and tourism impact in Kinabalu Park as one of the protected area in Sabah. While for universities, it will become a new knowledge for the students and

academician about tourism in protected area in terms of conservation and tourism impact. Besides, it will lead to another study that relates to impacts of conservation and tourism.

### **1.7 Arrangement of Chapter**

This thesis is divided into five chapters. The chapters are organized according to their sequence and each chapter is provided with the details for understanding the overall study.

Chapter 1: This chapter basically introduces the topic of study, overview of the study, as well as the research background, problem statement, objective, significance of the study and outline of the thesis.

Chapter 2: In this chapter, the literature review of the study is explained. This chapter mostly reviews the literature of tourism in protected area, the impacts of tourism towards the protected area and also the effort done to protect the protected area.

Chapter 3: This chapter covered the details of the research methodology applied in this study. It explains the study site, the process of research, calculation and determination of the sample size, and also the data collection methods.

Chapter 4: Data analysis and discussion are presented in this chapter. These include the respondents' demographic, descriptive analysis and some discussions. T-test and ANOVA were done to justify the hypotheses.

Chapter 5: This chapter is the conclusion of the thesis. All of the results and discussions are summarized, and recommendation and future plans are also presented in this chapter.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

In this chapter, the literature review of the study is explained. It reviews the literature of visitors' perception towards protected area and conservation, tourism in protected area, the impacts of tourism towards the protected area and the effort done to protect the protected area.

#### **2.1 Visitors' Perceptions**

Perception based on Bonnes et al. (2003), is a part of human cognitive process and a mental impression on understanding or interpreting something as well as the source of attitude and action. According to Roeckelin (2006), the contemporary concept of perception is the processes of which people perceive one another, an interpretation, and sense of personalities as well as social characteristics of others based on their behavior. Besides that, perception is unique to each person and leads to preference judgment of individual.

Tourism activities have been identified to have a major negative impact towards the environment (Kilipiris & Zardava, 2012). Variety of components of the environment such as ecological resources, natural sights, air, water consumption, and natural resources are affected by the tourism activities. There is also an indication that visitors' behavior plays an important part in aggravating the impact on the environment. It should also be

noted that socio-demographic factors such as gender, age, origin of visitors and education could have an effect on visitors' perceptions of tourism impact (Deng et al., 2003). According to Deng et al. (2003), people who are highly educate are more likely to be environmentally concerned than people who have lower education level. In contrary, other studies have found that levels of environment concern are evenly distributed across education level (Jones & Cater, 1994; Gooch, 1995).

Moreover, visitors often underestimate their own impacts because they perceive that the other groups sharing the same resource cause more impact than they do (Priskin, 2003; Symmonds et al., 2000). In contrast, it was also found that some of the visitors showed their concern towards the environment (Rose et al., 2012). According to Selamat et al. (2016), visitor believe that tourism activities, development and infrastructure such as accommodations, toilets and tourism facilities have a significant effect on the environment. This conclude that visitors are very much aware and concerned towards the effect of tourism on the environment.

Perception of environmental impacts refers on how visitors perceive about changes in environmental conditions of that area (Symmonds et al., 2000). As mentioned by Taylor et al. (1995) and Dorwart et al. (2010), environmental perception research is that perception is actually an interaction between humans and an environment that is dynamic, inextricably linked to the whole psychology of the observer and immersed in the environment that is experienced. According to Manning (1999), research on environmental impact perception is somewhat limited compared to other visitor perception studies. There is an insufficiency of research on relating it to current actual bio-physical impacts (Phumsathan, 2010).

Instilling visitors with environmental education such as talks, educational video or campaign could be the one of the way to bring out positive actions and attitude from visitors towards the environment (Selamat et al., 2016). In addition, understanding visitors' perception of the environmental impacts is critical for providing a quality experience. Research results can be used to develop strategies that can improve visitor's behavior to be more environmentally friendly.

Previous studies by Noe et al. (1997) and White et al. (2001) found visitors' perceptions of tolerances for impacts varies widely. Visitors' perception of tourism impacts were no determined by a single factor, rather it is a combination of factor such as soil, vegetation and pollution that influence visitors' judgment about whether or not tourism impact are acceptable (Deng et al., 2003). Furthermore, according to Hammit and Cole (1998), visitor judgment about whether an impact is good or bad are dependent on the type of tourism activities that the destination manage to offer, objectives of various use groups and resource management.

White et al. (2001) stated that visitors perceived major impacts from a reduction in vegetation cover, compacted soil and chopped or fallen trees. While Reynolds et al. (2007) stated that other variables such as the presence of litter and noise. Generally, visitors appear to be more sensitive to impacts such as litter, tree damage and badly exposed tree roots (Marion & Leung, 2001; Deng et al., 2003). Generally, vegetation can be affected in terms of germination and establishment of new plants, and invasion new species (Deng et al., 2003). According to Hammit and Cole (1998), suggesting that higher disturbance of vegetation does not necessarily lead to higher dissatisfaction. Dorwart et al. (2010) found that although visitors encounter some unpleasant behavior but as overall

they were very satisfied with the visit experience due to the overall beauty of that area. Visitors' perception are also necessary to predict the impact of certain action or to provide useful suggestions about improving existing facilities or creating new ones (Spanou et al., 2012).

## **2.2 Sustainable Tourism in Protected Area**

Sustainable means something which can be continued. Development should enhance and conserve the world for the future generations. Based on the World Tourism Organization (WTO) declared in 1988 that sustainable tourism is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining culture, integrity, essential ecological processes, biological diversity and life support system. It emerges as a more responsible form of tourism and seeks to minimize the negative impacts of tourism development while contributing to nature conservation and benefiting local communities (Christ et al., 2003).

According to Brown & Essex (1997) the sustainability of tourism is hence directly tied to maintaining the integrity of that attraction and mediating the interaction between the visitor and the attraction over time, such that interest is maintained. Therefore, it is important to assess not only the nature attraction, but also the feedback between them. Subsequently, to ensure tourism bears a low impact on the environment and local culture, while helping to generate future employment for the local people. The socio-economic principles require tourism to help in conserving natural heritages and biodiversity by channeling financial support into conservation areas.

The concept of sustainable tourism was introduced after the Rio Earth Summit in 1992. In order to ensure tourism industry growth is not only for short-term, sustainable tourism has to be implemented. According to UN World Tourism Organization (UNWTO), these are some of the goals of sustainable tourism in protected areas:

1. To provide people with the ability to learn, experience and appreciate the natural and cultural heritage of the site.
2. To ensure that the natural and cultural heritage of the site is managed appropriately and effectively over the long-term.
3. To manage tourism in parks for minimum negative social, cultural, economic and ecological impact.
4. To manage tourism in parks for maximum positive social, cultural, economic and ecological impact.

Sustainable tourism is able to support these roles by providing financial support for conservation, maintaining visitor satisfaction and benefit for the local communities through providing employment opportunities (Goh, 2007). Tourism in protected areas relies totally on the park ecosystem for its existence. Furthermore, it is also associated with appreciating and observing nature, scientific endeavor and education. While sustaining its survival, financial income from tourism activity is required in order to support conservation effort when support from the government is difficult to obtain. The presence of tourism provides the economic incentive for protected area management to meet its nature conservation objective (Goh & Yusoff, 2010). It covers the daily maintenance and management within the park to ensure that its ecosystem is protected from any disturbance. There are four types of strategic approaches for reducing the

impacts of tourism in parks based on the World Commission for Protected Areas (WCPA 2000);

1. Managing the supply of tourism.
2. Managing the demand of visits.
3. Managing the resource capabilities.
4. Managing the impact of use.

The steady inflow of visitors to the park raises concern over sustainability of tourism. Three aspects of the concept for sustainable tourism are environmental, economic, and social and cultural. For environmental, any activity that gives minimum damage to the environment including flora, fauna, water, soil and contamination of waste treatment by not only minimizing but trying to raise the most benefit to the environment. The economic activity mostly contributes to the surrounding community and also to the park management. The last aspect is social and cultural where the activity does not harm the social structure of the local community where it is located or damages its culture. Some of the indicators in the national park that can be observed and studied are:

1. Change in vegetation cover due to tourism activities
2. Change in biodiversity due to tourism/recreation activities
3. Change of critical areas due to tourism development
4. Number of endemic and threatened species
5. Area occupied by endemic or threatened species/total land area



Every party has a different view about the tourism sector in national park. For instance, the tour operator views it as creating employment and income, developing long term sustainable economic activity and as for the park manager, he or she wants to promote conservation, develop heritage appreciation and create a positive experience for the visitors. While for the visitors, they seek out experiences in the park, gain health benefits, spend quality time with family and friends, and also meet people with similar interests (Eagles & McCool, 2002).

### **2.3 Impact of Tourism in Protected Area**

Tourism sector is one of most profitable sectors for the country. Most countries give more priority on developing their tourism sector. As based on Doswell (1997), tourism ranked first among the world exports of goods and services, ahead of oil, motor vehicles and electronic equipment. Definition of tourism is the activity of persons travelling and staying in places outside their usual environment for not more than one continuous year of leisure, business and other purposes (Doswell, 1997). The reasons tourism sector exist is due to people travelling for their pleasure or they are obligated to travel. People who travel for pleasure usually choose to go somewhere for adventure, escape, discovery or sport. While people travelling because of obligation i.e. they have to travel somewhere for business, medical reasons, obligation for religious reasons, family or friends occasions. Travel and tourism have a price; they affect culture, society and the environment of the country and not just its economy. Based on World Conservation Union's World Commission on Protected Areas (IUCN WCPA) Fifth World Park Congress on 2003, tourism in and around protected areas must be designed as a medium

for conservation; building support; raising awareness of many important values of protected areas including ecological, cultural, spiritual, aesthetic, recreational and economic values, and generating much need for conservation work for the protection of biodiversity, ecosystem integrity and cultural heritage. Tourism is being put as multi-sectoral economic activity as it is being seen as interaction of economic, environmental, sociocultural and other effects.

Rapid growth of a tourism industry will see visitor numbers increase and capacity levels exceeded which will lead to overuse of tourism resources, thus will cause environmental degradation (Marzuki, 2009). There are many crucial global environmental issues for example global warming (greenhouse effect), the ozone layer and the use of chlorofluorocarbons, pesticide use, desertification, and the problems of urbanization, air, water and noise pollution, waste disposal, habitat destruction, soil depletion, endangered species, acid rain and rainforests, oceans, wetlands, coral reefs and estuaries contributing to environmental degradation. In protected areas specifically due to ecological vulnerability, tourism can play a major role in adversely impacting the environment of these fragile destination (Carlsen, 2006).

Dyer et al. (2007) stated that the economic impact of tourism had the most attention due to the positive effect on destination and communities both directly and indirectly. Tourism is now a leading contributor to some economies and its growth potential is remarkable. According to Croes (2006), tourism create job opportunities for the local communities and economic development for the tourism destination. As Eagles et. al. (2002) also stated that tourism can increase jobs and income for local people, learn new skills and improve infrastructure of that destination areas. Thus it will improve the

communities' living standard. Kinabalu Park is a globally recognized iconic tourism destination and as nature-based tourism within the site is a major source of employment and economic benefit flowing to the local and regional economies. In terms of economic revenues, tourism at protected areas can contribute to the conservation of the park resources (Deng et al., 2003). Tourism development may lead to the improper consumption of the environment if the strategies and plans are inappropriate especially when the priorities are financial and economic gains at the expense of culture and ecology of the destination (Murphy, 1985; Woodley, 1993; Khalifah, 1997). Nevertheless, tourism development should be sensitive to the ecosystem in which it is placed and should not generate or at least minimize the accompanying adverse impacts (Khalifah, 1997).

Millions of people travel to see and experience natural environments each year and the scale of such movements lead inevitably to some disturbance or damage to visited sites (Marion & Leung, 2001; Spanou et al., 2012). Some negative impacts may be destruction of plant and wildlife, trampling on vegetation, erosion of soil, alternation of geological regimes, litter, air and noise pollution caused by people and cars (Spanou et al., 2012). Based on previous studies by Manning, (1979); Hammit and Cole, (1998), have found that tourism activities tend to be concentrate on trails and place where visitor facilities tend to be in the destination area. As Leung and Marion (2000) stated that the location and concentration of tourism impacts can harm rare of endangered species, damage sensitive resources or diminish ecosystem health.

As stated by Khalifah (1997), protected areas contribute to species conservation and the protection of water supplies to the communities lived near protected area such as Kinabalu Park. Moreover, many of the natural areas have ecosystem which have evolved

through thousands of years and there are limitations to their tolerance to development (Khalifah, 1997). According to Buckley and Pannell (1990), protected areas are suitable only for low impact recreation, thus it is inappropriate for visitor developments in the park and reserve to include facilities such as large hotels, tennis courts and golf courses. Although tourism impact on the park do not appear to be serious, they may still have a negative effect on visitors' experiences as these impacts were largely localized and concentrated on most used trail (Deng et al., 2003). Tourism impacts on soil and vegetation are most likely to occur in or along trails, especially those that are unsurfaced (Leung & Marion, 1999; Marion & Leung, 2001). For example in Australia, the degradation of environment is due to the high growth rate of tourism. As stated by Hall (1991), Kakadu National Park and Uluru National Park are showing the initial signs of direct visitor impacts such as trampling and the increasing changes in the habitat and landscape through the construction of visitor facilities.

Benefit of tourism in protected areas is to provide visitor with the need for motivation for its protection and conservation (Spanou et al., 2012). However, any form of tourism can have negative impacts on the resources on which tourism activities depend (Deng et al., 2003). According to Seabrooke & Milles (1993) and also Spanou et al. (2012) mentioned that integrated interpretative facilities to offer a rewarding educative experience to visitors that will help them appreciate the protected areas. In many developed countries, there are numerous adverse effect of tourism in protected areas although conservation laws and policies meant to guide careful tourism development have existed (Khalifah, 1997). As mentioned by Deng et al. (2003), arguably tourism and environmental protection can be seen as two sides of the same coin. While Eagles et al.

(2002) stated that tourism is always a critical component to consider in the establishment and management of protected areas.

There is a management plan called “Kinabalu Park Development and Management Plan” implemented since 1993 and in the Periodic Reporting of The World Heritage Convention for Kinabalu Park 2002, stated the existing Kinabalu Park Development and Master Plan will be revise but till now there is none of revised management plan is being produces. Based on the 2002 Periodic Reporting of the World Heritage Convention for Kinabalu Park, conservation approach was based on the enforcement of the Parks Enactment 1984 and active management such as research are being carried out till now. The on-going international interest in the biodiversity of the site provides an early warning system for a deteriorating conservation status of threatened species (Conservation Outlook Assessment, 2014). Moreover, the dandelion issue had been on-going since then and being manual removed. The apparent absence of a formal scientific monitoring program in the park has been raised previously. This deficiency is now a handicap for assessment of ecological change in the park, in particular the impacts of increasing visitor activity in the park, in particular the summit walking track (Goh and Mariney 2010; Conservation Outlook Assessment, 2014).

#### **2.4 Conservation at Protected Area**

Nature conservation refers to the activities and efforts undertaken by the park authority in fulfilling its ecological protection objectives. Conservation is an act of conserving or saving our natural resources through careful management so the resources

can be used or enjoyed for a long period (Latip & Rais, 2016). The resources can be used but wisely and responsibly. If there are ongoing tourism activities in the area, conservation work must be done more efficiently. This is because tourism creates pressures on the natural and cultural environment, affecting natural resources, social structures, cultural patterns, economic activities and land uses in local communities (Miller & Spoolman, 2010). These pressures may alter the function of nature and create problem for the local community. Thus, precaution or regulations taken to mitigate such impacts can be a viable option.

In the 1960s, the concerns of park management worldwide were centered on the ecological aspects. The problems such as human impacts on the environment as well as flora and fauna, species extinction, the role of national parks in scientific studies, problems with the park boundary parks and park management, religious significance, aesthetic meaning of certain parks and the economic benefits of tourism (Goh, 2007). The focus on ecological aspects was significantly influenced by environmental awareness and the conservation movement at the global level at that time. The problems arise due to lack of understanding the roles of national park or protected areas. National parks are areas protected to serve both nature conservation and recreation purposes. Watershed protection, climate stabilization and habitat protection are some of the protected areas roles in ecosystem. In general, a higher number of visits indicate higher financial revenues. Due to the number of visits, the park ecosystem is potentially negatively affected. For instance, invasive species may be introduced and maybe compete with the key species for survival (Miller & Spoolman, 2010).

Today, protected areas are usually blocks of land gazetted by law from the existing national land use resource inventory and are therefore exempted from the usual range of land alienation pressures. Although universally national park status and other categories of protected area are accepted as a means of managing land for conservation, do not necessarily mean that the objectives of conservation are met as most areas remain under pressure, particularly from the adjacent land users (Environmental input to the Sabah Structure Plan 2020, 2001). Therefore the fate of these protected areas and the environmental integrity of the State will be uncertain without clear policy and commitment to guide an environmentally sound development process to ensure our future. Kinabalu Park attracts more interest in conservation than any other park in South East Asia. There are many scientific surveys with flow on benefits to the local people, local and regional economy and through the many publications, the generation of knowledge of the park's natural heritage values shared globally (Conservation Outlook Assessment, 2014).

Monitoring becomes an essential component in tourism impact management, as tourism development in national parks has significant environmental and ecological impacts over time. Monitoring is the systematic measurement of key indicators of biophysical and social conditions. While management is an important element of decision making, the results of systematic monitoring provide a more defensible basis for management actions (Goh, 2007). Absence of a formal monitoring program or at least lack of documentation of commencement of such a program makes a definitive assessment of the conservation status and trends for threatened species difficult, indicative evidence suggests that at most a relatively few species of plants or animals are critically threatened. There is an identified need to implement a monitoring programme to facilitate an objective

assessment of the impacts of tourism on the natural heritage values of the property (Conservation Outlook Assessment, 2017).

There are some criteria that might help to measure indicators such as pressure and stresses towards environment, the state of the natural environment and of resources, impacts and consequences, and the effectiveness of management effort and implemented actions. As according to Tyler and Dangerfield (1999), the ecosystem depends on the areas of the protected area, thus, it must be understood first before any decision is made. Assessing and monitoring the condition and situations of these visitor concentrated sites is essential for both the protection of tourism resources and the quality tourism experiences (Deng et al. 2003).

#### **2.4.1 Types of Conservations**

There are two conservation methods used to maintain biodiversity that are in-situ conservation and ex-situ conservation. In-situ conservation is also known as on site conservation is considered as the most appropriate way of conserving biodiversity because the conservation of species is done in their natural habitats and the species will not have to go through adaptation in a different habitat (Miller & Spoolman, 2010). It is one of the process of protecting an endangered plant or animal species in its natural habitat, either by protecting or cleaning up the habitat itself or by defending the species from their predators. Conserving the areas where populations of species exist naturally is an underlying condition for the conservation of the biodiversity. According to Miller & Spoolman (2010), the reasons protected areas are being set up is to do in-situ conservation whereby the conservation can be done in its natural habitat and also maintains recovering