ESTIMATION ON REAL CARRYING CAPACITY FOR MINI IRAU TRAIL, CAMERON HIGHLAND, PAHANG

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ESTIMATION ON REAL CARRYING CAPACITY FOR MINI IRAU TRAIL, CAMERON HIGHLAND, PAHANG

By

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A Project Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor Park and Recreations Science in the Faculty of Forestry
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DEDICATION

Special dedicate to:

My family and my friends.

My supervisor Dr. Sam Shor Nahar Bin Yaakob

My examiner Dr. Mohd Hafizal Ismail

ABSTRACT

Nowadays, consumer engagement in mountain-climbing activities in Malaysia has been increasing especially among the youths. Despite of many challenges, experiences and fun the climbers would got, there are some part that they unaware of the various damage or impacts that occur in the forest trails. Among the major impacts that can be seen and occurred are the impact on the soil and vegetation along the mountain trail. Uncontrolled climbers are also one of the main causes of the trail having a negative impact. This study was conducted to identify real and social carrying capacity estimates by Mini Irau trail climbers at Mossy Forest, Cameron Highland, Pahang. The method used in this study was rapid survey technique and quantitative descriptive method. Overall, the results obtained from this study found that the trail at Mini Irau was in poor condition. The number of climbers who cannot be controlled even though permits are only allowed for a certain amount resulting in trails of the Mount Irau decreased in quality compared to the previous. The management should take firm action by setting the number of permits to the user of this mountain based on the amount of carrying capacity that has been reviewed and puts the guard at the entrance of the route to Mossy Forest. In addition, this Mini Irau trail must also be closed at certain times as in the monsoon season to enable it to be restored naturally. Finally, with this kind of research, the Pahang Forestry Department could designed a program that should be held with locals, nature guides, mountain climbers and the citizen to minimize the impact on the trail and preserve the resources in Malaysia.

ABSTRAK

Mutakhir kini, penglibatan pengguna dalam aktiviti pendakian gunung di Malaysia semakin meningkat terutamanya dalam kalangan belia. Walaupun pelbagai cabaran, pengalaman dan keseronokan yang dapat mereka rasai, tanpa disedari pelbagai kerosakan atau impak telah berlaku pada denai hutan. Antara impak besar yang berlaku dan boleh dilihat adalah impak terhadap tanah dan tumbuh-tumbuhan di sepanjang denai gunung tersebut. Kemasukan pendaki-pendaki yang tidak terkawal merupakan salah satu punca utama denai tersebut mengalami impak negatif. Kajian ini dijalankan untuk mengenalpasti anggaran nilai kapasiti pembawa sebenar dan sosial oleh pendaki laluan denai Mini Irau di Mossy Forest, Cameron Highland, Pahang. Kaedah yang digunakan dalam kajian ini adalah "rapid survey technique" dan kaedah deskriptif kuantitatif. Pada keseluruhannya, hasil yang diperolehi dari kajian ini mendapati denai di Mini Irau berada dalam keadaan yang kurang memuaskan. Bilangan pendaki yang tidak terkawal walaupun permit hanya dikeluarkan dalam jumlah tertentu sahaja menyebabkan denai di Gunung Irau ini semakin merosot kualitinya berbanding dahulu. Pihak pengurusan harus mengambil tindakan tegas antaranya dengan menetapkan jumlah permit untuk menaiki gunung ini berdasarkan jumlah daya tampung/"carrying capacity" yang telah dikaji dan meletakkan pengawal di pintu masuk laluan ke "Mossy Forest". Selain itu, denai di Mini Irau ini juga perlu ditutup pada masa tertentu seperti pada musim tengkujuh bagi membolehkan ianya pulih secara semula jadi. Akhir sekali, dengan adanya kajian seperti ini, pihak Jabatan Perhutanan Pahang dapat merangka program yang seharusnya diadakan bersama penduduk tempatan, "nature guide", pendaki-pendaki gunung dan orang awam bagi mengurangkan impak kepada denai sekaligus melestarikan sumber yang berada di Malaysia.

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APPROVAL SHEET

I certify that this research project report entitled **"Estimation on Real Carrying Capacity for Mini Irau trail, Cameron Highland, Pahang"** by Muhammad Naufal Bin Umar has been examined and approved as a partial fulfillment of the requirements for the Degree of Bachelor of Parks and Recreation Science in the Faculty of Forestry, Universiti Putra Malaysia.

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LIST OF ABBREVIATION

SCC	Social Carrying Capacity
PCC	Physical Carrying Capacity
RCC	Real Carrying Capacity
LAC	Limits of Acceptable Change
VIM	Visitor Impact Management
VERP	Visitor Experience Resource Protection
VAMP	Management Process for Visitor Activities
ROS	Recreation Opportunity Spectrum
TOMM	Tourism Optimization Management Model

CHAPTER 1

INTRODUCTION

1.1 General Background

Recreation come from the Latin word *recreatio*, which refers to restoration or recovery (Kelly 1996, p. 25). It implies resumption of energy and mental alertness or the restoration of ability to function. Recreation contains the concept of restoration of whole-ness of mind, spirit, and body. On other hand, recreation also is defined as an activity that people engage during their free time that people enjoy, and that people recognize as having socially redeeming values (Amy and Denise 2010). Hence, recreation could be defined as experience and activities chosen and pursued by the individual in their free time such as jogging, jungle trekking, camping and mountain climbing. These recreation activities could give multi benefit to their user such as build health physical, release stress and tension. Since recreation is dependent upon non-renewable resources and recreation flows are constantly growing, the rapid, as well as, the unplanned exploitation and utilization of these resources create the risk of their degradation and the probability of environmental hazards increases. Hence, sustainable approaches need to be employed.

Most of these recreation activities mentioned above are carried out in natural areas/environment for instance in the open spaces and are quite far from the

human development area. The word environment are defined as all aspects of the surroundings of humanity, affecting individuals and social groupings. Whereas natural environment are defined as regions that have not been significantly altered by humankind and this equates to intact natural landscapes that contain original vegetation, are unspoilt, are wild, are maintained by natural processes and the original biodiversity is present (Newsome, Moore and Dowling, 2013). A particular geographical region of indefinite boundary such as nature reserves, profusion areas and national park are established to safeguard natural and cultural resources. According to Worboys et al. (2005), the resource authorities often faced with the incompatible management goals where they have to provide opportunities for recreational use as well as conserve the natural environment. These dual responsibilities require resource managers to find optimal balances between completing goals.

Activities that are “undertaken outside the confines buildings, and can be undertaken without the existence of any built facility or infrastructure and may require large areas of land, water or air, and may require outdoor areas of predominantly unmodified natural landscape” are defined as outdoor recreation activities. This activity includes land based activities such as hiking, caving, cycling, nature photography, rock climbing, ATV riding and mountaineering. Mountaineering is the one of the activities that gain attention among youngster actively. Atauri, Bravo and Ruiz (2000) stated that, visitors tend to hike because of beautiful landscape along the trail, while trekking until

the summit. Due to the increasing number of climbers in mountain climbing activity, the condition of the mountain ecology is exposed to degradation. “Disturbance to natural areas as a result of recreational use” has typically been defined as resource or ecological impact and all wildland recreation activities disturb the natural environment. (Hammit, Cole and Monz, 2015). Nature preservation is one of the important principles in lowing the ecological impact. One of the concepts used in maintaining natural sustainability to support the activities undertaken thereon is the carrying capacity. The carrying capacity problem in ecotourism is very important because it is closely related to environmental damage (Fandelli and Muhammad, 2009)

1.2 Gunung Irau Recreation Area

The highest mountain of Cameron Highlands is Gunung Irau, alight next to Gunung Brinchang at 2,110 meters above sea-level. (“Gunung Irau,” n.d., Cameron Highland section, para 1). A popular hiking ground for visitors, the trail to conquer its summit begins where the Mossy Forest boardwalk ends, taking between three to four hours to complete about 2.5km climb. The study was concentrated on Mini Irau trail, where Mini Irau is the first summit that the hikers would meet before proceeding to the Gunung Irau summit. The trail is one of popular adventure spot in Cameron Highland, which has its own specialties such as flora, fauna, and beautiful breathtaking mossy forest. The extraordinary and beautiful state of the mountain forest could refresh and cool down visitors who come to the site.

Among the activities that can be carried out are camping (on the Mini Irau and Gunung Irau summit), bird watching, nature photography, sightseeing and the most popular activities is mountaineering (hiking).The hiking activity can be done since the Pahang Forestry Department has established about 1.35 km trail to reach the Mini Irau summit. The main road in the Cameron Highlands runs between Tanah Rata, Brinchang (sometimes spelt Berinchang) and Kampung Raja near the tea plantations and there is a regular, cheap bus running back and forth throughout the day causing the number of visitation become high due to the easy accessibility to Mini Irau Mountain.

1.3 Problem Statement

Gunung Irau is a popular hiking ground for visitors and it is assaulted that Pahang Forestry Department aware that there is physical damaged occurred along the trail to the Mini Irau summit. However, they do not know how frequent and extensive the damage is occurred. It was expected that many trekkers are not aware that hiking activities contributing direct impact to soil and vegetation which cause great harm to the whole trail system especially in recreational resources. Climbers, can access to this mountain without any blockade or useful information of trail impact that can affect the condition of the mountain trail

In the past few years, mountaineering activity is traditionally involved camping, trekking and hiking activities. These activities can lead to the impact on the trail. According to Tomczyk and Ewertowski, (2002) recreation-based activities can damage the ecosystems, and take time for recovery process. The tropical rainforest is characterized as having vegetation all year round, trees branching with soft and delicate leaves, easily compacted soils, very sensitive to changes and damages. Mountain fragility environment has been discussed by Price (1985), are scattered into several elements such as; climatic extremes, low biological activity, slope steepness, and the basic conservatism of the dominant life forms, all constituting to the rate of

restoration to original conditions after disturbance. Therefore, trail deterioration will also affect the overall mountain environment.

This study is headed to investigate the right amount of user carrying capacity in order to solve the impact that been done by the hikers along Mini Irau trail. Hence, the authority could plan the maintenance that need to be done on that trail.

1.4 Objective

The aim of this study is to identify the estimated value of Social and Real Carrying Capacity of Mini Irau trail, Mossy Forest, Cameron Highland, Pahang. To fulfill the aim of this study, the following sub-objectives were outlined:

a) To determine the Real Carrying Capacity (RCC) of respective areas based on the value Physical Carrying Capacity (PCC).

b) To provide recommendations to the trail administrator of the sites based on the visitor carrying capacity number for Mini Irau trail, Mossy Forest, Pahang.

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