

Analysis of Trail Visitors When They Pay Visit to a National Forest in Taiwan

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Abstract

Management of hiking trails on national forest is very important business in Taiwan. Trail visitors are demanding higher quality of forest trail experience making official foresters to take delicate management prescriptions on forest trails. Budget and man power are the primary two concerns. With limited budget and man power, some of old and dangerous forest trails have to be closed for the general public. Then, the other existing trails can be managed efficiently such that forest trail visitors are happy and sustainable forest management can be pursued. The 14 forest trails at Nantou Forest District had been investigated in the passing year and 11 forest trails were verified as suitable for this study. When trail visitors are paying visit at national forest is one of the key components to be solved in detail. Forest trails are open all year round so visitors tally should make at least in a one-year period. However, sampling is the only alternate if all 11 trails have to be investigated in one year. The objectives of this thesis was to investigate all 11 trails in the passing year and visitor information for every single trail can be used in daily forest trail management at Nantou Forest District. Sampling and questionnaire were performed on visitors, community leaders, and foresters at every trail. EXCEL and SPSS statistical package were implemented for data processing and statistical analysis. Pearson correlation analysis had been used to verify the final results. Only the 99-Peaks forest trail was discussed in detail, hour by hour for workdays and holidays separately. The final results have been submitted to Nantou Forest District and the working procedure can be implemented on all 16 trails to investigate visitors when they pay visit year round. The contribution of investigation by hour can be efficient, time saving, and cost effective to pursue information on trail visitors all year round.

Keywords: National forest trail, correlation analysis, consumer behavior, sustainable forest management

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Introduction

With the rapid economic boost in the world, the life standard of people has greatly upgraded. However, the working pressure also increases in an enormous degree, which causes modern people to face more stress ever than before. Hence, learning how to manage stress effectively has become a major issue in today's society. People need more leisure activities to relax themselves, so there has been raising emphasis placed on mental. This phenomenon led to the enrichment of the leisure activities.

People require something to escape from the tedious working and get refreshed for the purpose of going back to work and earning money. In Taiwan, two-days-off-per-week was legislated and came into effect in 2001, which means more holidays were available for people to utilize. Therefore, the demand for leisure activities, such as traveling and mountain climbing, soared in a prompt pace. On holidays, it is very common to see a number of people participating in leisure activities in many outdoor and indoor places.

One of these places is the nature trail, a path through an area of the countryside that is intended to attract the walker's attention to interesting plants, animals, and other features. According to the report, there are more than one hundred nature trails in Taiwan, inclusive of national and private ones. Catering to the rising demand for mountain hiking in Taiwan, Forestry Bureau embarked on planning and designing national and regional natural trail system in 2002, which was put into construction in 2003. During the process of construction, Forestry Bureau did its best not only to preserve the original scenery but also to place emphasis on the humanity and natural resource along the natural trails (Forestry Bureau, Council of Agriculture Executive Yuan, 2005).

Regional trails, though not as famous as national ones, play a crucial role in experiencing natural trails for local people. Most of the regional trails are established in the rural areas; therefore, they are closer for those who live nearby. Due to the accessibility, local people tend to use neighboring natural trails, which enables them to complete the trail tour in one single day. Hence, regional natural trails would be local people's first choice but not national natural ones.

Management of hiking trails on national forest is very important business in Taiwan. Trail visitors are demanding higher quality of forest trail experience demanding official foresters to take delicate management prescriptions on forest trails. Budget and man power are the primary two concerns. With limited budget and man power, some of old and dangerous forest trails have to be closed for the general public. Then, the other existing trails can be managed efficiently such that forest trail visitors are happy and sustainable forest management can be pursued.

The 14 forest trails in the Nantou Forest District has been investigated in the last year and 11 forest trails were chosen as suitable for this study. When trail visitors are paying visit at national forest is one of the key components to be solved in detail. Where there is a forest trail with no visitor at all for several days, weeks, even months, it may be the right time to close it for good. Then, budget and man power can be allocated to other frequently visit trails.

Forest trail management demands visitor information in detail. How many visitors for a given day, weeks, month, season, and the whole year at every single forest trail is very useful if it is available. All forest trails are open to the general public year round. It is impossible to close a single trail whenever it is safe and accessible. With limited budget and man power, it is almost out of question to investigate the 11 trails all year round, seven days a week, 6 AM to 5 PM. Some more proper measures should be taken to pursue the pattern of trail visitors when they pay visit on national forest at the Nantou Forest District.

Visiting natural trails, one of the experiences of the eco-tourism, involves the process of knowing environmental knowledge by experiencing and participating. During the process, the media are critical in bridging the gap between you and educational information. Media come in many forms, such as pamphlets, clips, etc. According to the research, interpretive signs and panels as well as pamphlets are the most acceptable for visitors for the reason that they are easy to access and utilize (Zhang, 1985). Interpretive panels and printed matters are quite effective and low-cost media, so they are widely used in recreational sites (Lin, 1995). However, no interpretive media are perfect and need evaluating and improving over and over to deliver information and knowledge effectively and efficiently (Wang, 1986; Zhang, 2002). As a result, the evaluation of the interpretive media is taken into consideration when designing a well-organized recreational site.

The aim of this research is to analyze the visiting intentions of trail visitors and the interpretive facilities at natural trails of national forest, and then discuss the relationship between these factors. To be specific, the following purposes would be presented in this essay:

- (1) To understand the using condition of natural trail visitors.
- (2) To analyze the satisfaction of natural trail visitors.

Methods

Taiwan Forest Bureau (TFB) is in charge of national forest management in Taiwan. There are eight forest districts under jurisdiction of TFB. Nantou forest district office is one of the eight government agencies to manage national forest in central Taiwan. The famous Sun Moon Lake is under its jurisdiction. The Nantou forest district has 16 forest natural trails available for the general public. A five-professor team from Taiwan Shoufu University has been invited to investigate 14 forest natural trails in the passing year. There are two forest trails next to Sun Moon Lake were investigated for this study. Only 11 forest natural trails were collected adequate and enough data for further analysis.

In addition, a survey was conducted in 99-PeaksForest Trail in Nantou County to document the number of visitors in different time periods of a day, and then analyzed the data collected to get the visiting record. All the subjects were selected in a random order.

It is very simple that how many visitors on every forest natural trail for one year round in one season, one month, one week, even, one day are available to solve problems encounter in a daily business and long term forest management is highly

desirable. With limited budget, sampling method had to be modified to acquire sufficient and effective information on trail visitors.

Field investigation was working for six months on every single forest natural trail. The working procedure has been approved by Nantou forest district in advance. It was decided that two weekends and two weekdays have to be investigated for every month, and six hours work per day for at least six months. Trail visitors were tallied on every single forest trail. Tally on visitors one by one is not an easy task because some trails have several entries and exits. Special measures had been taken to encounter the identified problems.

Questionnaire was collected on 11 forest trails and the SPSS statistical software package has been implemented for statistical analysis. Descriptive statistics, correlation analysis, and regressions were conducted and further analysis was performed to provide information for prescriptions of trail management at Nantou forest district.

Questionnaire was scaled by Likert five-point scale and collected on 11 forest trails. Personal interview with trail visitors, local community leaders, and official foresters were conducted by professors as a part of the final report.

Based on the theory and the literature review, three major purposes of this research are listed in the followings:

- (1) visiting frequency on weekdays and weekends
- (2) visiting frequency on diverse weather conditions
- (3) visiting frequency on different time periods of a day

Results and discussion

A survey was conducted from November 2013 to July 2014 to receive the questionnaires to acquire information of trail visitors. The number of valid questionnaires is 458. The statistical analysis was carried out based on 458 valid questionnaires, and the results about the gender, age and habitat are displayed in the following. Among those trail visitors, 40.4% of the visitors were females while 59.6 males. Speaking of ages, there were 85 people whose age under 30, 75 people between 30 and 40, 114 people between 40 and 50, 123 people between 50 and 60, and 61 people above 60. 38.4% of trail visitors come to visit natural trails less than one time in a month, 22.5% of trail visitors come to visit natural trails one to two times in a month, 17.5% of trail visitors come to visit natural trails three to four times in a month, 7.6% of trail visitors come to visit natural trails five to eight times in a month, and 14% of trail visitors come to visit natural trails more than nine times in a month. Moreover, 49.5 % of trail visitors go trail walking on holidays while 12.7% on workdays. Besides, 37.9% of trail visitors go to natural trails on either holidays or workdays.

The results showed that the number of visitors on holidays is almost five times the one on non-holidays, which clearly indicates that holidays, when people have more personal free time, do play a compelling role in affecting people's decisions in using natural trails or not. As for the time period visitors called at the natural trail. 81.7% of

visitors on holidays and 91.1% of visitor on non-holidays used the 99-Peaks Forest Trail in the morning. One thing worth noticing is that on non-holidays, visitors at 8:00 and 9:00 accounted for 76.7% of the total visitor number. This phenomenon implies that visitors on non-holidays mostly were from neighboring areas, so they could arrive early, finish the trail walking, and go back to start their work. On holidays, visitors accounted for 37.7% of the total visitor number at the period of 8:00 to 9:00, which is half the ratio on non-holidays. On the other hand, visitors on holidays at 10:00 to 12:00 accounted for 44% of the overall visitors, which is much higher than that on non-holidays (14.4%). These results lead us to two conclusions. One is that most visitors on holidays did not come from nearby regions, and it took them time to reach the trail. The other is that those who have less personal time on weekdays go outdoors on holidays and use the natural trail. People who work on weekdays tend to sleep late on holidays, so they use the natural trails in just the same time period as outsiders. No matter what the reason was, time periods obviously caused discrepancy in the number of visitors on holidays and non-holidays.

Conclusion

From the research results, it was found that there are some crucial factors which impacted the visiting intentions of trail visitors.

1 Impact of Workdays and Holidays

First of all, workdays or holidays would have an impact on visitors' intention to take a tour or not. The obtained results show that visitors visit the trail on holidays much more than workdays. A lot of people would take advantage of holidays to participate in leisure activities. Natural trails usually can't be easily accessed by public transportation, children and the elder need somebody to drive cars to take them there, and parking lot is very important for general public to visit natural trails.

2 Impact of Weather Conditions

The second impact factor is weather. According to the obtained data, 93.6 % of trail visitors visited on sunny and cloudy days while the percentage plummeted to 6.4 on raining days. The result is neither surprising nor unexpected since raining days do hindrance to not only people but also the recreational sites. Raining would make the accessibility of natural trails tougher for people, and natural trails would become muddy which cause inconvenience to visitors. One thing to be noted is that Taiwan is an island and it rains nearly one-third of a year, the maintenance of natural trails is a problem due to the damages caused by rain.

Visiting Pattern Hour by Hour

The third factor, visiting pattern hour by hour for every single day, was pursued in detail. Tally of visitors was performed on an hour-by-hour base. It is verified that visiting patterns are different on holidays and workdays on an hour-by-hour basis.

It can be concluded that the main contribution of the thesis is to provide the forest administrators with the detailed visiting information on the 11 forest trails. Hopefully, the authority concerned may take advantage of the data and management prescriptions can be taken to enhance the experience of trail visitors.

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