Visitor perception of crowding at Doi Inthanon summit, Doi Inthanon National Park

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In order to manage the quality of visitor experience, psychological carrying capacity has been studied at Doi Inthanon summit, one of the high density tourism destinations in Doi Inthanon national park of Thailand. Visitor's perceived crowding is employed as an indicator to measure the negative experience caused by the increasing number of visitors. Crowding can be defined as a negative evaluation of a certain density level in a given area (Vaske, Shelby, Graefe & Heberlein 1986). Perceived crowding then combines descriptive information of the reported number of encounters with the evaluative information of the value judgment of that number of encounters if they had exceeded their definition of an acceptable standard (Hsin-You Chuo 2006). Several studies have focused on crowding perception in various recreational areas in many countries around the world such as the United States, Australia and New Zealand. Depending on the location, different levels of perceived crowding have been reported (Manning 1999). In Southeast Asia, especially Thailand, there have been only a few studies in this field (Emphandhu el al 2006).

The objectives of this research were to find out the average perceived crowding at Doi Inthanon summit, to study the relationship between the number of encounters and the perceived crowding, and to estimate the maximum number of encounters that visitors at Doi Inthanon summit perceived as extremely crowded. Accordingly, the following three research questions were developed:

- What is the average respondents' perception of crowding at Doi Inthanon summit?
- Is there a significant linear correlation between number of encounters and perceived crowding?
- What is the estimated number of encounters from the linear predicting equation that visitors at Doi Inthanon summit perceived as extremely crowded?

The target population for this study was visitors to Doi Inthanon summit which is the most popular tourist destination in the park. A quota sampling technique was employed to select research samples from the sampling population based on the official report (DNP 2009) on visitor numbers during high season to Doi Inthanon National Park. The field survey for data collection was conducted between December 2007 and January 2008 totaling 12 days of weekends and long holidays. All respondents were selected based on their willingness to volunteer their personal information and by accidental sampling on site. The questionnaire survey of total 819 respondents was employed with 3 main groups of questions being asked: respondent's background information, recreation pattern and motivation, opinions on perceived crowding, number of visitors encountered and respondent's expectation on number of maximum acceptable number of other visitors. The simple regression analysis with a significance level of $p < 0.05$ was used to see the correlation between perceived crowding and number of encounters.

The Likert scale developed by Heberlein & Vaske (1977) was adopted in this study to measure crowding perception. In this scale ranging from 0 to 9, the 0 labeled situation as uncrowded, 1-3 points labeled as slightly crowded, 4-6 is moderately crowded and the remaining 7-9 points as extremely crowded. Visitors then were asked if they felt disturbed by the number of other visitors and were instructed to rank their perception of crowding on a 0 to 9 point-scale and recorded the number of encounters.

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The results showed that the distribution patterns of the respondents' background were consistent with the normal national park visitors' characteristics in Thailand. Most were 21-40 years old with bachelor degree or higher education. Half of the respondents stayed overnight in the park. About 47% traveled with friends and 27% with mix groups of friends and families. Most spent about 30 minutes at Doi Inthanon summit.

The average numbers of encounters at each perceived crowding level were shown in Table 1. The average respondents' perception of crowding at Doi Inthanon summit was 4.98 points which was labelled as moderately crowded. There was a statistically significant at 0.011 with $R^2 = 0.581$ by simple linear correlation between number of encounters and perceived crowding (Fig. 1). From the linear correlation, the estimated number of encounters which visitors at Doi Inthanon summit perceived as extremely crowded (at 7 point level) is 897 people at time.

Table 1: Perceived crowding and average encounter numbers at Doi Inthanon summit

Perceived Crowding Level	Number of respondents	Ave. Mean of number encounters	Standard Deviation (S.D.)
0	55	555	470
1	37	439	420
2	32	662	451
3	52	720	471
4	104	846	498
5	220	420	982
6	104	964	351
7	89	967	351
8	79	1012	346
9	47	955	342
Total	819		

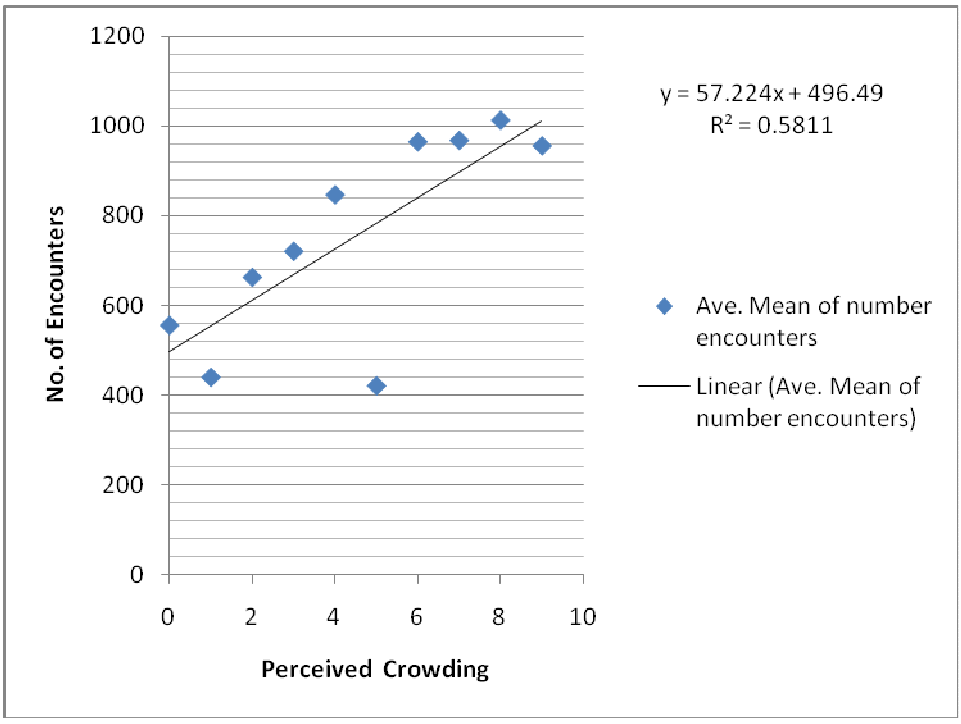

Figure 1: Linear correlation of perceived crowding and number of encounters at Doi Inthanon summit

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