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# Recreation conflicts in national parks and coping behaviors of park visitors

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**Abstract**

The objectives of this research were to study the levels and characteristics of recreation conflicts in national parks, factors influencing the conflicts, and recreationists' coping behaviors. Questionnaire was used to collect data from 1,200 visitors to three national parks where different types of conflict occur. The research found that the overall conflict was at a low level, with the average score of 2.22 (*SD* = 0.67) out of 5.00 and could be classified into three groups. The first group was the "inappropriateness of the number and behavior of other tourists and services in the area". The second group was the "inadequacy of activity areas and required skills and equipment". The third group was the "physical conditions of the area, facility and information". The top three variables influencing the conflict level at the greatest extent consisted of the behavior of other tourist groups (S.R.W. = 0.359; $p < .01$), educational level (S.R.W. = 0.162; $p < .01$), and service of staff (S.R.W. = -0.160; $p < .01$). As for coping behavior, most visitors chose to develop skills required for coexisting with other tourists, with the average score of 3.25 (*SD* = 0.80), followed by developing skills required for undertaking recreation activities, with the average score of 3.15 (*SD* = 0.86), and ignoring what is causing conflict, with the average score of 2.99 (*SD* = 1.00). The research recommended that park authorities should operate activity zoning, control the number of visitors where activity space is limited, and strictly enforce regulations to resolve recreation conflict.



## Introduction

Recreation conflict is one of the most common conflicts witnessed in society at all levels. It is difficult to avoid conflict when human interactions occur (Morris, 2004). Recreation conflict first gained attention in 1950 due to rapidly increased competition of recreational activities in natural areas, e.g. camping, hiking, and water recreational activities (Hammitt & Schneider, 2000). Such conflict arises when individuals or a group of individuals use the same resource-base while they have a different goal and expectations. The study by Jacob and Schreyer (1980) and Schneider and Hammitt (1995) investigated factors associated with recreation conflict, which led to classification of recreation conflict patterns and the conflict mitigation. There were both theoretical and empirical evidence of the impacts of recreation conflict in the early 1990s. This included the study of conflict between hikers and cyclists (Hendrick, 1997; Watson, Williams, & Daigle, 1991) and the study of conflict between canoeists and motor boat recreationists (Ivy, Stewart, & Lue, 1992). In addition, past studies included the study of the perception of recreation conflict (Blahna, Smith, & Anderson, 1995), the study of acceptance of recreation conflict (Johnson & Dawson, 2004), and the study to manage recreation conflict (Hidalgo & Harshaw, 2010; Shilling, Boggs, & Reed, 2012).

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There have been very few studies on recreation conflict in Thailand's national parks. Available literature investigated the conflict as a single variable among several variables in conceptual framework of the research on park visitors' behaviors, through different variable names, e.g. perceived behavior of other visitors (Jitvijak, 2003), perceived crowding in park areas, expectation about the number of tourists, and conflict between activities (Waitook, 2005). There has been an increase in the number of visitors to Thai national parks. The statistics from the Department of National Parks, Wildlife and Plant Conservation (DNP, 2018) show a continuous increase in the number of people who visited national parks for recreational and tourism purposes over the last 10 years (2008–2017), with an average growth of 5.09 percent per year. The number of park visitors rose from 11,288,893 in 2008 to 18,786,534 in 2017 (DNP, 2018). The increase in the number of park visitors affected resource utilization and recreational activities, and resulted in conflicts between different groups of recreationists in various ways. As recreation conflict may interfere with park visitors' desirable experience and result in their moving to another activity area (Kuss, Grraefe, & Vaske, 1990), in-depth research in recreation conflict in Thai national parks is needed.

This article presents the results of the study of recreation conflict in three national parks, which were representatives of different types of recreation conflict. The first type of recreation conflict is characterized by doing the same activity in the same space with a different goal, and was found in Huai Nam Dang National Park, located in Chiang Mai and Mae Hong Son provinces. The second type of recreation conflict, characterized by doing a different activity in the same space was found in Nam Tok Chet Sao Noi National Park, Saraburi province. The representative area of both types of recreation conflict was Doi Suthep-Pui National Park, located in Chiang Mai province. The research results provide the guidelines for conflict management in national parks and allow for sustainability of nature tourism management in Thailand.

## Literature Review

Psychology is the main discipline for the development of conflict-related knowledge (Watson, Niccolucci, & Williams, 1994). In early studies, 'recreation conflict' was defined as competition over limited natural resources between opposite groups of individuals (Devall & Harry, 1981). Jacob and Schreyer (1980) defined 'recreation conflict' as a situation in which individuals' goal is interfered with by behavior of other individuals. They suggested that recreationists' goals are a key factor in carrying out recreational activities. Focusing on goals, the definition given by Wisalaporn (1997) is consistent with that provided by Jacob and Schreyer, who defined 'interpersonal conflict' as a situation in which a person's action hinders another person's action to achieve his/her goal. Recreation conflicts can have several different characteristics, when recreationists meet recreationists who are different from them. This can occur between mountain bikers and hikers, or between mountain bikers and motorcycle or car users. It can also occur between those who carry out the same type of recreational activity, in the same recreation area, but have different experiential goals. Research on the causes of conflicts, acceptance of conflicts, and opportunities for resolving conflicts, appears in the form of theoretical research (Jacob & Schreyer, 1980; Schneider & Hammitt, 1995) and empirical research. It involves various forms of conflict. For example, studies on conflicts that result from the types of activities of recreationists investigated the conflict between hikers and bikers (Watson, Williams, & Daigle, 1991; Ramthun, 1995; Hendrick, 1997), and between canoeists and recreationists who use a motorboat (Adelman, Heberlein, & Bonnicksen, 1982; Ivy, Stewart, & Lue, 1992). Other studies focused on the acceptance of recreation conflicts (Johnson & Dowson, 2004), and resolution of recreation conflicts (Hidalgo & Harshaw, 2010; Shilling, Boggs, & Reed, 2012).

In Thailand, the study by Prathumthin and Phongkhieo (2018) revealed two similar forms of recreation conflict as the other countries. The first type of recreation conflict is doing the same activity in the same space but with a different goal, and the second type is doing a different activity in the same space. The factors contributing to these two types of recreation conflict in park superintendents' perspectives consisted of the inadequacy of recreation areas, inappropriate behavior of different groups of tourists, a wider variety of activities chosen by tourists, and diverse backgrounds of tourists who stayed in the same area. Many of these factors are consistent with the results from similar research in other countries. For example, Jacob and Schreyer (1980) found that crowding was associated with recreation conflict and led to recreationists' dissatisfaction. Moore, Scott and Graefe (1998) suggested that the behaviors of other recreationist groups affected recreation conflict: skaters without skills on nature trails decreased the levels of enjoyment of other recreationists. Ruddell and Gramann (1994) found that norm of personal tolerance, behaviors of other tourist groups, facilitation of staff, and useful information at national parks had an effect on recreation conflicts. The study by Cessford (1999) found that noise had an effect on recreation experience in New Zealand's protected areas.

## Methodology

### *Participants*

Thai and foreign recreationists aged 15 years or above who visited Huai Nam Dang National Park, Doi Suthep–Pui National Park and Num Tok Jed Saonoi National Park were defined as the study population. The samples size was determined using Yamane's formula (Yamane, 1973). The average number of visitors per year to the three national parks between 2013–2017 was used as a number of population (N): N of Huai Nam Dang National Park was 249,560, Num Tok Jed Saonoi National Park was 107,557 and Doi Suthep-Pui National Park was 261,050. The acceptable error from the sample size calculation equaled 0.05. The number of samples for Huai Nam Dang National Park equaled 399.35~400. The size of sample*s* for Num Tok Jed Saonoi National Park equaled 398.51~400 and for Doi Suthep-Pui National Park was 399.38~400. The total number of samples used in this research was 1,200.

*Development of Study Tools and Tool Quality Assessment*

The questionnaires were developed to serve as the main tool for this research. The developing process involved the investigation of concepts, theories, and research pertaining to recreation conflict in conjunction with the result from park superintendent survey and the preliminary survey of study areas. The operational definitions of all variables were specified and transformed into questions. The questionnaire consisted of three parts: Part 1: General characteristics of travel and recreation activities of recreationists, Part 2: Recreation conflict, coping behavior of recreationists, and relevant factors, and Part 3: Recreationist background. The objectivity and content validity of the questionnaire were assessed by five external experts. Values for the Index Objective Congruence (IOC) between the questions and objectives of measurement were assigned. It was found that the overall IOC value was above 0.60, which was at an acceptable level (Rovinelli & Hambleton, 1977). Later, the questionnaire was tried out with 30 visitors in Huai Nam Dang National Park, and its reliability value was analyzed by identifying the value of Cronbach's Alpha, whereby the acceptable reliability value was 0.7 or above (Nunnally & Bernstein, 1994). The testing found that the reliability value of personal norm toward conformity to park regulations scale had an Alpha value of 0.772 and the reliability value of recreation conflict scale had an Alpha value of 0.826.

*Data Collection and Analysis*

On-site survey was conducted to collect data from visitors in major recreation sites within Huai Nam Dang National Park, Doi Suthep–Pui National Park and Num Tok Jed Sao Noi National Park. Both Thai and foreign park visitors were asked to fill in the questionnaire. The total number of visitors who completed the questionnaire was 1,200 people.

In analyzing the survey data, descriptive statistics were used to explain all variables. Factor analysis was employed to classify characteristics of recreation conflict. Correlation analysis and Path analysis were used to determine the factor influencing recreation conflict in the national parks. Finally, F-test was conducted to compare the differences in coping behavior intention of recreationists who perceived different level of recreation conflict in the national parks.

**Results and Discussion**

*General Information about Recreationist*

Among the 1,200 research samples, most of them were female (60.30%) with an average age of 31.73 years (*SD* = 10.15). Most of them were Thai (87.60%) and held an undergraduate degree (83.30%). The majority of visitors (48.60%) had never visited the national parks where data collection took place and most of them visited the national parks with their family (50.80%) with the average group size of 5.89 (*SD* = 4.67). The average distance from the place of residence to national parks for Thai tourists and foreign tourists was 322.53 km. (*SD* = 336.89) and 10,046 km. (*SD* = 9,305.69), respectively. Most visitors spent 1–3 hours in the natural park areas (47.59%). Major recreation activities engaged by the visitors were waterfall playing (45.30%) and viewing scenery and taking photos (25.60% for each activity). Most of the recreationists perceived that they had moderate skills in conducting the activities. Overall, it can be concluded that recreationists in Thai national parks mostly were inexperienced visitors who came from diverse regions in Thailand with a small size of travel group and engaged in recreation activities which required moderate to low skills.

*The Levels and Characteristics of Recreation Conflict in National Parks*

This study found that overall recreation conflict in national park was at a low level, with a mean value of 2.22 (*SD* = 0.67) out of 5.00. By reviewing each conflict measurement item, the recreation conflict item that gained the highest mean value was "I was dissatisfied because I saw other tourists violate the regulations of this national park," with a mean value of 3.01 (*SD* = 1.30), which was moderate level recreation conflict, followed by "I felt annoyed in recreation areas consisting of tourists who made a loud noise," with a mean value of 2.60 (*SD* = 1.21) and "I felt irritable when I did not meet a park officer when I needed a service" with a mean value of 2.39 (*SD* = 1.08). The factor analysis result indicated that it was suitable for grouping the data by means of the method (KMO = 0.888). The recreation conflict in the national parks could be grouped into three groups, which could explain the variance of 15 variables at 67.92 percent. The first group was "Inappropriateness of number and behavior of other tourists and services in the area" i.e. exposure to many tourists and tourists violating park regulations and making a loud noise, as well as dissatisfaction with service of staff, with Cronbach's Alpha of 0.856. The second group was "Inadequacy of activity area and required skill and equipment" i.e. carrying out recreation activities in the same area as people with limited activity skills and feeling less confident when engaging in recreation activities in the same area as those with equipment of higher quality and prices, as well as limited recreation area, with Cronbach's Alpha of 0.881. The third group was "Physical conditions of the area, facility and information" i.e. recreation areas which are not in line with recreation activities, as well as inadequate facilities, with Cronbach's Alpha of 0.847. The mean scores, standard deviation values, and results from factor analysis are presented in Table 1.

*Factors Influencing Recreation Conflict in National Parks*

This research hypothesized that "Personal factors" i.e. nationality, education, recreation experience, personal norm, perceived crowding, expectation about the number of tourists, behavior of other tourist groups, and "Situational factors" including length of stay, distance from place of residence to the national park, number of activities, skills, equipment, suitability of facilities, service of staff, and park information had an influence on the levels of recreation conflict in national parks. Before the hypothesis was tested by Path analysis, correlation analysis was performed to assess a relationship

between each independent variable and dependent variable. The findings demonstrated that there were 11 independent variables from the total number of 16 variables, which significantly correlated with the level of recreation conflict. These consisted of behavior of other tourist groups ($r = 0.469$; $p < .01$), perceived crowding ($r = 0.273$; $p < .01$), nationality ($r = 0.228$; $p < .01$), personal norm ($r = 0.189$; $p < .01$), expectation about the number of tourists ($r = 0.170$; $p < .01$), education ($r = 0.105$; $p < .01$), park information ($r = 0.095$; $p < .01$), length of stay ($r = 0.069$; $p < .05$), recreation experience ($r = 0.062$; $p < .05$), distance from place of residence to the national park ($r = -0.209$; $p < .01$) and service of staff ($r = -0.081$; $p < .01$). All the eleven variables which had a statistically significant correlation with the recreation conflict level were used as independent variables in path model. The path analysis results showed that the consistency between the data and the hypothetical model was at an acceptable level (RMR = 0.126; GFI = 0.826). The analysis demonstrated that there were seven independent variables which influenced the levels of recreational conflict at a statistical significance level of .01 ($R^2 = 0.26$). These consisted of education, nationality, perceived crowding, expectation about the number of tourists, behavior of other tourist groups, distance from tourist residence, and service of staff, as presented in Table 2. The variables which influenced the recreation conflict level at the greatest extent were the behavior of other tourist groups (S.R.W. = 0.359; $p < .01$), educational level (S.R.W. = 0.162; $p < .01$), and service of staff (S.R.W. = -0.160; $p < .01$), respectively. These findings were consistent with the result of itemized conflict characteristic analysis presented in Table 1: the behavior of other tourist groups and service of staff led to recreation conflict. They were also consistent with the results of the study by Jacob and Schreyer (1980) and Moore, Scott and Graefe (1998), as mentioned previously.

*Coping Behavior of Recreationists in Response to Recreation Conflict in National Parks*

In coping with recreation conflict, most recreationists chose to develop skills to coexist with other tourists with the average score of 3.25 ($SD = 0.80$), followed by to develop skills required for undertaking recreation activities with the average score of 3.15 ($SD = 0.86$), ignore what is causing the dissatisfaction with average score of 2.99 ($SD = 1.00$), change their expectations about the recreation experience from the national park visit with average score of 2.98 ($SD = 0.94$) and move to other recreation areas with average score of 2.50 ($SD = 1.10$). This finding was partly consistent with the concept and research by Kuss et al. (1990) which concluded that conflict between recreationists was a factor that resulted in recreation displacement.

**Table 1** The mean score and standard deviation value of each recreation conflict item and result from factor analysis grouping the characteristics of the conflict

| Conflict measurement item | *M (SD)* | Factor Loading | | |
|---|---|---|---|---|
| | | Factor 1 | Factor 2 | Factor 3 |
| I was dissatisfied because I saw other tourists violate the regulations of this national park. | 3.01 (1.30) | 0.822 | | |
| I was dissatisfied with the failure to provide prompt services by the park officers. | 2.19 (0.94) | 0.716 | | |
| I felt irritable when I did not meet a park officer when I needed a service. | 2.39 (1.08) | 0.709 | | |
| I felt annoyed in recreation areas consisting of tourists who made a loud noise. | 2.60 (1.21) | 0.688 | | |
| I didn't want to undertake recreation activities because the number of tourists I saw was higher than I had expected. | 2.31 (0.98) | 0.674 | | |
| I felt dissatisfied with services provided by the park officers. | 2.06 (0.99) | 0.516 | | |
| I felt uncomfortable because I had to undertake recreation activities with tourists who used more expensive equipment with higher quality. | 1.98 (0.92) | | 0.807 | |
| I felt bored because I had to undertake recreation activities together with other tourists who lacked skills in undertaking those activities. | 2.16 (0.99) | | 0.755 | |
| I didn't feel confident to undertake recreation activities in the same areas with tourists who had better skills. | 1.94 (0.82) | | 0.753 | |
| I felt uncomfortable because I had to undertake a recreation activity in an area where other recreation activities occurred at the same time. | 2.00 (0.87) | | 0.737 | |
| I felt a lack of privacy because I had to undertake recreation-activities in crowded areas. | 2.20 (1.05) | | 0.699 | |
| I was not happy because this national park did not have enough areas for undertaking my main recreation activity. | 2.04 (0.86) | | 0.574 | |
| I felt dissatisfied with the environment of the recreational areas. | 2.04 (0.83) | | | 0.870 |
| I felt dissatisfied with the facilities within the recreational areas. | 2.11 (0.88) | | | 0.857 |
| I felt confused about how to behave myself because of a lack of information about undertaking recreational activities in the park areas. | 2.27 (0.90) | | | 0.576 |
| Overall | 2.22 (0.67) | | | |
| Eigenvalues | | 7.194 | 1.568 | 1.425 |
| Cronbach's Alpha | | 0.856 | 0.881 | 0.847 |

*Note:* KMO = 0.888; Cumulative % of Variance = 67.92.

**Table 2** Result from path analysis determining the factors influencing recreation conflict

| Variables | S.E. | S.R.W. | *p* |
|---|---|---|---|
| Education | 0.011 | 0.162 | ** |
| Nationality | 0.050 | -0.150 | ** |
| Recreation experience | 0.020 | 0.014 | .572 |
| Perceived crowding | 0.021 | 0.122 | ** |
| Personal norm toward conformity to park regulation | 0.038 | 0.054 | .049 |
| Expectation about the number of tourists | 0.011 | 0.126 | ** |
| Behavior of other tourist groups | 0.020 | 0.359 | ** |
| Length of stay | 0.015 | 0.027 | .288 |
| Distance from tourist residence | 0.010 | -0.080 | * |
| Park information | 0.019 | 0.050 | .086 |
| Service of Staff | 0.020 | -0.160 | ** |

*Note:* $R^2 = 0.26$. ** $p < .01$. * $p < .05$.

A comparison was conducted on the degrees of the intention to employ coping behaviors characterized by the five patterns among recreationists with a different level of perceived recreation conflicts. The analysis of variance suggested that those with a different level of perceived recreation conflict did not have a significantly different level of intention to cope by ignoring what was causing them to be dissatisfied ($F = 2.185$; $p = .113$). Those with a different level of perceived recreation conflict had a significantly different level of intention to cope by changing their expectation of recreation experience from recreation areas ($F = 16.094$; $p < .01$). Those with a different level of perceived recreation conflict had a significantly different level of intention to cope by developing skills for undertaking recreation activities ($F = 10.034$; $p < .01$). Those with a different level of perceived recreation conflict had a significantly different level of intention to cope by developing skills to coexist with other tourists ($F = 17.697$; $p < .01$). Finally, those with a different level of perceived recreation conflict had a significantly different level of intention to cope by moving to another recreational area or performing recreation displacement ($F = 12.831$; $p < .01$).

## Conclusion and Recommendation

Overall, this study found that recreation conflict in the Thai national parks was at a low level and the study suggested the main factors influencing recreation conflicts consist of perceived crowding, expectation about the number of tourists, behavior of other tourist groups, and service of staff. The conflicts could be classified into three groups: (1) the inappropriateness of the number and behavior of other tourists and services in the area, (2) the inadequacy of activity areas and required skill and equipment, and 3) physical conditions of the area, facility and information. Group 1 and Group 2 conflicts can be managed using the same approaches, which include activity zoning to accommodate recreationists with different expectations and gathering recreationists sharing the same levels of activity skills in the same area. Controlling the number of tourists in some recreational areas with limited activity space may be another appropriate management approach. In addition, national parks should provide strict and clear regulation enforcement. They should also provide park staff to provide assistance and information for recreationists in all activity areas. As for the third type of conflict, it should be managed by improving facilities within recreational areas to be in good condition and ready to be used at all times. Meaningful interpretation programs allowing for appropriate, complete information for recreationists should be provided.

As for coping behaviors in response to the conflict, most of the sampled recreationists chose to develop skills required for coexisting with other tourists and some of them ignored what was causing the dissatisfaction. This reveals their flexibility of adapting and coping with the conflict by means of compromise, as used by the majority of Thais. However, some studies reveal the inverse relationship between recreation conflict and the quality of recreational experience; their measurement was mostly based on overall satisfaction with park visits. Thai national park managers should pay attention to resolve recreation conflict using the aforementioned measures to encourage recreationists' quality experience. Finally, research on recreation conflict in Thailand in the future should explore different types of recreation activities where conflict occurs on a pairwise basis, and it should investigate other causal factors which affect recreation conflict to enhance the explanatory power of the causal model in relation to recreation conflict in Thailand.

## Conflict of Interest

There is no conflict of interest.

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