

Examining Recreational Experiences using Social-Ecological Framework for Urban Park Planning

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ABSTRACT

The social-ecological framework provides a comprehensive interdisciplinary approach in natural resources management, focusing on the dynamic interactions between social, situational and ecological elements within recreational settings. This framework is particularly relevant in urban contexts, while recreational forests and parks play critical role in providing sustainability and ecological well-being in the area. The value of natural settings is not limited to ecosystem services providers only, but also in their capacity to enhance social cohesion and recreational experiences among urban residents. Therefore, understanding the interplay between these factors is essential. Understanding the value of recreational forest and its ecological services are important in promoting sustainable city. This study examined the influence of social, situational and ecological factors towards visitors coping behaviour, their decision-making and overall satisfaction while being in the Johor Bahru Recreational Park. This study employed structured questionnaire for primary data collection and a total of 360 respondents were involved. Descriptive statistics analysis was conducted to assists in the data analysis process. The findings of this study showed that majority of respondents do agree that they are interested in creating social interaction while making new friends, but the layout of the park did not allow any social interaction between visitors. By applying the social-ecological framework, this study offers valuable recommendations to understand on how urban parks can be better managed to support both environmental sustainability and community well-being thus advancing the goals of sustainable city planning.

1. Introduction

Greenery areas in cities are receiving increasing attention as the functions of green areas were significant towards people quality of life. As there is an increasing rapid in urban development, the green practices have been promoted to solve environmental issue [1]. Urban green spaces such as urban parks, community gardens and recreational forests are believed to provide social-ecological importance to mitigate climate change by regulating global temperature thus providing opportunities

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to experience natural green environments [2]. Urban green spaces are facing multiple threats in an urbanising city such as the encroachment of green areas, the decreasing number of invasive species, cases of environmental pollution and soil compaction in nature areas [3]. As natural lake is one of the urban green space elements, [4] emphasized the importance of lake in contributing to the sustainable biodiversity and ecological balance. Additionally, water bodies in urban areas play critical role in providing recreational opportunities as well as offering aesthetic and cultural value for the development of socio-economic among communities [4]. Therefore, there is urgent need in highlighting the importance of blue and green space in cities by adapting social-ecological framework for sustainable urban planning.

Instead of the well documented of green space benefits towards human well-being, urban green space is constantly being put under pressure because of the expansion and densification of urbanized areas, thus contributing to the land exploitation for development projects [5]. These situations resulting to the direct effects towards social and ecological qualities of urban green spaces in terms of its provided ecosystem services, human well-being and biodiversity conservation [5]. However, Yee *et al.*, [1] mentioned that the awareness of community towards the significance of environmental issues has been increasing due to the decreasing trends of natural resources and increasing pollution cases.

The socio-ecological systems provide a system-wide, interdisciplinary approach to resource management that considers how social, situational, and ecological elements interact with recreation, culture, community, and natural resources [6]. This framework shows how intricately entwined society and ecology are. The interaction between human and nature are embedded in complex social-ecological systems dynamics should explored further and new management strategies formulation are required. However, there are little research has been conducted to investigate how social-ecological conditions have affecting occurrence and distribution of green space [7]. There are several studies that use the social-ecological framework but in different case studies and for different purposes. For example, it is used in parks and protected areas [8]. Brokking *et al.*, [5] suggested nature-based solutions to be implemented in the planning design of green spaces by combining quality social and ecological system. To create effective conservation strategies, management practices should focus on the interaction between social-ecological generated in the green spaces as fragmentation is seen one of the threats to urban green spaces that modifies ecological dynamics and at the same time, modifying the social interactions between neighbourhood areas.

Therefore, this study highlighted the application of social-ecological framework in creating sustainable urban park planning thus aimed to examine the social, ecological and situational factors towards recreational experiences among urban park visitors. Next, this study examined the recreational coping behavior for overall satisfaction analysis particularly in Johor Bahru Urban Recreational Forest.

1.1 Social-Ecological Framework in Urban Park Planning

The social-ecological framework as shown in Figure 1 encompasses various elements that help in understanding the relationships and dynamics within a social-ecological system. According to Miller *et al.*, [9], visitor experiences refer to individuals' interactions, perceptions, and satisfaction levels within the urban recreational forest. This component underscores the importance of understanding and enhancing the quality of visitor experiences, which include recreational activities, educational opportunities, and cultural connections. Influencing factors include a range of social, economic, political, and environmental factors that shape the social-ecological system, such as policies,

regulations, economic conditions, and cultural norms. Understanding these influences is essential for effective planning and decision-making processes [10].

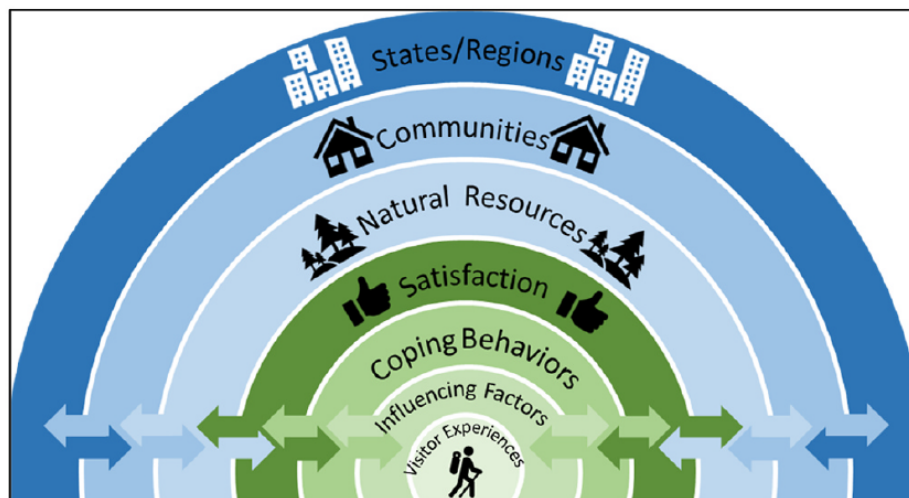


Fig. 1. Social-Ecological framework [8]

Coping behaviors refer to the strategies and actions individuals and communities undertake to adapt to and respond to the challenges and changes encountered within the social-ecological system [9]. This component acknowledges the dynamic nature of the system and emphasizes the need for adaptive management approaches. Satisfaction, in this context, relates to the positive outcomes and benefits individuals derive from their experiences within the urban recreational forest. It focuses on understanding visitor and community satisfaction, encompassing recreational activities, health and well-being, and cultural values [9].

Natural resources, as defined by Egerer and Anderson [10], refer to the ecological components of the social-ecological system, including the forest ecosystem, biodiversity, and other biological elements. Recognizing the critical importance of these resources and their intricate interactions with social systems is fundamental for the sustainable management and conservation of the urban recreational forest. Communities, which consist of individuals, groups, and organizations actively engaged within the system, play a key role in the social-ecological framework. Gaining insight into the values, needs, and preferences of these community stakeholders is crucial for effective planning and management of the urban recreational forest [11].

Dennis *et al.*, [7] emphasized that the effective management of social-ecological systems requires three key attributes: resilience, adaptability, and transformability. Resilience refers to the system's capacity to withstand disturbances; adaptability denotes the ability of key actors to influence resilience, while transformability describes the system's capacity to create new structures when the existing ones become unstable [7]. Previous studies have demonstrated that the application of the social-ecological framework is closely linked to the productivity of urban green spaces, where user involvement positively impacts ecosystem service provision and biodiversity levels [7].

Additionally, Morse [6] highlighted that the social-ecological framework expands the scope of outdoor recreation research by integrating both social and ecological systems and considering interactions across multiple levels. Furthermore, Ferguson *et al.*, [8] emphasized the importance of applying the social-ecological system in sustaining the management of parks and protected areas, while considering the social, situational, and ecological factors that influence them.

1.2 Factors in Assessing Recreational Experience

Driver and Tocher [12] proposed a comprehensive definition of recreational opportunity that extend beyond the conventional understanding of activities and opportunities. They defined leisure as a deeply rewarding experience that people voluntarily engage in during their free time. In contrast, recreational experience is described as a unique occurrence that is often not spontaneous but rather emerges in reaction to certain stimuli, typically through direct observation or participation in an event. Recreation experience is best understood as a series of psychological outcomes that individuals expect to achieve through their engagement in recreational activities [12]. Figure 2 illustrated three factors contributing to the recreational experience which are social factors including crowding and conflicts, situational factors and ecological factors [8].

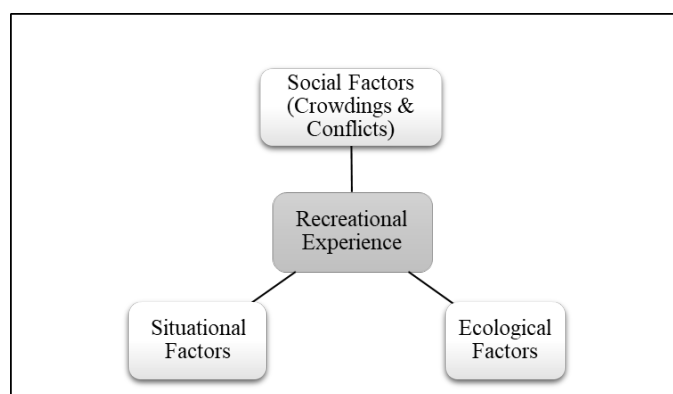


Fig. 2. Recreational experience factors [8]

1.2.1 Social factor

Social factors refer to human interactions that influence visitor perceptions, behaviours, or experiences [13]. Two key social elements that may affect visitor behaviors and experiences in parks and protected areas are crowding and conflict [8,14]. Crowding is generally regarded as a negative assessment of the number of visitors within a particular area. At the same time, conflict is defined as an interruption in a visitor's aim induced by the actions of another. Both crowding and conflict are widely discussed in the literature on parks and protected areas, as they significantly influence visitors' coping behaviors and overall enjoyment [15]. Furthermore, strong social networks and a sense of community are known to enhance the demand for recreational activities, fostering positive visitor experiences.

1.2.2 Situational factor

Situational factors refer to interactions with the built environment that influence visitor perceptions, behaviours, and experiences [16]. Various situational aspects in parks and protected areas, such as site degradation, public access, and energy development, may influence visitor behaviours and experiences [8,9]. Buckley [17] defines site degradation as a harmful resource alteration caused by human use. Access is also influenced by the ease with which services or areas can be regions can be obtained or reached. Situational factors such as site degradation and access have been extensively researched in the literature on parks and protected areas and have been shown to influence both visitors coping behaviours and visitor satisfaction [13,15]. For instance, Miller and McCool [16] discovered that nearly one-third of Glacier National Park tourists reported situational variables as a detractor to their experience.

1.2.3 Ecological factor

Ecological factors are environmental interactions that influence visitors' perceptions, behaviours, or experiences [17]. For instance, Lam *et al.*, [18] discovered that biophysical climate change concerns could impact visitor enjoyment and decision-making. As visitors' satisfaction with the weather increased, so did their involvement in recreational activities, and as involvement grew, so did overall satisfaction. According to Miller *et al.*, [9], well-maintained plants can improve the aesthetic appeal of a recreational space and offer guests cover and shade. So, visitors can experience the atmosphere of nature in peace and comfort. Furthermore, clean lake water is essential to maintain a healthy aquatic habitat, improving the recreational experience. Not only that, but visitors will also feel more comfortable if the lake is clean and safe. Marion *et al.*, [19] stated that recreational areas can make visitors' experiences safer and more pleasurable by controlling wildlife populations and reducing human-wildlife confrontations.

Numerous situational aspects in parks and protected areas, such as site degradation, public access, and energy development, may influence visitor behaviours and experiences [8,9]. Buckley [17] defines site degradation as a harmful resource alteration caused by human use. Kim *et al.*, [14] limit access to the ease with which services or regions can be obtained or reached. Situational factors such as site degradation and access have been extensively researched in the literature on parks and protected areas and have been shown to influence both visitors coping behaviours and visitor satisfaction [13,15]. Kim and Nicholls [20] discovered that nearly one-third of Glacier National Park tourists reported situational variables as a detractor to their experience.

1.3 Recreational Coping Behavior

To mitigate social issues such as like crowding, visitors to urban forests may engage in coping behaviours. Coping strategies, such as spatial or temporal displacement, play a significant role in managing both natural and social settings. However, coping behaviors have rarely been investigated in urban contexts, and existing research has yet to differentiate between weekday and weekend visits, despite the potential for substantial differences in usage intensity and user composition that could influence perceptions of crowding and coping strategies [21]. In some cases, individuals may seek to avoid these challenging situations by employing coping mechanisms like temporal or spatial displacement. Effective management of these spaces include the use of compensatory strategies to alleviate stress and enhance the desired visitor experience. Three related concepts of visitor coping behaviors (Figure 3) including resource substitution, activity substitution, temporal substitution and displacement, are associated with recreational coping behavior by engaging in leisure-related activities as a way to cope with stress, hardship or challenges circumstances.

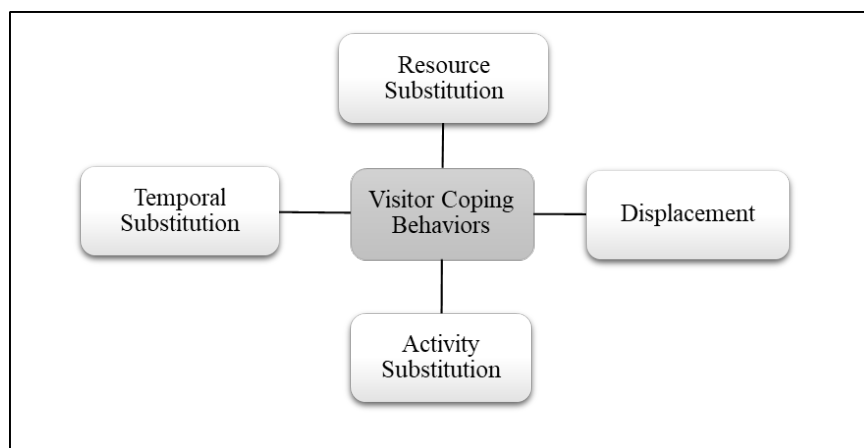


Fig. 3. Visitor Coping Behavior [8]

1.3.1 Resource substitution

In the context of recreational coping, resource substitution involves replacing one recreational resource or activity with another in response to constraints, limitations or changes in availability. For example, if an individual's preferred leisure activity, such as team sports, become unavailable due to facility closure, they may substitute it with another activity, such as solo exercise or running outdoors. Resource availability and quality are critical factors in leisure activities. When resources are scarce or of low quality, individuals may engage in coping behaviors, such as displacement, by seeking alternative resources to continue participating in their preferred recreational activities [22].

1.3.2 Activity substitution

Activity replacement replaces one recreational activity with another that achieves the same goals or provides comparable benefits. People may transition to another activity, such as yoga, as a form of leisure coping if their regular stress-relieving exercise, such as meditation sessions, becomes unavailable or impractical. The type of recreational activity being engaged in is an activity factor. For different jobs, different coping techniques may be necessary. People, for example, can cope with congestion by changing their activities or moving to less busy regions for their favourite pleasure [22].

1.3.3 Temporal substitution

Temporal substitution occurs when people alter the length or timing of their recreational activities in response to stress or changing circumstances. For example, if someone is under time constraints at work, they may choose to replace their customary more extended leisure periods with shorter, more frequent bursts of leisure time. One of the most effective temporal substitutions guests may make to reduce their negative impact and improve their experience is avoiding peak visitation hours [23]. On the other hand, guests can avoid crowds and suffer less stress if they arrange their trips during off-peak hours [21].

1.3.4 Displacement

The diversion of recreational behaviour in reaction to external circumstances or stresses is called displacement in recreational coping. A person might relocate their recreational activities to another area that provides comparable experiences, for instance, if their chosen recreational venue is

temporarily closed owing to environmental concerns or public health issues. According to Taylor *et al.*, [24], if visitors feel that an urban forest needs to provide a wider variety of facilities that suit their interests and requirements, they may cease going there. Visitors may check into alternative urban recreational forests if the urban forest needs to provide the convenience or usefulness they are searching for. On the other hand, visitors may be deterred from returning if the urban recreational forest is poorly maintained or needs essential amenities like clean facilities, lounging places, or recreational equipment. [25]. Furthermore, [20] stated that visitors may only continue their visit if the urban recreational facilities deliver exciting and entertaining experiences.

2. Methodology

2.1 Case Study

The Johor Bahru Urban Recreational Forest, located at Jalan Tasek Utara, Kolam Ayer, 80100, Johor Bahru, Johor, has long been a popular destination for locals who enjoy hiking, picnicking with their families, and engaging in various outdoor activities. It is also a family-friendly park, offering amenities such as a playground, swimming pool, jogging trail, and a lake surrounded by trees. In terms of research, the population refers to the entire group from which conclusions are drawn, while a sample is a subset of that group from which data are collected. According to the Malaysian Department of Statistics (2020), Johor Bahru has a population of 1,711,191. For this study, the target audience consists of tourists who have visited and interacted with the Johor Bahru Urban Recreational Forest. Data for the study were collected using two methods: primary data through direct observation and secondary data through literature reviews. However, the findings of this data may not be generalized to all other urban parks in Malaysia as it involved limited scope and respondents.

2.2 Data Collection Method

The aim of this study is to explore the factors influencing recreational experiences and coping behaviors of visitors at the Johor Bahru Urban Recreational Forest, using a quantitative research approach. The study focused on collecting numerical data to understand the relationship between social, situational, and ecological factors in shaping visitor satisfaction. The respondents in this study consist of both group and individual participants. Data collection is divided into two types: primary and secondary data. Primary data were collected through a questionnaire survey administered to 360 visitors who had visited the Johor Bahru Urban Recreational Forest. Secondary data were obtained from reference books, journals, articles, websites, newspapers, and previous studies, which provide comprehensive background information on the topic.

The structured questionnaire distributed to the 360 respondents comprises four sections. Section A gathered demographic information about the respondents. Section B collected detailed data regarding the social, situational, and ecological factors influencing the recreational experience. Section C explored visitors' coping behaviors, while Section D investigated the relationship between recreational experiences, coping behaviors, and overall visitor satisfaction. Upon collection, the data will be analyzed using the Statistical Package for Social Science (SPSS) software. Data analysis process involved few steps; first, descriptive statistics used to summarize demographic information and general trends in the responses. Next, inferential statistics, such as correlation and regression analyses, employed to explore the relationships between social, situational, and ecological factors and the visitors' recreational experiences and coping behaviors. Factor analysis was also conducted to identify underlying patterns or dimensions in the data related to visitor satisfaction and coping

behaviors. The results will then be interpreted to identify significant factors influencing visitor satisfaction and to assess the interactions between social-ecological conditions and recreational experiences.

Additionally, the Johor Bahru Urban Recreational Forest employs a social-ecological framework to evaluate visitor experiences. In this framework, recreation is categorized into two areas: recreational experiences and recreational behaviors. Recreational experiences are further divided into social, situational, and ecological factors, all of which play a crucial role in shaping the overall visitor experience. Recreational behaviors are classified into four categories: resource utilization, temporal aspects, specialized activities, and displacement. Each of these variables offers insight into how visitors interact with the forest environment. Both types of recreation were thoroughly examined by for the purpose of developing sustainable urban park planning.

3. Results and Discussion

3.1 Demographic Profile Analysis of Respondents

Table 1 indicates the demographic profile analysis of respondents for this study as females represent majority of respondents, recorded 61.1% (220 respondents), while male make up 38.9% (140 respondents) make it a total of 360 respondents involved in this study. The age distribution of respondents reveals a balanced representation among younger and middle-aged adults, with 35% of respondents between 18 and 29 years old, 37.8% aged 30 to 39, and 22% aged 40 to 49 years old. In terms of racial background, Malays respondents considered as the largest group involved in this study at 58.6%, followed by Chinese (25.8%) and Indian (15.6%) respondents. This distribution highlights the diverse mix of visitors in terms of age, gender and race at Johor Bahru Recreational Forest.

The social characteristics were further analysed in this study illustrated by the marital status, occupation and visitation pattern to the park. A majority of respondents are married (67.8%), with single respondents comprising 32.2%. In terms of occupation, government employees are the most represented group at 33.6%, followed by students (27.2%), private sector workers (25.3%) and self-employed individuals (13.9%). The frequency of visits varies with most respondents (67.5%) visiting the park once in a month, while 30.8% visit twice in a week and only 1.7% of respondents will come to park daily. Regarding to the purpose of visiting, social and recreational activities dominates the reason as 32.2% of respondents visit the park for strolling, 30% for picnic and 21.1% for family gatherings purposes.

Table 1
Demographic profile analysis of respondents

	Frequency (f)	Percent (%)
Gender		
Female	220	61.1
Male	140	38.9
Age		
18 – 29 years old	126	35.0
30 – 39 years old	136	37.8
40 – 49 years old	80	22.2
50 – 59 years old	18	5.0
Race		
Malay	211	58.6
Indian	56	15.6
Chinese	93	25.8
Marital Status		
Married	244	67.8
Single	116	32.2
Occupation		
Government	121	33.6
Private Sector	91	25.3
Self-Employed	50	13.9
Student	98	27.2
Frequency of Visiting		
Two times a week	111	30.8
Everyday	6	1.7
Once a month	243	67.5
Purpose of Visiting		
Family gathering	76	21.1
Fishing	6	1.7
Jogging	54	15.0
Stroll	116	32.2
Picnic	108	30.0

3.2 Social-Ecological Factor Analysis of Visitors' Experience

Based on the data in Table 2, overcrowding appears to be a major issue for respondents, with two statements; "Activities are difficult to do in crowded conditions" and "Uncomfortable feeling when the area is filled with people" both recorded high mean value of 4.38 and 4.40 respectively. This could lead to the discomfort feeling due to the overcrowding in the area. Interestingly, while direct conflicts between visitors are low with a mean of 1.75, there is significant frustration regarding other's visitors' behavior specifically with littering. It is evident that many respondents feel the park is crowded, affecting the quality of time spent in the park with a mean rating of 3.97 for the statement "Too many visitors".

Table 2

Social factors analysis for crowding and conflict

Social Factor - Crowding									
No.	Statement		1	2	3	4	5	Mean	Std Deviation
1.	Get crowded every time visiting here	<i>f</i>	35	36	76	125	88	3.54	1.235
		%	9.7	10.0	21.1	34.7	24.4		
2.	Too many other visitors	<i>f</i>	4	40	45	146	125	3.97	1.009
		%	1.1	11.1	12.5	40.6	34.7		
3.	Activities are difficult to do in crowded conditions	<i>f</i>	3	12	15	144	186	4.38	0.788
		%	8	3.3	4.2	40.0	51.7		
4.	Uncomfortable feeling when the area is filled with people	<i>f</i>	0	9	18	154	179	4.40	0.701
		%	0	2.5	5.0	42.8	49.7		
Social Factor - Conflict									
No.	Statement		1	2	3	4	5	Mean	Std Deviation
1.	Got into conflict with other visitors	<i>f</i>	157	165	17	13	8	1.75	0.876
		%	43.6	45.8	4.7	3.6	2.2		
2.	Other visitors have negative behaviour	<i>f</i>	109	123	37	80	11	2.34	1.209
		%	30.3	34.3	10.3	22.2	3.1		
3.	Visitors do not throw trash in the dustbin	<i>f</i>	34	53	43	113	117	4.00	1.323
		%	9.4	14.7	11.9	32.5	32.5		
4.	Visitors do not throw trash in the dustbin	<i>f</i>	50	114	42	45	45	3.00	1.295
		%	13.9	31.7	11.7	12.5	12.5		

Approximately 25% of respondents agreed that “Other visitors have negative behavior” suggesting that negative behavior from the park visitors may not as significant as overcrowding issue but should be taken into consideration in encouraging positive social norms in the park. Despite visitors expressing interest in social interactions, as indicated in the demographic profile analysis, the social factors analysis show that high visitor density may be impeding as activities become challenging in crowded conditions. This conflict between the desire for social interaction and feeling discomfort in a crowded situation provides an insight for urban park planners in designing more open or segmented spaces that allow social interaction to happen but at the same time did not overwhelm the visitors.

Respondents expressed a high level of satisfaction towards facilities safety and ecological maintenance, indicating that there is well-managed infrastructure and a clean natural environment in Johor Bahru Recreational Forest. Statement like “Visitor facilities can be used properly and safely” with recorded mean value, 4.17 and “The plants here are well maintained” (mean value 4.28), reflecting positive views towards the park’s facilities and ecological conditions. However, littering issues persists showed similarities with the crowding and conflict analysis earlier, as 63% of respondents agreed that “the area around this recreational forest is too littered”. This suggests that by focusing on solid waste management, it may enhance visitors’ experience in the park. Additionally, concerns about the quality of recreational sites and roads suggest that certain elements of the park may hinder accessibility and visitor satisfaction.

Table 3
Situational and ecological factor analysis

Situational Factor									
No.	Statement		1	2	3	4	5	Mean	Std Deviation
1.	Area around this recreational forest too littered	<i>f</i>	21	57	55	133	94	3.62	1.196
		%	5.8	15.8	15.3	36.9	26.1		
2.	Recreational sites in this area are in a less than satisfactory condition	<i>f</i>	89	121	44	91	15	2.51	1.226
		%	24.7	33.6	12.2	25.3	4.2		
3.	The road for visitors has many potholes	<i>f</i>	21	91	30	91	127	3.59	1.345
		%	5.8	25.3	8.3	25.3	35.3		
4.	There are many facilities for the use of visitors	<i>f</i>	2	10	57	165	126	4.12	0.811
		%	0.6	2.8	15.8	45.8	35.0		
5.	Visitor facilities can be used properly and safety	<i>f</i>	3	7	44	179	127	4.17	0.776
		%	0.8	1.9	12.2	49.7	35.3		
Ecological Factor									
No.	Statement		1	2	3	4	5	Mean	SD
1.	The plants here are well maintained	<i>f</i>	0	6	41	160	153	4.28	0.728
		%	0	1.7	11.4	44.4	42.5		
2.	The lake water here is clean	<i>f</i>	4	7	66	129	154	4.17	0.873
		%	1.1	1.9	18.3	35.8	42.8		
3.	The lake water level is in good condition	<i>f</i>	2	2	69	180	107	4.08	0.746
		%	0.6	0.6	19.2	50.0	29.7		
4.	No wild animals are roaming in this area	<i>f</i>	2	10	78	171	99	3.99	0.809
		%	0.6	2.8	21.7	47.5	27.5		

Visitor coping behavior analysis as indicated in Table 4 shows that respondents agreed Johor Bahru Recreational Forest as a preferred leisure destination, rather than holiday-specific spot, with a high level of flexibility in both visitation time and provided recreational activities. This adaptation is proved from the data showing that respondents were visiting the park at different times of the day (mean value of 4.06) and accompanied by different people with mean value of 3.83. Additionally, the introduction of new recreational activities (mean of 4.09) appears to enhance visitor engagement, encouraging repeat visits and adding variety to the park experience.

As respondents showed a low likelihood towards permanent displacement of the park's elements indicating the place attachment of the visitors to the area. With a statement for "not visiting again" is receiving a mean score of 2.06, respondents are showing loyalty to the park and its services. This suggests that despite any inconveniences or new recreational opportunities elsewhere, the role of the park is focused on the central spot for respondents in terms of its diverse activities offered and improved amenities to further boost visitor satisfaction and community engagement.

Table 4
Visitor coping behavior factor analysis

Resource Substitution			
No.	Statement	Mean	Standard Deviation
1.	Visiting different areas of the Johor Bahru Urban Recreational Forest	3.71	0.851
2.	Visiting a different location within the Johor Bahru Urban Recreational Forest	3.76	0.878
3.	Do different activities every time come to Johor Bahru Urban Recreational Forest	3.66	1.142
4.	Go to Johor Bahru Urban Recreational Forest with different people	3.83	1.147
Temporal Substitution			
1.	Visiting Johor Bahru Urban Recreational Forest on a different day of the week	3.95	0.970
2.	Visiting Johor Bahru Urban Recreational Forest earlier or later in a day	4.06	0.840
3.	Avoid from visiting Johor Bahru Urban Recreational Forest on holidays	3.09	1.442
4.	Johor Bahru Urban Recreational Forest is visited for leisure	4.33	0.602
Activity Substitution			
1.	Recreational activities have just started at the Johor Bahru Urban Recreational Forest	4.09	0.785
2.	Recreational activities began to change in Johor Bahru Urban Recreational Forest	3.71	0.918
3.	Leisure activities is done with the family at the Johor Bahru Urban Recreational Forest	3.92	1.257
4.	Started spending time with friends for picnics at Johor Bahru Urban Recreational Forest	3.40	1.387
Displacement			
1.	Johor Bahru Urban Recreational Forest will stop being visited completely	2.53	1.071
2.	Johor Bahru Urban Recreational Forest will not be visited again	2.06	1.047
3.	The experience will be abandoned at the Johor Bahru Urban Recreational Forest	2.38	1.214
4.	People will not come to do leisure activities with the family again	2.36	1.111

4. Conclusion

In conclusion, the primary objective of this study was to examine the social, situational, and ecological factors toward the recreational experience at Johor Bahru Urban Recreational Forest. Based on all of these factors it shows that the social, situational, and ecological will give impacts on recreational experience towards recreational satisfaction. Moreover, this study could be used as reference data for conducting or evaluating the validity of the findings in applying a social-ecological framework in other case studies. Next, this study will also give an explanation of how the results of the study meet the objectives and purpose of the study which are to examine the social, situational, and ecological factors towards recreational experience at Johor Bahru Urban Recreational Forest, to investigate visitor coping behaviors at Johor Bahru Urban Recreational Forest, and to determine the relationship between recreational experience and recreational coping behavior for overall satisfaction at Johor Bahru Urban Recreational Forest.

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References

- [1] Yee, H.C., Ismail, R. and Jing, K.T. (2020). "The barriers of implementing green building in penang construction industry". *Progress in Energy and Environment*, 12: 1-10. <https://orcid.org/0000-0002-6442-1301>
- [2] Egerer, Monika, Peter Annighöfer, Sophie Arzberger, Stefanie Burger, Yannik Hecher, Vera Knill, Birgit Probst, and Michael Suda. (2024). "Urban Oases: The Social-Ecological Importance of Small Urban Green Spaces." *Ecosystems and People*. Taylor and Francis Ltd. <https://doi.org/10.1080/26395916.2024.2315991>
- [3] Zambrano, Luis, Zenón Cano-Santana, Ana Wegier, Denise Arroyo-Lambaer, J. Jaime Zúñiga-Vega, Antonio Suárez, César Rafael Bouchain, et al. (2019). "Evaluating Socio-Ecological Interactions for the Management of Protected Urban Green Spaces." *Frontiers in Environmental Science* 7 (SEP). <https://doi.org/10.3389/fenvs.2019.00144>
- [4] Shafee F.A.M., Shafiq N. & Farhan S.A. (2024). Strategies for Improvement of Water Quality in Urban Lakes. *Progress in Energy and Environment*. Vol. 29, 1-5. <https://doi.org/10.37934/progee.29.1.15>
- [5] Brokking, Peter, Ulla Mörtberg, and Berit Balfors. (2021). "Municipal Practices for Integrated Planning of Nature-Based Solutions in Urban Development in the Stockholm Region." *Sustainability (Switzerland)* 13 (18). <https://doi.org/10.3390/su131810389>
- [6] Morse, W.C. (2020). "Recreation as a Social-Ecological Complex Adaptation System". *Sustainability* 12 (13): 753. <https://doi.org/10.3390/su12030753>
- [7] Dennis, M., R. P. Armitage, and P. James. 2016. "Appraisal of Social-Ecological Innovation as an Adaptive Response by Stakeholders to Local Conditions: Mapping Stakeholder Involvement in Horticulture Orientated Green Space Management." *Urban Forestry and Urban Greening* 18 (August): 86–94. <https://doi.org/10.1016/j.ufug.2016.05.010>
- [8] Ferguson, Michael D., Georgia Giles, Lauren A. Ferguson, Robert Barcelona, Darrick Evensen, Courtney Barrows, and Marianne Leberman. 2022. "Seeing the Forest for the Trees: A Social-Ecological Systems Approach to Managing Outdoor Recreation Visitation in Parks and Protected Areas." *Journal of Outdoor Recreation and Tourism* 38 (June). <https://doi.org/10.1016/j.jort.2021.100473>
- [9] Miller, A.B., Blahna, D.J., Morsem W.C., Leung, Y.F. and Rowland, M.M. (2022). "From recreation ecology to a recreation ecosystem: A framework for accounting for social-ecological systems. *Journal of Outdoor Recreation and Tourism* 38, 100-455. <https://doi.org/10.1016/j.jort.2021.100455>
- [10] Egerer, M. and Anderson, E.G. (2020). "Social-ecological connectivity to understand ecosystem service provision across the networks in urban landscape". 9(12), 530-540. <https://doi.org/10.3390/land9120530>
- [11] Romolini, M.R., Patrick, B. and Grove, M. (2016). "A social-ecological framework for urban stewardship network research to promote sustainable and resilient cities". 8(9), 956-998. <https://doi.org/10.3390/su8090956>
- [12] Driver, Bev L., and S. Ross Tocher. "Toward a behavioral interpretation of recreational engagements with implications for planning." In *Land and Leisure*, pp. 86-104. Routledge, 2019.
- [13] Hall, T. E. and Shelby, B. (2000). "Temporal and spatial displacement: Evidence from a high-use reservoir and alternate sites". *Journal Of Leisure Research*, 32(4), 435-456. <https://doi.org/10.1080/00222216.2000.11949926>
- [14] Kim, Jaehyun, Michael Ferguson, Benjamin Hickerson, and Andrew Mowen. "The Association of Constraints, Negotiation, and Social Influences with Recreation Specialization among Recreational Baseball Participants." *Journal of Park & Recreation Administration* 37, no. 1 (2019). <https://doi.org/10.18666/JPra-2019-8794>
- [15] Johnson, A. K., & Dawson, C. P. (2004). An Exploratory Study of the Complexities of Coping Behavior in Adirondack Wilderness. *Leisure Sciences*, 26(3), 281–293. <https://doi.org/10.1080/01490400490461963>
- [16] Miller, T. A., & McCool, S. F. (2003). Coping with Stress in Outdoor Recreational Settings: An Application of Transactional Stress Theory. *Leisure Sciences*, 25(2–3), 257–275. <https://doi.org/10.1080/01490400306562>
- [17] Buckley, Ralf. "Evaluating the net effects of ecotourism on the environment: a framework, first assessment and future research." *Journal of Sustainable Tourism* 17, no. 6 (2009): 643-672. <https://doi.org/10.1080/09669580902999188>
- [18] Lam-González, Yen E., Carmelo J. Leon, and Javier de Leon. "Assessing the effects of the climatic satisfaction on nautical tourists' on-site activities and expenditure decisions." *Journal of Destination Marketing & Management* 14 (2019): 100372.
- [19] Marion, Jeffrey L., Yu-Fai Leung, Holly Eagleston, and Kaitlin Burroughs. "A review and synthesis of recreation ecology research findings on visitor impacts to wilderness and protected natural areas." *Journal of forestry* 114, no. 3 (2016): 352-362.

- [20] Kim, J., & Nicholls, S. (2016). Influence of the measurement of distance on assessment of recreation access. *Leisure Sciences*, 38(2), 118–139. <https://doi.org/10.1080/01490400.2015.1071211>
- [21] Arnberger, Arne, and Renate Eder. "Exploring coping behaviours of Sunday and workday visitors due to dense use conditions in an urban forest." *Urban Forestry & Urban Greening* 11, no. 4 (2012): 439-449. <https://doi.org/10.1016/j.ufug.2012.08.002>
- [22] Espiner, Niamh, Gebeyaw Degarege, Emma J. Stewart, and Stephen Espiner. "From backyards to the backcountry: Exploring outdoor recreation coping strategies and experiences during the 2020 COVID-19 pandemic in New Zealand." *Journal of Outdoor Recreation and Tourism* 41 (2023): 100497. <https://doi.org/10.1016/j.jort.2022.100497>
- [23] Manning, Robert, William Valliere, Ben Minter, Benjamin Wang, and Charles Jacobi. "Crowding in Parks and Outdoor Recreation: A Theoretical, Empirical, and Managerial Analysis." *Journal of Park & Recreation Administration* 18, no. 4 (2000).
- [24] Taylor, Lucy, Erin H. Leckey, Peter J. Lead, and Dieter F. Hochuli. "What visitors want from urban parks: Diversity, utility, serendipity." *Frontiers in Environmental Science* 8 (2020): 595620. <https://doi.org/10.3389/fenvs.2020.595620>
- [25] Weinbrenner, Hannes, Jasmin Breithut, Wiebke Hebermehl, Anna Kaufmann, Tabea Klinger, Therese Palm, and Kristina Wirth. "The forest has become our new living room"—the critical importance of urban forests during the COVID-19 pandemic." *Frontiers in forests and global change* 4 (2021): 672909. <https://doi.org/10.3389/ffgc.2021.672909>