

## Comparative Research of Survey Results on the Usage Patterns of Traditional Garden between Japan and Austria

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**ABSTRACT:** This study compares differences between Japan and Austria as regarding outdoor activities. We conducted a survey with respect to the utility patterns of Kairakuen Garden in Mito city, Ibaraki prefecture, which is one of the three major historical gardens in Japan noted for its beauty. This paper compares the results of our survey with a study of the recreational and spatial utility of the historical Schönbrunn Garden in Vienna, Austria, a baroque garden of the former Emperor of Austria. Therefore, both Japan and Austria universities examined the same questionnaire items such as where visitors are from, importance of motives of visiting, and wandering behavior at each gardens. Here, in this paper, common motives of visitors in both gardens are discovered. In addition, there were similarities between Kairakuen Garden and Schönbrunn Garden in that the citizens of Vienna frequently tends to avoid the routes that are used by many sightseers, and which can be observed also with the most local residents of Mito visiting the Kairakuen Garden.

**Key words:** Historical garden, Visitor structure, Purpose of visit, Wandering behavior, Motive of visit

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### INTRODUCTION

In recent years, the concern about environmental problems is growing all over the world. Therefore, in Japan, greenery spaces and natural areas are focused as one of the solution about environmental problems. We must take into consideration of user activities and value of greenery spaces and natural areas to sustainable park use. In other words, the study about outdoor activities at greenery spaces and natural areas is related to our immediate environmental concerns.

Comparative research of outdoor activities between Japan and Austria comprehend the commonality and differences of outdoor activities of people who have different culture and lifestyle.

The comparison of survey results on the use patterns of outdoor activities both Japan and Austria is a study to grasp different outdoor

activities of difference people of different climate and lifestyle. In the past, the people of all over the world had the concept that people having different climate and culture made difference in responses to outdoor spaces. However, it hasn't been analyzed quantitatively all the while. That is why this cross-national research can be recognized as the first study in the world.

In the future, this study is based on the environmental concerns will vary according to the parts of world. Especially, grasp of differences in environmental conservation activities allows to doing measure of unique to Japan about environment education.

At first, a study of park use was published by Yoshida (1934) in Japan. After that, more than 100 research papers about park use have published to date in Japan. Kondo (1961) analyzed

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distribution of visitor's origin. Aoki (1984) published estimation of park use for a park planner and designer, and showed monthly variation of park use and method of the use investigation of the park. Aoki (1988) studied sampling schemes for counting the daily number of visitors. Aikou, *et al.* (1992) reported relationship increasing recreational use of national park and visitor satisfaction. Komada and Ichihara (1998) studied relationship between the park visitor's walking speed and view. Sakai, *et al.* (2004) studied a gaze time at the garden path walk used eye-mark recorder in Japanese garden. Ishiuchi, *et al.* (2007) analyzed park management focused on user activity and seasonal changes. Ishiuchi, *et al.* (2008) developed establishment method of resting facility using the use investigation of the park.

Meanwhile, in other countries, a parks' visitor Activity management process which attempts to integrate data about users was developed by Graham, *et al.* (1988) in Canada. Delucio and Mugica (1994) analyzed relationship landscape preferences and behavior of visitors to national parks in Spain. Noe, *et al.* (1997) studied relationship between park user perception of resource and use impacts in USA. Floyd, *et al.* (1997) analyzed relationship between environmental concern and acceptability of environmental impacts among visitors in USA.

Cessford and Muhar (2003) showed the management requirement for implementing, and presented an effective monitoring system in New Zealand. Ploner and Brandenburg (2003) developed models of visitor attendance levels subject to day of week and weather based on linear regression were obtained for the daily totals of visitors in Austria. Beunen, *et al.* (2008) focused the gateways as a means of visitor management in national parks and protected areas.

As identified above, there are many studies about park use including study achievements in Japan all over the world. In addition, the first international conference on Monitoring and Management of visitor flows in recreational and protected areas (2002) held in Vienna, Austria. It is very important that different national researchers are sharing study achievements about park use. Therefore, we consider that this study has high value as cross-national research about

traditional garden use of the world's first using same questionnaire items.

Kairakuen Park is made up of such historical sites as Kairakuen Garden, Tazunaki plum grove, Lake Senba. It is rather large as an urban park with an area of about 300 hectare and famous nationwide as the world's second largest urban park next to Central Park in New York City. Kairakuen Garden is one of three major gardens in Japan noted for their beauty as this study area in Japan. The main attraction of Kairakuen Park is Kairakuen Garden is built by the ninth load of Mito (Nariaki Tokugawa, 1800-1860) in 1842.

Unlike other sights featuring plum-blossom is of one kind, Kairakuen Garden allows visitors to enjoy about 3,000 plum trees of 100 kinds on its premises of about 13 hectare. There were reportedly more than 10,000 plum trees when Nariaki built it, and pickled plums for emergency were produced there.

Meanwhile, Schönbrunn Garden is a baroque garden of the former Austrian emperor in Vienna and is most popular garden noted for their beauty and historic value in Vienna. Both gardens are differing in design of garden coincide on historical and sightseeing resources.

## MATERIALS & METHODS

This paper compares the results of this survey with a study of the recreational and spatial use of the historical Schönbrunn Garden conducted by BOKU-University of Natural Resources and Applied Life Sciences in Vienna, Austria. Therefore, both universities examined same questionnaire items such as departure place of visitors, importance of motives of visiting, wandering behavior and so on. This report based on face-to-face interviews with park visitors. We discovered common factors of park use in Kairakuen Garden in Japan and Schönbrunn Garden in Austria.

This paper aims to study visitor's activities in Kairakuen Park in the two kinds of observation periods - the event time when the plum-blossom festival or the azalea festival is held and the normal time without event - to know visitors' attributes and awareness, and characteristics of space utilization. We conducted six interview surveys between June 2006 and March 2007. We also

conducted a follow-up survey besides an interview survey during the plum-blossom festival in March 2007.

Table 1 shows the summary of the surveys in Kairakuen Park and Garden. Table 2 shows the summary of the surveys to grasp visitor structure in Schönbrunn Garden.

Table 3 shows the summary of the surveys to grasp visitor routes in Schönbrunn Garden.

**RESULTS & DISCUSSION**

Table 4 shows Departure place of visitors and Table 5 shows Age of visitors in Kairakuen Park. In addition, Table 6 shows Departure place of

**Table 1. Summary of the surveys in Kairakuen Park and Garden**

|                             |   |  |
|-----------------------------|---|--|
| Survey in May<br>2006       | Event<br>Number of Respondents<br>Questionnaire methods<br>Date of survey<br>Area covered<br>Weather<br>Temperature | Azalea Festival<br>121 people<br>Interview<br>May 6, 2006, Saturday<br>Kairakuen Garden<br>fair<br>25C/13 C  |
| Survey in June<br>2006      | Event<br>Number of Respondents<br>Questionnaire methods<br>Date of survey<br>Area covered<br>Weather<br>Temperature | None (spring)<br>169 people<br>Interview<br>June 24, 2006, Saturday<br>Kairakuen Park<br>fair<br>26C/19  |
| Survey in September<br>2006 | Event<br>Number of Respondents<br>Questionnaire methods<br>Date of survey<br>Area covered<br>Weather<br>Temperature | None (summer)<br>147 people<br>Interview<br>September 2, 2006, Saturday<br>Kairakuen Park<br>fair<br>27C/16  |
| Survey in October<br>2006   | Event<br>Number of Respondents<br>Questionnaire methods<br>Date of survey<br>Area covered<br>Weather<br>Temperature | None (autumn)<br>169 people<br>Interview<br>October 28, 2006, Saturday<br>Kairakuen Park<br>fair<br>21C/9C   |
| Survey in December<br>2006  | Event<br>Number of Respondents<br>Questionnaire methods<br>Date of survey<br>Area covered<br>Weather<br>Temperature | None (winter)<br>110 people<br>Interview<br>October 28, 2006, Saturday<br>Kairakuen Park<br>fair<br>21C/9C   |
| Survey in March<br>2007     | Event<br>Number of Respondents<br>Questionnaire methods<br>Date of survey<br>Area covered<br>Weather<br>Temperature | Plum Festival<br>62 people<br>Interview / Pursue survey<br>March 16, 2007, Friday<br>March 17, 2007, Saturday<br>Kairakuen Garden<br>fair<br>March 16, 11C/0C<br>March 17, 9C/2C |

**Table 2. Summary of the surveys to grasp visitor structure in Schönbrunn Garden**

|                       |  |
|-----------------------|--|
| Number of Respondents | 292 people   |
| Questionnaire methods | Interview (about ten-minute interview)   |
| Date of survey        | Between April and October 2006 on 8 randomly select days, i. e. 4 workdays and 4 Sundays |
| Area covered          | Schönbrunn Garden  |

**Table 3. Summary of the surveys to grasp visitor routes in Schönbrunn Garden**

|                       |  |
|-----------------------|--|
| Number of Respondents | 66 people (14 tourists and 52 locals)          |
| Questionnaire methods | Interview (about ten-minute interview)         |
| Date of survey        | One workday in November 2006                   |
| Area covered          | Four main entrance points of Schönbrunn Garden |

visitors and Table 7 shows Age of visitors in Schönbrunn Garden. More than half of the visitors to Kairakuen Park during special events such as the plum festival were sightseers from other prefectures, and more than 60% of the visitors on normal holidays were Mito city residents throughout the four seasons. As regards Schönbrunn Garden, the results of a survey (N=292) of its users over a total of eight days (four weekdays and four holidays) showed that more than 70% of the visitors were Viennese.

A common factor was observed for the two parks in that more than half of their users were local residents at normal times. However, it is noteworthy there were no foreign participants in the Kairakuen Park and Garden survey, whereas more than 20% of the Austrian park users were foreign tourists.

The age groups ranged from 16 to 85 and their average age was 47 in Schönbrunn Garden. With respect to Kairakuen Park, Table 5 suggests that the park is used by a wide range of people aged from their teens to their seventies and their average age are in the forties, which is the same as the average age of the Schönbrunn Garden users.

Table 8 shows objectives of visit in Kairakuen Park and Garden. We found that sightseers have the large share in the plum-blossom festival and in the azalea festival, and many people come to enjoy a walk (walking) in the normal time. Walk has the largest share in the normal time, and it is

followed by children’s play and jogging in this order. This indicates that Kairakuen Park functions well to offer recreational space as a city park in the normal time. Meanwhile, No detailed data was available on the purpose of visit of the Austrian respondents. However, they showed that the sample size about objectives of visit is 66, consisting of 14 tourists and 52 locals. Mostly walkers were asked, some few joggers and Nordic walkers, i.e. are locales, and were also interviewed. Then, we examined the importance of each motive of visiting Garden and Park.

To know the importance of each motive of visiting Kairakuen Park and Garden and Schönbrunn Garden, we put points to each answer. That is, one point to Not Important, two points to Moderately Important, three points to Important, and four points to Very Important. The higher the point is, the more important the motive is. Table 9 shows the importance of each motive of visiting Kairakuen Park and Garden. Table 10 shows the importance of each motive of visiting Schönbrunn Garden.

With regard to the motives for visiting the parks, “enjoy the park landscape,” “recreation,” “experience nature” and “health” scored highly for both Kairakuen Park and Garden and Schönbrunn Garden, “watching other people,” and “dog walking,” scored lowly for both Kairakuen Park and Garden and Schönbrunn Garden.

Therefore, we examined wondering behavior by objective in Kairakuen and Schönbrunn Garden. Surveys on users’ motives for excursions to Kairakuen Park were conducted in May 2006 (azalea festival) and March 2007 (plum festival). At azalea festival, about 60% of all visitors came to the garden for sightseeing (for enjoying azaleas), followed by visitors taking a walk (Table 8). Fig. 1 illustrates excursions taken for sightseeing and for a walk at azalea festival. At plum festival, about 90% of all visitors came to the garden for

**Table 4. Departure place of visitors in Kairakuen Park and Garden**

| Date of survey   | May, 2006       | June, 2006 | September, 2006 | October, 2006 | December, 2006 | March, 2007   |
|--|-----------------|------------|-----------------|---------------|----------------|---------------|
| Event  | Azalea Festival |            |                 |               |                | Plum Festival |
| Origin   |                 |            |                 |               |                |               |
| Inside Mito City                                       | 32.2%           | 62.7%      | 67.3%           | 68.0%         | 78.2%          | 12.9%         |
| Inside Ibaraki Prefecture (excluding inside Mito City) | 14.0%           | 21.3%      | 23.1%           | 21.3%         | 16.4%          | 19.4%         |
| Outside Ibaraki Prefecture                             | 53.7%           | 16.0%      | 9.5%            | 10.7%         | 5.5%           | 67.7%         |
| Total  | 100.0%          | 100.0%     | 100.0%          | 100.0%        | 100.0%         | 100.0%        |
|  | N=121           | N=169      | N=147           | N=169         | N=110          | N=62          |

**Table 5. Age of visitors in Kairakuen Park and Garden**

| Date of survey | May, 2006       | June, 2006 | September, 2006 | October, 2006 | December, 2006 | March, 2007   |
|----------------|-----------------|------------|-----------------|---------------|----------------|---------------|
| Event          | Azalea Festival |            |                 |               |                | Plum Festival |
| Age groups     |                 |            |                 |               |                |               |
| 10's           | 3.3%            | 1.2%       | 0.7%            | 2.4%          | 0.9%           | 3.2%          |
| 20's           | 18.2%           | 14.2%      | 15.6%           | 8.9%          | 18.2%          | 11.3%         |
| 30's           | 14.9%           | 23.7%      | 17.0%           | 24.9%         | 20.9%          | 12.9%         |
| 40's           | 17.4%           | 10.7%      | 10.2%           | 17.8%         | 12.7%          | 21.0%         |
| 50's           | 24.0%           | 18.3%      | 19.7%           | 21.3%         | 15.5%          | 27.4%         |
| 60's           | 18.2%           | 19.5%      | 25.2%           | 13.6%         | 18.2%          | 17.7%         |
| 70's           | 4.1%            | 10.1%      | 10.9%           | 10.1%         | 10.9%          | 6.5%          |
| unknown        | 0.0%            | 2.4%       | 0.7%            | 1.2%          | 2.7%           | 0.0%          |
| Total          | 100.0%          | 100.0%     | 100.0%          | 100.0%        | 100.0%         | 100.0%        |
|                | N=121           | N=169      | N=147           | N=169         | N=110          | N=62          |

**Table 6. Departure place of visitors in Schönbrunn Garden**

| Origin              | Shares |
|---------------------|--------|
| Vienna              | 72.6%  |
| Austria             | 5.1%   |
| Germany/Switzerland | 15.4%  |
| Other countries     | 6.8%   |
| Total               | 100.0% |
|                     | N=292  |

**Table 7. Age of visitors in Schönbrunn Garden**

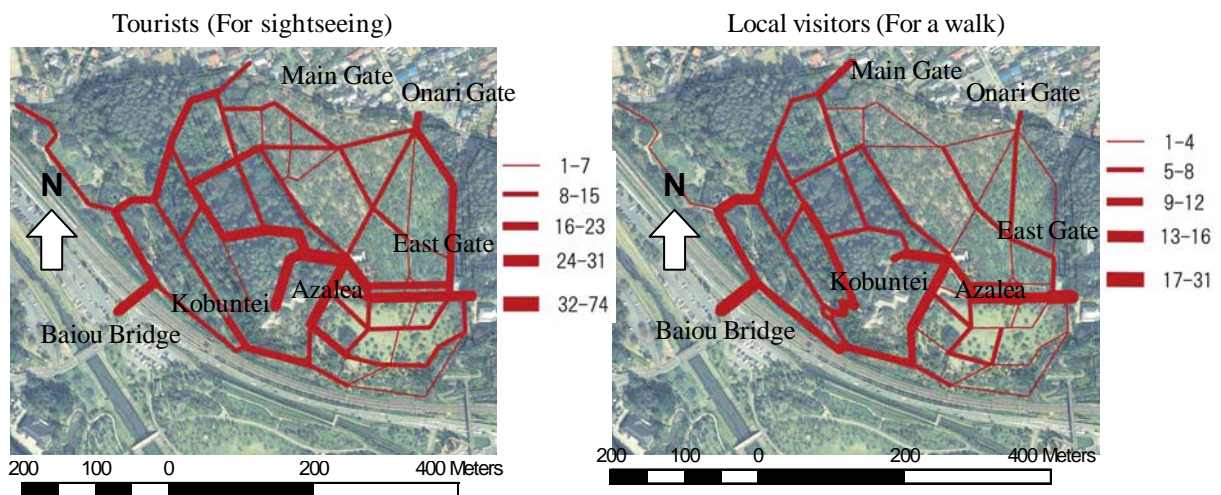
|  |
|--|
| The age of visitors ranged from 16 to 85 years.                        |
| The mean were 47 years of age.   |
| The mean of visitors coming from other countries were 39 years of age. |
| The mean of visitors coming from Vienna were 48 years of age.          |
| N=292  |

sightseeing (for enjoying plum trees), followed by visitors taking a walk. (Table 8). Fig.2 illustrates excursions for taken for sightseeing and for a walk at plum festival.

In addition, BOKU-University examined visitor routes in Schönbrunn Garden (Table 3). Fig.3 illustrates excursions the distribution of visitors in Schönbrunn Garden. This paper focuses on the azalea festival of May 2006 and the plum festival of March 2007 as these are events that allow us to examine peoples' visits to the main area of the Garden. During the azalea festival, about 60% of all visitors enjoyed looking at azaleas and about 30% enjoyed walking in the park (Table 8). During the plum festival, more than 90% of all visitors enjoyed looking at plum blossom (Table 8). Based on these facts, this study explores visitors' excursions for sightseeing and walking during the

**Table 8. Objectives of visitors in Kairakuen Park and Garden**

| Date of survey  | May, 2006       | June, 2006 | September, 2006 | October, 2006 | December, 2006 | March, 2007   |
|---|-----------------|------------|-----------------|---------------|----------------|---------------|
| Event   | Azalea Festival |            |                 |               |                | Plum Festival |
| Activity type   |                 |            |                 |               |                |               |
| For sightseeing (For enjoying azaleas and plum trees) | 56.2%           | 8.3%       | 8.2%            | 8.3%          | 9.1%           | 90.3%         |
| For a walk  | 30.6%           | 49.7%      | 47.6%           | 53.3%         | 50.9%          | 8.1%          |
| For jogging   | 0.8%            | 8.9%       | 6.1%            | 5.3%          | 16.4%          | 0%            |
| To let children play                                  | 0.8%            | 16.0%      | 8.8%            | 14.2%         | 11.8%          | 0%            |
| To appreciate nature                                  | 4.1%            | 7.1%       | 4.8%            | 3.0%          | 0%             | 1.6%          |
| To study  | 0%              | 1.2%       | 0%              | 0%            | 0%             | 0%            |
| To visit a shrine                                     | 0%              | 1.2%       | 2.0%            | 1.2%          | 0%             | 0%            |
| For event in Kairakuen Garden                         | 0%              | 0%         | 0.7%            | 1.8%          | 3.6%           | 0%            |
| To do shopping at street booths                       | 0%              | 0%         | 0.7%            | 0%            | 0%             | 0%            |
| To walk a dog   | 0%              | 1.8%       | 4.1%            | 4.7%          | 6.4%           | 0%            |
| For cycling   | 1.7%            | 0.6%       | 2.0%            | 1.8%          | 1.8%           | 0%            |
| To sports   | 0%              | 0.6%       | 0.7%            | 1.2%          | 0%             | 0%            |
| Others  | 5.8%            | 4.7%       | 14.3%           | 5.3%          | 0%             | 0%            |
| Total   | 100.0%          | 100.0%     | 100.0%          | 100.0%        | 100.0%         | 100.0%        |
|   | N=121           | N=169      | N=147           | N=169         | N=110          | N=62          |



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**Fig.1. Wandering behavior for sightseeing and for a walk at azalea festival in Kairakuen Garden**

**Table 9. Importance of motives of visiting Kairakuen Park and Garden**

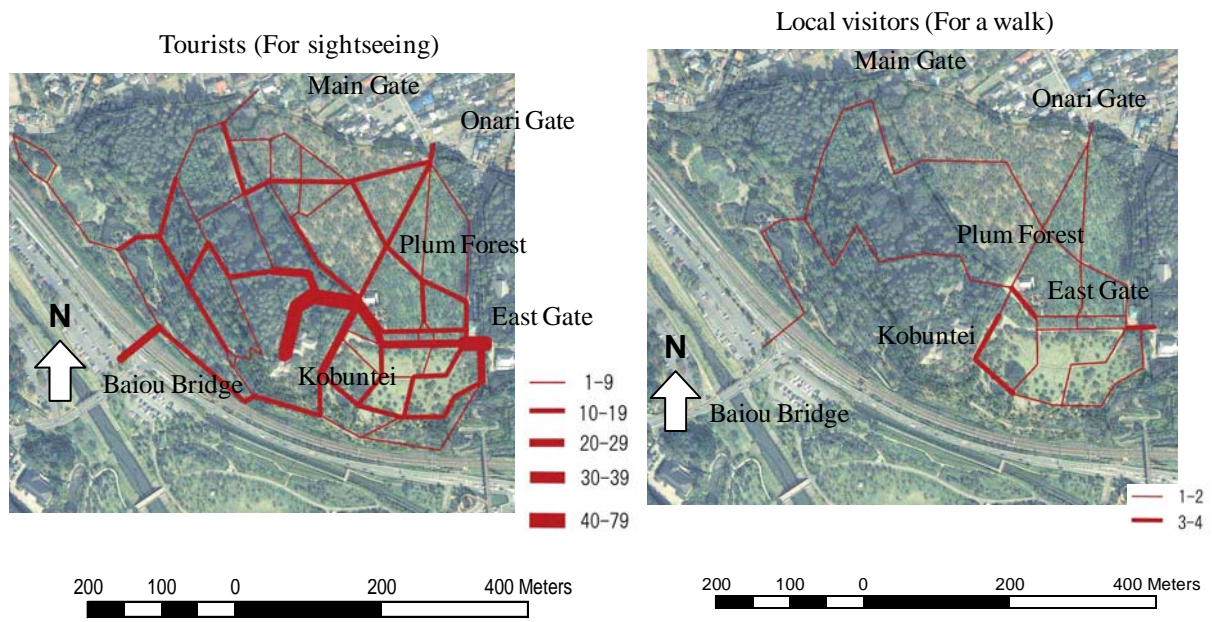
| Date of survey                     | May, 2006       | June, 2006 | September, 2006 | October, 2006 | December, 2006 | March, 2007 | All           |  |
|------------------------------------|-----------------|------------|-----------------|---------------|----------------|-------------|---------------|--|
| Event                              | Azalea Festival |            |                 |               |                |             | Plum Festival |  |
| Motives                            | Mean            |            |                 |               |                |             |               |  |
| Enjoy the park landscape           | 3.2             | 3.1        | 3.0             | 3.2           |                | 3.0<br>3.1  | 3.1           |  |
| Recreation                         | 3.0             | 3.0        | 3.0             | 3.2           | 3.1            | 3.0         | 3.1           |  |
| Experience nature                  | 3.2             | 3.1        | 3.1             | 3.2           | 3.1            | 3.2         | 3.2           |  |
| Health                             | 2.7             | 3.0        | 2.9             | 2.9           | 3.1            | 2.7         | 2.9           |  |
| Quietness                          | 2.6             | 2.5        | 2.5             | 2.5           | 2.5            | 2.4         | 2.5           |  |
| Sport/fitness                      | 1.9             | 2.4        | 2.3             | 2.4           | 2.4            | 1.8         | 2.2           |  |
| Stress reduction due to occupation | 2.9             | 2.9        | 3.0             | 3.0           | 2.9            | 2.9         | 2.9           |  |
| To be alone with my thoughts       | 2.1             | 2.1        | 2.0             | 2.3           | 2.4            | 1.9         | 2.1           |  |
| Escape from the city               | 2.1             | 1.9        | 1.9             | 2.0           | 2.0            | 2.1         | 2.0           |  |
| To explore the park area           | 2.6             | 2.5        | 2.6             | 2.7           | 2.5            | 2.5         | 2.6           |  |
| Watching other people              | 1.6             | 1.9        | 1.7             | 1.6           | 1.8            | 1.6         | 1.7           |  |
| Meeting friends, family            | 2.1             | 2.3        | 2.3             | 2.3           | 2.2            | 2.4         | 2.3           |  |
| Solitude                           | 2.2             | 2.3        | 2.3             | 2.3           | 2.2            | 2.1         | 2.2           |  |
| Take children outside              | 1.9             | 2.4        | 2.3             | 2.7           | 2.4            | 1.8         | 2.3           |  |
| Dog walking                        | 1.3             | 1.7        | 1.7             | 1.8           | 1.9            | 1.4         | 1.6           |  |

**Table .10. Importance of motives of visiting Schönbrunn Garden**

| Motives                            | Mean |
|------------------------------------|------|
| Enjoy the park landscape           | 3.5  |
| Recreation                         | 3.3  |
| Experience nature                  | 3.3  |
| Health                             | 3.0  |
| Quietness                          | 2.9  |
| Sport/fitness                      | 2.4  |
| Stress reduction due to occupation | 2.4  |
| To be alone with my thoughts       | 2.3  |
| Escape from the city               | 2.2  |
| To explore the park area           | 1.9  |
| Watching other people              | 1.8  |
| Meeting friends, family            | 1.6  |
| Solitude                           | 1.6  |
| Take children outside              | 1.4  |
| Dog walking                        | 1.0  |

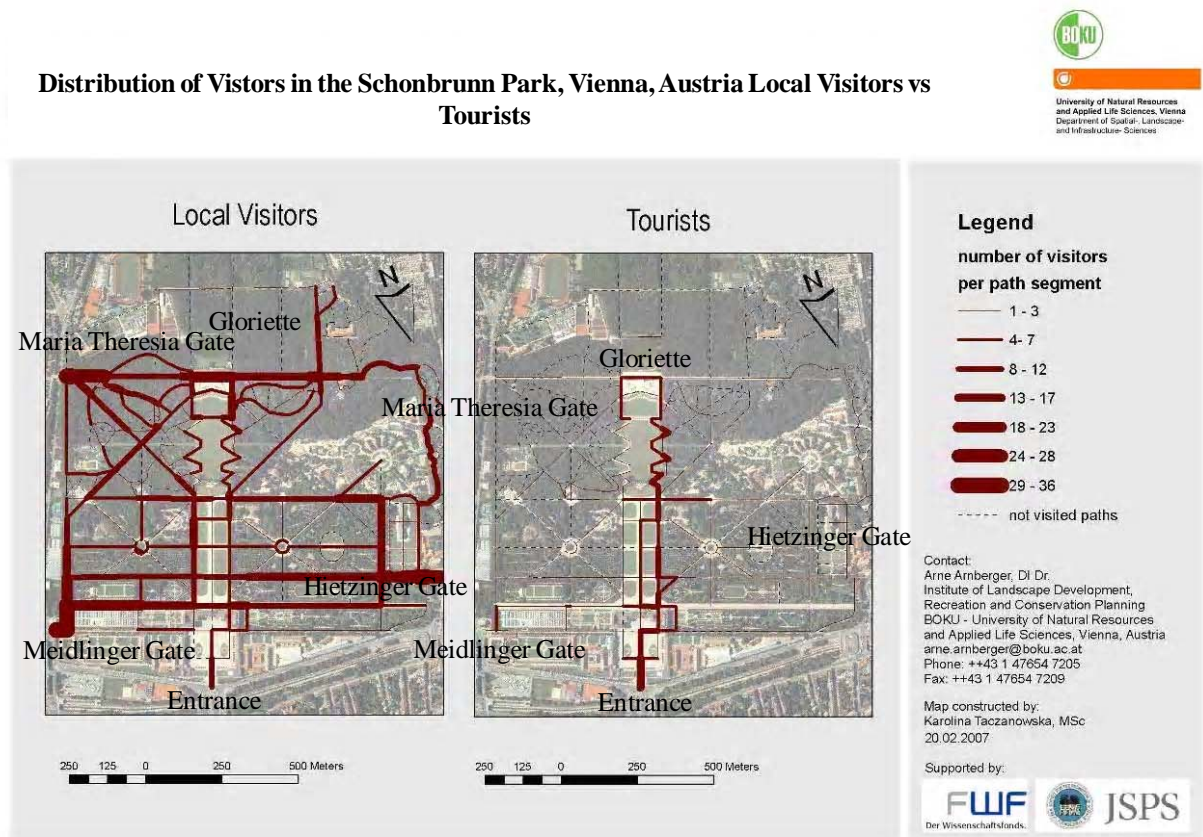
azalea festival season and sightseeing during the plum festival season.

With regard to the azalea festival, people visited different areas of the park to enjoy the azaleas and walking. Visitors whose motive was to take a walk included many Mito citizens and they did not visit Kobuntei in Fig.1. Many people whose aim was to enjoy the azaleas went in and out of the park through East Gate, and more of these visited Kobuntei and also enjoyed the northern plum forests. In contrast, visitors who wanted to enjoy walking in the park often used Baiou Bridge or East Gate for coming in and out, avoiding the route between East Gate, where many people gather, and Kobuntei, and the area around the northern



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**Fig. 2. Wandering behavior for sightseeing and for a walk at plum festival in Kairakuen Garden**



**Fig. 3. Wandering behavior of visitors in Schönbrunn Garden**



plum forests. In addition, during the plum festival season, when more than 90% of all visitors were sightseers, people entered the Garden through East Gate and walked to Kobuntei and exited through the same gate without seeing other places in the area, as shown in Fig. 2.

Regarding Schönbrunn Garden, most tourists walked along the main street that runs from the entrance in front of the palace to the Gloriette and rarely visited other areas. By contrast, local residents tended to avoid using this entrance because it was used by many sightseers; instead, they often used the Maria Theresa Gate, the Meidlinger Gate or the Hietzinger Gate, where there were fewer tourists. When making excursions in the garden, they tended to avoid walking along the main street crowded with sightseers. This tendency is similar to that of local visitors in Kairakuen Garden.

## CONCLUSION

Furthermore, the behavioral patterns of sightseers were very similar at Kairakuen Garden during the plum festival and at Schönbrunn Garden. As regards Kairakuen Garden, visitors entered the park through East Gate and visited Kobuntei, a major attraction of the garden, and exited through the same gate without visiting other places. As for the Austrian garden, visitors entered through the entrance, dropped by at the famous Gloriette, and exited without exploring other parts of the garden. A common factor, namely few explorations of the entire park, was detected for both Kairakuen and Schönbrunn Garden. However, there are many other possible factors, including walking distances, perceptions of crowding, the time needed to reach an attraction or no other particular places to see. Further in-depth examinations should be conducted to clarify the reasons for the similar tendencies.

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## REFERENCES

- Aikou, T., Asakawa, S. and Kobayashi, A. (1992). A study on Crowding Perception of Visitors in Daisetsuzan National Park. *Journal of the Japanese Institute of Landscape Architects*, **55(5)**, 223-228.
- Aoki, K. (1984). Estimation of Park Use for a park planner and designer, Chikyū-sha, Tokyo, 212.
- Aoki, Y. (1988). A Sampling Scheme for the Estimation Method of the Visitors at Public Garden Park. *Journal of the Japanese Institute of Landscape Architects*, **52(2)**, 105-112.
- Beunen, R., Regnerus, H. D. and Jaarsma, C. F. (2008). Gateways as a Means of Visitor Management in National Parks and Protected Areas. *Tourism Management*, **29(1)**, 138-145.
- Cessford, G. and Muhar, A. (2003). Monitoring Options for Visitor Numbers in National Parks and Natural Areas. *Journal for Nature Conservation*, **11(4)**, 240-250.
- DeLucio, J. and Mugica, M. (1994). Landscape Preferences and Behaviour of Visitors to Spanish National Parks. *Landscape and Urban Planning*, **29(2-3)**, 145-160.
- Floyd, M. F., Jang, H. and Noe, F. P. (1997). The Relationship between Environmental Concern and Acceptability of Environmental Impacts among Visitors to Two U.S. National Park Settings. *Journal of Environmental Management*, **51**, 391-412.
- Graham, R., Nilsen, P. and Payne, R. J. (1988). Visitor Management in Canadian National Parks. *Tourism Management*, **9(1)**, 44-61.
- Ishiuchi, T., Kuwahara, Y. and Koyanagi, T. (2007). A New Proposal for Park Management focused on User Activity and Seasonal Changes. *Papers on Environmental Information Science*, **21**, 153-158.
- Ishiuchi, T., Koyanagi, T. and Kuwahara, Y. (2008). Study on Establishment of Resting Facility Using the Use Investigation of the Park for Kairakuen Park. *Journal of Applied Study Technology*, **19**, 71-80.
- Komada, K. and Ichihara, K. (1998). Relationship between the Park Visitor's Walking Speed and Views. *Journal of the Japanese Institute of Landscape Architects*, **61(5)**, 613-616.

Kondo, K. (1961) Studies on the Recreation Use of Kyoto-Gyoen, *Journal of the Japanese Institute of Landscape Architects*, **25(1)**, 22-25. (in Japanese).

Noe, F. P., Hammitt, W. E. and Bixler, R. D. (1997). Park User Perceptions of Resource and Use Impacts Under Varied Situations in Three National Parks. *Journal of Environmental Management*, **49**, 323-336.

Ploner, A. and Brandenburg, C. (2003). Modelling Visitor Attendance Levels Subject to day of the Week and Weather; A Comparison between Linear Regression Models and Regression Trees. *Journal of Nature Conservation*, **11**, 297-308.

Sakai, T., Yamamoto, S. and Maenaka, H. (2004). A Research on a Gaze Time at the Garden Path Walk in Japanese Garden. *Journal of the Japanese Institute of Landscape Architects*, **67(5)**, 365-368.

Yoshida, T. (1934) On the Utilization of Some Parks in Tokyo. *Journal of the Japanese Institute of Landscape Architects*, **1(3)**, 199-216.