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HGG01-01 会場:424 時間:4 月 29 日 14:15-14:30

森林の風景の有無が印象評価・主観的回復感・感情・注意回復力にもたらす影響
Influence of existing scenery in an on-site forest environment in terms of Subjective Appraisal, Restorativeness, Affect

高山 範理 [1*] ; 藤原 章雄 [2] ; 齋藤 暖生 [2] ; 堀内 雅弘 [3]
TAKAYAMA, Norimasa[1*] ; FUJIWARA, Akio[2] ; SAITO, Haruo[2] ; HORIUCHI, Masahiro[3]

[1] 独立行政法人森林総合研究所, [2] 東京大学大学院附属演習林, [3] 山梨県環境科学研究所
[1]Forestry and Forest Products Research Institute, [2]The University of Tokyo Forests, [3]Yamanashi Institute of Environmental Sciences

INTRODUCTION

Many stressors of urban life are increasingly driving humans to seek some form of stress relief (Frumkin, 2001). Natural environments, including typical urban parks and natural, secondary or artificial man-made forests are generally associated with stronger positive health effects compared with urban environments (Velarde, Fry & Tveit, 2007). For instance, natural scenes bring higher tranquility and a reduced feeling of danger compared to urban scenes (Herzog & Chernick, 2000), while outdoor recreation in a green environment has been shown to relieve stress among urban inhabitants (Li et al., 2008), hence the evidence to date seems to indicate the positive health effect of a natural setting. However, the question of how the existence of scenery as a sight stimulus produces a psychological effect in an on-site forest environment and to what extent remain unclear.

Therefore, during this research conducted in an on-site forest environment (a mixed forest including Larch, Giant dogwood), we set out our research purpose, namely to clarify the psychological healing effect of forest scenery as visual stimuli on respondents.

METHOD

With eleven male and four female adult respondents respectively, we conducted a viewing experiment to investigate the appraisal (Semantic differential method; abbreviated to SDM; 25-paired adjectives), the affect (Positive And Negative Affect Schedule; abbreviated to PANAS; 16-queries), subjective restorative quality (Restorative Outcome Scale; abbreviated to ROS; 6-queries) and degree of attention restoration (Perceived Restorativeness Scale; abbreviated to PRS; 26-queries) using four types of research questionnaires. The viewing experiment was conducted in the forest inside the Forest Therapeutic Research Institute (Fuji Iyashi-no-mori Institute) and managed by the University of Tokyo Forests in early May 2013. The experiments were conducted one-by-one during fine weather throughout the experimental period (four days). Each respondent was given respectively from the opening session (with well-managed forest scenery) to the closing session (forest scenery covered by tarpaulin) or vice versa to eliminate any order effect.

RESULT AND CONSIDERATION

Consequently, in terms of the comparison of appraisal, the opening session saw scores higher than the closing session for many measurement indexes and the degrees of score difference were cleared. Conversely, it became clear that a difference would emerge in both the opening and closing sessions, even if it was a measurement index not corresponding to visual senses but directly to other senses. Finally, based on the result of multiple regression analysis, it emerged that the basic links between them included aspects of difference and commonality for the integrated index appraisal such as likableness, comfort, beauty and sense of security when comparing the opening and closing of the forest landscape respectively, and this was an appraisal of concrete environmental factors which resulted in such differences and commonality. Furthermore, in terms of afect, even though neither a positive nor negative affect could be confirmed from statistical interaction when comparing the opening and closing sessions, there was a statistical decline (reduction) in the before (pre-viewing experiment) compared to after (post-viewing experiment). As for the quality of subjective restorative, the interaction between the opening-closing and before - after sessions was confirmed as well as individual statistical differences when comparing before and after in the opening session and opening and closing sessions in the after session sequentially. Regarding the degree of attention restoration, subsequent results of the opening-closing comparison clarified that the criteria of run away, fascination, scope and compatibility were statistically higher in the opening rather than closing session.

キーワード: 注意回復理論, ポジティブ感情, ネガティブ感情, 主観的回復感, 印象評価, 森林浴
Keywords: Attention restoration theory, Positive affect, Negative affect, Subjective restorative outcome, Appralsal, Forest therapy

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労働意思量に着目したキャンパス緑地における景観保全に関する評価
Evaluation of Landscape Conservation at Green Space on Campus Based on the Level of Willingness to Work

高瀬 唯[1*] ; 古谷 勝則[1]
TAKASE, Yui[1*] ; FURUYA, Katsunori[1]

[1] 千葉大学大学院園芸学研究科
[1]Graduate School of Horticulture, Chiba University

1. Introduction

A university campus with a large-scale green space is precious access to green for the residents in the surrounding vicinity. However, very often only a very low budget is granted for management of green space on university campuses in Japan. Volunteer activities among students are expected for management of the landscape and maintenance of those green spaces on campus. In this study, landscape conservation of green space on campus has been evaluated, based on the level of students' willingness to work.

2. Study Methods

Matsudo Campus of Chiba University in Japan has been selected as a subject. The total area of this campus is 15 hectares, and 13.7 of which counts for green space. A survey was conducted in July, 2013, with students who belong to the Faculty of Horticulture at Chiba University. The number of respondents was 77. The following four items were surveyed: 1) Attribute of respondents (gender, participation experience in green space conservation activities, and willingness to participate), 2) future vision of green space on campus from nature experiences, 3) ecosystem services expected from green space on campus, and 4) desired participation hours to spare for green space conservation activities.

3. Results and Considerations

Regarding respondents' attributes, the number of valid responses was 59, with 35 males (59%) and 24 females (41%). The number of people who have participation experience in green space conservation activities counted 27 (46%). The number of those who are willing to participate in those activities was 48 (81%).

With regard to the future vision of green space on campus, an free answer question was provided and 65 valid responses were obtained. The two most common opinions were as following: 1) "Increasing of nature experience events" (19 respondents, 29%), and 2) "Increasing of facilities such as restrooms, benches, gathering area, and lighting" (19 respondents, 29%). The next most significant answer was "Better management of gardens and woods" (15 respondents, 23%).

The next topic about ecosystem services expected from green space on campus was captured from 59 valid responses. Approximately 90% of them had certain expectations from ecological services related to green space on campus: examples, "to create beautiful landscape in the area" and "space where people can enjoy nature".

Finally, as for the number of participation days to spare for conservation activities on Matsudo campus, 59 students provided valid answers. The average number of days that they are willing to participate is 14.2. Since the participation hours per day had been specified and presented as four hours, the average hours figure is 56.8, converted from the number of days. The grand total of days willing to spare among all valid respondents counted 841 days. Next, the number of desired days to spare was computed for each activity location within the campus. "Ohisama Garden", which is a flower garden managed mainly by students' initiatives earned the highest number of days among all the campus locations. Thirty-five respondents (59%) are willing to spare time here with an average of 6.4 days, which totals 225 days. On the other hand, traditional garden is the most popular in terms of the number of respondents who are willing to spare time. Forty respondents (68%) indicated their interest in sparing time in the traditional garden. The average counted 4.8 days, which totals 191 days. While the main reason of the location choice for Ohisama Garden was "interest in the activities" (14 respondents), the one for the traditional garden was "to acquire knowledge and know-how" (12 respondents).

4. Conclusion

In this study, students' willingness to participate in landscape conservation was clarified by gauging their willingness to work. In doing so, the specific number of days and the available labor in scenery maintenance have been drawn.

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キーワード: 労働意思量, 景観保全, キャンパス緑地
Keywords: Willingness to Work, Landscape Conservation, Green Space on Campus

Table. Result of the number of participation days to spare for conservation activities on Matsudo campus

Traditional Garden	Ohisama Garden	Bamboo Grove	Around School Grounds	Sloping Forest	Other
					
Average of days 4.7 days	Average of days 6.4 days	Average of days 3.4 days	Average of days 3.2 days	Average of days 4.9 days	Average of days 4.8 days
Number of Respondents 40 (68%)	Number of Respondents 35 (59%)	Number of Respondents 36 (61%)	Number of Respondents 20 (34%)	Number of Respondents 32 (54%)	Number of Respondents 16 (27%)

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日常デジタル機器を用いた写真投映法による風景評価手法に関する研究-韓国・冠岳山を事例として-
Landscape Evaluation Method by Visitor-Employed Photography with Usage of Cell-phones - Case Study of Mount Gwanak, Korea

水内 佑輔 [1*] ; SON YongHoon[2] ; KANG Moonseok[2] ; 古谷 勝則 [1]
MIZUUCHI, Yusuke[1*] ; SON, Yonghoon[2] ; KANG, Moonseok[2] ; FURUYA, Katsunori[1]

[1] 千葉大学大学院園芸学研究科, [2]Graduate School of Environmental Studies, Seoul National University
[1]Graduate School of Horticulture, Chiba University, [2]Graduate School of Environmental Studies, Seoul National University

1. Introduction

風景を資源対象とする空間の計画や設計の為には、利用者による風景認識や評価の把握は重要である。これまでの研究により風景認識モデルは視点と対象の関係によって理解されている。特に空間を操作対象とする造園学においては、視点場と対象の関係が重視されてきた。この風景認識を把握するための研究手法として、「Visitor Employed Photography」というカメラを用いた調査手法があり、地域の視覚的なイメージを抽出するための優れた手法と考えられている。しかし、従来の VEP では、視対象の把握に関しては有効であるものの、視点場の抽出に関しては別途インタビューや被験者による記述を行う必要があるなどの欠点がある。そこで、本研究では、これらを克服した風景認識調査手法の構築のために、利用者が所持する日常デジタル機器である携帯電話の GPS 機能を用いた風景認識調査を行うこととした。

2. Outline of the experiment

韓国のソウル市近郊の Urban Eco Park に指定されている Mt.Gwanak のトレイルを選定し、被験者 60 名による調査を行った。被験者には自らの携帯電話を用いて、評価する風景を Geotag 付き写真によって撮影させた。同時に、携帯電話の GPS ログアプリケーションを用いて、被験者の空間地理情報を取得させた。次に被験者の属性に関するアンケート調査を行った。得られた写真から、Mt.Gwanak において評価される風景の対象と空間的特徴の分析を行った。地理空間情報の分析には

3. Result

60 人合計で 1119 枚を収集した。次に同じ被験者が撮影した同一の構図の写真を取り除いた（121 枚）。さらに、6 名に関しては地理空間情報を得ることが出来ず写真を取り除いた（99 枚）。その他の被験者の誤った地理空間情報を持つ写真を取り除き（45 枚）残った 842 枚の写真を分析の対象とした。これらの写真を視対象と視距離によって分類を行った。その結果、トレイルを視点場として、林内景観を撮影したものが 120 枚と最も多く、眺望景観（105 枚）や河川を中心とする空間を近景として捉えた写真が多く得られた。

得られた地理空間情報を Kernel density estimation を用いて、利用者が重視する視点場を抽出した（図-1）。その結果と視対象分類とを併せたところ、最も密度が高い場所は山頂付近では眺望景観や山頂の岩や建築物が視対象となっていた（図-1 ①）。また、トレイルと河川の接触ポイントの撮影密度（図-1 ②、③）が高い。また、寺院が位置する場所（図-1 ④）での撮影密度が高いという傾向がある。

4. Conclusion

本調査では、日常デジタル機器である携帯電話を用いて、VEP を行った。その結果、Mt.Gwanak において、トレイルからの林内景観や眺望、河川空間の風景が評価されている点を示した。眺望や河川空間は特定の場所に集中する一方で、林内景観に関しては特定の空間的偏りは見られなかった。

アンケートによる本調査に関する評価では 42 人（70%）が快適であったと回答した。快適でなかったと回答した 18 人（30%）であった。そのうち、2 人（3.3%）が GPS に関するもので、残りはコースに関するものであり、調査手法そのものに関しては負荷の少ないものであると考えられる。このように、本調査では視点場と視対象を視覚的に抽出することが出来、今後の風景認識把握手法の構築として有用な調査手法となるであると考えられる。また、風景認識の文化的差異などを抽出するための国際比較研究においても利用可能である。

キーワード: 風景評価, GPS, GIS, 写真投映法
Keywords: landscape evaluation, GPS, GIS, Visitor Employed Photography

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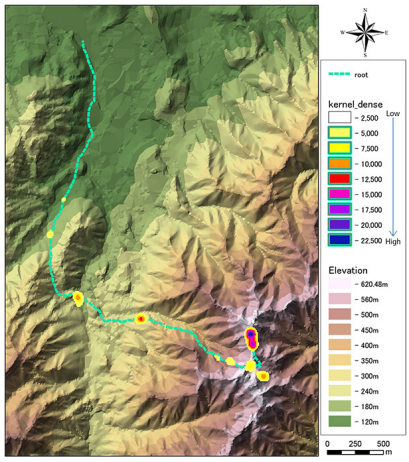

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Comparison of natural landscape appreciation between Russia and Japan: landscape exoticism evaluation

Comparison of natural landscape appreciation between Russia and Japan: landscape exoticism evaluation

PETROVA ELENA[1*] ; MIRONOV Yury[2] ; AOKI Yoji[3] ; 松島 肇[4] ; EBINE Satoshi[4] ; FURUYA Katsunori[5] ; Petrova Anastasia[6] ; 高山 範理[7] ; 上田 裕文[8]
PETROVA, Elena[1*] ; MIRONOV, Yury[2] ; AOKI, Yoji[3] ; MATSUSHIMA, Hajime[4] ; EBINE, Satoshi[4] ; FURUYA, Katsunori[5] ; PETROVA, Anastasia[6] ; TAKAYAMA, Norimasa[7] ; UEDA, Hirofumi[8]

[1]Lomonosov Moscow State University, Faculty of Geography, [2]Vernadsky State Geological Museum of the Russian Academy of Sciences, [3]Haiku International Association, [4]Research Faculty of Agriculture, Hokkaido University, [5]Graduate School of Horticulture, [6]Institute for Oriental Studies of the Russian Academy of Sciences, [7]Forestry and Forest Products Research Institute in Japan, [8]School of Design, Sapporo City University
[1]Lomonosov Moscow State University, Faculty of Geography, [2]Vernadsky State Geological Museum of the Russian Academy of Sciences, [3]Haiku International Association, [4]Research Faculty of Agriculture, Hokkaido University, [5]Graduate School of Horticulture, [6]Institute for Oriental Studies of the Russian Academy of Sciences, [7]Forestry and Forest Products Research Institute in Japan, [8]School of Design, Sapporo City University

People belonging to different cultures differ by their landscape preferences due to a number of ethno-cultural features as well as historical, social, and environmental factors. It is very important to reveal and consider these differences. The purpose of this study is to compare perception, visual and emotional evaluation of natural landscapes in Russia and Japan, that are situated so close to each other and share a common border, but differ so greatly in cultural aspects, while both have deep-rooted traditions of landscape appreciation. We have interviewed respondents in university centres of Russia (Moscow in Central Russia, Irkutsk in East Siberia, and Petropavlovsk-Kamchatsky in Far East) and Japan (Sapporo, Chiba, and Miyazaki); metropolitan areas of both countries and two outermost areas, which differ most strongly in their natural environment, were represented. Young respondents (17 to 30 years old men and women) have taken part in the survey. During the interview, each respondent received the same set of 70 photos of natural landscape. For evaluating the exoticism, we asked respondents to use the 3-point scale, on which exotic landscape got a mark ”+1” and usual landscape - ”-1”. When respondents could not decide between these categories, they were suggested to use an average value ”0”. Data obtained were analyzed using elementary and multivariate statistical methods.

Exoticism is very important parameter in landscape appreciation and evaluation. As we have learned during the interview, respondents consider attractive landscape as beautiful and comfortable not only for a long-term stay, but for living in. Exotic landscape is ”unfamiliar” to respondents; even if it were unsightly, it would be interesting to look at, at least once. Therefore, when assessing attractiveness of landscape, respondents focus primarily on their aesthetic feelings, but in the evaluation of exoticism dominates their educational interest to an unknown. As we revealed, practically no correlation exists between Russian and Japanese respondents to evaluate exotic landscapes (R = 0.26). The majority of Russian respondents evaluate mountain landscapes, waterfalls, and see coasts as the most exotic, but forests, rivers, and treeless plains as the most usual. At the same time, coastal areas are usual and treeless plains are exotic for the Japanese. All the other types of landscapes vary considerably in their exoticism degree for Japanese respondents. All groups of Japanese respondents assess the exoticism of landscapes virtually identical (the correlation coefficients between their scores are: R = 0.90-0.96), while the groups of Russian respondents show some differences.

To discover the ethno-cultural aspect, we compare the survey data from Kamchatka to that from Hokkaido, which are similar in terms of natural conditions. In their assessments of the exotic landscapes residents of Kamchatka are closer to the representatives of their culture, living in fundamentally different environmental conditions, than to the representatives of the Japanese culture, living in a similar environment. At the same time, Kamchatka respondents evaluate some of exotic landscapes virtually identical to the estimates of Japanese respondents and very different to those of Russian respondents from other regions. This applies to seacoasts and mountain landscapes that are both the most remarkable and most similar elements of natural environment of Kamchatka and Japan. Thus, if all respondents evaluate the attractiveness of landscapes almost equally, which may indicate the existence of universal human concepts of their aesthetics, then when assessing the exoticism, important role play both ethno-cultural differences and features of natural environment where the respondents live or that they have experience to communicate with. For Russian respondents the most exotic landscapes are also the most attractive, although we cannot see such a tendency for Japanese respondents.

キーワード: landscape appreciation comparison between Russia and Japan, visual and emotional evaluation of natural landscapes, exotic landscape, attractive landscape, ethno-cultural differences, features of natural environment
Keywords: landscape appreciation comparison between Russia and Japan, visual and emotional evaluation of natural landscapes, exotic landscape, attractive landscape, ethno-cultural differences, features of natural environment

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Informal urban greenspace(非公式緑地):札幌とブリスベンの住民の利用・評価の理由の模索
Exploring reasons for residents use and appreciation of informal urban greenspace in Sapporo and Brisbane

Rupprecht Christoph[1*]
RUPPRECHT, Christoph[1*]

[1] エンバイロンメンタル・フューチャー研究所, [2] グリフィス大学環境学部
[1]Environmental Futures Research Institute, [2]School of Environment, Griffith Univ.

I 空き地、道路や線路の端、川岸といった非公式緑地 (IGS, informal greenspace) は都市のレクリエーションと風景の研究における重要な新しい話題である。去年の JpGU2013 で、札幌とブリスベンの住民が大人の今も、子供時代にも IGS を利用・評価したことを発表した。しかし、以下の二つの重要な疑問が残ったままである：１）公園等の公式緑地と比較すると、IGS は住民にとってどのような役割を持つのか？、２）なぜブリスベンの回答者は札幌の回答者より IGS を高く評価したのか？ この発表ではその質問への考えうる説明を紹介する。

最初の質問に答えるため、GIS 分析で調査範囲の 500m 以内の公式緑地量を計った。IGS 利用と公式緑地面積の間に負の相関関係があるならば、IGS が公園の代わりに利用されることが考えられる。しかし、分析の結果では相関関係がなかった。これは住民が意図的に IGS の利用を選ぶことという説明が考えられるだろう。すなわち、IGS は住民のレクリエーションにとって公式緑地と異なる独特な役割を持っていることが考えられる。

しかし、札幌の回答者は IGS は日常生活に良くも悪くも影響すると回答した一方で、ブリスベンの回答者は IGS は日常生活に良い影響があるとしたのがほとんどだったのはなぜだろうか？ その IGS 評価の違いの理由を模索するために、両方の都市の IGS 量・植生構造・アクセス可能性を計った。さらに、IGS の種類（空地、道路の端、工場跡地、線路の端、すき間、川岸等）を登録した。IGS のアクセス可能性は三つのレベルに分けた（可能、部分的可能、不可能）。植生構造は四つの階層で計った（木、低木、草本、芝生）。

その結果、IGS が両方の都市で予想より多くの都市面積を占める（計った全面積の?5%）が、都市の IGS の種類と植生構造が都市間で異なることが分かった。住民調査と IGS 量調査の結果を分析し分かった IGS 種類と植生構造の違いが、両都市住民の IGS 評価の違いを説明しうると考えられる。さらに、住民の IGS 評価の理由が分かれば、IGS のレクリエーション可能性を解き放つことができるかもしれない。

キーワード: 都市地理学, レクリエーション, ワイルドスケープ, 都市計画, 自然らしさ, spontaneous vegetation
Keywords: urban geography, recreation, wildscape, urban planning, naturalness, spontaneous vegetation