# International Research Meeting of Forest Culture Science Network in East Asia

**16th to 20th March 2024**

**Venue**

YAMANAKA Ryo Naito Seminar House
Yamanakako, JAPAN

https://www.uf.a.u-tokyo.ac.jp/focusea/

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Dr. Ishibashi Seiji  Dr. Saito Haruo  Dr. Fujiwara Akio  Dr. Liang Huaiyue

# Contents

## Aims of the event

“Forest culture” is a general term for the results of people's active engagement with the various resources and environments that forests provide to human society. It covers a wide range of areas, including food, clothing, shelter, science, technology, learning, art, morality, religion and politics. Culture is developed based on the natural environment of the region, and a wide variety of “forest cultures” are formed, reflecting the characteristics of the region. On the other hand, there is also a spread of regions with common or similar “forest cultures”, but in order to study these relationships comprehensively, it is essential to have “in-depth knowledge of the culture of each region” and “comparative study of the cultures of different regions”. The free exchange and sharing of information by many researchers can clarify the process of formation and spread of “forest cultures” and provide a deeper understanding of the meaning of local “forest cultures”. In order to achieve this, it is necessary to create a network where researchers who are carrying out research related to “forest cultures” can exchange a variety of information. As a first step towards developing forest culture research in the East Asian region, the aim of this meeting is to bring together researchers on “forest culture”, build a research network and deepen discussions.

# Program

## Day1 (Saturday, 16 March)

17:00 Meet at Yamanaka Hall

Posting of Poster Presentations (even informative ones)

18:00 Dinner and Ice-break

Short Introduction of Poster Presentations Chaired by ***Liang Haiyue (Hainan Universityu, China)***

Poster presentation list

P01 “The formation and development of urban forest in European countries from the perspective of land tenure” ***Hu Ruizhe (The University of Tokyo, Japan)***

P02 “Spatial image of Haikou Shishan Volcanic National Forest park based on cognitive map” ***Zheag Zi-qi, Cheng En-qi, Fu Hui, Yuan Li-fei, Ye Rong-li, Zhang Qing (Hainan University, China)***

P03 “How do air quality and physical activity affect the mechanisms linking urban forest park to respiratory health? A cross-sectional study in Nanjing, China” ***Li Ke, Mao Yipei, Wei Jiaxing (Nanjing agriculture University, China)***

P04 “Classical concert in the forest with the community” ***Fujiwara Akio (The University of Tokyo, Japan)***

P05 “The development process of Tokyo and Hokkaido’s MOKUIKU and the actual state of MOKUIKU instructor training” ***Zhang Jingyi (The University of Tokyo, Japan)***

P06 “Examining the possibility of VR teaching materials in forest environmental education” ***Sakamoto Kenzo (The University of Tokyo, Japan)***

P07 “Wild mushroom use in Japan and its ecological background” ***Saito Haruo (The University of Tokyo, Japan)***

P08 “Historical changes in the significance of Oshima Tsumugi in local communities”***Aiba Soshi***, ***Harada Kazuhiro (Nagoy University, Japan)***

P09 “Current status of Satoyama-type tree burial in Japan and forest management -A study focused on urban areas-” ***You Xiaoan, Ishibashi Seiji, Yasumura Naoto, Saito Haruo (The University of Tokyo, Japan)***

P10 “The Relationship between the worldview of the anime “Natsume’s Book of Friends” and the cognition of nature at the model site from the perspective of yokai culture” ***Wu Shuyue, Liu Ming, Nakamura Kazuhiko (The University of Tokyo, Japan)***

P11 “Characteristics and Awareness of Forests and Forest Environmental Education and Tree Perception in China: A Text Analysis of Free Description” ***LI Wan, YASUNAGA Nobuyoshi, TAKAHASHI Erina (Tottori University, Japan)***

# Day2 (Sunday, 17 March)

8:00 Breakfast

9:00 Welcome Speech ***Ishibashi Seiji (The University of Tokyo, Japan)***

Session 1 Chairperson ***Fujiwara Akio (The University of Tokyo, Japan)***

9:20 Special Speech 1 “Review of historical change about forest education in Japan” ***Inoue Mariko (Forestry and Forest Products Research Institute, Japan)***

10:00 Keynote Speech 1 “Recreational Forests of Korea” ***Kim Soyeon (Catholic Kwandong University, Korea)***

10:40 Coffee Break

11:00 Keynote Speech 2 “Sound Preferences of Alzheimer Patients on Natural sound and Music: A Grounded Theory Approach” ***Peng Zhaohui (Huazhong Agriculture University, China)***

11:40 Keynote Speech 3 “How were forests recognized in 19th and early 20th century tourism on Mount Fuji?” ***Chihara Koji (Yamanashi Prefectural Fujisan World Heritage Center, Japan)***

12:20 Take a Meeting Photo and Session End

12:30 Lunch

Session 2 Chairperson ***Saito Haruo (The University of Tokyo, Japan)***

14:00 Special Speech 2 “Plant cultures in Yunnan with emphasis of large old trees” ***Long Chunlin (Minzu University of China, China)***

14:40 Keynote Speech 4 “Examining the potential of wild, underutilized, and neglected edible plants in improving nutrition and wellbeing: A case study in West Java, Indonesia” ***Yen Yen Sally Rahayu (The University of Tokyo, Japan)***

15:20 Coffee Break

15:40 Keynote Speech 5 “Research on Ethnobotany of Hainan Li Minority, China” ***Liu Shoubai (Hainan University, China)***

16:20 Keynote Speech 6 “Indigenous Knowledge and Ethnobotany of Formosa” ***Yang Chi-Kai (National Pingtung University of Science and Technology, Taiwan)***

17:00 Session End

18:00 Welcome Dinner

## Day3 (Monday, 18 March)

8:00 Breakfast
9:10 Depart on an In Meeting Excursion
9:30 The Fujisan Musium (Former Fujiyoshida Museum of History and Folklore)
10:30 The Togawa Oshi House, A Pilgrim's Inn
12:00 Lunch at the Herves Terras
13:00 Sightseeing Around Mt.Fuji Area
15:00 The Yamanashi Prefectural Fujisan World Heritage Center
17:00 Return from an In Meeting Excursion
18:00 Dinner

## Day4 (Tuesday, 19 March)

8:00 Breakfast
9:00 Forest Visit and Inspection in Fuji Iyashinomori Woodland Study Center, The University of Tokyo Forests
12:00 Lunch
14:00 Exchange of Views of Forest Cultures Science in East Asia (FOCUSEA)
Meeting Wrap-up
Removal of Poster Presentations
18:00 Farewell Dinner

## Day5 (Wednesday, 20 March)

7:30 Breakfast
8:30 Depart on Excursion
Sightseeing in the Fuji Five Lakes to Lake Motosu
10:30 Depart from the Lake Motosu
Sightseeing from Fuji West Foothills to Lake Ashinoko, Hakone
13:00 Lunch at the Ryuguden at Ashinoko, Hakone
14:00 Marquetry Experience at Kanazashi Woodcraft at Harajyuku, Hakone
15:30 Depart from Hatajyuku
16:00 Arrive to Hakoneyumoto Station
18:05 Arrive to Sinjyuku Station and Disband

## Special Invited Speekers

### Dr.Mariko Inoue

Dr. Mariko Inoue serves as a Group Leader at the Tama Forest Science Garden, the Forestry and Forest Products Research Institute in Japan. She holds esteemed positions as a board member within both the Japanese Forest Society and the Japan Outdoor Education Society. Additionally, she contributes her expertise as an associate member to the Science Council of Japan. Dr. Inoue has established a distinguished career in forest science, the field in which she majored during her university studies. Her research, deeply rooted in her comprehensive knowledge of forest science, primarily emphasizes advancing forest and environmental education. She applied her knowledge as a high school teacher in Tokyo, focusing on agriculture and forestry. This practical teaching role not only enriched her experience but also intensified her research interest in forest education. Her endeavors in this area led to significant contributions, including the publication of "Forest Education" in 2015. Her work received international acclaim when she was chosen as a finalist in the IUFRO Global Competition on Best Practices in Forest Education in 2019, and her excellence was further recognized with the Japan Forest Society Prize in 2022.

### Professor Chunlin LONG

Prof. Chunlin LONG is a full professor at Minzu University of China, one of China's prestigious universities located in Beijing. He made significant contribution in fields of agrobiodiversity and biodiversity, botany, ethnobiology, natural products, and plant taxonomy. In particular, Prof. Long has studied the relationships between people and plants in different linguistic groups through multi-disciplinary approaches. He published 438 papers in national and international journals. He is a prolific writer and authored 25 books and 19 patents of innovations. Prof. Long has been awarded 19 prizes.

Prof. Long is currently the Chair of Ethnobotanical Committee of China Wild Plant Conservation Association, Vice-President of Chinese Association of Ethnobotany, and Vice-Chair of Committee of Seed Science & Technology, Botanical Society of China. He serves as the Associate Editor of "Genetic Resources and Crop Evolution", and "Journal of Ethnobiology and Ethnomedicine". He is also the editorial board member of various journals including "Archives of Pharmacal Research", "Biodiversity Science", "Diversity", and other journals. Prof. Long is a member of various expert committees or steering committees of Chinese government agencies, such as Ministry of Education, Ministry of Agriculture and Rural Affairs, National Forestry and Grassland Administration, and Ministry of Natural Resources.

## Keynote Speekers

### Professor Soyeon Kim

Professor Soyeon Kim is a professor at Catholic Kwandong University located in Gangneung, Kangwon-do, and has been working there since 2022. Previously, she completed her bachelor's, master's, and doctoral studies at Kangwon National University and worked as a senior researcher at the Forest Science Research Institute. Her major is forestry management, it is a field that deals with both economics and public interest. Based on this, she is conducting research on forestry engineering and forest recreation. Her recent research was in the medical field to verify the scientific effectiveness of forest healing for each subject using forest resources. She operates a forest healing instructor training institute to produce experts in the field. She is also researching about forest business models, where she utilizes forest culture. Her ultimate goal is to enable mountain owners to generate profitability through diverse forest management and to contribute to the local community.

### Peng Zhaohui

Peng Zhaohui, Chinese, Phd candidate, graduated from Chongqing University as master degree, phd candidate of Huazhong Agriculture University since 2023. Research field: Forest therapy and environmental design. Participating in one national natural science project as the main researcher. Publishing an article on International Journal of Environmental Research and Public Health. Presenter of the 10th Conference on Sustainable Development in the Building and Environment(SuDBE2021). Winning Award of Excellence of IFLA 2020 as group member. Joining biological diversity protection project along Yangzi River held by WWF as main researcher(2019).

### Koji Chihara

Koji Chihara, Japanese, graduated from Hokkaido University as master degree, curator of Yamanashi Prefectural Fujisan World Heritage Center since 2022. He majored forest science at university. His research interests are environmental history, plant archaeology, and tourism history.

At university, based on the wood anatomical method, he analyzed wooden cultural properties such as archaeological wood in Hokkaido, Japan. Currently, he is researching historical changes of the ways in which Japanese and foreign tourists and tourism

developers faced the nature of Mt. Fuji. As a common theme among them, he aims to elucidate how people from various cultural backgrounds have historically interacted with nature such as forests in a particular area.

## Dr. Liu Shoubai

Dr. Liu Shoubai, Chinese, graduated from Hainan University, lecturer of Hainan University since 2017. Research field: Phytochemistry, Ethnobotany, Ethnopharmacology. The traditional medicinal plant resources of Li and Miao minority in Hainan were investigated. Participate in compilation of Records of Li Folk Medicine and Records of Miao Folk Medicine in Hainan. The chemical constituents and biological activities of many kinds of Li folk medicines such as Trichilia sinensis, Croton laui and Croton laevigatus were studied. More than 10 articles have been published in RSC advance, Fitoterapia and other journals.

## Professor Yang Chih Kai

Professor Yang Chih-Kai is Taiwanese and graduated from Taiwan Normal University. Assistant Professor at National Pingtung University of Science and Technology, Department of Forestry since 2021.Research field: Ethnobotany, Forest ecology, Plant taxonomy.He published 69 papers in national and international journals and authored 27 books. He explored the ethnobotany of the Atayal, Bunon, Paiwan, and Kanakanavu tribes from Taiwan. Currently, he is working on a project to study Bunon indigenous knowledge used in restoration ecology. In addition, he studies how Aboriginal people in Taiwan utilize natural fibers.

## Dr. Yen Yen Sally Rahayu

Dr. Yen Yen Sally Rahayu, Indonesian, postdoctoral fellow at Tokyo College of the University of Tokyo. She earned BSc in chemistry, MSc in biochemical science and technology, and PhD in agricultural development studies and interdisciplinary social design and management at the University of Tokyo. Research interests: area studies, food chemistry, and human nutrition.

Her research focuses on (re)valuing biodiversity in today's society. Currently, she is engaged in transdisciplinary area studies exploring the nexus between wild edible plant biodiversity, nutrition, and well-being of rural/local communities in Indonesia.

# Participant List

| | | |
|---|---|---|
| Aiba Soshi | Nagoya University | Japan |
| Chihara Koji | Yamanashi Prefectural Fujisan World Heritage Center | Japan |
| Fu Hui | Hainan University | China |
| Fujiwara Akio | The University of Tokyo | Japan |
| Hu Ruizhe | The University of Tokyo | China |
| Inoue Mariko | Tama Forest Science Garden, Forestry and Forest Products Research Institute | Japan |
| Ishibashi Seiji | The University of Tokyo | Japan |
| Kang Dayoung | Sangmyung University | Koria |
| Kim Soyeon | Catholic Kwandong University | Koria |
| Li Wan | Tottori University | China |
| Liang Haiyue | The University of Tokyo/Hainan University | China |
| Liu Shoubai | Hainan University | China |
| Long Chunlin | Minzu University of China | China |
| Peng Zhaohui | Huazhong Agriculture University | China |
| Rahayu Yen Yen Sally | The University of Tokyo | Indonasia |
| Saito Haruo | The University of Tokyo | Japan |
| Sakamoto Kenzo | The University of Tokyo | Japan |
| Wang Qizhi | HUA QIAO University | China |
| Wei jiaxing | Nanjing  agriculture University | China |
| Wu Shuyue | The University of Tokyo | China |
| Yang Chih Kai | National Pingtung University of Science and Technology | Taiwan |
| You Xiaoan | The University of Tokyo | China |
| Zhang Jingyi | The University of Tokyo | China |
| Zhu Jian | Nanjing Agricultural University | China |

# Review of Historical Change about Forest Education in Japan

Mariko INOUE

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## Introduction

In recent years, the international community has drawn attention to the vital role that forests play for sustaining the ecological health of the earth. Forest education was highlighted as the Education for Sustainable Development (ESD), because it plays a vital role in promoting sustainable forest management, forest products use and conservation. In this study, Japanese historical records pertaining to forest education focusing on post- modern period were reviewed.

## History of forest education

Japan entered into the modern period after the Meiji Restoration of 1868, the modern school education system was established in 1872; the first forestry technical school was established in 1882 for training forestry professionals. Forest education was initiated by Prof. Hazama Matsuno who was the first student studied in old-Germany. The educational aims were to learn about forest functions especially water source conservation and the importance of wood use for economic purposes. Afterward, schools related to forest were established. Meanwhile, tree planting activities have been encouraged in general education since the 1890s; similar to the Arbor Day in the United States of America.

The school education system was reconstructed in 1947; there were 25 universities or colleges and 105 high schools related to forestry. In addition, greening forestation activities were initiated to restore devastation from war. Forestry was taught in the schools, and educational activities in the forest were conducted an outdoor excursion.

In the 1970's, environmental pollution problem was drawn attention to the general public. The forestry education that responded to timber production demand had gradually shifted to respond various demand such as recreation, environment. In schools, opportunities to learn about forestry had been gradually decreased; instead, local forestry organizations filled the gap. Forestry education as specialized education needed to be restructured in 1990s; "forestry science" was renamed as "forest science." Forestry courses in universities and high schools have been reorganised into forest since the late 1880s.

In 1999, the National Forestry Council proposed a "Forest Environmental Education" policy, which became a milestone in Japanese forest education. After the proposal, the Japanese Forestry Agency promoted forestry education; the "Basic Law of Forest and Forestry," revised in 2001, included the terms "usage of forest for education." In the 2000s, various types of activities related to forestry were conducted. One of the most successful activities was "Moku-iku" to promote sustainable wood use. Some kindergarten or nursery schools conducted their childcare activities in forests or parks. In those days, new types of technical schools were established for training forestry experts.

## Conclusion

In summary, the specialty of the Japanese forest education is to include both professional and general education and is characterized by its highly diverse activities. Forest education has played a vital role to bring forests and the general public together.

# Plant Cultures in Yunnan with Emphasis of Large Old Trees

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Yunnan, a province in southwest China, harbors over 19,000 higher plants within an area of 394,000 km$^2$ and represents the highest plant diversity in the country. With 25 ethnic groups, Yunnan is also the richest area of cultural diversity in China. Thus various plant cultures have been developed in the province. Large old trees are important heritages of our planet and human societies which have been supporting essential cultural values and ecological services. The colourful plant cultures in Yunnan including those represented by large old trees have been ignored, despite their significant roles in local people's livelihood and nature conservation. This study revealed the status of plant cultures in Yunnan. As an important component in plant cultures, the traditional botanical knowledge (TBK) in different linguistic groups showed great diversity. In particular, the TBK-based food culture and herbal medicinal culture are extremely rich in southern and western Yunnan. We documented 421 species of edible flowers and their associated traditional knowledge which represented an interesting and unique plant culture, the flower-eating culture. Some plants have been endowed with super natural power. The large old trees in Yunnan are commonly regarded as landmark and worship trees with religious purposes. The Yi people in central Yunnan treated the old trees of *Cyclobalanopsis glaucoides*, *Rhododendron delavayi*, *Keteleeria evelyniana* and other species as totems and taboos or objectives related to their ancestors. In Nujiang Prefecture of West Yunnan, the local people have protected and maintained 73 species of large old trees for various purposes. It is outstanding that the Dai ethnic group and other local people in Xishuangbanna and Pu'er of southern Yunnan have established customary laws or regulations to maintain the conservation and sustainable use of large old trees. The tea trees (*Camellia sinensis* var. *assamica*) in traditional teagardens, and *Senna siamea* and banyan trees (*Ficus* spp.) around the villages are the famous examples. The large old trees together with their TBK have played an important role in the forest culture and plant culture in Yunnan. We conclude that the plant cultures including forest culture, taking Yunnan as a case, have strongly contributed a lot to the conservation and sustainable uses of biodiversity.

**Keywords:** Plant cultures; Large old tree; Traditional knowledge; Biodiversity conservation; Human-plant interaction

# Recreational Forests of Korea

Soyeon KIM

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## Forest from the past to modern days and assets

Korea's forest area takes 64% of the entire country. Our trees are in 3-5 age class, accounting for 80% from the total amount of trees. Trees belongs to forests below; 67% of private forests, 24% of national forests, and 8% of public forests. Korea's forest-to-land area proportion ranks 4th among OECD countries, following Finland (73.1%), Japan (68.5%), and Sweden (68.4%), making itself as a global forest country. The reason our forests are this green and have high resource value is because trees have grown well through national projects from the past: active forest reforestation and forest reclamation.

Forests have been considered important nationally from the past and have also been the basis of life. These values of forests have had a positive impact on our lives and society. Music, folk games, myths, and lifestyle derived from the forest are connected to our real lives. This culture strengthened our identity and inherited as a traditional forest culture, and of course it is changing along with rapid time flows.

Forest culture can be divided abstractly into traditional and modern forest culture. Traditional forest culture gave priority to discovering its assets. Traditional forest culture can be said to be a form of use for conservation and utilization. On the other hand, modern forest culture can be classified by the purpose of the use and by identifying the demand for forest culture. These are often combined or newly developed according to the trends of the times. So, the Act on Forest Culture and Recreation was also revised and implemented in December 2023. The revised contents separated the concepts of forest culture and forest recreation.

After revision of the law, ‘Forest culture’, which is totality of spiritual and material products formed by the interaction of forests and humans, refers to every content of looking, enjoying, experiencing, and creating with forests and traditions, heritage, and lifestyles related to the forest. ‘Forest recreation’ is defined as resting and healing of mind and body that takes place in the forest. This means that the concept of forest culture has been cleared. Moreover, the KFS has designated tangible and intangible assets about forests which have high ecological, landscape, and academic preservation value, and this is called 'national forest cultural asset'. Currently 98 assets are designated, and forest cultural assets from a modern perspective are selected and organized based on assets from a traditional perspective below. (Table 1)

Table 1. Traditional/Modern Forest Culture Assets

| Traditional perspective | | | Modern perspective |
|---|---|---|---|
| Class 1 | Class 2 | Class 3 | |
| Tangible Forest Cultural Assets | Forest | Urban forest, Lumber forest, Temple forest, Habitat, Colony, Forest business site etc. | • Neighbourhood Park, Natural recreation forest, Meditation/Healing forest<br>• Related activities: Health improve facilities (in neighbourhood park) / Healing, forest interpretation pr |

| | | | |
|---|---|---|---|
| | | | ograms.<br>• Goods: Herbal products / Forest products / Forest welfare expert training |
| | Tree | Protected trees, Special trees, Commemorative trees, etc. | • Forest resources, Avenue, Tree farms, etc.<br>• Related activities: Rest area / Landscape improvement / History storytelling / Funeral burial culture / Tree doctor training<br>• Goods: Food and beverage sales(in the site)/ Wildflower pots sales |
| | Nature | Old roads, Rocks, Springs, Valley waterfalls, Caves, Fossil sites, etc. | • Forest paths and roads, trails, etc.<br>• Related activities: Healing food experience in trail / Forest leisure sports / Green tour as local tourism / Forest product sales<br>• Goods: Local Festival / leisure activity (ziplining, mountain horseback riding) / Forest lunch box / Forest trekking guide training |
| | Heritage | Altar, Garden, Buildings, Facilities, Historic sites, etc. | • National and local garden, Herbal farm, Arboretum, Forest house, Camping, Bivouac, etc.<br>• Related activities: Camping accommodation / Plant interpretation program / Natural food<br>• Goods: Medical plant products (flower tea) / Aromatherapy products / Handicrafts (pressed flower) / Indigenous plant interpreter and Citizen gardener training |
| | Archival Record | Chalcolithic and woodblock engravings, Photographs, videos and sounds, Monuments, etc. | • AR/VR experience, Promotion videos, SoopnadeulE, SNS, Forest education, etc.<br>• Goods: AR/VR program / Forest interpreter and Forest welfare expert training / Forest culture festival |
| | Wood and Stone product | Wooden utensils, Wooden ships, Musical instruments, Stone pagoda, Timber tools, etc. | • Aromatherapy, rafts, wooden utensils, etc.<br>• Related activities: Handicraft and Wood culture experience program<br>• Goods: Air fresheners, Handmade soap / Rafting festival / Wooden tableware / Wood Educator and Aromatherapist training program |

| | | | |
|---|---|---|---|
| | Fossil | Animal and plant fossil | • Observing insects, birds, trees, etc.<br>• Related activities: Forest experience and observation program / Growth monitoring program.<br>• Goods: Insect breeding kit / Edible insect product and experience |
| Intangible Forest Cultural Assets | Oral | Forest′s myths, Fables, Folk songs, etc. | • Forest orchestra, Forest art gallery, F&B festival, etc. |
| | Fork beliefs and Folklore | Forest′s folk beliefs, Folklore, and games | • Urban forest, Local tradition cultural heritage, etc. |
| | Traditional skills and knowledge | Forest and Traditional timber skills, knowledge | • To teach knowledge via education using Forest educator training program<br>• Related activities: Forest welfare expert training program |
| | Traditional ceremony | Forest′s traditional ceremony | • Woodland burial, forest festivals from local areas, etc.<br>• Related activities: Funeral culture / Forest culture festival / Local festival<br>• Goods: Regional specialties |

## Benefits from forests in Korea nowadays

After the COVID-19 pandemic in 2020, the perspective on forests has changed, now eyes spotted on the function of recreation. Among several functions, especially 'Forest healing' contributes to stabilizing the people's sentiment and improving the quality of life, through diverse activities and services based on forests. Economic, social, and emotional supports are provided through these activities. They include forest prenatal care, infant forest experience, mountain leisure sports, and forest healing. The people can receive benefits from forests during the whole life, from birth to death. Plus, at the 2022 World Forest Expo, forests were evaluated as having high solving potential to provide public interest functions more than the economic function of wood production.

The public interest function of forests is increasing every year. As of 2023, it is estimated that each citizen receives an annual benefit of 4.99 million won. The total forest welfare is 66.9 trillion won with recreation function (28.4 trillion won), for healing function (6.7 trillion won)that helps people to reduce medical expenses, and for landscape function(31.8 trillion won). The following table shows national facilities for forest recreation. (Table 2)

| Facility | Functions |
|---|---|
| Natural Recreational Forest | • Certain forest areas designated by the government for people's health, rest, and entertainment.<br>• Promote sustainable management of forest resources, provide basic recreational facilities, and provide outdoor recreational space for public health recreation, emotional development, and forestry education. |
| Children's Forest Experience Center | • A facility that trains and educates children so that they can develop their emotions and develop holistically by experiencing the various functions of the forest. |
| Healing Forest | • A forest (including facilities and land) created to utilize diverse elements of the forest, such as scent and scenery, to increase immunity and improve health. |
| Forest Therapy Instructor Training Center | • A nationally qualified expert who supports efficient forest healing activities by planning and developing customized healing programs for each target via healing forests and natural recreation forests. |
| Forest Education Expert Training Center | • Forest education expert is classified as a forest interpreter, a forest guide for children, and a forest trekking guide. Qualified after expert course. |
| Woodland Burial | • A funeral method burying burnt bone ashes under (or n earby) the tree in the forest. |
| Forest Trail | • A path in a forest and used for multi purposes. Created for hiking, trekking, leisure sports, exploration, recreation, healing, etc.<br>• Hiking trails, trekking trails, forest leisure sports trails, exploring trails, and recreational and healing forest trails. |
| Forest of the People | • Contributes to promoting the welfare of the people through various activities and services.<br>• Place where people can experience forest culture and enjoy the forest and nature with activities.<br>• Group forests, experiential forests, forest leisure sports forests, and social return forests. |
| Urban Forest | • Forests and trees created and managed for people's health, recreation, emotional development, and experiential activities in the city. |

Recently, the focus has been on the creation and operation of smart forest welfare facilities. Korea Forest Welfare Institute (FoWI) is making various efforts to realize smart forest welfare. By creating trail facilities, it is propelling few projects such as guiding and recommending customer's health, automation of the process collecting healing effect data. To increase the accessibility of forest welfare services for vulnerable groups, the agency is planning to develop a surrealistic forest by using VR, graphics, and 3D sound technology, and distribute it to special schools, hospitals, and social welfare facilities.

The future smart forest welfare will protect our health and environment and become the foundation for a better life. For us, forests are places that support our ecosystem, purify the polluted air, and harmonize with nature. It is our responsibility to protect and manage forests in a sustainable way for the future era.

# Sound Preferences of Alzheimer Patients on Natural Sound and Music: A Grounded Theory Approach

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## Abstract

**Background and Aim**:

Dementia is a series of specific diseases such as Alzheimer's disease or Lewy bodies. Those patients suffer from loss of self-care abilities such as language, comprehension, and spatial orientation[1, 2]. Alzheimer's disease accounts for 60% -80% of dementia diseases[3]. Sound intervention such as natural sound or music are found as non-phamarceutical method to treat symptoms like cognition deterioration, depressive mood or agitated behavior [4, 5].

The potential therapeutic effects of natural soundscapes were mentioned in both Kaplan's Attention Recovery Theory (ART) and Ulrich's Stress Reduction Theory (SRT), which revealed that natural soundscapes establish the connection between people and the environment[6, 7]. Previous researches also indicated that bird sound and river sound in the morning generated positive emotions[8]. Ocean wave and seabird sound was more relaxing for people compared to urban soundscapes[9]. On the other hand, elder people preferred the wind blowing sound and the sound of magpies[10].

Music therapy was also proved to reduce many Alzheimer symptoms such as anxiety, depressive or sleep disturbances. Researchers used music that patients were familiar to reduce agitated behavior and enhance the connectivity of nerves[11, 12]. Another study revealed that familiar music stimulated special memory and pleasant mood of patients[13]. On the other hand, music with interaction encouraged patients to sing or dance, which effectively alleviate the indifferent mood and disturbed behavior[14, 15].

However, little research explores the evaluation and response of Alzheimer patients on those sound. This study presents to investigate the evaluation and behavioral change of Alzheimer patients under different natural sound and music.

**Method**:

**Figure 1** Listening and interviewing scene with Alzheimer patients

**Participants**

A total of 23 mild and middle Alzheimer patients(female:male=10:13) received natural sound and music listening experiments and semi-structure interviews. The inclusion criteria was: 1. Able to understand, communicate with interviewees and express inner thoughts easily, 2. With stable emotion and willing to take the interview, 3. Without serious hearing barrier. The interviewing time was 30min for each patient. Patients who meet the criteria will be informed and signed the consent form with the help of family. Ethical approval was obtained through the hospital committee (2021-103).

**Intervention Sound**

Previous studies indicated that the sound which patients were familiar with stimulated them to memorize the past experiences[16]. Therefore, 10 natural sounds and 6 music which were usually found in patients' daily life and centuries were selected as intervention sound. Natural sound included bird sound, water sound and rainy sound, while music was classic music with fast or slow tempo. Each sound was abstracted with 1min part that was easily recognized by patients.

**Procedure**

To reduce disturbance and insecurity of Alzheimer patients, the experimental area was chosen to a quiet room of hospital. A Sony HT-X8500 stereo was used as audio speaker to display the intervention sound. Before the experiment, patients relaxed at a comfort chair for 5min. Researchers would introduce the intervention briefly and encouraged patients to describe feeling after listening. There are 5min interval between each sound playing. During each interval, participants would be asked by simple questions such as 1. What did you think about after hearing the sound? 2.What did you prefer to listen during your daily time? 3.Could you give me more information on your favorite sound? A sony PCM-D100 recorder was used to record the answer of participants. Experiments which lasted beyond 30min would be conducted twice.

**Data Analysis**

Grounded theory was carried out to investigate the sound preference of those patients and influencing factors. As the first interview was completed, open coding began immediately. Keywords of each answer was extracted and compared. In the axial coding, keywords with same feature were classified into the same category. As the set of similar keywords gradually increased, the characteristic of different categories was described as one word. In the selective coding, logic between categories was built to indicate the feature of understanding of Alzheimer patients. When no new keyword appeared, the analysis stopped.

**Result**:

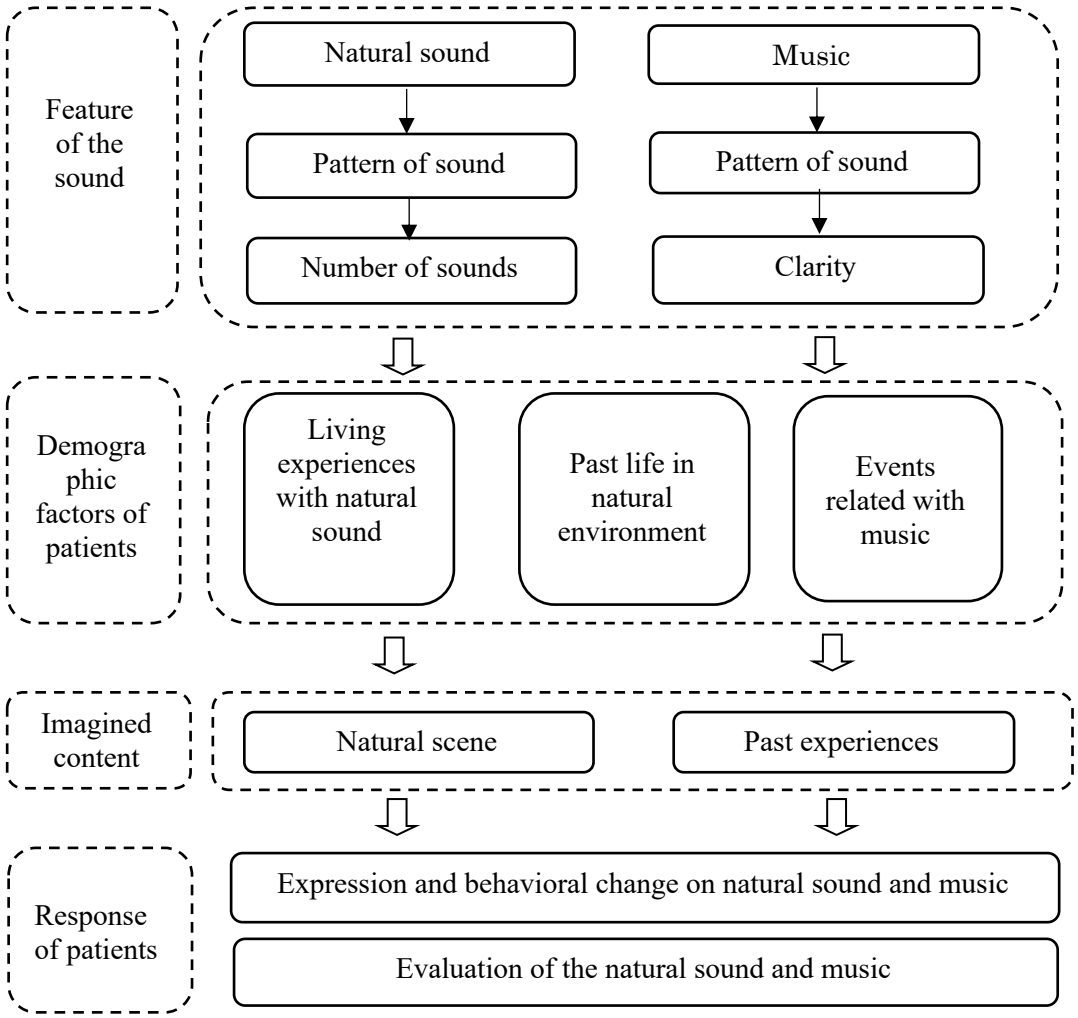


**Figure 2** Characterization of evaluation of Alzheimer patients on natural sound and music

Sound preferences of dementia patients on natural sound was affected by their living experiences and number of sounds, while preferences on music was influenced by clarity of sound and past listening experiences. Both of patients' preferences on natural sound and music was related with the pattern of the sound. Familiar sound stimulated patients to memorize past life and showed behavioral change such as clapping hands or singing. This finding is beneficial to design proper intervention sound and improve the interaction between dementia patients and the sound.

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# How were Forests Recognized in 19th and Early 20th Century Tourism on Mount Fuji?

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## Introduction

Understanding the role of forests in tourism is important for studying the relationship between forests and humans. This presentation points out the changes in tourism to Mt Fuji between the 19th and early 20th centuries and suggests that the perception of the forests around Mt Fuji has changed accordingly.

## 1. Changes in Tourism around the Base of Mt. Fuji in the 1920s

Guidebooks and travelogues suggest that three different types of tourism coexisted at the base of Mt. Fuji from the 19th century to the 1910s.

(A) Pilgrimage by Japanese (“Uchihakkai meguri”): Fuji-ko, groups of people who dedicated to worshiping Mt. Fuji, made a pilgrimage to the eight lakes and marshes around the mountain.

(B) Tourism by Westerners: When the British opened Shoji hotel on the shores of Lake Shojiko in 1895, tourism changed to a stay-and-go type centered on the hotel. A cave (Fuji Fuketsu) and the hill where the grand panorama can be seen (modern day Mt. Panorama-dai view Point) were newly noted as tourist attractions that can be reached by a day trip from Shoji hotel.

(C) Circular Tour by Japanese: Short-stay tourism other than for religious purposes. The main aim of this tourism was on enjoying the scenery, but the courses and spots visited were clearly with an awareness of the pilgrimage by Japanese (A).

In October 1922, Crown Prince Hirohito (later Emperor Showa) stayed two nights at the Shoji Hotel and visited the Mt. Panorama-dai view Point and Fuji Fuketsu, just as the Tourism by Westerners (B). In the northside of Mt. Fuji, tourism development influenced by this visit was promoted in the mid-1920s, excursions around the "Fuji Five Lakes," became popular.

## 2. Changing Perceptions of the Aokigahara Jukai forest in the 1920s and 1930s

In Circular tour around the base of Mt. Fuji, it was necessary to pass through the Aokigahara Jukai forest to move from Nenba (west shore of Lake Saiko) to Akaike (southeast shore of Lake Shojiko). This forest has developed on the lava flow that divided Lake Saiko and Lake Shojiko, during the eruption of Mt. Fuji. Tourism development in the mid-1920s, as mentioned above, is thought to have altered the perceptions of this forest. This presentation suggests the following three points.

(1) Rating as a place to be viewed from hills: Mt. Panorama-dai view Point used to be a place visited only by Westerners, but a mountain trail was developed by the visit of the Crown Prince in 1922. his hill became the center of tourism in "Fuji Five Lakes” from the mid-1920s to the 1930s. By the mid-1920s, hills such as Koyodai were newly listed in guidebooks as viewpoints. These scenic spots were places to appreciate the combination of the Aokigahara Jukai forest.

(2) Losing of a perception as a "difficult route": The way between Nenba and Akaike was once recognized as a “difficult route" required guides. When passenger cars began operating along this section in the mid-1920s, it was no longer necessary to walk through the Aokigahara Jukai forest. This reduced travel time and made travelers easy to visit the above-mentioned hills.

(3) Rating as a Primeval Forest: The forest in Aokigahara were already known as "Jukai" (sea of trees) at the end of the 19th century. In 1926, part of the Aokigahara Jukai forest was designated as a natural monument 'Mt. Fuji Primeval Forest', and guidebooks began to refer to this forest as wilderness (untouched nature).

These changes in the perceptions of the Aokigahara Jukai forest, caused by tourism development in the mid-1920s, may have formed the prototype for tourism to enjoy the natural beauty of Mt Fuji, which continues to this day.

# Examining the Potential of Wild, Underutilized, and Neglected Edible Plants in Improving Nutrition and Wellbeing: A Case Study in West Java, Indonesia

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## Introduction

Current food systems have come to rely on a narrow range of low-nutrient plant species, disregarding the diversity of nutrient-rich plants used historically [1][2]. In Southeast Asia, while food security is almost no longer an issue, many people still do not have access to a nutritious diet [3], leading to increasing public health issues stemming from malnutrition [4]. Encouragingly, the trend to mainstream biodiversity for improved food, nutrition, and health by embracing underutilized resources has gained momentum worldwide [5]. In this context, wild, underutilized, and neglected edible plants (WUNEPs) have emerged as promising avenues to address nutritional disparities [6] because they often contain higher levels of micronutrients than cultivated crops [7], and their consumption is still practiced by local and indigenous communities, including in Indonesia [6][8]. However, there is still insufficient evidence to support the broader adoption of this approach. Through a case study in West Java, Indonesia, this study aimed to fill this gap by exploring the potential of WUNEPs to improve local communities' nutrition and health/well-being. We asked specifically: 1) What WUNEPs are consumed by local communities? 2) Can these WUNEPs be the sources of nutrients and contributors to dietary requirements? 3) Is WUNEP intake linked with health and well-being?

## Methodology

The study was based on surveys undertaken in West Java, Indonesia. The study site, inhabited by Sundanese people, is located in the Rancakalong district of Sumedang Regency (Fig.1).


Fig.1. Study location

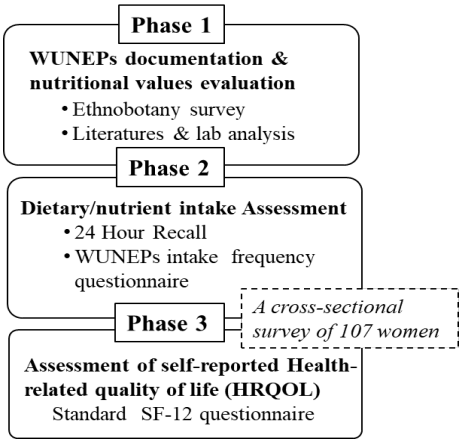


Fig.2. Overview of study phases and methods

## Result & Discussion

*Diversity of WUNEPs and use trends*

The study documented 53 species of WUNEPs from 27 families, including leafy vegetables, spices/condiments, fruits, roots/tubers, and flowers. The most frequently cited species are consumed as vegetables (Fig.3). Most of the time, these WUNEPs are collected from their natural habitats, e.g. surrounding forest, agricultural field, or *kebun talun* (the traditional agroforest), where they grow spontaneously.


Fig. 3. Some examples of most consumed WUNEPs

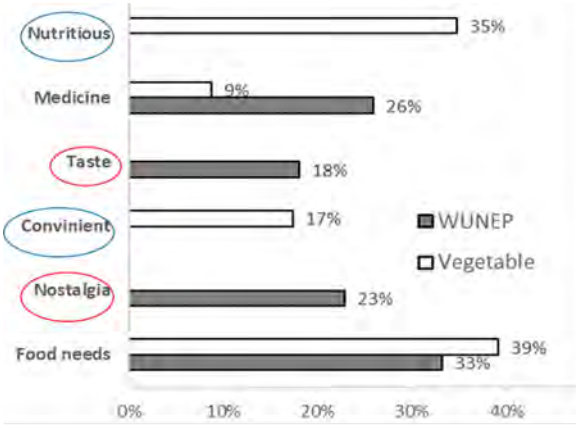


Fig. 4. Reasons for consuming WUNEPs vs. vegetables.

Many respondents (97%) consumed WUNEP to meet their daily vegetable requirements in the last year. Most of them agreed that consumption has declined due to reduced availability, a lack of knowledge regarding the identification and nutritional benefits of the species, time constraints, and a preference for improved varieties. The main motivations for using WUNEPs were their availability as free food, medicinal value, nostalgic value, and preferred taste (Fig. 4). While the economically motivated factor was perceived as necessary for both edible plants, the importance of having medicinal values and personal factors or subjective reasons (such as taste preference and nostalgia) was more emphasized for WUNEPs. However, nutritional benefits are only recognized for vegetables, and none of the respondents perceived WUNEPs as convenient, indicating a lack of knowledge regarding its nutritional value and potential constraints related to access.

*Nutritional values of WUNEPs and participants' daily nutrient intake*

Several WUNEPs in this study underscore significant nutritional value (Table 1). Specifically, they serve as noteworthy sources of protein, fiber, essential minerals (calcium/Ca, iron/Fe, zinc/Zn), and vitamin C (Table 1). The nutritional values of several documented WUNEPs were comparable to or higher than those of common vegetables. For instance, *C. crepidioides* leaves represented a high protein content (22.6 g/100 g) that was comparable to fresh soybean (30.0 g/100 g) [9], which is the most consumed plant-based protein source in Indonesia [10]. Moreover, the average vitamin C content in *P. emblica* and *A. occidentale* is five and three times greater than that of papaya [9].

Results from the dietary assessment revealed that participants consumed an average of 7 food groups daily, with 94% of participants meeting the Minimum Dietary Diversity/MDD by consuming at least five different food groups in the criteria (i.e., grains, roots, tubers, pulses, nuts and seed, meat/poultry, fish, eggs, dairy, vegetables, and fruits). However, most participants did not meet the dietary requirements for many key macro- and micronutrients (Table 2). Among macronutrients, fiber had the lowest percentage of those who met its recommended dietary requirement (0.9%), and none of the micronutrients were adequate in participants' dietary intake,

except for Na, Cu, and P elements. This finding implies that a diverse diet does not necessarily guarantee nutrient adequacy.

Table 1 . Composition in macronutrients (protein, fiber) (g/100 g), minerals (Ca, Fe, Zn), and vitamin C (mg/100 g) of some examples of the documented WUNEPs. The value represents the mean value with the range of variability in the literature in the parentheses.

| Family | Species name | Edible part | Protein | Fiber | Ca | Fe | Zn | Vitamin C | Reference |
|---|---|---|---|---|---|---|---|---|---|
| Achariaceae | *Pangium edule* | Kernel/seeds | 8.7 (7.3–10.0) | 9.6 (–) | 41 (40–42) | 2.05 (2.0–2.1) | 1.4 (–) | 24.5 (19.0–30.0) | [38,53] |
| Apiaceae | *Centella asiatica* | Leaves | 7.6 (2.7–12.4) | 2.3 (1.8–2.8) | 101 (24–177) | 2.15 (0.2–4.1) | 10.9 (–) | 0.8 (–) | [14,104] |
| | *Eryngium foetidum* | Leaves | 3.7 (2.1–5.3) | 5.5 (1.2–9.7) | 334 (312–356) | 32 (11–53) | 4.7 (4.5–4.8) | 76.0 (16.7–135.2) | [71,106,113,114] |
| | *Oenanthe javanica* | Aerial parts | 2.1 (1.2–2.9) | 2.0 (1.1–2.9) | 152 (133–170) | 3.1 (1.4–7.0) | 4.8 (0.15–14.0) | 12.1 (3.3–21.0) | [14,38,77,110,114] |
| Anacardiaceae | *Anacardium occidentale* | Young leaves | 5.3 (3.7–7.0) | 3.0 (–) | 24 (16–33) | 4.7 (0.5–8.9) | – | 258 (21–494) | [26,38,110] |
| | *Mangifera foetida* | Peel | 1.0 (–) | 50.9 (–) | 26 (16–36) | 0.25 (0.2–0.3) | – | – | [81,93] |
| | *Mangifera odorata* | Fruits | 1.1 (0.7–1.4) | 4.2 (–) | 15 (9-21) | 0.35 (0.2–0.5) | 0.1 (–) | 37 (18– 56) | [21,38] |
| Araceae | *Apoballis rupestris* | Rhizomes | 4.7 (–) | 3.0 (–) | 24 (–) | 1.03 (–) | 0.3 (–) | 22 (–) | Experiment |
| Asteraceae | *Acmella ciliata* | Aerial parts | 3.7 (1.9–5.5) | 8.9 (3.5–14.3) | 404 (162–645) | 52 (4–100) | 10.6 (1.2–20.0) | 20 (–) | [38,89] |
| | *Cosmos caudatus* | Leaves | 4.0 (3.7–4.2) | 5.8 (–) | 328 (–) | 2.2 (1.8–2.7) | 0.4 (0.26–0.60) | 118 (109–127) | [26,38] |
| | *Crassocephalum crepidioides* | Leaves | 22.6 (18.1–27.1) | 10.9 (8.2–13.7) | 204 (10.5–398) | 6.0 (0.2–11.9) | 5.8 (0–11.7) | 41 (9–73) | [67,68,105] |
| | *Gynura divaricata* | Leaves | 18.4 (17.7–19.2) | 37.9 (16.5–59.2) | 1350 (–) | 13.6 (–) | – | 11 (–) | [70,71] |
| | *Erigeron sumatrensis* | Leaves | 17.5 (–) | 12.7 (–) | 12 (–) | 1.7 (–) | – | 0.6 (–) | [72,73] |
| | *Bidens pilosa* | Aerial parts | 3.3 (2.3–4.2) | 2.6 (1.3–3.9) | 225 (110–340) | 8.3 (2.3– 14.2) | 1.2 (–) | 40 (–) | [100,101] |
| | *Emilia sonchifolia* | Leaves | 2.1 (–) | 29.7 (2.0–57.5) | 750 (253–1246) | 28.4 (9.5–47.0) | 0.6 (0–1.2) | 12.7 (0–25.4) | [38,71,148] |

Table 2. The mean of daily nutrient intake and the percentage of women who met the RDA.

| No. Nutrients | Mean ± SD | Women met the RDA* (%) |
|---|---|---|
| 1 Energy (kcal) | 1935.5 ± 542.1 | 43.0 |
| 2 Protein (g) | 62.2 ± 20.1 | 52.3 |
| 3 Fiber (g) | 10.5 ± 5.0 | 0.9 |
| 4 Calcium (mg) | 683.6 ± 280.0 | 9.3 |
| 5 Phosphorus (mg) | 933.2 ± 309.6 | 76.6 |
| 6 Iron (mg) | 16.8 ± 12.5 | 62.6 |
| 7 Sodium (mg) | 3101.3 ± 1689.6 | 92.5 |
| 8 Potassium (mg) | 1712.9 ± 640.4 | 0 |
| 9 Copper (mg) | 4.6 ± 12.4 | 91.6 |
| 10 Zinc (mg) | 9.6 ± 3.8 | 64.5 |
| 11 Vitamin A (μg) | 433.4 ± 818.4 | 10.3 |
| 12 Vitamin B1 (mg) | 58.5 ± 596.5 | 17.8 |
| 13 Vitamin B2 (mg) | 1.1 ± 0.6 | 40.2 |
| 14 Niacin (mg) | 25.2 ± 56.2 | 58.9 |
| 15 Vitamin C (mg) | 69.0 ± 69.7 | 28.0 |
| Nutrition evaluation | | |
| **Mean Adequacy Ratio (MAR)** | 0.7 ± 0.1 | 52** |

*Recommended Daily Allowance for women aged 16-80 years.
**% of women with MAR score equal or higher than the population's average.

Table 3. WUNEPs intake vs HRQOL

| SF12-HRQOL indicators | WUNEPs intake |
|---|---|
| Physical functioning | |
| Role of physical functioning | -0.19* |
| Bodily pain | |
| General health | 0.24* |
| Vitality | |
| Role of emotion | |
| Social functioning | |
| Mental health | |
| Physical Component Summary (PCS) | |
| Mental Component Summary (MCS) | 0.22* |

Correlations are reported using Spearman's Rho (R), according to variable distribution. * indicate significance at 0.05.

*Potential WUNEP contribution to the Recommended Dietary Allowances (RDA)*

Several WENUPs documented in this study can contribute to meeting the RDA of certain nutrients. RDA is the average daily dietary intake level sufficient to meet the nutrient requirements of nearly all healthy individuals in an age-specific group. Considering the observed nutrient deficiencies among the studied participants on the one hand and the notable WUNEP nutritional qualities on the other, promoting WUNEP consumption appears to be a sensible approach to improving nutrition. For example, approximately half of the documented WUNEPs in this study were identified as Fe sources (Table 1). Our recent dietary survey

conducted in the study area found that the average daily Fe intake of 107 women is 16.8 mg/day (not shown). This value falls below the RDA of 18 mg/day for women aged 19–49 [11], suggesting a prevalence of Fe deficiency among women in the area. Therefore, consuming Fe-rich WUNEPs (RDA > 30%) can be encouraged as a dietary choice. These include edible parts of *A. ciliata, S. americanum*, *M. oleifera, G. divaricata, C. indica, B. pilosa,* and *B. androgyna*. Achieving the recommended intake would require the consumption of 50–100 g of their edible parts.

*WUNEP intake and Health Related Quality of Life (HRQOL)*

Among the components in the self-assessed HRQOL, WUNEP intake is linked with 'general health' and 'role of physical functioning' (Table 3). Higher WUNEP consumption correlates with a more positive evaluation of general health but is associated with poorer physical functioning (problems with activities). However, the associations with these variables appear weak.

## Conclusion

The documented WUNEPs offer significant nutritional value. Specifically, several WUNEPs serve as noteworthy sources of protein, fiber, essential minerals (calcium, iron, zinc), and vitamin C, meeting their RDA requirements. These findings highlight the potential role of WUNEPs in addressing nutritional deficiencies that was found in the studied rural communities.

A perceived reduction in availability and changes in land use were the most prominent factors contributing to the decline in WUNEP consumption, followed by limited knowledge about species identification and nutritional benefits, coupled with impracticality. Nonetheless, the Sundanese habit of consuming *lalap* (raw greens) still plays a significant role in sustaining the use of WUNEPs in the studied location, with motivations including their availability as free food, medicinal value, taste, and affective relationships tied to tradition and childhood memories.

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# Research on Ethnobotany of Hainan Li Minority, China

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Most of the ethnic minorities in Hainan live in the central and southern mountainous areas of Hainan Island. The Li ethnic group is a unique minority ethnic group that has only lived on Hainan Island for over 3,000 years. In long-term living and working activities, the Li ethnic group has accumulated rich experience in utilizing plants, thus forming a unique plant culture of the Li ethnic group. At the same time, there exists accelerated urbanization and continuous foreign culture shocks with the rapid socio-economic development. It leads to gradual changes in the traditional lifestyles and customs of the Li ethnic group. Due to the lack of written language in the Li ethnic group, there may be a loss risk of their traditional knowledge and experience in utilizing plants. In view of the above, we excavated plant resources of the Li ethnic group in Hainan, including resource collection and research on effective constituents of some Li folk medicines.

## 1. Research on indigenous medicinal plants in the Li ethnic group

### 1) Medicinal plants in the Li ethnic group

Li folk medicine, a component of traditional Chinese medicine, is gradually formed based on the valuable experience accumulated and summarized by the Li ethnic group in their long-term struggle against various diseases. After 10 years of field visits, data collection and summary, we have published three volumes of "*Records of Li Folk Medicine (Li Zu Yao Zhi)*", which includes 632 types of Li folk medicines, mainly common medicinal plants in Li folk medicine. For the first time, this book scientifically and normatively sorts out and sums up the names of medicines, aliases, names of Li ethnic dialects, plant sources, plant characteristics, place of origin, harvesting and processing, properties, flavors, functions, chemical components, pharmacology, and folk applications. With color pictures attached, each plant is provided with a detailed record of the actual species and content of the Li folk medicines.

Another work is "*Compilation of Proved Folk Recipes from the Li Nationality (Hai Nan Li Zu Min Jian Yan Fang Ji)*", which involves 660 types of diseases and collects 7,776 proven recipes.

### 2) Plants for medicated baths in the Li ethnic group

Medical fumigation is the process of boiling medicinal plants, fumigating on the affected area, and then bathing when the temperature of the liquid medicine drops to a suitable range. Its indications involve rashes, pain in the lumbar spine, joint pain, etc. We investigated and recorded over 80 types of plants for medicated baths.

### 3) Wild edible plants in the Li ethnic group

The Li ethnic group has long lived in the central and southern mountainous areas of Hainan Island. The abundant wild edible resources locally have become a part of resources for their livelihood. Nowadays, there is a continuous improvement in people's living standards and quality of life. Therefore, people are increasingly valuing physical and mental health as well as dietary quality, accompanied by increasing demands for food quality. Wild edible plants are generally characterized by strong stress resistance, unique flavor, natural source without pollution, rich nutritional value, and homology of medicine and food, which are becoming increasingly popular nowadays. Vegetables and wild fruits used to satisfy hunger have become popular delectable dishes today. It is of great significance for the Li ethnic group locally to increase their economic income and improve their living standards. By investigating natural

villages and markets in the inhabited area of the Li ethnic group, we preliminarily recorded the common names, edible parts, methods of consumption and other aspects of 96 wild vegetables, 50 wild fruits, and 40 traditional substituting-for-tea plants.

## 2. Research on effective constituents of medicinal plants in the Li ethnic group

### 1) Research on effective constituents of agarwood

Agarwood is an oleoresin obtained from plants in the *Aquilaria* genus of the *Thymelaceace* family. Agarwood cannot be originated from healthy *Aquilaria sinensis*, but can only be derived through processing by natural factors (e.g., lightning strikes, fires, insect infestations, etc.) or human factors (e.g., cutting, drilling, inoculation, etc.). Agarwood is both a traditional medicine and a high-valued incense. The main chemical components in agarwood are sesquiterpenes and 2-(2-phenylethyl)chromones, possessing various biological activities such as anti-inflammatory and antioxidant properties.

### 2) Research on effective constituents of plants of the *Croton* genus

Plants of the *Croton* genus have a wide range of medicinal value that can be used as medicine in moderation. According to "*Chinese Materia Medica (Zhong Hua Ben Cao)*", Croton seed-coat has functions of warming the middle-jiao, removing food retention, detoxicating and destroying intestinal worms; Croton oil can be used to treat indications of stroke and coma due to blocking of the respiratory system; Croton leaf and root can expel pathogenic wind and invigorate the blood circulation, which are suitable for indications of injuries from falls, fractures, contusions and strains. In Li folk medicines, plants of the Croton genus are used to treat various diseases. According to "*Records of Li Folk Medicine (Li Zu Yao Zhi)*", the Li ethnic group used the plant of the plants of the Croton genus to treat various diseases. For instance, *Croton cassifolius* decoction could treat congestion, pain, and stomach cold-induced pain; Root decoction of *Croton cascarilloides* (Zi Luo Dui) was used to treat abnormal vaginal discharge in women; Drinking, hot compress and fumigation by the boiled water with leaves of *Croton laui* (Zi Luo Diu) could treat headaches, stomach pain, and abdominal pain. Additionally, the main active ingredients of plants of the *Croton* genus are diterpenes and their lactone compounds.

# Indigenous Knowledge and Ethnobotany of Formosa

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## ABSTRACT

Indigenous knowledge refers to native knowledge that has been generated and developed with a particular area over time. Turning back to the Ming Dynasty (1603), records of the use and feeding of plants by the Plain indigenous on the island of Taiwan were recorded. Later, through the Dutch East India Company period (1624-1661), the Kingdom of Tungning periods (1661-1683), the Qing dynasty (1683-1895), the Japanese colonial period (1895-1945), and the Nationalist period (1945-) to the new residents who came to live in Taiwan, the island Passengers and forerunners allowed plants to spread over long distances during the Great Voyage, allowing this small island to accommodate diverse ethnic groups and cultural connotations. We hope to let the public understand the diverse cultural appearance of Taiwanese plants in the South Island and understand the role of plants in daily life.

Keywords: Plain indigenous, ethnobotany, Taiwan

## Introduction

Taiwan is a beautiful island located in the Asia-Pacific region and is home to various ethnic groups. Before the Dutch East India Company period occupied Taiwan in 1624, it was referred to as the Pre-Dutch era, characterized by scarce written records. In the past, some people also referred to it as Taiwan's prehistoric era, which spanned from over 400 to 8,000 years ago (Blust, 1999). During this period, the immigrants were mainly aborigines from the South Island, and the introduced plants were native to Indochina and the Nanyang Islands. However, since there are no historical records, it is difficult to verify the age of plant introduction. We can only speculate based on records from the Ming Dynasty or after the Qing Dynasty and the unique living habits of the aborigines. From the first document on Taiwan written by Chen Di (1603) of the Ming Dynasty, it is evident that the plants commonly used by the aborigines at that time included Sesame (*Sesamum indicum*), coix (*Coix lacryma-jobi*), coconut (*Cocos nucifera*), green onions (*Allium fistulosum*), ginger (*Zingiber officinale*), sweet potatoes (*Ipomoea batatas*), sugar cane (*Saccharum officinarum*), etc. Subsequently, by examining documents recorded by literati, we can reconstruct the variety of exotic plants that existed in the pre-Nama era.

It is generally believed that the aboriginal people on the island of Taiwan migrated to Taiwan from different regions at different times. Only some ethnic groups who migrated to Taiwan also brought plants from their places of origin. These food-related plants are the most important, followed by spices or hobby goods. Edible plants such as rice (*Oryza rufipogon*), millet (*Setaria italica*), and taro (*Colocasia esculenta*) are the primary food crops of the Austronesian people. They have the longest history of human cultivation, spanning thousands of years. Coconuts have a wide range of uses and can be utilized for various purposes such as food, shelter, and everyday essentials. The habit of eating betel nut has long been practiced by the Austronesian people, and it became an indispensable plant in the lives of our ancestors during their long journeys and migrations.

The Dutch East India Company period occupied Taiwan for 38 years (1624-1662), but it marked the beginning of plant literature in Taiwan. In the early 17th century, the Netherlands acquired colonies in Java to compete for the spice market. Later, trade between China and Japan expanded, a stronghold was established in Taiwan, and planned economic activities were carried out. When the Netherlands first arrived in Taiwan, they introduced a significant number of plant species essential for people's livelihood from Java. Except for a few species that are native to the

local area, most of them are domesticated alien species such as mango (Mangifera indica) and guava (Psidium guajava), which are native to Indonesia. During the Dutch era, around thirty to forty plant species such as wax apple (*Syzygium samarangense*) and jackfruit (Artocarpus heterophyllus) were introduced, significantly impacting Taiwan's ecosystem thereafter. Among them, *Plumeria acuminata* was introduced as a flower for environmental medicine, ornamental purposes, or headdress adornment. However, due to its strong floral fragrance and unique tree shape, it is still planted in gardens everywhere.

During the Kingdom of Tungning periods eras (1662-1683), which lasted for 22 years, most of the Zheng troops came from the Fujian area. Due to the severe maritime blockade, the only remaining mode of transportation was by sea from Xiamen to Anping, significantly impeding communication with foreign countries. Among fruit trees, pineapples (*Ananas comosus*) and papayas (*Carica papaya*) are world-famous fruits and have been major contributors to Taiwan's economy for a significant period of time.

The Qing Dynasty (1683-1895) lasted for 212 years. During this period, a large number of plant species were introduced, second only to the Japanese era. Most of the plants were introduced from China, and many exotic plants have been cultivated in China for a long time. During this period, plants directly introduced from abroad accounted for a minority. Plants with edible economic value occupied an important position during this period and have also influenced the present. For example, important fruits such as star fruit (*Averrhoa carambola*), pomelo (Citrus maxima), Longan (*Dimocarpus longan*), and litchi (Litchi chinensis) have been successfully introduced.

During the Japanese colonial period (1895-1945), which lasted only 50 years, the largest number of plant species in Taiwan's history were introduced. During this period, a variety of plants were introduced from outside, each serving different purposes. The introduced countries and regions cover tropical, subtropical, and temperate regions. This has had a significant impact on Taiwan's economic development, natural ecology, and scenery. It can also be said that it has changed Taiwan's economic model and people's lifestyle. In terms of forests, the introduction of Japanese Cedar (*Cryptomeria japonica*) has replaced the ecosystem of the cypress forest type (*Chamaecyparis* forest type), altering the landscape of mountains ranging from 1,000 to 2,000 meters. Araucaria heterophylla from Australia, *Araucaria cunninghamii*, and *Casuarina equisetifolia* have become the main tree species in low-altitude areas and coastal forests. *Melaleuca leucadendra*, *Eucalyptus robusta*, *Delonix regia*, etc., commonly used for landscaping, can be found throughout Taiwan, particularly in campuses and parks. Many palm species were also introduced during this time. The most representative coconut palm species are *Roystonea regia* and *Archontophoenix alexandrae*, which continue to hold historical significance today.

## During the Japanese colonial period, systematic study of traditional ecological knowledge and ethnobotany

Ethnobotany is a term coined by John Harshberger in 1895. The term originally refers to the knowledge of indigenous peoples regarding the understanding and utilization of plants, as well as the conservation of plant species. During the development of this term, Taiwan was under Japanese occupation. Numerous naturalists explored this miraculous island. Famous scholars include Torii Ryuzo, Ino Kanori, and Mori Chounsuke. Mori Ushinosuke and others conducted systematic and scientific research on Taiwan's aborigines. This also laid the foundation for the research outline of Taiwan's aboriginal ethnic groups. Among them, Torii Ryuzo went to Botel Tobago (Orchid island) for investigation in 1897 and was a pioneer in research during the Japanese colonial period. During this period, he completed two ethnographic works: "Investigation Report on Local Customs of Botel Tobago" and "Anthropological Photo Collection of Taiwan's Botel Tobago". Book. Mori Chou Nosuke documented the lives of many early indigenous peoples through video recordings, including the Paiwan, Yami, Atayal, Bunun, Tsou, and Ami tribes. These are the most valuable reference materials available today. There are currently approximately 588,660 indigenous peoples, accounting for 2.5% of the total population.

Currently, the indigenous peoples recognized by the government are: Amis, Atayal, Paiwan, Bunun, Puyuma, Rukai, Tsou, Saisiyat, Yami, Thao, Kavalan, Taroko, Sakilaya, Seediq, La'aluwa, Kanakanafu, totaling 16 ethnic groups (https://www.cip.gov.tw/zh-tw/menu/data-list/6726E5B80C8822F9info.html?cumid=6726E5B80C8822F9). Each group possesses its own unique culture, language, customs, and social structure. For Taiwan, the aboriginal ethnic groups are an important source of history and culture, and they are also unique and beautiful treasures.

## Forbidden plants and ethnobotany-*Barringtonia asiatica* of the Tao/Yami tribe

Among all the plants on Orchid Island, the tree species that is most tabooed by the Tao people and is also the most familiar to everyone is *Barringtonia asiatica*. The Yami people refer to it as the devil tree, while its common names are kamanrarahet or tova, meaning "very unlucky" and "will be met with disaster," respectively (Cheng, 1996). Therefore, you should not mention its elegant and popular names at any time and place; otherwise, it will be interpreted as wishing death upon others. Chessboard tree is native to Malaysia, the Philippines, and the Pacific Islands, and is a typical species found in tropical coastal forests. Its fruits drift with the sea currents, creating green corridors along the coastline of Orchid Island. The expansive tree canopy casts dense shadows, intensifying the eerie presence of numerous malevolent spirits. The sandy land beneath the forest often serves as the final resting place for the "good death" of the tribesmen. Therefore, the pearly yellow-sanded swallowtail butterfly (*Troides magellanus*) dancing on the edge of the forest has become the spokesperson of the evil spirit soul. After the sun sets, Totoo's (*Otus elegans*) call to death is heard in the ears, so the Orchid Island Scops Owl is regarded as the incarnation of evil spirits. In the minds of the Tao people, these unique species or subspecies of creatures have an inviolable status with every plant, tree, sand, and stone in the cemetery; otherwise, evil spirits will possess them.

## Ethnobotany and forest management-*Schima superba* of the Paiwan tribe

The Paiwan tribe calls it "sapejik." The Chinese Guger tree (*Schima superba*) grows quite tall, so the Paiwan people use this plant to describe tall individuals. In the residential area of the Paiwan tribe, there are many large trees. In an era of abundant resources, the tribesmen do not need to use wood for building materials. From their life experience, the Paiwan tribe knows two characteristics of the Chinese Guger tree. It's the toxicity of the Chinese Guger tree. If you accidentally rub against the bark of this species, it will cause a strong stinging sensation on the skin. In order to help children understand the characteristics of this plant, elders sometimes intentionally ask them to take a piece of this wood home. You can observe the characteristics of the Chinese Guger tree; the toxicity of this species is quite potent for the creatures in the river. If you pour sawdust into the river, fish, shrimps, crabs, and other aquatic organisms will die. Second, building materials made of Chinese Guger-tree are prone to decay (Cheng et al., 2004). Judging from the above-mentioned use of this species, the Paiwan people have a clear ecological and cultural concept, where tribesmen are interconnected. They cannot use this tree to poison fish. When this species is introduced to crossbreed with the fish in a specific area, the impact on that area will be noticeable within five years. There will be no biological resources available for use. This type of ecological maintenance involves interacting with nature. It is a cultural norm to possess knowledge of what can be done but choose not to act on it in order to preserve the continuity of the ethnic group. The Paiwan people do not use it. It is speculated that the plant has a high moisture content, and the height of the plant helps prevent the spread of fire. In addition, it has strong vitality. If a fire breaks out, it will still sprout next year. No other tree species can match this fire prevention function.

## Conclusion

The botany of Formosa presents a subject of interest to the thoughtful student. For the missionary there is a tongue in every leaf, a voice in every flower.

《From *Far Formosa*》

From George Leslie Mackay, 1895

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# The Formation and Development of Urban Forest in European Countries from the Perspective of Land Tenure

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## Abstract

This study examines the emergence and development of urban forests in Europe from the medieval period to the end of the 19th century from the perspective of land ownership. In the Middle Ages, land was primarily owned by the royalty and the church, with trees within cities almost entirely located in private gardens, while nearby forests were used as royal hunting grounds. During this period, urban trees were mainly utilized by religious organizations or the upper class for self-sufficient living. In the Renaissance, the emerging merchant class, or the new nobility, demonstrated their wealth and status by purchasing land and building villas with gardens. After the unification of Italy, many noble gardens were donated to the government as public property. By the 17th century, the urban landscape of France became a model, and Baroque gardens spread widely across Europe. With the progress of urbanization and the Industrial Revolution, there was a rapid increase in the demand for public green spaces, especially among the lower class. In Britain, the English landscape gardens, Royal Parks, and commons were made accessible to the public through legal and other means. During this period, the diversification of land ownership within cities promoted the growth of trees in various locations, and the types of urban forests also diversified, including green spaces in commercial space and parks. This research confirmed the process through which urban forests transformed from a private to a public existence.

### Result

From the perspective of land ownership, the development of urban forests in Europe can be divided into three types.

1. Publicization of privately owned land within cities

| | Past | Present |
|---|---|---|
| Land tenure | Monastery → | Government or NGO |
| | Nobility → | Nobility or Government |
| | Royalty → | Government |
| Nature of urban forests | Enclosed garden | publicly accessible garden |

2. Publicization of private territories in suburbs

| | Past | Present |
|---|---|---|
| Land tenure | Royalty → | Government |
| | Nobility → | NGO |
| | Private landlord → | Mostly Government or NGO |
| Nature of urban forests | Suburban private territories | Public green space |

3. Construction of parks on public land within cities

| Land tenure | Government |
|---|---|
| Nature of urban forests | Urban park |

# Spatial Image of Haikou Shishan Volcanic National Forest Park Based on Cognitive Map

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## Abstract

With junior students majoring in landscape architecture as the subjects, and Ma'anling core scenic spot of Haikou Shishan Volcanic Group National Geopark as a typical case place, using the cognitive map, questionnaire survey and IPA analysis method, from the cognitive map classification and characteristics, the overall spatial image analysis, partition spatial image analysis, spatial image evaluation and spatial image IPA analysis, analysis and evaluation its spatial image. The results show that: (1)The tourist cognitive map of Ma'anling core scenic spot of Haikou Shishan Volcanic Group National Geopark has a high hierarchical structure. There are three types: sequential types, spatial types and mixed types. The spatial type accounts for more than half. There is an obvious spatial deformation phenomenon of the sequential cognitive map. (2)Tourists have the strongest perception of markers, followed by roads, nodes and regions, with weak perception of boundaries. The frequency of spatial image elements in cognitive maps is relatively consistent with its average number in each map. (3)Tourists have the clearest cognition of crater core space and the vaguest cognition of tourist service leading space. Tourism attractions are the most core image element, and there are great differences in the occurrence rates of each image element. (4)The layout of the tourist service space of he core scenic area of Haikou Shishan Volcano Group National Geopark is chaotic. The scenic spot still has some space for improvement in promoting the tourists' second tour. Image elements such as fairy cave and volcanic temple need to be improved, and the parasitic volcano observation platform can be improved in terms of increasing the attention of tourists. Finally, from the aspects of adjusting the entrance and exit of the scenic spot, further dividing the leading space of tourist service, and creating the tourist story lines connecting the space of the scenic spot, the space optimization strategy is proposed for the Ma'anling core scenic spot and the Haikou Shishan Volcanic Group National Geopark. It provides data support and targeted reference suggestions for the tourism planning of the crater Geopark from the perspective of tourist perception.

Key words: Crater Geopark; cognitive map; spatial image; tourist image; Importance-Performance Analysis

# How Do Air Quality and Physical Activity Affect the Mechanisms Linking Urban Forest Park to Respiratory Health? A Cross-sectional Study in Nanjing, China

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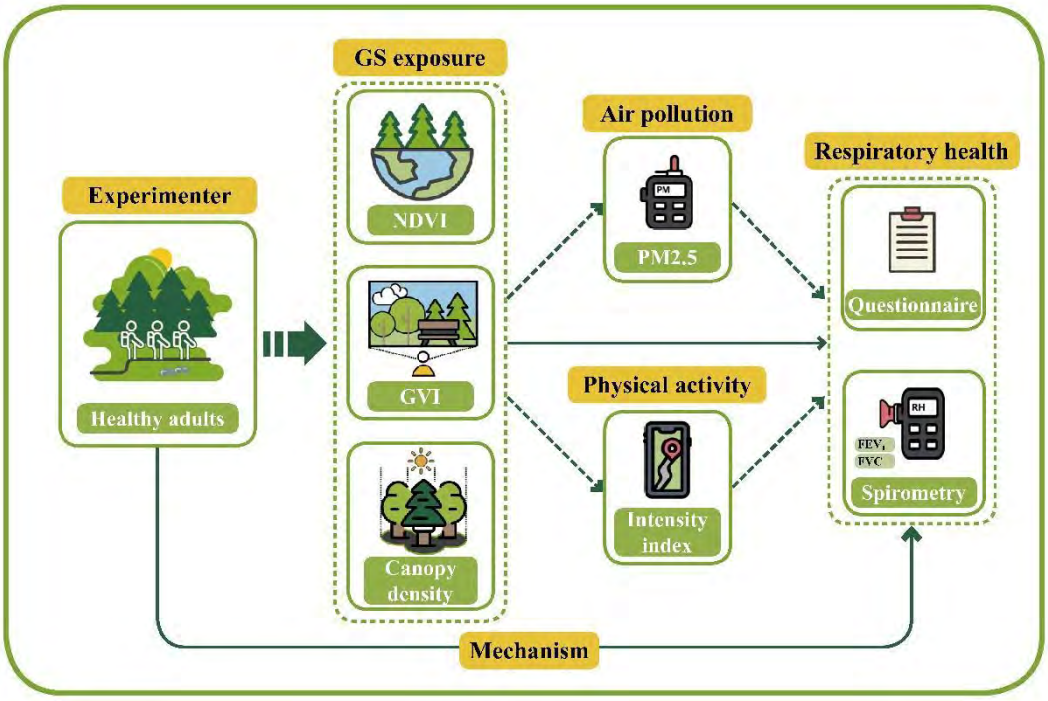
## Abstract

The pathways linking green space (GS) exposure to respiratory health have been continuously examined. However, few studies have revealed the association between multiple GS exposure indicators and respiratory health. Here, we aimed to construct a multi-dimensional exposure indicator framework, including two-dimensional indicator Normalized Difference Vegetation Index (NDVI) and three-dimensional indicators Green view index, and canopy density, to explore whether or to what extent these exposure indicators affect the hypothetical pathways: physical activity and air quality, and to calculate GS exposure thresholds that are more conducive to respiratory health for different types of urban green space. The cross-sectional study used an experimenter sample from Nanjing, China. The experimenters were divided into two groups and conducted experiments simultaneously in two urban green spaces. A partial least squares model (PLS) was used to investigate the parallel mediating effects of GS exposure through physical activity, air quality, and respiratory health. A nonlinear regression model was used to calculate the thresholds and trends of different exposure indicators. The results showed that the promotion of physical activity and the reduction of air quality were both important mediating variables affecting GS and respiratory health. In the parallel mediation model, physical activity was a relatively important mediator between GS and respiratory health. There was a significant positive correlation between respiratory health and physical activity. When air quality was poor to a certain extent, there was a negative correlation with respiratory health, with statistical significance. The GS exposure indexes of urban green space near mountain forests and waterfront urban green space have different threshold ranges. Our findings can help epidemiologists clarify the pathways and mechanisms by which GS affect respiratory health, as well as assist urban planners in implementing health-based GS interventions.

## Graphical abstract



# Classical Concert in the Forest with the Community

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## Introduction

Our poster introduces a case study of a classical music concert held in a forest space as a practical example of cultural activities utilizing forest spaces in contemporary Japan. The presenters have been working with local residents at Fuji Iyashinomori Woodland Study Center to manage the forest and create a space where various activities can be held in the forest. The modern lifestyle of Japanese people, whether they live in urban or rural areas, no longer requires direct contact with forests, and the basic knowledge and skills for handling forests that were essential for many people in the past to enter forests for various purposes, such as gathering, transportation, and obtaining fuel, have been lost. Communities in which people shared their knowledge and skills through joint use of forests are not so common anymore, and forests for joint use do not exist except in some areas, and even if they do exist, their use is not so active anymore. This may be part of the reason why local residents have not made much progress in utilizing forests, even though many forests with the potential to be used for a variety of activities are close at hand.

Therefore, using a part of the forests of Fuji Iyashinomori Woodland Study Center, we have created a space and a system where local residents can have a series of continuous experiences: they can come up with ideas and plans, work together with forest management staff, create a space where they can enjoy various activities using the forest, and then use the forest. These activities involving local residents can be described as a social experiment aimed at verifying the effects of the ripple effect of these activities, which will lead to the development of a community with the knowledge and skills to handle forests and to jointly utilize forests in the community.

## Classical Concerts in the Forest Space

"Iyashinomori no kai" was established in 2017 to manage and utilize Iyashinomori Lecture Room and surrounding forest space at Fuji Iyashinomori Woodland Study Center in cooperation with the Study Center by local residents. In 2019, "Iyashinomori no kai" created a wooden open terrace in front of the Iyashinomori Lecture Room, made of larch harvested in the Study Center. The pleasant open terrace surrounded by trees was completed, and our dreams were expanding to use it for sitting down and taking a break from walking in the forest, enjoying meals and coffee in the forest, and for exhibitions of our works and musical performances. Then came the Corona Disaster. By a series of fortunate coincidences, we decided to hold a concert of Classic Encourage, a string trio from the NHK Symphony Orchestra, on the open terrace of the forest. Although this was a completely new kind of event, the fact that we had no experience with conventional classical concerts led to the creation of an unprecedented project, a concert that opened early in the morning at 6:00 a.m. in the forest. This project was made possible by the relationship of trust that had been cultivated between Fuji Iyashinomori Woodland Study Center, local residents, local government, and other related parties..

"Iyashinomori no kai" played a central role in maintaining the forest at the concert site so

that the general public could listen to the concert in a safe and pleasant environment. The local government's health promotion point system introduced participation in the concert as an event eligible for health promotion points, and visitors who drove to the concert were directed to the village office parking lot. The Omotenashi no Kai, a group of local young people, provided refreshments and coffee at the venue early in the morning. Of course, the performance by the NHK Symphony Orchestra String Trio was superb, despite the unfavorable conditions, with the humidity changing rapidly as the morning sun gradually rose from the early morning dew (fig.1), and the audience seemed to enjoy both the refreshing forest space of an early summer morning and the supreme music to the fullest (fig.2)

In the process of this collaboration, we were careful not to overly guess our collaborators' feeling and bring our own expertise and ideas to the table, and since this was a new combination and there were no precedents, we were aware that we should not hesitate to bring our ideas to each other, exchange opinions, and solve each problem without preconceived ideas. It seems that the musicians themselves enjoyed this project more than we had expected, and since 2020 they have been coming to the Forest Concert at the Open Terrace every year. In addition, we are trying to expand the program to "Artist in Residence," in which artists are invited to stay in the community for a certain number of days and interact with the community in various ways.

In the poster presentation, you will be able to see a record of the concerts that have been held continuously and a video of the actual concerts.

fig.1 Classical musicians on open terrace

fig.2 Audience in the woods

# The Development Process of Tokyo and Hokkaido's MOKUIKU and the Actual State of MOKUIKU Instructor Training

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## Abstract

Mokuiku is an educational initiative aimed at deepening experiences with wood from an early age, fostering a richer life, a better society, and an awareness of the importance of creating new forests.

To achieve Mokuiku's goals, a project to develop professional "Mokuiku instructors" is being implemented. This project focuses on developing instructors who have a thorough understanding of Mokuiku and are capable of coordinating and planning Mokuiku activities in various forest education fields.

As the birthplace of Mokuiku education, Hokkaido plays an active role in the development of Mokuiku activities. Additionally, Tokyo's natural environment and ecosystems are rich in cultural and historical heritage, making Mokuiku instructors vital for future urban planning and promoting sustainable urban development through Mokuiku activities.

This study aims to investigate the current situation and challenges facing the Mokuiku instructor training program. I conducted a literature survey to understand the regions where Mokuiku instructor training was conducted. Through interviews and questionnaire surveys, I planned to evaluated the training, the status of activities, and the awareness of Mokuiku instructors after completing the training, and identified existing problems in the implementation of the training.

Using the literature survey method, I collected information on the implementation of Mokuiku instructor training courses across all 47 prefectures in Japan and created a summary table. Based on the list of Mokuiku Masters in Hokkaido, I analyzed and formulated hypotheses regarding the list of Mokuiku instructors provided by Hokkaido.

The list of Mokuiku Masters in Hokkaido shows that the distribution of Mokuiku masters is primarily concentrated in residential areas. Regions with fewer Mokuiku masters tend to have a lower number of Mokuiku activities. Regarding the operational expenses for Mokuiku masters in Hokkaido, there is a situation of sufficient demand.

Subsequently, through interviews and questionnaire surveys, I assessed the operational situation of this project, the value of the Mokuiku instructor training course, the activity of the Mokuiku instructors after completing the course, and their current attitude.

Keywords: Mokuiku, Mokuiku Master, Mokuiku instructor, talent education system

# Examining the possibility of VR teaching materials in forest environmental education

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## 1.Introduction

In recent years, forest environmental education has been promoted by organizations such as the Forestry Agency. However, the Forestry Agency's efforts currently focus on education in forest, as seen in the promotion of experiential activities, provision of field work, and human resource development. Therefore, I thought that if we could incorporate VR (Virtual Reality), which has recently been incorporated into education in various fields, into forest environmental education, we could increase the means of education and lead to the spread of forest environmental education. In this research, I actually created teaching materials that take advantage of the features of VR, analyzed whether the features worked effectively through implementation, and examined the possibility of VR teaching materials in forest environmental education.

## 2.Method

In this research, I examined the possibility of VR teaching materials through the steps of “designing the teaching material,” “developing the VR environment,” “testing teaching material,” and “evaluating”. In testing the teaching materials, I first conducted the preliminary trial and made improvements before conducting the main trial. Ten second-year students from S Junior High School in Tokyo participated in both trials as subjects, and opinions were also collected from teachers. In addition, I conducted pre-questionnaire of subjects regarding their experience with VR and games, their knowledge and interests in forests and environmental issues, etc. Moreover, I conducted post-questionnaire which objects and information left an impression on them and why, why they chose the culprit, and their experiences with VR and spaces. Questionnaires were conducted for about 10 minutes. During the trial, visual field images were mirrored, and movements were recorded by a video camera. From them, I recorded the number, and timing of information discovered by the subject, and data on visual field and body movements were read from the video. And I evaluated VR teaching material by combining the results of pre- and post-questionnaire and video.

## 3. Development of VR teaching materials

(1) Design of teaching materials: Since the target age of VR goggles is 13 years old and above, and the Forestry Agency targets elementary and junior high school students as the main targets for promoting forest environmental education, the teaching materials were designed to target 2nd and 3rd year junior high school students. This teaching material focuses on the characteristics of VR, such as ``accompanied by movement,'' ``free handling of information,'' and ``conveying a sense of size,'' with the aim of ①Be memorable, ②without getting bored, and ③inducing movement. It was created with the goal of The topic was ``Forest Damage Caused by Deer in Japan,'' which deals with both plants and animals, and assumes something that is not usually covered in class. Students will walk and explore two forests with different degrees of forest damage caused by deer. The game is played in the form of a deduction game to identify the cause.

(2) Development of VR environment: Image materials of trees were taken at the University of Tokyo Chichibu Forest and Fuji Iyashinomori Woodland Study Center, and 3D models of several types of trees were obtained by 3D scanning with Lidar. Using this data, I developed a VR environment using the game engine Unity and 3D model creation software Blender. In addition to several types of trees, the forest in the VR environment includes objects that can be grasped,

such as mushrooms and droppings, as well as objects for observation, such as deer and black bears. It is also equipped with a gimmick (in-game device) that pops up various information from objects in response to player's line of sight.

**Table1** Target and ideas in teaching material

| Target | Ideas in teaching material |
|---|---|
| ①be memorable | ・Realism of objects ・Pop-up information<br>・Gameplay that requires observation |
| ②without getting bored | ・Diverse objects ・Pop-up information<br>・Game ・Forests with different appearances ・interactive |
| ③inducting movement | ・graspable objects ・Pop-up information<br>・Objects placed above and below |

## 4. Implementation and evaluation of VR teaching materials

This survey was conducted on January 4, 2024. I prepared two 15m x 15m spaces in the school and tried out the VR teaching material for about 30 minutes per student. Of the 26 valid questionnaire answers (3 answers/person, 4 no answers), “because of the pop-up information" was the most common reason why the object left an impression (7 answers), followed by “because I was able to grasp objects ”, “Because of looks”, and “because it was related with the cause” were cited (each five answer). I measured the position every 10 seconds from the external video to see the change in momentum over time, and from the visual field I measured the timing of the four movements of "grabbing, crouching, looking up, and observing" and the timing when object information was displayed. Figure 1 shows an example of each measurement and summary. The display of actions and objects occurs constantly without maldistribution, and considering the survey results, it can be said that the goals of the teaching materials have been achieved.

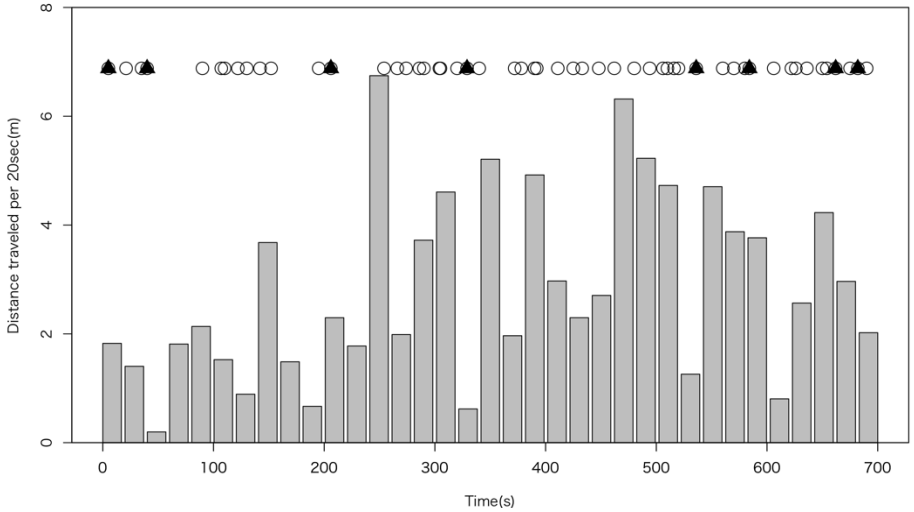


**Figure1**−Time changes in amount of exercise and timing of movement of subject No. 17−
○ : all movement ▲ : impressive object

## 5.Consideration

In terms of educational material design, the walking exploration game format was able to achieve the goal of making the game memorable and not boring by taking advantage of the features of VR that involve movement. Furthermore, in the development of VR environments, the interactivity of gimmicks that display information and objects that can be grasped greatly contributed to being memorable and inducing movement. Through this trial, I was able to confirm the possibility of using VR teaching materials for forest environmental education.

# Wild Mushroom Use in Japan and its Ecological Background

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## Introduction

"Shiitake" mushroom (*Lentinula edodes*) or "Matsutake" mushroom (*Tricholoma matsutake*) are the most common edible mushrooms in Japan, but in the past they were not always used throughout the country. The occurrence of mushrooms in the wild is highly dependent on the local vegetation environment. Different types of forest vegetation exist in different regions of Japan, and they have also undergone significant historical changes. Although the regional differences in wild mushroom utilization have been noted, this has never been examined as an effect of the vegetation environment.

The objectives of this study are 1) to clarify the distribution patterns of wild mushroom use, 2) to investigate the characteristics of the forest environment forming the background to mushroom usage in a particular region, and 3) to discuss the relationship between mushroom growing conditions and the human influence.

## Material and Method

The "Complete Collection of Dietary Habits in Japan" was used as a resource. This series of books comprehensively documents the dietary habits of various regions of Japan during the period 1920's-1930's. Names of wild mushrooms used in various regions were extracted, and local names were converted to common names.

The extracted mushrooms were classified as either saprophytic or mycorrhizal fungi, and their geographic distribution was examined. Next, I examined the vegetation environment in which wild mushroom gathering takes place and the anthropogenic influences behind it, based on folklore documents.

## Results and Discussion

As the result of analyzing records, Japan was classified into 3 areas as follows. The area type [ Ⅰ ] locates in northern part of the mainland and mountainous area of Chugoku region, where large number of species of mushrooms are used and greater part of them are saprophytic fungi. The type [ Ⅱ ] is laid in central part of the Japanese archipelago from Kanto region to northern Kyushu region, where small number of species of mushrooms are used and its species composition relies on mycorrhizal fungi. The type [ Ⅲ ] locates on southern part of Shikoku and Kyushu region, where only a few mushrooms are used and both saprophytic fungi and mycorrhizal fungi are almost equally used. Focusing on the behaviours of saprophytic and mycorrhizal one, it is considered that these area types are characterized by the intensity of vegetation disturbance rather than their indigenous climatic vegetations. It was high population density that caused the intense disturbance and exploitation toward forest. In the [ Ⅱ ] area populated densely, on the one hand saprophytic fungi which feed on organic materials such as timber, fallen leaves and hums were driven away because of forest exploitation, on the other hand forest was dominated by pioneer trees which can became host trees of mycorrhizal fungi because of repeating deforestation. Furthermore, considering historical data, the area where only mycorrhizal fungi can be used seem to have expanded historically.

# Oshima Tsumugi as Forest Culture and Factors Related to its Survival

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## 1. Introduction

Drastic changes in socioeconomic systems have had a profound impact on the survival of forest culture. In Japan, the underuse of forests has led to a weakening of the relationship between people and forests, which has called into question the survival and succession of forest culture and its necessity (Ebihara et al. 2019).

Oshima Tsumugi textile, which is the subject of this presentation, can be interpreted as belonging to forest culture in that it is dyed using mud containing iron ions and Sharinbai (*Rhaphiolepis indica var.umbellat*a). It should be noted that one of the management policies of the Amami Gunto National Park is "Environmental Culture," which aim to preserve culture including Oshima Tsumugi. While Oshima Tsumugi strongly supported the local economy as a representative of high-class Japanese clothing, it is now subject to preservation as a "culture". Based on the case of Oshima Tsumugi, which has been positioned differently by local communities over time, we aim to clarify the factors related to the survival of forest culture.

## 2. Modern Oshima Tsumugi: "The Axis of the Oshima Economy"

The figure shows the trend of Oshima Tsumugi production after the World War II. Oshima Tsumugi was actively produced from 1910-1920 and from 1970-1990 (Sekiguchi 2018). This increase in production, in addition to the efficiency of production, was in response to the increasing demand for kimono in mainland Japan. The Great Depression and World War II after 1920 made it difficult to make Oshima Tsumugi because the production bases were destroyed by the war. Historical documents issued in 1946 cited the geographical conditions as unsuitable for farming and other businesses as reasons for relying on Oshima Tsumugi (Minamura 2017). Minamura (2017) describes Oshima Tsumugi during this period as "The Axis of Oshima economy" and the trend of the Tsumugi industry as a "barometer of Oshima's reconstruction.

Later, with reconstruction assistance from the U.S. military and the Japanese government, production reached its peak during the period of rapid economic growth (Sekiguchi 2018). During this period, the division of labour was such that men performed forestry and construction labour for hourly and daily wages, while women weaved Oshima Tsumugi in between housework and childcare (Suyama 2017). During the interviews, residents testified "Often the income from Tsumugi were used to send their children to college.", which implied the income from weaving, done in between household chores, played a role in supporting them when they needed a large sum of money.

Until 1980, Oshima Tsumugi was expected to be "The Axis of the Oshima economy," as one of the key industries. Weaving is done by women in between housework and child-rearing, which had supported the production of Oshima Tsumugi.

## 3. Current Situation of Oshima Tsumugi: Conserved as "Environmental culture"?

The production of Oshima Tsumugi has decreased to 2,710 bolts in 2023, about one ninetieth of the peak period. As a cause of the decline, in addition to the decline in demand for Japanese clothing on the mainland, the producers continued to be in the position of subcontractors on the mainland, which meant that product development and other know-how did not develop locally (Suyama 2017). The number of craftsmen was also declining because part-time jobs provided more income than income from weaving There was testimony that although tourism demand is increasing with the registration of national parks and World Natural Heritage sites, it has not led to an increase in Tsumugi demand.

Production of the dye, Sharinbai, was also declining. Although there were records of planta-

tions of Sharinbai, it became difficult to secure Sharinbai due to the lack of information and records, and the roughness of the work roads used to carry Sharinbai out. In addition, the registration of the area as a national park had a negative impact on the collection of Sharinbai. The closure of the woodchip mill had also delayed the collection of the Sharinbai, which is collected along with the woodchips. We also confirmed testimony that even in areas where tree collection is legally allowed, people are refraining from collecting trees. Although the management policy of the national park is aimed at preserving the environmental culture, the designation of the park had a negative impact on the collection of dyes at this time.

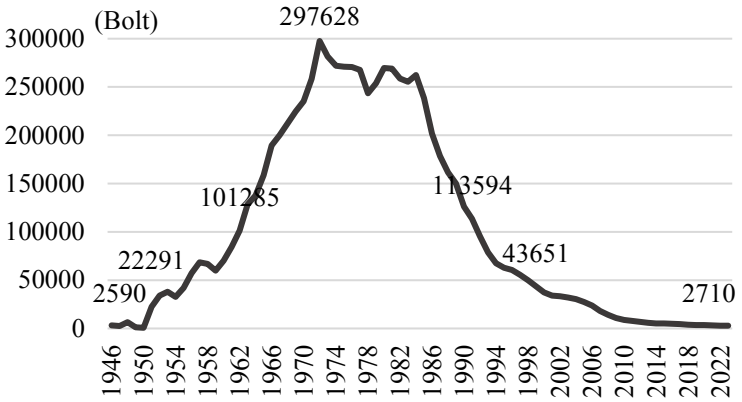


**Figure: Oshima Tsumugi production results from 1946**

Source: Prepared by authors from Honba Oshima-Tsumugi Orimono Cooperative Society (2022) and Amami Shimbun (2023)
Note: Indicates the number of fabrics for which quality inspections were conducted by the Cooperative Society

## 4. Conclusion

The production of Oshima Tsumugi was largely influenced by the relationship with mainland Japan, in addition to the effects of local social and economic fluctuations. Nawa (2003) pointed out that the importance of focusing on the relationship between developing countries that have preserved traditional knowledge and developed countries that consume knowledge-based products. This study revealed that even within the same country, a similar relationship can be recognized between disadvantaged areas such as islands and mountainous regions and urban areas.

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# Current Status of Satoyama-type Tree Burial in Japan and Forest Management
# -A Study Focused on Urban Areas-

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## Background

In Japan, tree burials have been rapidly gaining popularity over recent decades. According to the 2019 "Good Tomb" National Survey of Grave Consumers, the proportion of tree burial buyers exceeded 40%, surpassing traditional graves. However, the proportion of Satoyama-type tree burials, originally established to conserve rural landscapes, remains very small. This study aims to explore the factors contributing to the rapid spread of tree burials, the reasons for the limited increase in Satoyama-type tree burials, and the future direction of forest management at tree burial sites.

## Research Method

Firstly, we conducted a comprehensive review of academic literature and survey reports to identify the factors driving the popularity of tree burials. Additionally, to gain a comprehensive understanding of tree burials across the Kanto region, we collected and analyzed information from various websites. Subsequently, from September to November, we interviewed administrators from four different tree burial sites to assess their unique characteristics and management strategies. Lastly, we distributed a questionnaire by mail to 190 users of a Satoyama-type tree burial site in Tokyo to gather and analyze users' perceptions and opinions.Tree burials in Japan exhibit diverse forms and are typically categorized into four types based on previous research (Ueda, 2022): "Satoyama-type," which utilizes existing forests to bury cremated remains at the base of trees; "Forest-type," which involves planting seedlings at burial sites for cremated remains; "Symbolic Tree-type," which features trees serving as monuments with cremated remains buried around them; and "Garden-type," which embellishes existing grave plots with trees and flower beds. This study generally follows Ueda's classification.

## Literature Review

The rapid proliferation of tree burials in recent decades can be attributed to three primary factors: 1) a decline in familial consciousness, 2) urban cemetery shortages, and 3) a growing affinity for natural orientation. The establishment of Japan's first tree burial site in 1997, coupled with extensive media coverage promoting the romantic image of tree burials, has been diminishing people’s resistance to it. In recent years, as the baby boomer generation has entered their 70s and started considering their burial arrangements, tree burials have emerged as a notable option, contributing to the significant increase in the number of users.

## Website Research

In the Kanto region, 83% of tree burials are concentrated in the densely populated southern Kanto area (Chiba, Saitama, Tokyo, Kanagawa). The price range varies by region, but 56% of the cemeteries are in the range of 200,000-500,000 yen. Additionally, it has become evident that garden-type dominates, accounting for 85% of the total. Satoyama-type and forest-type sites together represent only 2%, mainly concentrated in the mountainous Chiba Prefecture.

## Interview Survey

Considering the high demand for tree burials in the southern Kanto region and the convenience of the investigation, two garden-type and two Satoyama-type sites were selected in Chiba Prefecture and Tokyo for this study.

The Satoyama-type sites, managed by religious corporations, contrast with the garden-type sites, where stonemasonry companies handle management. The stonemasonry company responsible for the garden-type site in Chiba has developed over 100 garden-type tree burial sites nationwide, indicating the involvement of stonemasonry companies as a characteristic feature of garden-type sites.

The operators of garden-type tree burials recognize the changing demand and aim to revitalize the utilization of traditional graves. Their form resembles traditional graves, with a more compact layout of plots. Within the burial plots, garden trees and flowers are arranged, requiring little effort for maintenance and management. It is relatively easy for it to obtain cemetery permits.

In contrast, the operators of Satoyama-type sites aim to conserve Satoyama and to build up graves surrounding by nature. The tree burial sites are well-maintained and give a bright impression within the forest. Regarding environmental management and maintenance, the Satoyama-type site in Tokyo has replanted sakura trees and other Satoyama plant species to restore the original forest, while the Satoyama-type site in Chiba, originally populated by beech trees, has cleared dense oak forests to replant oak seedlings, along with thinning bamboo groves and mowing grass to create a well-lit forest environment. Environmental management tasks such as mowing grass and pruning trees are regularly carried out at these sites. Overall, significant effort is invested in maintenance and management to create and maintain a natural environment preferred by users, and various strategies are employed to gain cemetery permits.

## Questionnaire Survey

A questionnaire was distributed to 190 users, and responses were obtained from 68 individuals (response rate:35.8%). The primary reasons for choosing the burial site include the desire to "return to nature" (90%) and the appeal of "natural environment and atmosphere" (49%), indicating a strong inclination towards nature among users. Factors such as "perpetual memorialization," "price," and "distance" (29%) are also considered to some extent, although they are not the decisive factors in decision-making. Furthermore, there is a trend of high satisfaction with the well-lit environment of tree burial sites, with expectations for diverse and attractive surroundings surrounded by various trees and flowers. They also seek a sense of security for the future and sustainable management.

## Conclusion

The demand for traditional graves has decreased, leading to the widespread adoption of low-cost garden-type tree burials. On the other hand, the Satoyama type emphasizes the preservation and management of the natural environment, which requires significant resources and effort. Consequently, there are limited developers. However, there is still demand, and the Satoyama type meets the needs of "returning to nature." Responding to the preferences of users, it is important to consider landscape and seasonal changes and to plant different types of trees to maintain diversity. Given the permanency of the cemetery, a long-term management plan for tree felling is considered desirable.

# The Relationship between the Worldview of the Anime "Natsume's Book of Friends" and the Cognition of Nature at the Model Site from the Perspective of Yokai Culture

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## 1. Introduction

The role of the natural environment in society has gradually shifted from that of a living environment to that of a recreational environment, and activities to familiarize people with nature have become popular.[1)] Particularly in rural areas rich in nature, the natural environment was often used as a resource for regional revitalization, resulting in its own destruction.[2)]

Given the importance of ecotourism in scenic areas rich in natural beauty, it is essential to know how to convey local perceptions of nature to visitors. In this context, to covey to visitors about the residents' feelings (reverent, grateful etc.) or worldview toward the natural environment and scenery in an easy-to-understand way, local folk culture (gods, monsters, etc.) can be considered a possible countermeasure to environmental problems. [3)] However, while studies on folk culture are common, few studies have examined the connection between the perception of nature conveyed to visitors by folk culture and the original perception of nature in the region. Therefore, the present study focuses on the connection between the folk culture expressed in the anime video works—a valid new style to impress people nowadays—which can attract visitors to the site and the cognition of nature held by the residents of the model site.

## 2. Study Area

From this perspective, this study considers the possibility that Yokai culture may contribute to the environmental preservation of natural scenic areas in view of the anime "Natsume's Book of Friends" ("Natsume"), which is related to Yokai culture, and the traditional perception of nature in the nature-rich Hitoyoshi-Kuma region, which is the main model site.

### *2.1 The natural characteristics of Hitoyoshi-Kuma region*

The Hitoyoshi-Kuma region is located in the central part of Southern Kyushu and forms a typical basin surrounded by the lush and mountainous Kyushu Central Mountain Range. It is prone to fog due to the large temperature variation between day and night. The Kuma River, one of the three fastest-flowing rivers in Japan, runs through the center of the region and has long been used for water transportation and agricultural purposes to support the local lifestyle.

### *2.2 The anime "Natsume's Book of Friends"*

"Natsume" is mainly set in the Hitoyoshi-Kuma region, and since 2008, it has gained fans worldwide, with up to six series airing until 2017, and the production of the seventh season was announced in 2023. The content of the work can be summarized as follows: "The main character, Takashi Natsume, who has been able to see Yokai since he was a child, begins to search for his own path through contact with Yokai and the people involved and tries to find ways to protect his precious days with the help of friends who share his thoughts and feelings."

## 3. Methodology

To achieve the research objectives described in the previous section, this study used the following three survey steps.

*Survey 1: Local Yokai Culture and Nature Awareness*

To understand the relationship between the traditional Yokai culture and the perception of nature in the Hitoyoshi-Kuma area, we have organized the folk legends of the Hitoyoshi-Kuma area and combined them with the geographical features of the area to understand the traditional relationship between humans, Yokai, and nature.

*Survey 2: The Yokai Characters' Attributes and Worldview of "Natsume"*

The attributes of the Yokai that appeared in the first four phases of the "Natsume" and their relationship to the natural environment are summarized; their primary feelings toward humans are analyzed; and a comparison is made with the local Yokai culture analyzed in the previous chapters.

*Survey 3: Tourism Stakeholders' Perceptions of "Natsume" Tourism*

Through field surveys and interviews with tourism stakeholders in the Hitoyoshi-Kuma region, we clarified the perceptions of nature and "Natsume" tourism by people who hold multiple positions, such as event organizers, tourism business operators, "Natsume" fans, and local residents.

## 4. Results and discussion

**Table 1.** Relationship between Tales of Yokai and the Natural Environment in the Hitoyoshi-Kuma Region

| Character | Appearance Location(N=80) | | | | | | Relationship to Nature(N=80) | | | | Primary feelings/positions towards human(N=80) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mountain | River | Tree | Shinto shrine | House | Others | Relate | | | Not relate | Opposite | Friendly | Utilized | Enshrined | Others |
| | | | | | | | Animal | Plant | Others | | | | | | |
| Count | 46 | 24 | 3 | 6 | 9 | 11 | 16 | 3 | 53 | 9 | 42 | 2 | 5 | 19 | 24 |
| Percentage | 57.50% | 30.00% | 3.75% | 7.50% | 11.25% | 13.75% | 20.00% | 3.75% | 66.25% | 11.25% | 52.50% | 2.50% | 6.25% | 23.75% | 30.00% |

※May appear in mountains and rivers at the same time.

**Table 2.** Attributes of Yokai that Appeared in the First Four Seasons of the "Natsume"

| Character | Appearance Location(N=71) | | | | | | Relationship to Nature(N=71) | | | | Primary feelings/positions towards human(N=71) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mountain | River | Tree | Shinto shrine | House | Others | Relate | | | Not relate | Opposite | Friendly | Utilized | Enshrined | Others |
| | | | | | | | Animal | Plant | Others | | | | | | |
| Count | 29 | 2 | 1 | 5 | 4 | 14 | 9 | 5 | 10 | 47 | 17 | 32 | 7 | 5 | 14 |
| Percentage | 40.85% | 2.82% | 1.41% | 7.04% | 5.63% | 19.72% | 12.68% | 7.04% | 14.08% | 66.20% | 23.94% | 45.07% | 9.86% | 7.04% | 19.72% |

Contrary to the belief that most of the Yokai discussed in the folk legends of the Hitoyoshi-Kuma region are confrontational and feared by humans (Table 1), the Yokai depicted in "Natsume" have basically no ill will toward humans (Table 2), showing diversity in character.

Worth noting are the results of survey 3 that residents are aware of the rich natural resources of the region and the risk of flooding, while their sensory cognition consists mainly of positive emotions such as "admiration" and "benefit." Therefore, while "Natsume" differs from the Hitoyoshi-Kuma region's perception of Yokai, the common feature of the worldviews of the "Natsume" is their local cognition of nature. It is thought that the worldview of the "Natsume" makes it possible to gain a common understanding of nature with local residents through the expression of their perception of Yokai and to contribute to the conservation of nature for local tourism.

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# Characteristics and Awareness of Forests and Forest Environmental Education and Tree Perception in China: A Text Analysis of Free Description

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**Introduction**

In China, in 2019, the “Notification on Fully Demonstrating the Social Functions of Various Types of Nature Reserves, and Strongly Developing Nature Education Activities” was issued, advocating for the proactive promotion of nature education in nature reserves, national parks, and forest parks as venues for activities and experiences, underlining the societal and cultural utilization of forest ecosystem services under policy guidance. Forests play a significant role as educational "spaces". Additionally, trees have been utilized as one of the materials for forest education, through activities such as tree planting experiences, tree identification, collecting leaves and branches, handicrafts, and tree nurturing. It is important to clarify how trees, as the fundamental units constituting forests, are perceived and people's awareness of forest education.

**Objective**

Through forest environmental education related to trees, it is necessary to accurately identify tree species and characteristics, and to carry out actions for tree conservation. This study aims to elucidate the characteristics of tree perception among Chinese residents and their awareness of forest environmental education.

**Materials & Methods**

In this study, we utilized the survey "Forest Awareness Survey" conducted by Li and Ito (2020) and unanalyzed text data. The survey questionnaire included open-ended questions：
"Please share your thoughts or opinions on forests and forest environmental education" ,
" Please List five names of trees that are familiar to you."
In this study, we employed text mining, a method for quantifying descriptive data from documents and surveys, to analyze the characteristics of free-response data (Higuchi, 2020).
We used KH Coder ver.3 to analyze free-response data as follow steps:
1． We organized comments on forest environmental education along with the frequency and occurrence rate of tree names.
2． To highlight diversity, we selected the top 30 occurrences. To examine the relationship between awareness of forest environmental education and tree perception, we conducted correspondence analysis.
3． We explored differences in attributes of words used in free responses by creating correspondence analysis and co-occurrence networks for interpretation.

**Conclusions & Discussions**

Firstly, in China, nine categories were identified in relation to awareness of forest and forest environmental education. Secondly, regarding tree perception, the most frequently mentioned trees in China were pine (松), followed by willow (柳), poplar (楊), ginkgo (銀杏), sophora (槐), and paulownia (梧桐). Thirdly, differences in tree preferences were observed among different ethnic groups, target group, and regions.

Differences in tree perception among ethnic groups and regions may be related to the cultural significance of trees and the distribution of forest resources in each region.

However, it will be necessary to further investigate the specific factors and their relationship with regional lifestyles and forest cultures.

Additionally, analyzing whether education about local nature and forests influences tree recognition is also essential.

Keyword : tree perception, forest environmental education, co-occurrence network, correspondence analysis

## Photos



Yamanaka Hall

Dr. Mariko Inoue

Prof. Kim Soyeon

Peng Zhaohui

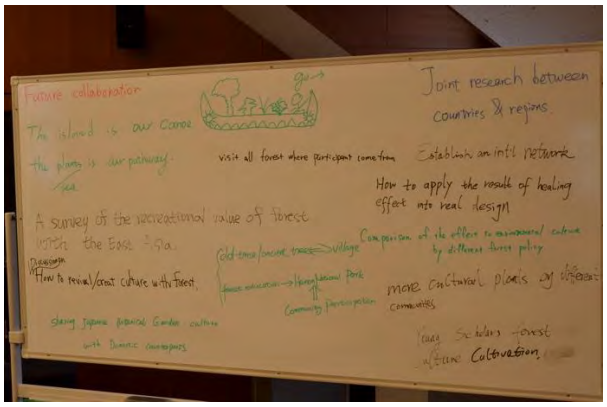
Koji Chihara

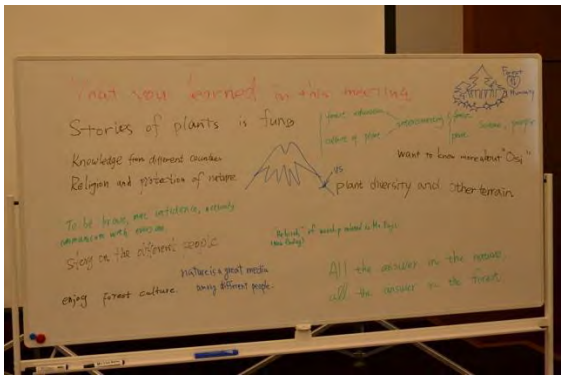
Prof. Chunlin Long

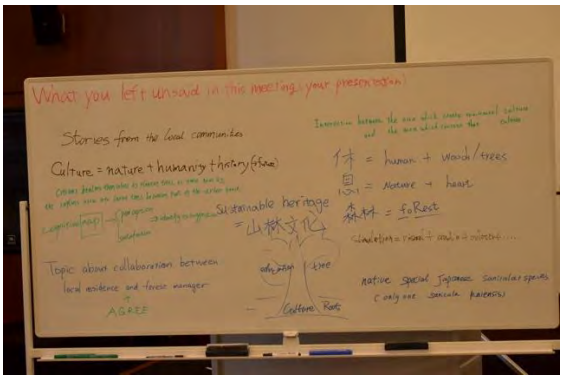
Dr. Yen Yen Sally Rahayu

Dr. Liu Shoubai

Prof. Yang Chih Kai




Wrap-up Session

Forest Visit and Inspection in Fuji Iyashinomori Woodland Study Center, The University of Tokyo Forests





富士吉田市歴史民俗博物館付属施設
THE ANNEX OF FUJIYOSHIDA MUSEUM OF LOCAL HISTORY
御師 旧外川家住宅施設案内
THE INFORMATION OF THE TOGAWA'S OSHI HOUSE AS PILGRIM'S INN
〈施設利用案内／ INFORMATION 〉
御師 旧外川家住宅
THE TOGAWA'S OSHI HOUSE AS PILGRIM'S INN




Excursion


International Research Meeting of
Forest Culture Science Network
in East Asia
16th to 20th March 2024
Venue

Group Photo

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We also thank all special speakers, keynote speakers and participants.

2024 Mar.
FOCUSEA Executive Committee
Chairperson Ishibashi Seiji