

Forest Education in Japan

Historical Review; Current Forestry Practices, Forest Management, and Wood Processing Education; and Future Expectations



Tama Forest Science Garden
Forestry and Forest Products Research Institute



Japanese White-eye



Cerasus speciosa



Common kingfisher



Cerasus jamasakura var. *jamasakura*



Cerasus Sato-zakura Group 'Contorta'

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ISBN 978-4-909941-11-4



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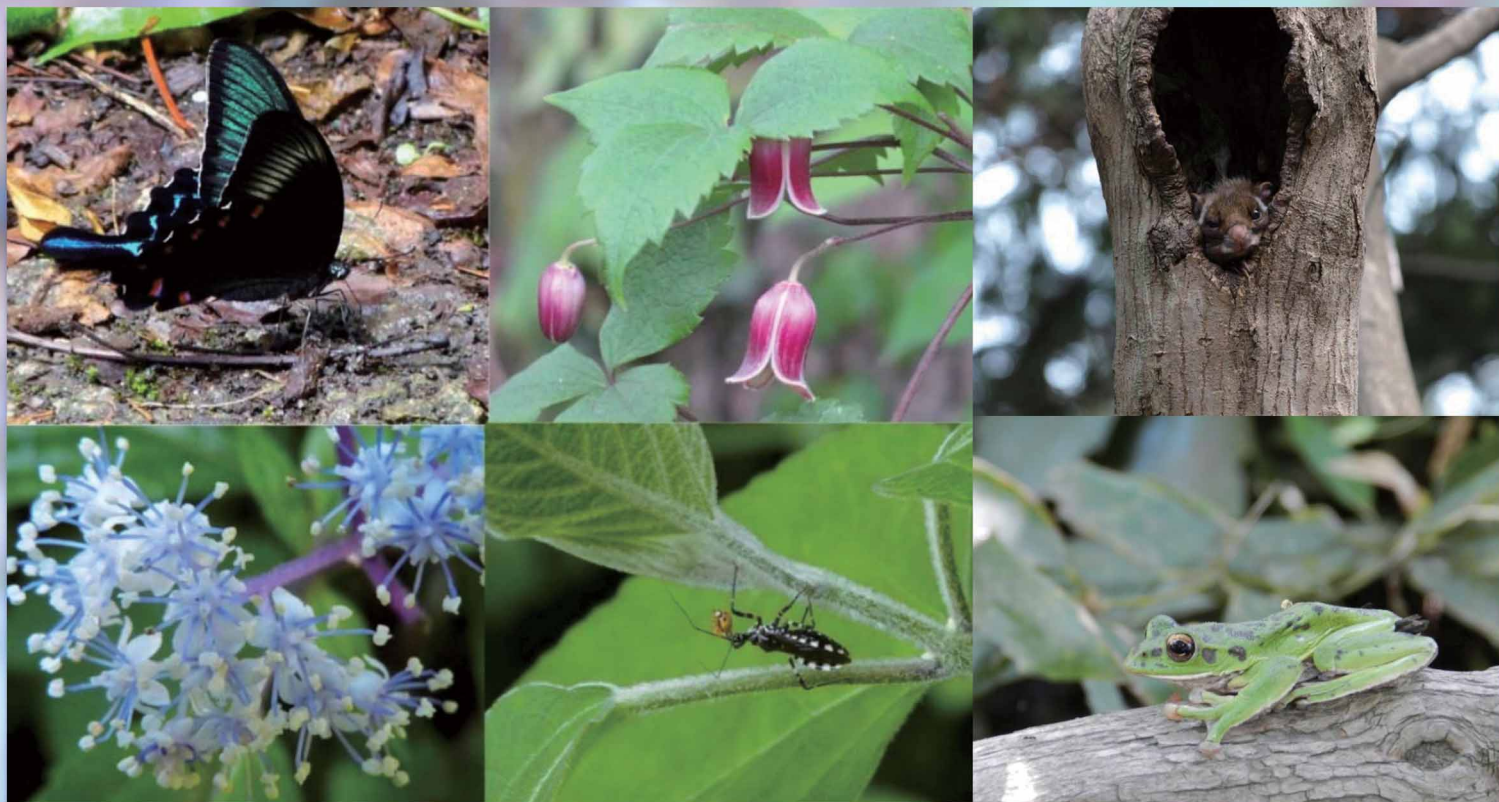


Cerasus Sato-zakura Group 'Oshu-satozakura'



Cerasus Sato-zakura Group 'Sphaerantha'

Cerasus Sato-zakura Group 'Sekiyama'



Take a Guided Tour in Tama Forest Science Garden
Contact: kouhotama@ffpri.affrc.go.jp



Tama Forest Science Garden
 Forestry and Forest Products Research Institute

Tama Forest Science Garden

The Tama Forest Science Garden of the Forestry and Forest Products Research Institute (FFPRI) was originally established in 1921 as a forestry experiment station by the Imperial Forestry Bureau of the Imperial Household Ministry. The Garden is located at the outskirts of Tokyo. To deepen general understanding of forest study, some research facilities have been opened to the public since 1992, including Cherry Tree Preservation Forests and Arboretums (15ha) and the Forest Science Museum.

In 2001, FFPRI formally established a research agenda for environmental education in forests. Since then, Tama Forest Science Garden has served as a focal point to connect forest science and people. To involve the general public, Dr. Mariko Inoue and Dr. Yasuhiko Oishi have been playing important roles to connect multi-stakeholders involved in forestry research, schools, government and industry. In 2019, those activities were awarded as Top 10 in Global Best Practices in Forest Education Competition launched by IUFRO as a part of events held in International Forest Day and World Wood Day in Austria in March 2019. Videos under screening process can be accessed at the IUFRO taskforce website; and the final video can be accessed in Japan Committee of IUFRO.

http://www.ffpri.affrc.go.jp/labs/iufroj/index_Eng.html

The Tama Forest Science Garden can be a start of connecting forest, science, and people. Take a guided tour in Tama Forest Science Garden, Japan. For more information, see: <http://www.ffpri.affrc.go.jp/tmk/en/visit/index.html>

“Education is a key means to build and influence the knowledge, skills and competences required for realizing the sustainable management and conservation of forests and the provision of sustainable wood products. Therefore, IUFRO actively promotes research collaboration and sharing of best practices on forest education and contributes to improving forest education worldwide.”

IUFRO President
Dr. John Parrotta



INTERCONNECTING FORESTS, SCIENCE AND PEOPLE



Quality of education and further education play a key role for the quality of research as well as practical work in forestry. Therefore it is essential to address measures of raising the quality of education and develop methods to evaluate the success of education and further education.



Global Outlook on Forest Education GOFE – Preliminary Results

Rekola,
University of Helsinki, Finland

Authors: Abbas, D., Bal, T., Pohlschneider, S.,
Shank, T.

World Congress

**IUFRO Research Group 6.09.00
Coordinator, Prof. Mika Rekola,
University of Helsinki, Finland**

IUFRO Research Group 6.09.00 has engaged research about specialized education in universities and colleges. The Research Group recently has drawn attention of educational leaders to develop educational system focusing on children. This brochure introduces forest education in Japan where educational activity targeting children has been historically conducted.

**Dr. Mariko Inoue
Former Deputy Coordinator**

Forest Education in IUFRO

The International Union of Forest Research Organizations (IUFRO) started a Research Group on "Improving education and further education in forestry" at the 20th IUFRO World Congress held in Tampere, Finland (1995). A Task Force on "Education in Forest Sciences" was established in 2011. The Task Force has meanwhile developed into a Joint IUFRO-IFSA Task Force on Forest Education and has engaged in various activities in cooperation with the International Forestry Students' Association (IFSA).

To celebrate 2019 International Day of Forests on March 21, the IUFRO Task Force organized the "Global Competition on Best Practices in Forest Education" together with IFSA, University of Helsinki, UN FAO and other organizations, to raise awareness about education. The Tama Forest Science Garden activities were selected as one of the top ten finalists.

<https://www.iufro.org/science/task-forces/forest-education/outstanding-practices-forest-education/#c28424>

**Dr. Mika Rekola
Coordinator of IUFRO Research Group 6.09.00**



**Joint IUFRO-IFSA Task Force
on Forest Education**

Preface

Japan is bestowed with rich and diverse forests that cover 67% of the land. Within this historical background, in which the general public appreciates the abundance of natural beauty and transition of seasons, forestry education in Japanese schools and some national environmental activities associated with forestry has been conducted for more than 100 years; more recently forest education in Japan has become more active and diversified in connection with international trends that highlight forest education that plays a vital role in promoting sustainable forest management, forest products use, and conservation.

We hope that the forest education activity initiated by Tama Forest Science Garden of the Forestry and Forest Products Research Institute will connect those involved in forestry research, industry, government, and the general public, and will continue to stress the importance of forest education, especially for children, to realize sustainable forest utilization and conservation.

Editor in Chief, Mariko Inoue



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SUSTAINABLE DEVELOPMENT GOALS



Forestry and Forest Products Research Institute (FFPRI) supports the SDGs.



Photo 1. Beech *Fagus crenata*

1. Diverse Activities with Historical Features



Photo 2. Finding answers with elementary school students after tree observation



Forests in Japan

The major geographical characteristic of Japan is that the land extends from north to south. Therefore various types of forests are observed: subarctic coniferous; cool-temperate, deciduous, broad-leaved; warm-temperate laurel; and subtropical rain-green forests. Japan's natural environment has developed biological diversity; about 5,500 species of wild plants, including Pteridophyte (fern), about 700 species of birds, and about 32,000 species of insects.

Historical Background

Outdoor activities, such as hiking and camping, where children can enjoy seasonal transition by observing nature have been historically a part of Japanese school education. Recent activities in schools address forest practice and wood processing education for achieving United Nations sustainable development goals (SDGs).

School forests were established in the 1890s; forestry activities among general public was nationally promoted in the 1990s. Since then, scientific research associated with forest education has been actively conducted.¹⁾

Our distinct forest education undertaking would include: diverse programs, partnerships among various stakeholders on bases of the ground activity, and cooperation between general education and professional education.



People's concern about forest preserves

Centuries ago when people worshiped nature and forest, religious places such as temples and shrines were surrounded by preserved forests. People who lived in mountainous areas had to conduct practices that employ water conservation and erosion control. Various species of trees were planted and used for wooden architecture. Horyu-ji Temple located in Nara constructed in 607, one of the oldest wooden structures in the world, has been maintained by the people. Horyu-ji was registered on the United Nations Educational Scientific Cultural Organization (UNESCO) world heritage list in 1993 (Photo 3).



Photo 3. Horyu-ji Temple, oldest wooden structure in the world

Diverse Activities

Forest education activities involving children and senior citizens are conducted by diverse stakeholders. They include various types of experiences: nature observation, outdoor camping, and forestry practices, which include learning about cutting and planting trees using forestry tools (Photos 4 to 6).

Forest education is classified into four components (Fig. 1):⁷⁾

Component 1: Forest resources (use of forest products, forest management)

Component 2: Natural environment (forest environment, forest ecosystems)

Component 3: Experiences in nature (recreation, outdoor activities)

Component 4: Regional culture (natural features, providing livelihoods in rural areas)

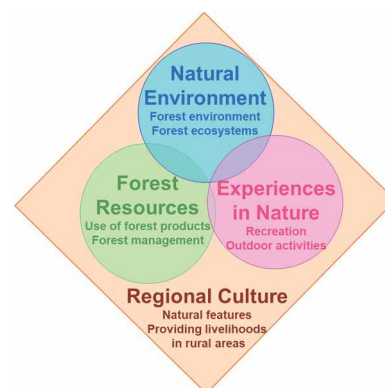


Fig. 1. General concept of forest education⁷⁾



Forest education promoted by forestry administrations

Forest administrators have been interested in forestry education activities since the 1970s. The Forestry Agency started to promote "Forest Environmental Education" in 1999. In 2001, "promoting the use of forests for education" was included in the Forest and Forestry Basic Act. Since then, nine facilities have been established for promoting activities in national forests, and many textbooks for forest educational programs have been published. The terminology "MOKUIKU" designates success; MOKUIKU promotes sustainable wood use and is disseminated throughout Japan. MOKUIKU is also useful for raising awareness of environmental issues.



Top: Photo 4. Planting a tree
Center: Photo 5. Felling and measurement
Bottom: Photo 6. Observing old forestry tools

2. What is Forest Education?

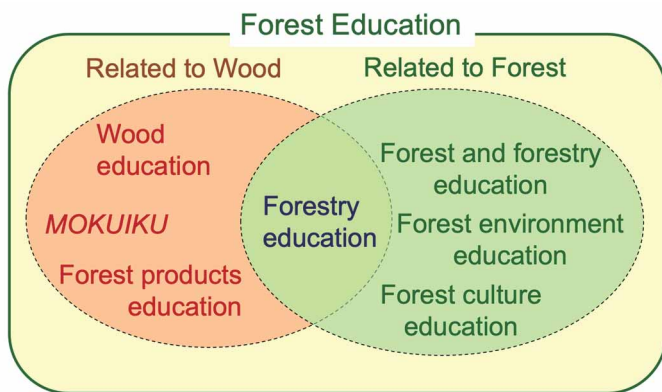


Fig. 2. Concept of Forest Education⁷⁾



Photo 7. Viewing SATOYAMA

Note: Satoyama: Literally, “village mountain(s)” where people’s life has been in harmony with nature. Satoyama is a forest in Japan that has been associated with agricultural and other lifestyles. See more detail for international promotion:
<https://satoyama-initiative.org/>



Photo 8. Transition from autumn to winter

Definition

Forest education activities have been widely carried out as a part of natural science, environmental education and education for sustainable development, outdoor education, education for technical arts, and vocational education.

The definition of forest education is: “Learning through direct experience in forests for human resources; learning about forests that are the regional natural environment bestowing renewable resources and that increase human’s sensibility to nature; nurturing skills and awareness associated with forests; and nurturing human resources who can live with nature in environmentally sound way and can contribute to a sustainable society.”¹¹⁾

Forest Education covers five Forest Basics: diversity, life, production, relationships and finiteness, and five Relationship Basics between Forests and Society: real, regional, cultural, scientific and sustainable.^{1,11)} The various purposes of forest education^{1,11)} are:

- 1) Learning about forests
 - forests as a part of nature
 - relationship between forests and human society, including multiple forest functions and effect in daily life
 - increase sensibility for viewing nature; sense dignity of forests, sense progression of seasons
- 2) Nurturing through activities in forest
 - skills to know and observe forests
 - skills related to forests, including work with forest conservation and forest maintenance
 - awareness of nature; generate love and aware of nature, awareness of work, and generation of ownership through actual experiences in local areas including forests
 - abilities to relate to individuals and society through actual experiences in forests, which leads to integration of knowledge, sensibility and experiences into one whole
- 3) Developing human resources
 - nurturing “zest for living”, cultivating human resources capable of developing a sustainable society and promoting international leadership as global citizens to realize a sustainable society

Implementation

There are four essential components to implementing forest education: field (forest), guide, learner, and educational program¹⁾. The management process is arranged in three steps: ¹²⁾

1. Planning - (a) preparation that clarifies aims and conditions and (b) examination of the components (Fig. 3)
2. Operational - (a) initial preparation, including preliminary discussions and surveys, preparation of teaching materials, and risk management, and (b) conduct on the day of implementation
3. Assessment

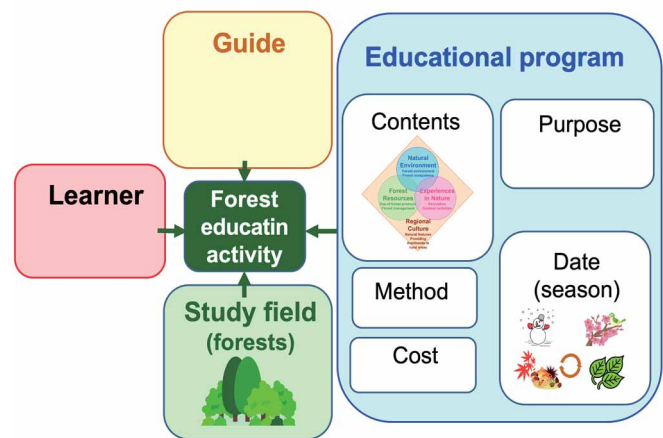


Fig. 3. Components constituting forest educational activities.
“Contents” under educational program is referred to in Fig. 1.



Academic Societies Related to Forest Education

- 1) THE JAPANESE FOREST SOCIETY since 1914, with 2,500 members: Article of forest education was started in 1900. Since 2003, a special conference about forest education research has been established. Then this was set as a permanent session in 2018.
- 2) THE JAPAN WOOD RESEARCH SOCIETY since 1955, with about 1,700 members: One of 20 study groups is forest products education study; there is a session about forest products education and technology transfer in the conference of wood science. The Wood education committee is involved with forest education.
- 3) THE JAPANESE SOCIETY FOR ENVIRONMENTAL EDUCATION since 1990, with about 1,000 members: this society aims to study environmental education; it was developed on the bases of education to deal with pollution and nature conservation in Japan.
- 4) JAPAN OUTDOOR EDUCATION SOCIETY since 1997 of which precursor was established in 1966, with about 500 members: The purpose of this society is to develop outdoor education rooted in experience in nature. Its three themes are “nature, people, and experiences.”



Photo 9. Example of forest education activity



Photo 10. Sensing seasonal transition through forest education activity; autumn view

3. Forest Education as Professional Education in Schools

Educational System ¹⁾

In the educational system in Japan, students enter the elementary school at age six. There are six years of compulsory education in elementary school, and three years in junior high school, totaling nine years of compulsory education. After that, almost all students go to high school for three years, and about half go to universities or colleges. Some go to technical schools (Fig. 4).

Education related to forests and forest products has been held as a part of compulsory education for more than 100 years; for example, handcrafts and plantation of school forests were taught. Forestry was taught as a vocational option. Today, all students learn about cultivation of plants in science, forest functions in social science, and wood processing in technical education. In addition, school educational activities include outdoor activities with mountain climbing and camping.

The promotion of experiencing outdoor activities in nature was inserted in the Educational Law revised in 2007. Environmental education is promoted as well. Since 2000, “times for comprehensive learning” are set in general education in the school curriculum, in which environmental education can be promoted.

Forest Professional Education ¹⁾

Forest education is held in high school, university or college, and technical school. The history of professional education related to forests in schools was started in 1882 when Tokyo Sanrin School was established.

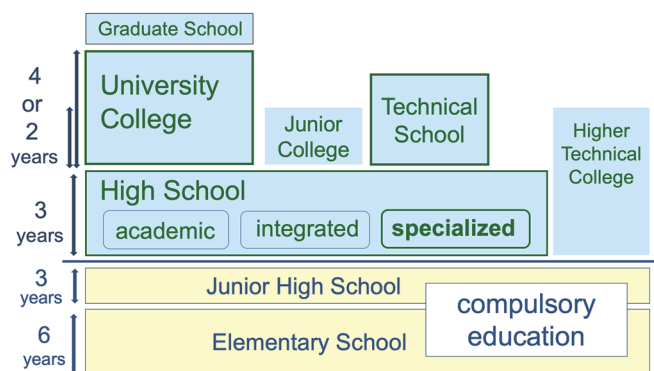


Fig. 4. Educational system in Japan

High School ¹³⁾

There are three kinds of high school: academic high school, integrated high school, and specialized high school. The number of high schools was 4,897 in 2019. There were 72 schools that include forestry courses in 2018 (Fig. 5). Three kinds of textbooks, Forest Science, Forest Management and Utilization of Forest products, are used for forest education (See “References” for front cover pages). In those schools, various types of education to learn about the local community through forest educational activities are conducted. After finishing those schools, some students choose a career related to forests, and some go to colleges and universities where forestry can be chosen as their future career.

University and College ¹⁴⁾

There were 29 universities and colleges related to forest education out of a total of 782 universities or colleges in 2019. After completing these specialized courses, many students choose a career to manage forests, such as civil servants of forestry administration. There are more than hundreds of newly recruited administrative servants, including both Forestry Agency and local prefectural administrations.*

Forestry courses have been revised since 1990. The term “forestry education” has been changed to “forest education”. Forest education is basically situated in the Department of Agriculture, or in the Department of Forestry and Marine Sciences and Department of Bioresource Sciences. In terms of faculty, forest education falls under the faculty of forest science (12 universities), and others fall into categories of environment or biology.

Technical School ¹⁴⁾

Technical schools are different types of schools, prefectural technical colleges* that focus on efficiently raising human resources who can be experts of forestry. There were 18 technical schools in 2019.¹⁴⁾

* Prefectural: Japan is divided into 47 local jurisdictional “prefecture” units under government.

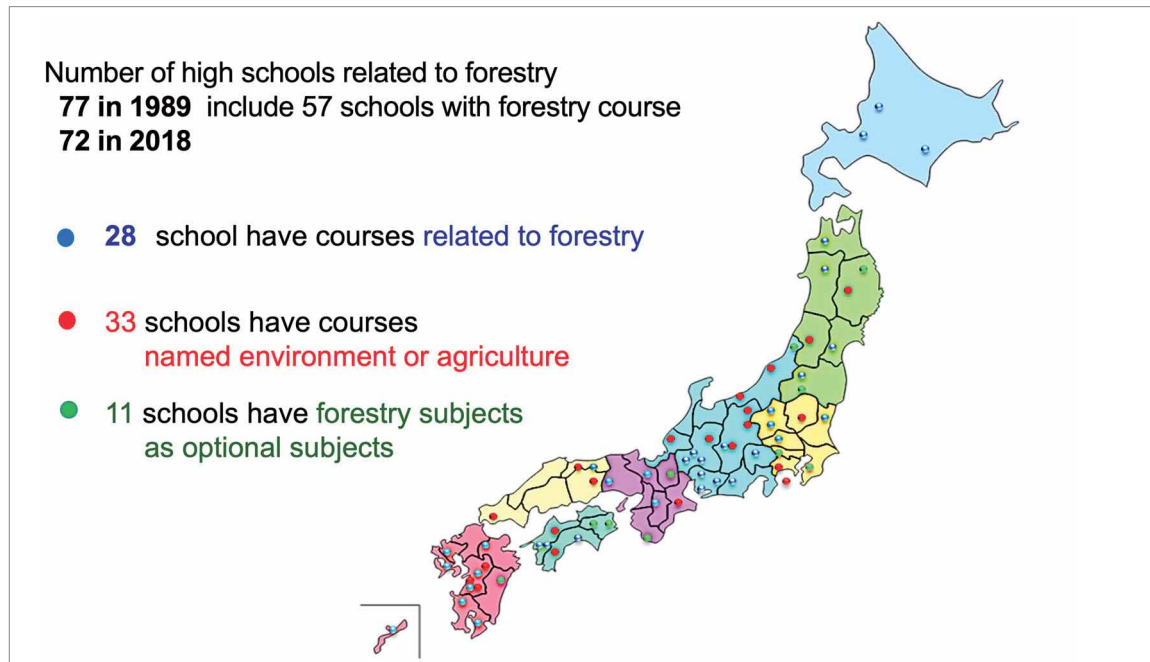


Fig. 5. Distribution map of high schools ^{13, 14)}

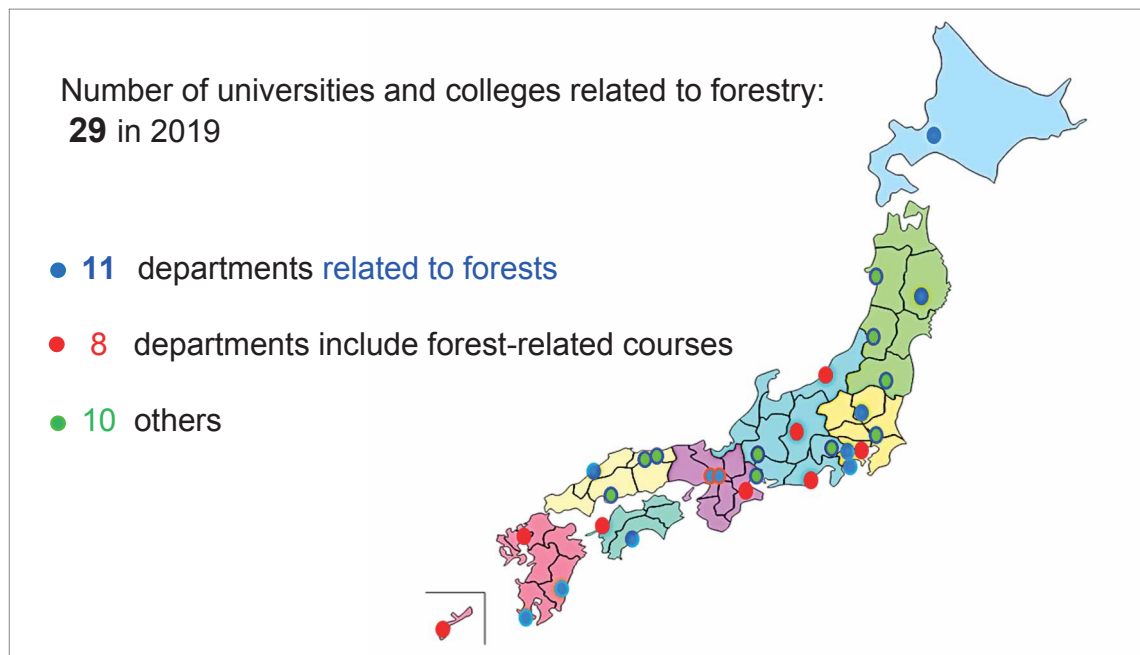


Fig. 6. Distribution map of universities and colleges ¹⁴⁾

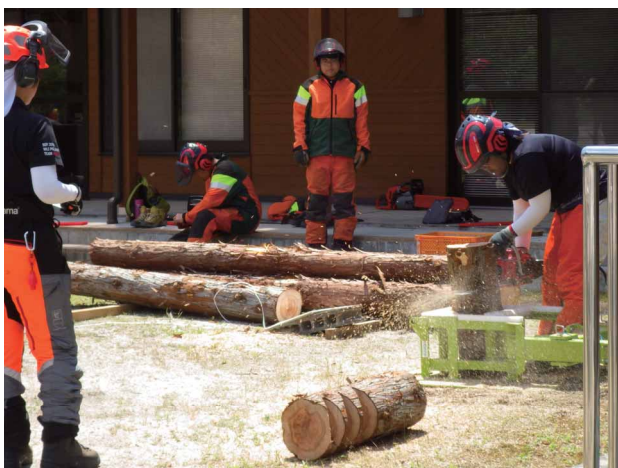


Photo 11. Forestry practice using chainsaw



Photo 12. Identifying of footprints
(Nyctereutes procynoides)

4. Implementation of Forest Education Activities

Forest education activities that has 40 varieties are classified into 13 categories:^{2, 9)}

1. Immersion in nature: playing, games, walking
2. Resting for health: viewing cherry blossoms or autumn leaves, resting body and mind
3. Wildlife protection: investigating, breeding, and managing the environment
4. Nature observation and learning: observing trees or animals, learning about natural environment, observing forest-related-facilities, observing forestry
5. Collecting for observation and learning: flora and fauna
6. Collecting gifts bestowed by forests: fuel wood, material for handcrafts, collecting food, fallen leaves for composting
7. Environmental management: repair or mowing of forest trails
8. Building facilities in forests: building cottage or hut, building treehouse, making forest trail, making playground equipment
9. Forestry work: planting trees, cutting understory, pruning, thinning, mushroom cultivation, making charcoal
10. Making handcrafts: crafts using wood
11. Activities related to daily life: eating food collected from nature, camping, outdoor cooking
12. Artistic activity: creation, outdoor concert, exhibition of pictures or photos
13. Outdoor sports: hiking and mountain climbing, athletics, skiing, backcountry skiing, adventure course



Special needs

United Nations Sustainable Development Goal 4 (SDG4) is the education goal. It aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.” Target 4.5 is to eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations. Forest education activities for disabilities can be arranged depending on their individual special needs.

For practical in-situ use, see Programs 1 to 6 developed by a study group led by Dr. Oishi and Dr. Inoue at Tama Forest Science Garden.⁵⁾



Photo 13. Campfire



Photo 14. Lunchbox dinner after the campfire using collected mushrooms and ginkgo nuts from agriculture high school forest

Note: Handcrafted by students. Japanese cedar lunch box: forestry course; meal: home economic art course; and indigo dyed wrapping fabric under the lunch box: life environment course

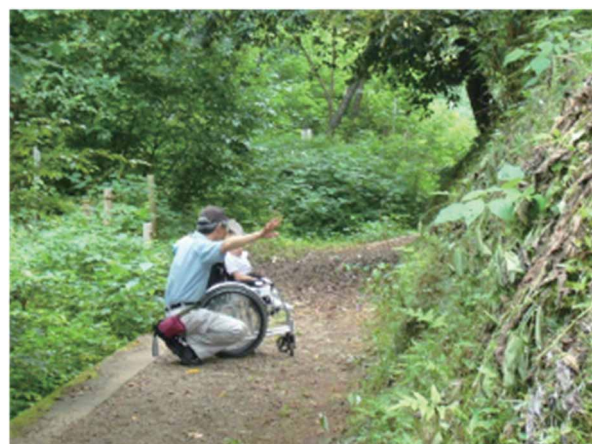


Photo 15. Forest education to adapt to special needs

Program 1 Tree observation associated with daily life*

The program ⁵⁾ is open to the public by Tama Forestry Science Garden for learning about trees associated with daily life by walking in the experimental forest. For the exhibit, ten representative species are chosen and presented for educational purposes. Adjacent to a targeted tree, a panel and a small box are placed together. The panel has a description of the leaf, flower, fruit or nut, and wood. The small box set with the panel includes woodcrafts associated with the tree species (Photo 16). Panels are written in simple language for children to understand easily. Therefore visitors can learn about tree ecology and use of the wood at the same time.

Purpose: Increase interest in trees, wood, relation to human life, and ecosystems. Photo 17 shows two native species in Japan, Japanese cedar (*Cryptomeria japonica*) (left) and Japanese zelkova (*Zelkova serrata*) (right). *Cryptomeria japonica* is a softwood species in major plantation throughout Japan. It is used for structural component and construction materials. Grain is basically straight, and it splits easily. *Zelkova serrata* is a ring-porous hard wood with large vessels often filled by tylosis and good for traditional container use. Grain often has decorative value. It is reasonably durable and can be used as valuable structural and construction materials.



Photo 16. "Forest Post" placed to observe Japanese cedar (*Cryptomeria japonica*); panels and box present interaction with daily life. Four rectangles in the panel are descriptions of leaf, flower, fruit, and wood. In the white box, leftmost item is the thin veneer that has been traditionally used to wrap rice balls.

Note: Ball made from cedar leaves is decorated at traditional sake liquor stores to notify customers timing of selling new sake. Customer can identify degree of aging by color.



Photo 17. Wood samples from *Cryptomeria japonica* (left) and *Zelkova serrata* (right)

* This program was developed by Dr. Yasuhiko Oishi of Tama Forest Science Garden of the Forestry and Forest Products Research Institute.

Program 2 Forestry practices and wood processing*

This program is developed for learning forestry practices using real forestry tools by Tama Forest Science Garden.⁵⁾ Students understand about wood as a renewable biological resource to contribute to sustainable human society in conjunction with a lecture of on practical processing of wood.

Purpose: Initiate students to an interest in trees, wood, sustainable human life, and ecosystems by experiencing forestry practices and actual measurement of trees.

Lecture on forests and forestry in Japan is conducted before forestry practices A and B. Students think of names of trees and wood products in their daily life. The lecture gives students the general idea about demand for wood products. Wood demand is 82 million m³/year; 0.65m³/person in 2018. About 40% is used for processing wood chips and pulp.

Then, two forestry practices (A and B) are conducted.

Practice A: First, students simulate cutting using a toy chainsaw, then they experience cutting log using a hand saw (Photo 18).

Practice B: Measure height of *Cryptomeria japonica* by tree height measuring instrument that uses trigonometric substitution. Measure diameter by using diameter tape (Photos 19 and 20).



Photo 18. Practice A: Cutting log with a saw



Photo 19. Practice B: Diameter measurement



Photo 20. Practice B: Measuring height of the tree at Tama Forest Science Garden

* This program was developed by Dr. Mariko Inoue and Dr. Yasuhiko Oishi of Tama Forest Science Garden of the Forestry and Forest Products Research Institute.

Program 3 Sustainable forest management*

This program helps understanding “Forester” as a vocation for people who are interested in sustainable forestry management by practical experience.^{5, 10)} The program includes a lecture of forest management, forestry practices, and data analysis for making forest management plans.

Purpose: Provide an opportunity to learn about forest management by using software^{1, 2} that is available for the public.

Lecture is provided to learner to understand sustainable forest management before two practices in forests (A and B), followed by four indoor training courses (A to D).

Practice A: Forest site reconnaissance and investigation: Walk inside the forest. Record trajectory using GPS and take photos.

Practice B: Forest survey: Measure forest stands, number of trees, tree heights and diameters, and positions.

Training A: Calculate forest volumes and estimate the amount of carbon fixed: Estimate the stand volume by obtained forest survey data.³

Training B: Learn to use software LYCS.¹ Understand the current forest and predict the forest in future. Then, perform simulations of the forest stand 100 years later under various conditions.

Learn to use software “Forest Windows”² that provides three-dimensional visualization. Understand current forest stand structure.

Training C: Understand two-dimensional wide area of forests: Learn to use stereo viewing. Display reconnaissance (GPS) data on Google Earth.

Training D: Evaluate results and discuss forest management.

Discuss “the role of foresters” and present the group outcome.

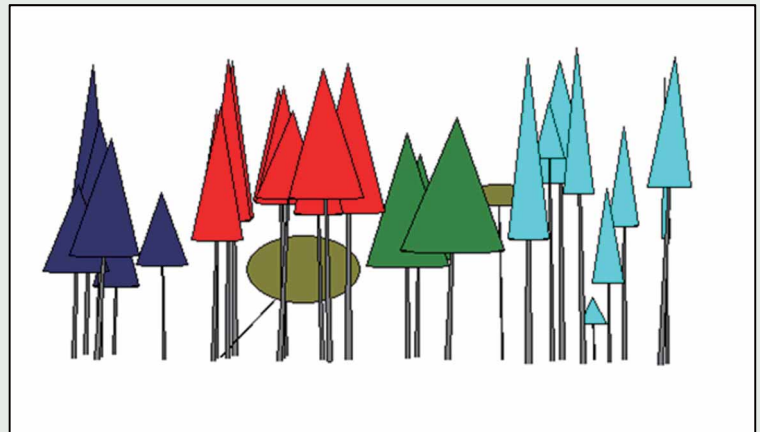


Fig. 7. Forest structure calculated by “Forest Window”²



Photo 21. Measurement in forestry

1. LYCS ver 3.3: Software (Japanese) of Local Yield table Construction System used for estimating stand growth prediction. Developed by FFPRI and others for providing thinning timing of plantation forests. Download is available from: <https://www2.ffpri.go.jp/labs/LYCS/index.html>
2. Forest Windows ver.2: Software used for calculation of forest structure, developed by Dr. Yoshihiro Nobori.

3. For example, estimation of the amount of carbon fixed: the amount of CO₂(kg) is taken by multiplying the stand volume by the specific gravity of softwood (0.37), the whole weight conversion value (1.6), the dry weight of the tree by the carbon conversion value (0.5), carbon dioxide conversion value (3.67) and unit(kg) conversion.¹⁰⁾

* This program was developed by Dr. Mariko Inoue and Dr. Yasuhiko Oishi of Tama Forest Science Garden of the Forestry and Forest Products Research Institute.

Program 4 Wood properties and anatomy*

This program is developed for learning about wood properties in terms of its anatomy.^{5,6)} For more detail on figures, see: <http://www.ffpri.affrc.go.jp/labs/etj/Covers/20071013/>

Purpose: Increase interest in wood used in daily life by simple experiment. Understand wood properties and anatomy. Understand wood as biological material in appearance.

Practice A: Buoyancy experiment (Photo 22) to understand density difference of species: Immerse three wood specimens into separate three cylinders half filled with water: Observe result that only heavy wood specimens sink under the water; think of the reason why the wood of those specimens float or sink. SEM (scanning electron microscope) microphotographs (Photo 23) are provided to visitors for their consideration.

Suggested species:

Paulownia tomentosa,
Cryptomeria japonica, and
Quercus phillyraeoides

Practice B: Learn wood anatomy: Provide two pieces of paper that have print-out of microscopic quarter, flat, and end grains of hardwood and softwood (Fig. 8). Cut and fold the paper to make three-dimensional models of a wood cube. Compare two models, softwood and hardwood, to consider how wood anatomical structure affects wood properties.

Suggested species:

Softwood: *Chamaecyparis obtuse*
Hardwood: *Zelkova serrata*

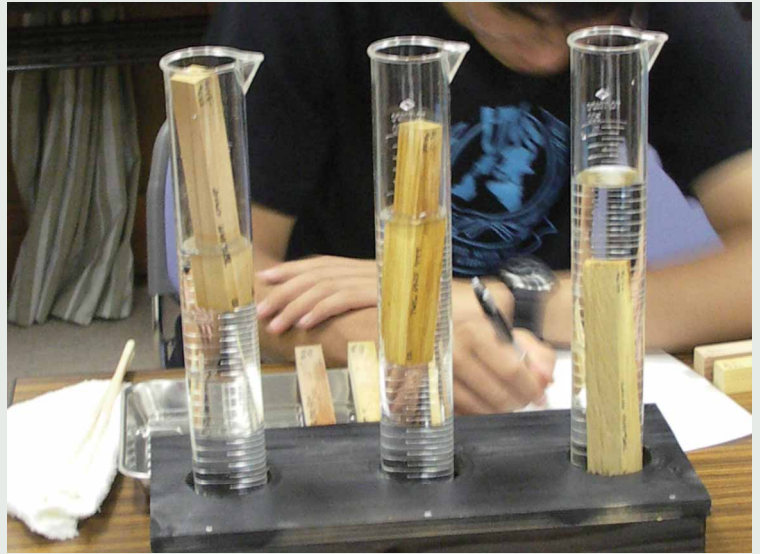


Photo 22. Buoyancy experiment

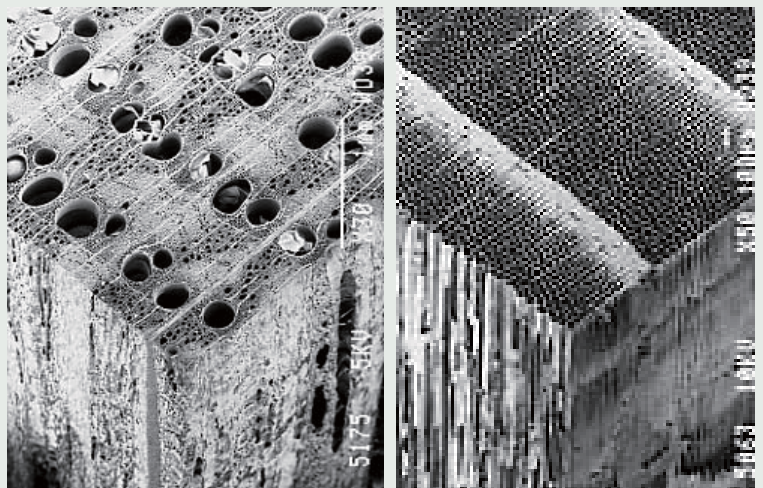


Photo 23.¹ Surfaces of quarter, flat, and end grains of hardwood (left) and softwood (right).
Quercus crispula (left) and *Cryptomeria japonica* (right)

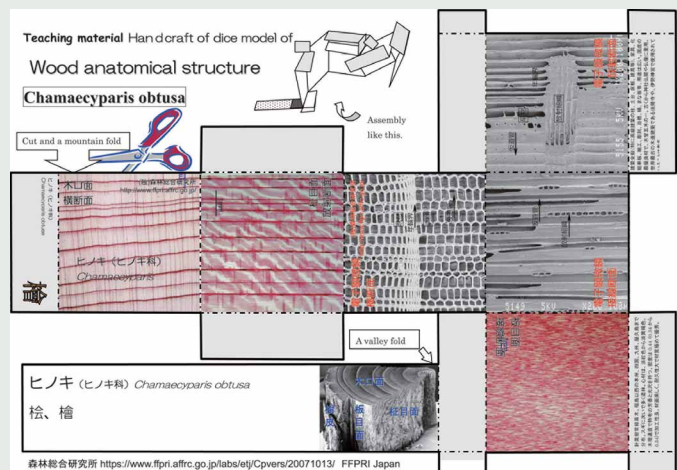


Fig. 8. Instruction for handcraft²

1. SEM photos provided by Dr. Tomoyuki Fujii
2. The handcrafting model was developed by Dr. Masahiko Karube and Dr. Tomoyuki Fujii of Forestry and Forest Products Research Institute, and Dr. Mariko Inoue of Tama Forest Science Garden.

* This program was developed by Dr. Mariko Inoue of Tama Forest Science Garden, and Dr. Masahiko Karube and Dr. Tomoyuki Fujii of the Forestry and Forest Products Research Institute.

Program 5 Binding of wooden slips into book, history and culture*

This program is aimed at learning historical interaction of wood and people.⁵⁾ The program includes lecture on history and culture of the wood, and a practice for binding wooden slips into a book in traditional way. Even nowadays Japanese people find wooden slip in daily life at Buddhist temples, particularly a certain period after a funeral and certain memorial events to visit graves. Some temples have historical chanting book manufactured with wooden slips.

Purpose: Provide an opportunity to learn history and culture of wood, how the wood was used for writing instead of paper, by binding wooden slips into book.

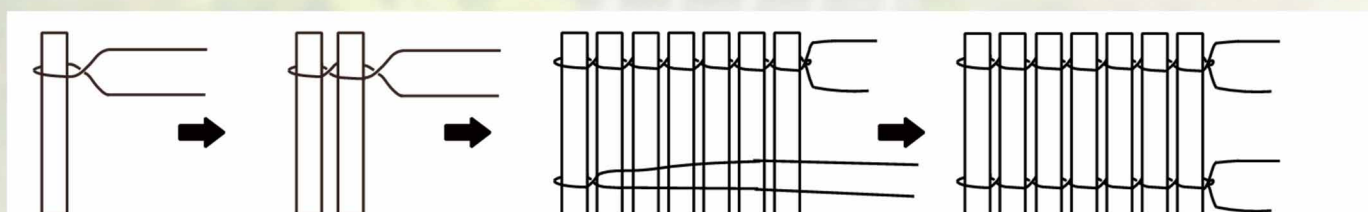


Fig. 9. Instruction to binding of wooden slips into books

Lecture: Relationship between book and wood. Wood is the most important raw material to manufacture paper. Current book manufacturing style using paper has a historical background. Study of excavated wooden slips and related materials centuries ago shows how the current book style has been developed. There are two styles: “Kansu-bon” made of bounded wooden slips and “Watoji-bon” made of bounded Japanese paper manufactured from plants.

Practice: Bind wooden slips into book. Write letters or drawings on wooden strips (mokkan) using a writing brush (fude) with black ink (sumi); bind them into a book with a binding string (Fig. 9) (Photos 24 and 25).

Materials: several wooden strips, brush (fude), black ink (sumi), abrasive powder (tonoko) to stop sumi’s oozing out, and strings. Regarding sumi and fude traditional drawing technique, see background art at “Chapter 5. Other Activity”.



Photo 24. Instruction to bind wooden slips into books



Photo 25. Prepare wooden slips to be ready for binding

Note: Students are using sumi and fude for writings and drawings.

* This program was developed by Ms. Mako Koumoto of Koumoto Maco book works, in cooperation with Dr. Yasuhiko Oishi and Dr. Mariko Inoue of Tama Forest Science Garden of the Forestry of Forest Products Research Institute.

Program 6 Plan for original forest educational activities*

This program is made for forest education leaders to discuss and make required plans depending on their purposes and positions.^{2,5,9)} Role-playing and discussion increase their understanding; what is needed as a leader, education purposes; and their individual connection.

Purpose: Provide leaders to share their own experiences. To hone their activity plans required for individual educational purposes by playing each role.

Practice: Participants (educational leaders or learners) are divided into some groups consisting of three to five people. Each group selects one position from five selections and one educational purpose derived from the chosen position from six selections. To make an appropriate plan for the selected position and purpose, they should select the most appropriate activity from 40 cards (40 varieties of activities (see page 12)), then place the activity card in order to fit the educational purpose with trial and error. This role-playing work provides an opportunity for leaders to develop the most fulfilling activities. At the end, groups share the results among participants.

Selection of positions: 1) school education; 2) environmental education; 3) forests and forestry field, include administration; 4) NPO (nonprofit organization) or citizen group; 5) private enterprise.

Selection of educational purposes: 1) nature environment conservation; 2) training children and youth; 3) dissemination of information about forest and forestry; 4) improvement of health; 5) revitalization of the regional community; 6) improvement of living environment.

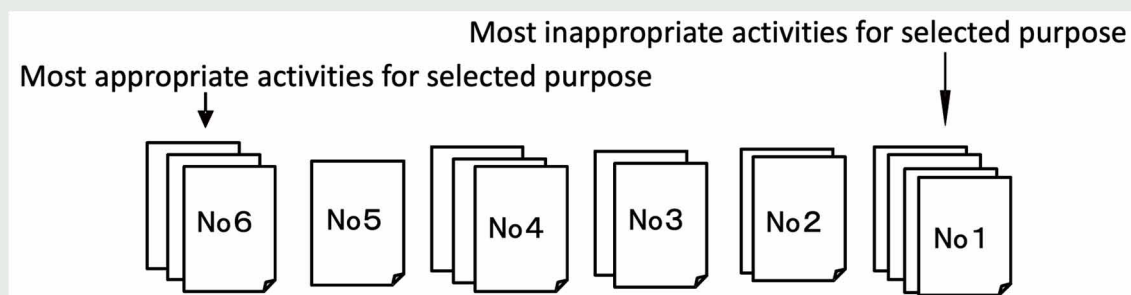


Fig. 10. How to put 40 activities in order



Photo 26. Group discussions at a workshop

* This program was developed by Dr. Yasuhiko Oishi and Dr. Mariko Inoue of Tama Forest Science Garden of the Forestry and Forest Products Research Institute.

5. Other Activities

Forests available for educational activities:

School Forests: School forests are maintained by about 2,500 schools, including elementary schools, junior high schools, and high schools.

Yu-yu no Mori: In national forests, system for educational activities named “Yu-yu no Mori”, literally “forest for play” was initiated by the Forestry Agency in 2002. The “Yu-yu no Mori” can be used for educational purpose.

There are 420 facilities where people can take advantage of forest in Japan and this includes forest parks operated by prefectural government.

https://www.rinya.maff.go.jp/j/sanson/yama_no_hi/itiran.html

Greening and Forest Volunteer activities:

Greening activities were promoted after the World War II for land restoration as a national tree-planting campaign called “Ryoku-ka”; since 1950, national tree-planting festival events have continued. Forest restoration volunteer activities by citizens were started in 1970s. There are about 4,000 forest volunteer groups. Some are supported by the Forestry Agency.

<http://www.green.or.jp/english/>

Green Scout:

Green Scouts were organized in local communities in 1960. In 2019, there were more than 3,000 groups totaling more than three hundred thousand people. These groups are engaged in forest creation so that children can be more involved with greenery and forests; their aim is to give children a spiritual attachment to forests and their local communities. Green scouts also conduct international exchange activities. The activities are supported by National Land Afforestation Promotion Organization .

Forest Instructor:

A Forest Instructor is a certified by two Ministries: the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Environment. The qualification system was started in 1991 for forest guidance and outdoor activities in forests. More than 3,000 people were certified. The activities are supported by Japan Forest Recreation Association.

<http://www.shinrinreku.jp/examination/index.php>

Forest Kindergarten:

Forest kindergarten “Mori-no Yochien” is a general term for child-nurturing and infant/childhood education through nature experience activities. Children visit forests, rivers, rural area such as “Satoyama”(See Photo 7) , parks, and the sea. National forum of the “mori-no yochien” was established in 2005. <http://morinoyouchien.org/about-morinoyouchien>

Kodomo Jumoku Hakase:

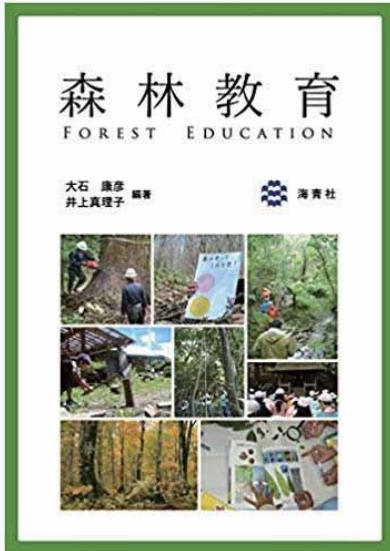
“Kodomo Jumoku Hakase” is a program to certify children having intellectual knowledge about trees. Through outdoor experience, children learn to identify tree species and how various species are used. Certification levels are determined by tests. The national council was established in 2000 for promoting this activity.

http://www.shinrinreku.jp/kodomo_nintei/index.php

Wood Proficiency Test:

The “Wood Proficiency Test” has been managed by the wood proficiency test committee in The Society of Wood Utilization System since 2011. The test committee members consist of academia and industry; they promote learning about wood and demand for wood products. Four reference books have been published since 2012 for people to use to prepare for the test. People can be certified by the on-line examination system through their website. “Beginner” level is a challenge primarily for college students. “Subsequent” level is for those who work in forests and the wood industry. Certificates issued by the Society can be downloaded. A total of 40,000 people took this on-line test during the period between 2011 and 2018. <https://www.woodforum.jp/test.html>

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Front cover: Forest Education ¹⁾

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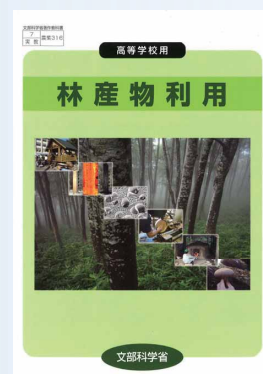
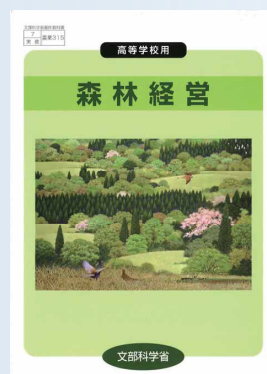
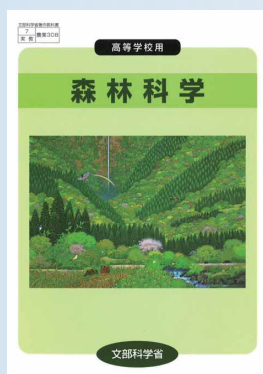
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High School Textbooks registered by Ministry of Education



Left: Forest Science (2013) ISBN 978-4-407-20267-0.
 Middle: Forest Management (2014) ISBN 978-4-407-20320-2.
 Right: Forest Products (2014) ISBN 978-4-407-20321-9.

Where trees and bamboo have been planted



Forestry and Forest Products Research Institute (FFPRI):

FFPRI, established in 1905 as a forest experiment center of the Forestry Service, Ministry of Agriculture, has a comprehensive research mission that includes the study of forest, forestry, and forest products to improve the quality of life on earth. FFPRI addresses global environmental issues, including contributions to the United Nations Sustainable Development Goals (SDGs). In accordance with its mission of leading forest research for Japan's future, FFPRI has been cooperating with IUFRO since 1970. FFPRI and IUFRO entered into a Memorandum of Understanding in Vienna, Austria, in 2018. For more detail, see: <https://www.ffpri.affrc.go.jp/ffpri/en/index.html>

The International Union of Forests Research Organizations (IUFRO):

IUFRO is a non-profit, non-governmental international network of forest scientists established in 1892, which promotes global cooperation in forest-related research and enhances the understanding of the ecological, economic and social aspects of forests and trees. IUFRO is the only global network for forest science cooperation. It unites more than 15,000 scientists in over 600 member organizations in over 125 countries. Scientists cooperate in IUFRO on a voluntary basis. For more information, see: <https://www.iufro.org/>

IUFRO organizes World Congresses every five years. In this brochure, background photos used for the description of IUFRO were taken during the IUFRO World Congress 2019 in Curitiba, Brazil. The IUFRO Congress 2024 will be held in Stockholm, Sweden. For more detail, see: <https://iufro2024.com/>



ISBN 978-4-909941-11-4



Forest Education in Japan
March 16, 2020
Edited by Mariko INOUE
Tama Forest Science Garden
Forestry and Forest Products Research Institute

