

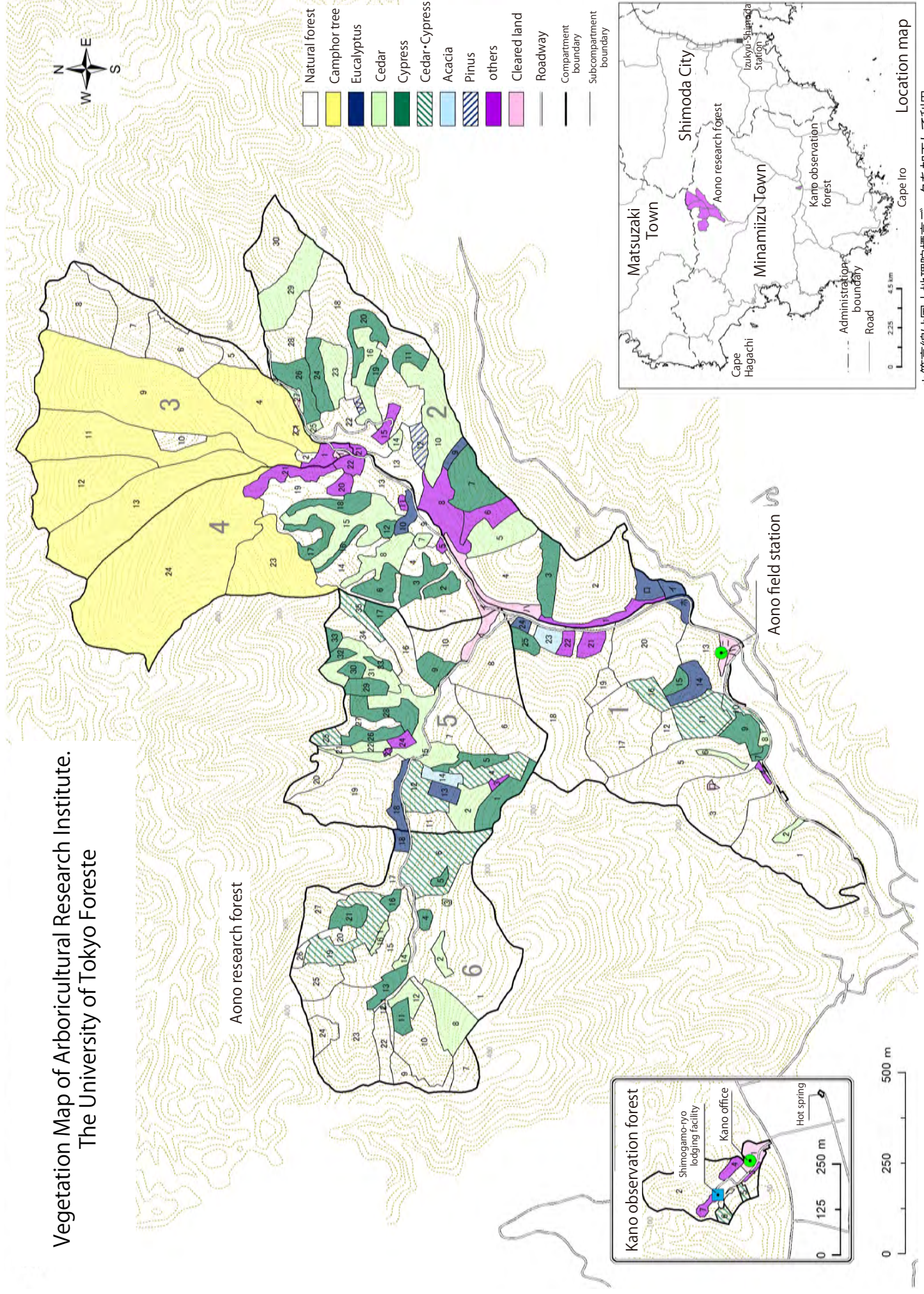


Arboricultural Research Institute, The University of Tokyo Forests 2025

Graduate School of Agricultural and Life Sciences, The University of Tokyo



Vegetation Map of Arboricultural Research Institute. The University of Tokyo Foreste



*等高線は国土地理院標高データを加えて利用

Arboricultural Research Institute

1. History and overview

The Arboricultural Research Institute (ARI) is one of the seven University of Tokyo Forests. It was established in 1943 with the purchase of 241 ha of privately owned forest in Aono, present-day Minamiizu Town, as a research facility for special-purpose plants from the tropics and subtropics. In 1944, 0.6 ha of land was leased in Kano, present-day Minamiizu Town, and construction of a large wooden greenhouse and the director's office building was completed in 1947. The following year, in 1948, the office was relocated to Kano, and a hot spring that gushes out naturally from 149 m below the ground was dug up and started to be used as a heat source for the greenhouse. In 2020, the Shimogamo-ryo lodging facility was transferred from Athletic Foundation of the University of Tokyo and are used for practical training and other purposes.

Currently, we grow a variety of special-purpose plants in our 247 ha outdoor field, the Aono Field Station and the Kano Forest, as well as in our large greenhouse and No. 2 greenhouse, and provide these plants for education and research.

2. Location and environmental characteristics

The geology of Minamiizu Town, where the ARI is located, is composed of the Neogene Miocene Shirahama Group, with quartzite and andesite as the base rock, and intrusive rocks as the base rock, and brown forest soil that is somewhat dry. The elevation is about 100-500m in the Aono Research Forest, and the topography is complex and steep.

The climate is characterized by an annual mean temperature of 15.8°C for the past 10 years (2013-2022) at the Aono field station observation point (100 m elevation), and an average of 17 days (first day December 9 to last day March 26) with an annual record of 0°C or less. Average annual precipitation is 2,289 mm, with very little snowfall.

3. Forest characteristics

The forests of the ARI belong to the warm-temperate evergreen broad-leaved forest zone, and the potential vegetation is Japanese chinquapin and evergreen oak. The forest was used for firewood and charcoal, which was abandoned since around 1960. The forest contains a mixture of trees, including *Castanopsis*



Photo 1 Kano Office



Photo 2 The Grand greenhouse



Photo 3 Hot Spring for greenhouse heating source



Photo 4 Shimogamo-ryo lodging facility



Photo 5 Aono Field Station



Photo 6 Exterior view of the evergreen forest in the Aono Research Forest

sieboldii, *Quercus glauca*, *Quercus salicina*, *Neolitsea sericea*, *Camellia japonica*, *Neolitsea aciculata*, and *Cinnamomum yabunikkei*. In the sparsely vegetated open area, there are many deciduous broad-leaved trees such as *Quercus crispula*, *Cerasus speciosa*, *Cerasus jamasakura*, *Toxicodendron succedaneum*, *Alnus sieboldiana*, *Cornus controversa*, *Mallotus japonicus* and *Zanthoxylum ailanthoides*. The forest floor is covered with ferns, such as *Arachniodes standishii*, *Gleichenia japonica*, and *Pteris wallichiana*, as well as *Maesa japonica*, *Rubus buergeri*, *Ardisia japonica*, and *Damnacanthus*



Photo 7 Landscape in a camphor tree plantation forest

Arboricultural Research Institute

indicus.

Coniferous planted forests such as cedar and cypress account for 23.0% of the Aono Research Forest, while broadleaf planted forests such as *Cinnamomum camphora*, *Eucalyptus* genus, and *Vernicia cordata* account for 27.6%. The camphor tree plantations, which cover approximately 48 ha, are approximately 115 years old, while most of the others are less than 70 years old.

4. Facilities

There is an office, the grand greenhouse, the No. 2 greenhouse, a lecture room, a laboratory building, an accommodation facility in Shimogamo-ryo lodging facility, and a hot spring in Kano, and the Aono field station is located in the Aono Research Forest, 8 km away from Kano Forest.

The grand greenhouse is 260 m² in area and 7 m high, and uses hot spring water as its heat source to keep the indoor temperature at 17°C or higher. Currently, approximately 250 species of tropical and subtropical plants are cultivated and displayed in the greenhouse, which offers a variety of activities using familiar tropical plants such as cacao, vanilla, coffee, and cassava. The greenhouse also provides greenhouse plants as research materials and conducts joint research with other organizations and individuals. 2 greenhouses have two 36 m² rooms (one heated with hot spring water), which are used for seedling trials of *Eucalyptus* spp. and other species. The lecture room is a 14-mat Japanese-style room that can be used for university education. The Shimogamo-ryo lodging facility can accommodate up to 29 people when ARI is used for various education program, research, and training programs.

The Aono field station serves as a base for research forest management and users. Lecture rooms in the field station can be used for lectures, internal work, and rest areas during field activities.

5. Education

University-Wide Experience Seminars

The ARI plans and conducts several times a year a program using special-purpose plants grown in the research forest and greenhouse as teaching materials, and conducts a university-wide hands-on seminar for liberal arts undergraduate students.

Forestry Practicum (International Sustainable Agriculture Development, Faculty of Agriculture)

Students learn how to conduct volume and vegetation surveys of camphor tree plantations to learn basic methods of surveying trees and forests, as well as how to plan management and predict forest transitions.

We also accept other specialized training from the Faculty of Agriculture, the department of Forest Science of the Graduate School, other faculties, and other universities.

6. Research

Research on fast-growing tree species

Through field adaptation tests conducted over the past several decades, we have selected species of

the genus *Eucalyptus* that we have evaluated as vigorous growers and created new test sites consisting of approximately 100 individuals of each species to evaluate their silvicultural characteristics and forestry productivity. In addition, several species of mature *eucalyptus* trees have been provided for material and physical property testing.

Tests on special-purpose trees

In an camphor tree forest planted 115 years ago for camphor collection, clear-cutting sprouting and regeneration tests have been conducted, showing that even individuals reaching 100 years of age can sprout and regenerate after harvesting, and ongoing research is being conducted.

We are conducting research on



Photo 8 Vanilla flowers (left) and fruits (right)



Photo 9 Educational program on chocolate processing

oilseed plants such as *Vernicia cordata*, *Camellia japonica*, and *Toxicodendron succedaneum* with the aim of developing educational programs that use these plants as teaching materials. Oil extraction tests have been conducted on *Vernicia* and *Camellia*, and we are working to improve oil extraction methods as necessary, and to utilize the oil obtained in educational programs. For *Toxicodendron* tree, we are working on cultivation trials for stable harvesting of the fruit.

Greenhouse Plants

In the greenhouse, our research is conducted primarily with the development of educational materials in mind.

Cacao conducts basic research on phenology such as flowering and fruiting, as well as surveys on the number and size of fruit harvested. We are also engaged in research using harvested fruit to explore the use of domestic cacao as a product.

As for vanilla, we aim to produce high quality vanilla beans using a new and simplified curing method of capsule fruit.

We are also engaged in propagation trials for the use of cassava, pepper, neem, coffee, para rubber tree, sandalwood, ylang-ylang, and safflower as educational materials.

7. Extension

In 2024, we signed an agreement for mutual collaboration and cooperation to contribute to the development of agriculture and forestry in Minami-Izu Town and the promotion of education and research at the university. Since 2019, we have been conducting exchange programs between Athletic Foundation of the University of Tokyo and Minamiizu Town children during their summer vacation. We are supported from t the Minamiizu Town Furusato tax payment.

We also regularly hold other open lectures for local residents in cooperation with neighboring municipalities.



Photo 10 *Eucalyptus saligna* sprouting survey



Photo 11 Monitoring survey in a former coppice forest



Photo 12 Educational program on bamboo charcoal making



Photo 13 Educational program using oilseed plants



Photo 14 Experiencing bamboo thinning at a public lecture

Arboricultural Research Institute

List of plants for special forest products

Aono research forest

technical name	Japanese name	family name	use
<i>Ginkgo biloba</i>	Ichou	Ginkgoaceae	fruit: medicinal
<i>Pinus thunbergii</i>	Kuromatsu	Pinaceae	resin: adhesive, seed: medicinal
<i>Metasequoia glyptostroboides</i>	Metasekoia	Cupressaceae	wood: street tree
<i>Sequoia sempervirens</i>	Ichimodoki	Cupressaceae	wood: building materials, park tree
<i>Castanea sieboldii</i>	Sudajii	Fagaceae	bark: dye
<i>Eucommia ulmoides</i>	Tochuu	Eucommiaceae	bark: herbal medicine, leaf: fiber
<i>Cinnamomum camphora</i>	Kusunoki	Lauraceae	wood, branch, leaf: camphor
<i>Cinnamomum okinawense</i>	Nikkei	Lauraceae	bark: edible
<i>Trachycarpus fortunei</i>	Shuro	Arecaceae	fiber: palm rope
<i>Camellia japonica</i>	Yabutsabaki	Theaceae	fruit: oil
<i>Eurya japonica</i>	Hisakaki	Theaceae	fruit: dye
<i>Prunus soeociosa</i>	Ooshimazakura	Rosaceae	leaf: edible
<i>Aleurites cordata</i>	Aburagiri	Euphorbiaceae	seed: oil, abrasives
<i>Mallotus japonicus</i>	Akamegashiwa	Euphorbiaceae	leaf: edible, dye, medicinal
<i>Zanthoxylum ailanthoides</i>	Karasuzanshou	Rutaceae	fruit: herbal medicine
<i>Rhus succedanea</i>	Hazenoki	Anacardiaceae	fruit: wax
<i>Eucalyptus sp.</i>	Yuukari	Myrtaceae	wood: essential oils, medicinal, pulp
<i>Diospyros japonica</i>	Ryuukyuumamegaki	Ebenaceae	fruit: preservative
<i>Styrax japonica</i>	Egonoki	Styracaceae	fruit: detergent
<i>Clerodendrum trichotomum</i>	Kusagi	Lamiaceae	fruit: dye, young leaves: medicinal

Greenhouse

technical name	Japanese name	family name	use
<i>Pinus merkusii</i>	Merukushimatsu	Pinaceae	resin: adhesive, fragrances
<i>Agathis australis</i>	Kaurikopaaru	Araucariaceae	resin: topcoat, copar
<i>Coffea arabica</i>	Arabiakoohiinoki	Rubiaceae	seed: coffee
<i>Azadirachta indica</i>	Indosendan	Meliaceae	wood, branch, leaf: Insect repellent
<i>Dimocarpus longan</i>	Ryuugan	Sapindaceae	fruit, seed: edible, herbal medicine
<i>Hevea brasiliensis</i>	Paragomunoki	Euphorbiaceae	resin: natural rubber
<i>Jatropha curcas</i>	Nan-youaburagiri	Euphorbiaceae	fruit: oil alternatives
<i>Manihot esculenta</i>	Kyassaba	Euphorbiaceae	potato□tapioca starch
<i>Santalum album</i>	Byakudan	Santalaceae	heartwood: essence, sculpture
<i>Eucalyptus citriodora</i>	Remon-yuukari	Myrtaceae	wood: essential oils, fragrances, pulp
<i>Melaleuca leucadendron</i>	Kayupute	Myrtaceae	branch, leaf: essential oils, medicinal
<i>Psidium guajava</i>	Guabaa	Myrtaceae	fruit: edible
<i>Mangifera indica</i>	Mangoo	Anacardiaceae	fruit: edible
<i>Derris guineense</i>	Toba	Fabaceae	root: insecticides
<i>Haematoxylum campechianum</i>	Akaminoki	Fabaceae	heartwood: dye
<i>Acacia catechu</i>	Asen-yakunoki	Fabaceae	wood: tannins, medicinal, dye
<i>Synsepalum dulcificum</i>	Mirakurufuruutsu	Sapotaceae	fruit: changes in taste
<i>Teobroma cacao</i>	Kakaonoki	Malvaceae	seed: chocolate, fruit: edible
<i>Dryobalanops aromatica</i>	Kapuruu	Dipterocarpaceae	resin: Insect repellent
<i>Piper nigrum</i>	Koshou	Piperaceae	seed: pepper
<i>Cinamomum verum</i>	Seiron-nikkei	Lauraceae	bark: cinnamon, medicinal
<i>Cananga odorata</i>	Iran-iran	Annonaceae	flower: fragrances, medicinal
<i>Vanilla planifolia</i>	Banira	Orchidaceae	fruit: vanilla, fragrances, medicinal

User guide

• Research use

The ARI welcomes research use of the Aono Research Forest and greenhouse. Visitors are welcome to inspect and tour the research forest, greenhouse, and experimental facilities. In addition, joint research is always welcome. We are also available for the production of seedlings for experiments and the collection of experimental materials in the Aono Research Forest.

• Educational use

We accept practical training and on-site lectures in university education. We also accept new users, so please contact us for more information.

• General use

General use of the Aono Research Forest for purposes other than education and research is not accepted. Anyone is welcome to visit the Grand Greenhouse (weekdays from 9:30 am to 3:30 pm, free of charge). No application form is required. Please fill out the visitors' list located at the entrance of the Greenhouse.

Procedures for use

As a general rule, please submit an application form to the following counter at least 3 months to 10 days prior to the desired date of use.

If you wish to use the site throughout the year for student training, training sessions, setting up test sites, or when you need to cut down standing trees, please submit a research and education plan in addition to the application form by the 20th of the month preceding the month in which you wish to use the site.

The application form and research and education plan can be downloaded from our website.

Contact details for usage inquiries

Arboricultural Research Institute Kano office
457 Kano, Minamiizu, Shizuoka, 415-0304, Japan
TEL +81-558-62-0021 FAX +81-558-62-3170

Access

◇ When you use the train

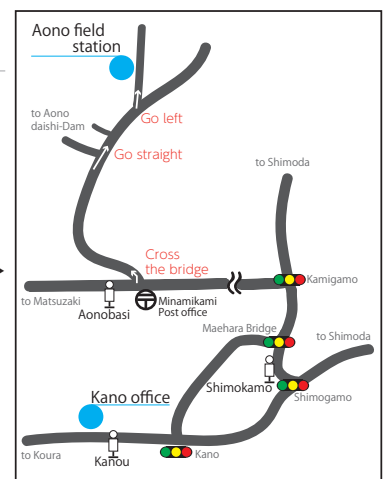
JR Tokyo Station (JR Tokaido Line or JR Tokaido Shinkansen 50-120 min) → JR Atami Station → (JR Ito Line 30 min) → JR Ito Station → (Izuky Line 60 min) → Izukyu Shimoda Station → (Tokai Bus for Koura 30 min) → Kano Bus Stop → (3 min walk) → Kano Office, Jyugei Research Institute (3-4 hours travel time)

*This does not include waiting time for connecting flights.

◇ In the case of a car

No 1. <Amagi-goe route> Tokyo IC → (Tomei / Shin-Tomei Expressway 120 minutes) → Nagaizumi-Numazu IC → (Izu Jukan Expressway / Route 414 80 minutes) → Shimoda → (Route 136 20 minutes) → Minamiizu / Arboricultural Research Institute (Kano / Aono) (Total time required: 3 hours 40 minutes)
No 2. <Izu East Coast Route> Tokyo IC → (Tomei Expressway 40 minutes) → Atsugi IC → (Odawara Atsugi Road 40 minutes) → Odawara → (Route 135 180 minutes) → Minamiizu / Arboricultural Research Institute (Kano / Aono) (Total time required 4 hours 20 minutes)

* Expect traffic congestion during summer and tourist season. There is also a risk of snow accumulation in winter at some locations, such as Amagi.



Kano office



Aono field station

Lodging facility

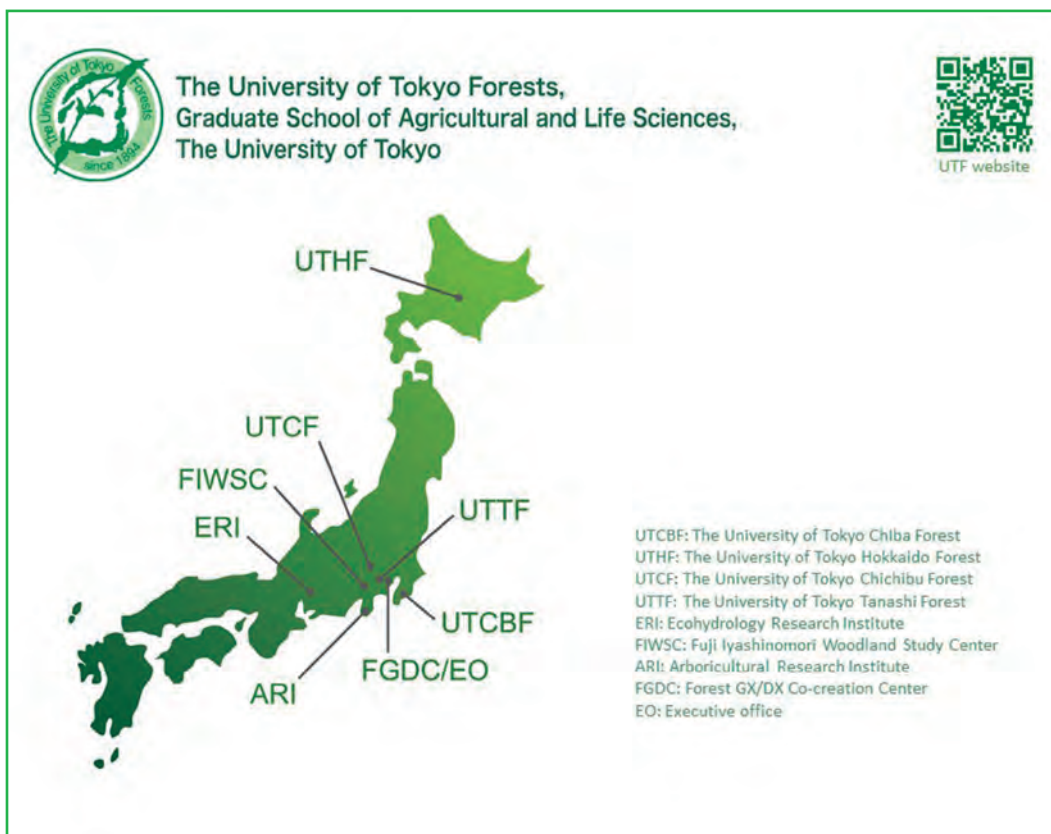
Please inquire about the use of Shimogamo-ryo lodging facility.

Fees for Shimogamo-ryo lodging facility Use

Unit: yen/person/night

Classification	The University of Tokyo		Other universities, etc.		Other	Students who have not completed compulsory education
	Students	Faculty and staff	Students	Faculty and staff		
Facility usage fee	1,700	2,000	1,700	2,000	2,500	0
Facility maintenance costs	200					

< Remarks > Facility usage fee is exempted for students who use the ARI for research and education.



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Tokyo Forests

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