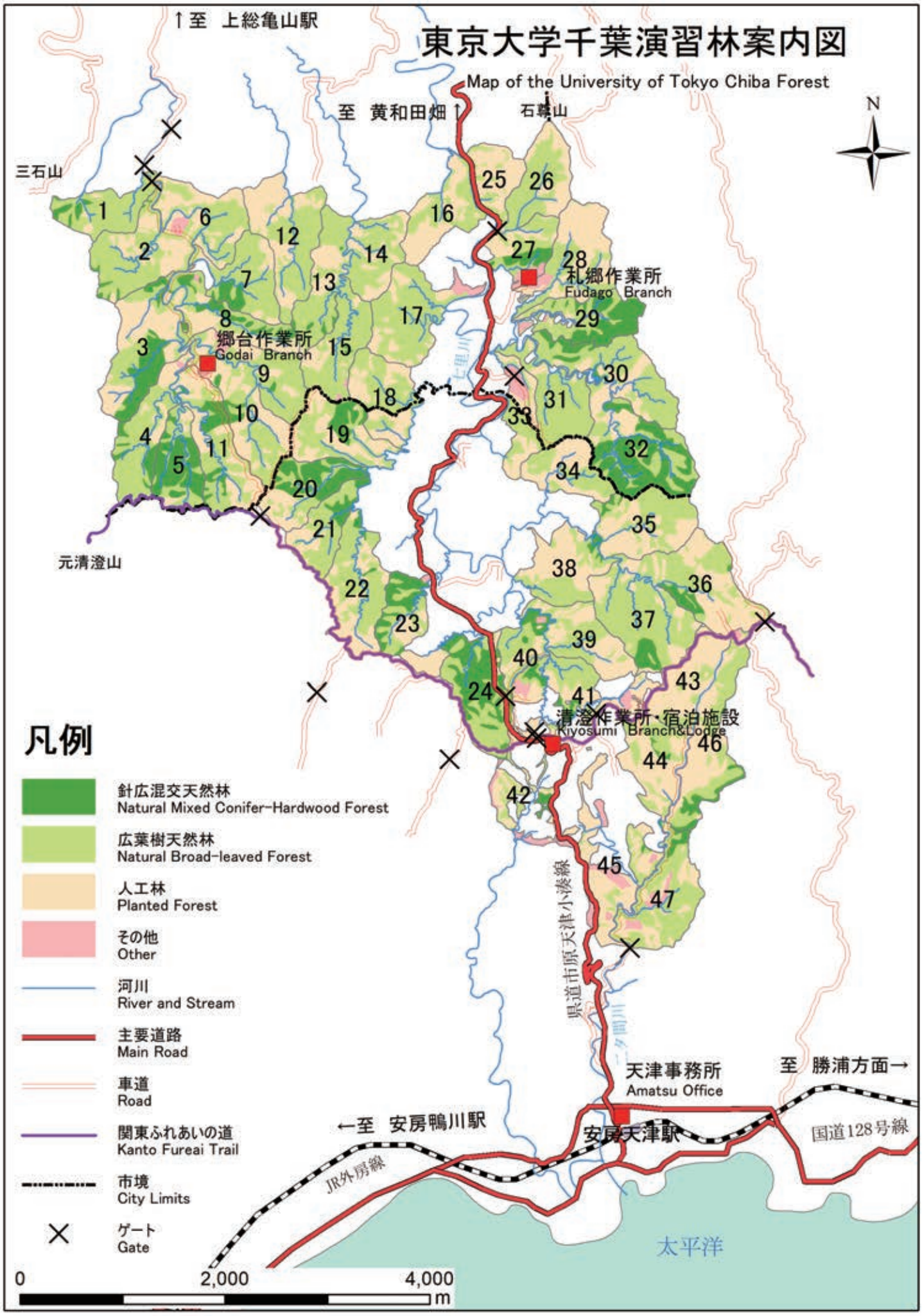
The University of Tokyo Chiba Forest 2023

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

東京大学
THE UNIVERSITY OF TOKYO


東京大学千葉演習林案内図
Map of the University of Tokyo Chiba Forest
↑至 上総亀山駅
至 黄和田畑↑
石尊山
三石山
元清澄山
N
札郷作業所
Fudago Branch
郷台作業所
Godai Branch
清澄作業所・宿泊施設
Kiyosumi Branch&Lodge
天津事務所
Amatsu Office
←至 安房鴨川駅
至 勝浦方面→
安房天津駅
JR外房線
国道128号線
県道市原天津小湊線
太平洋
凡例
針広混交天然林
Natural Mixed Conifer-Hardwood Forest
広葉樹天然林
Natural Broad-leaved Forest
人工林
Planted Forest
その他
Other
河川
River and Stream
主要道路
Main Road
車道
Road
関東ふれあいの道
Kanto Fureai Trail
市境
City Limits
ゲート
Gate
0
2,000
4,000
m

The University of Tokyo Chiba Forest

1. History and overview

The University of Tokyo Chiba Forest (UTCBF) was established in 1894 as Japan's first university forest. At the time, the forest area was 334 ha, and only incorporated the forest surrounding the Seicho-ji temple. However, in 1897, the northern Okuzan area was added, bringing the land area close to its current size. The Godai nursery opened in 1900, followed by the Fudago nursery in 1903. The current land area is 2169 ha, and the woodlands are divided into 47 management compartments.

During the more 120 years of its history, basic information on plantation development and natural forest maintenance has been systematically collected and organized, thereby serving as a central education and research facility for forest science. In recent years the forest has provided optimal fields for education, research, and extension, and the basic policies promote forest education and research, forest use, and the collection, organization, and publication of data on the dynamics of the natural environment.

2. Location and environmental characteristics

UTCBF is located in the southeastern part of the Boso Peninsula, at the eastern end of the Boso hill range, approximately 100 km southeast of Tokyo. The forest range extends from 35°8′25″ to 35°12′51″ N and 140°5′33″ to 140°10′10″ E. The northern part is situated in Kimitsu city and the southern part in Kamogawa city. The Chiba Prefectural Route 81 runs north to south, and the forest surrounds local villages and private land.

The southern part of the Boso Peninsula has a generally warm and rainy coastal climate. The average annual temperature between 2011 and 2020 at the Fudago observatory (elevation 206 m) was 14.1 °C, and the average annual precipitation was 2474 mm, making it the region with the highest precipitation on the Boso Peninsula.

The main ridgeline of the Boso hill range (highest elevation: 377 m), which traverses the UTCBF east to west, forms a watershed, dividing the region into a southern side with the Futama River basin flowing into the Pacific Ocean and northern side with the Obitsu River upper basin flowing into Tokyo Bay. Although the altitude of this University Forest is not very high (approximately 50 to 370 m), the terrain is steep and complex.

Photograph 1 Dozawa natural mixed conifer-hardwood forest

The geological structure consists of marine deposits from the Neogene period, partially covered by non-marine deposits from the Quaternary period. There are many faults in the area. The underlying rock consists of sandstone, conglomerate, mudstone, and tuff, and the soil mainly consists of brown forest soil.

3. Forest characteristics

At its inception, the area was comprised mainly of evergreen broad-leaved trees, such as oak (*Quercus* spp.), Sudajii Chinkapin oak (*Castanopsis cuspidata* var. *sieboldii*), Japanese bay tree (*Machilus thunbergii*), and Japanese cleyera (*Cleyera japonica*), and mixed forests made up of Momi fir (*Abies firma*) and southern Japanese hemlock (*Tsuga sieboldii*) in the top layer. Today, approximately 40% of the entire forest is occupied by planted forest, mainly consisting of Japanese cedar (*Cryptomeria japonica*) and cypress (*Chamaecyparis obtusa*). The forest is home to a rich diversity of flora, with approximately 300 and 720 species of naturally occurring woody and herbaceous plants (including approximately 120 species of fern), respectively. Many animals inhabit the forest, including around 20 species of mammals. The southern part of UTCBF is designated as a Class 3 Special Area of Minami-Boso Quasi-National Park (part of which is a Class 1 Special Area), while the northern part is designated as a Class 3 Special Area of

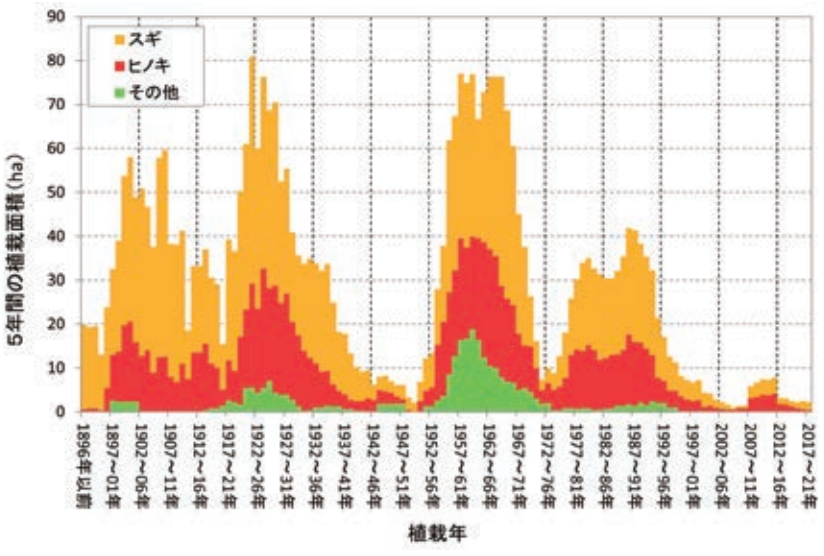


Figure 1 Area of plantation planted per year (5-year total)

Yorokeikoku-Okukiyosumi Chiba Prefectural Park. The entire area is designated as the Chiba Prefectural Kiyosumiyama Wildlife Reserve (part of which is a special protection area).

UTCBF comprises a natural warm-temperate forest, which is divided into a natural mixed conifer-hardwood and broad-leaved forest, and a planted forest of mainly cedar and cypress. The three types of forests are classified as below:

(1) Natural mixed conifer-hardwood forest (279 ha)

An old forest containing a mixture of coniferous forest with mainly Momi fir and southern Japanese hemlock, and evergreen broad-leaved trees, such as oak, Sudajii Chinkapin oak, and Japanese bay tree. The University Forest and surrounding forest is the only remaining tract of forest on the Boso Peninsula, making it a scientifically valuable asset.

(2) Natural broad-leaved forest (1015 ha)

Former coppice and secondary forests comprising mainly of live oaks, Sudajii, Konara oak (*Quercus serrata*), Japanese Zelkova (*Zelkova serrata*), and maples (*Acer* spp.), much of which was left untended when firewood and charcoal production ended. Some old broad-leaved forest is distributed through this area.

(3) Plantation (866 ha)

There are many high-age class plantations, with half the stands being 80 years or older, and a quarter being more than 100 years old. Old Japanese cedar forests include the oldest forest Sakuragao (planted in 1835), Imasumi (planted in 1859), Gotagura (planted in 1894), Minamizawa (planted in 1896), and Gobozawa (planted in 1905), while old cypress forests include Obera (planted in 1900) and Metaki (planted in 1903).

Various other tree species have also been planted as sample forests for research and education. Rare tree species such as Coast redwood (*Sequoia sempervirens*, the world's tallest tree), which is native to North America, and Dawn redwood (*Metasequoia glyptostroboides*) are also found in the foreign tree species sample forests.

4. Facilities

The Amatsu office is located 300 m from the Awa-Amatsu Station on the JR Sotobo Line, and the Kiyosumi Branch and Kiyosumi lodging facilities are located in the southern part of UTCBF in Kamogawa city. The Fudago Branch and Godai Branch are located in the northern part of UTCBF in Kimitsu city. The Kiyosumi lodges are used for student training, research, and so on. The Godai nursery is situated within the Godai Branch premises, and has recently also been used for field experiments.

Photograph 2 Permanent plots for growth measurement in the Gobozawa Japanese cedar plantation

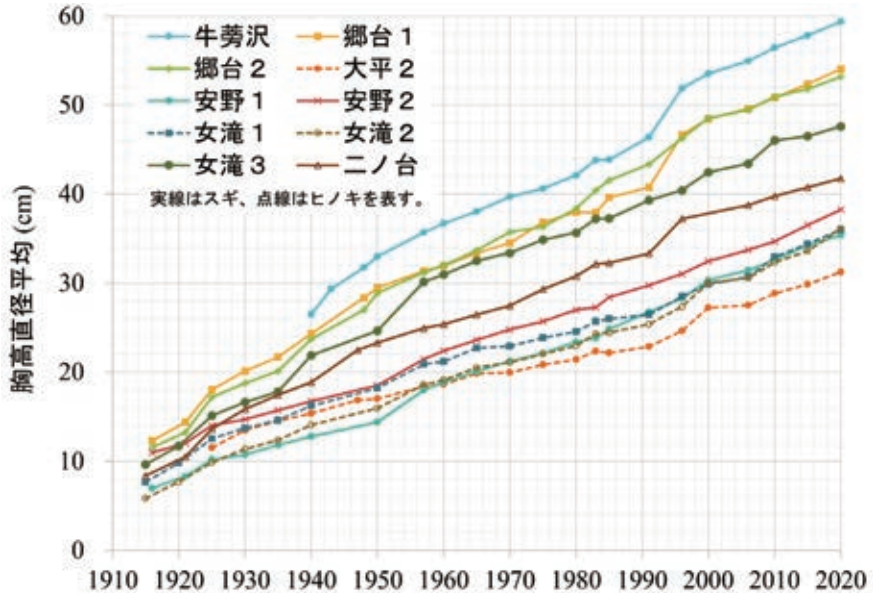


Figure 2 Tree diameters have been measured continuously for more than 100 years since reforestation of cedar and cypress

5. Education

UTCBF has long been utilized as a place for practical training in forestry plantation management, from planting through to harvesting. Training in silviculture was started by Assistant Professor (at that time) Seiroku Honda in 1895, and is still provided today, more than 120 years later, as "Basic Practice in Forest Science I". In addition to conducting training for the Graduate School of Agricultural and Life Sciences, Faculty of Agriculture, and seminars are also offered for first- and second-year undergraduate liberal arts students. Practical training provides students with hands-on experience of planted forest management, as well as offering multifaceted practicals, such as in evergreen forest dynamics and the impact of humans and animals on forests. The characteristic stratum structure of the Boso Peninsula is also used as a geological training ground

Photograph 3 Tree planting as part of student practical training

Photograph 4 Staff climbing a Japanese White pine to conduct surveys

Photograph 5 Japanese sika deer

for students of the Faculty of Science of the University of Tokyo, Chiba University, and Kyoto University. This area is also used by undergraduate, graduate, and postgraduate students as part of their field research.

6. Research

Various research on planted forests and natural warm-temperate forests is underway in UTCBF, and systematic surveys and research are conducted specifically on the following three major topics:

Management of cedar and cypress planted forests

In Japan, little knowledge exists on the growth or changes in the stand structure of old planted forests. On the other hand, planted forests have been established and managed in UTCBF for more than 120 years, which comprises forests and datasets of varying ages, locations. In the future, we will continue to survey the growth and stand structure of old planted forests to provide basic information used for predictive research. Research has also used unmanned aerial vehicles (UAVs) to efficiently survey forest resources and verify economic value of forest carbon credits.

Dynamics and conservation of warm-temperate ecosystems

The Momi fir and southern Japanese hemlock in UTCBF occur close to the southern limit of their natural distribution, away from other distribution areas. Therefore, these trees may face a decline and lack of regeneration due to global warming. Long-term monitoring of the growth of individual trees and renewal dynamics of natural mixed conifer-hardwood forests is conducted in UTCBF to promote predictive research and the conservation of Momi fir and southern Japanese hemlock.

A rich ecosystem is maintained in the forests of UTCBF, with many flora and fauna found only in these forests within Chiba Prefecture. In 2021, an accord was reached for the cooperation and collaboration with the Natural History Museum and Institute, Chiba, to promote the identification of biota in these forests.

Efforts are also underway to survey the population of Sika deer (*Cervus nippon*) and Reeves' muntjac (*Muntiacus reevesi*), which affect understory vegetation dynamics, and conserve Japanese White pine (*Pinus parviflora*).

Establishment of forest tree breeding and propagation techniques

Selection of pine trees resistant to pine wilt disease (PWD) has been conducted independently since the 1970s. Recently, inspections have been conducted jointly by national and prefectural research institutions; in 2021, two varieties of resistant Japanese red pine (*Pinus densiflora*) from UTCBF were registered. We also aim to establish a cloning propagation method using cuttings to preserve the stock of PWD resistant pine and Japanese White pine.

Photograph 6 Rooted pine cutting seedlings

7. Extension

UTCBF is used for integrated studies and extracurricular activities in elementary and junior high schools based on the regional exchange agreement concluded with Kamogawa and Kimitsu city, Chiba prefecture. Seminars on forests and oceans are held for high school students in collaboration with The Marine Biosystems Research Center, Chiba University. Some of the forest roads and trails in UTCBF are open to the public as Kanto Fureai no Michi (Metropolitan Area Nature Trails). Of these trails, the "Momi Fir and Southern Japanese Hemlock Trail" are

Photograph 7 Open day

open to the public year-round, but the "Hydrangea Trail" has been closed due to collapse of the forest road.

8. Others

1) Forest Museum

The Forest Museum is situated on the grounds of the Kiyosumi Branch. The museum has a permanent exhibit of specimens of animals and plants, lumber, charcoal, and woodwork products, picture scrolls depicting the forestry industry during the Edo period, disks of a giant tree that once grew on the grounds of the Seicho-ji temple and in UTCBF, and old forestry tools, including imported items, and also provides explanations on varied topics.

The Forest Museum is used for the practical training of students, and may be visited for a fee by approved groups. Groups wishing to visit the museum should contact the UTCBF Amatsu office. There are also days when the museum is open to the public. Please check the UTCBF website.

Photograph 8 Forest Museum

2) Published data

Fundamental data are collected for education and research. Data related to the UTCBF, including on flora, fauna, weather, hydrology, and water quality, are published at https://www.uf.a.u-tokyo.ac.jp/chiba/research/open_data.html.

3) Publications

Japan's Oldest University Forest - All about The University of Tokyo Chiba Forest

Published to commemorate the 120th anniversary of UTCBF. This book provides an in-depth understanding of UTCBF.

Guidebook on the Creatures of The University of Tokyo Chiba Forest

This book includes photographs of the plants and animals that live in the forest and provides easy-to-understand explanations. The photographs in the guidebook were taken by UTCBF members.

"Forest trip" - 100 highlights of The University of Tokyo Forests

This publication introduces highlights from the seven University of Tokyo Forests.

Please email or phone the office to purchase these publications, which can also be purchased online from Amazon. https://www.uf.a.u-tokyo.ac.jp/chiba/about/goods.html

User guide

UTCBF is a facility for education and research as a forest field site. Therefore, use may not be permitted depending on the purpose of the visit. Please first contact the office by email, then download the application form from the website, and complete and submit the form.

Contact details for usage inquiries

UTCBF Amatsu office

770 Amatsu, Kamogawa city, Chiba, 299-5503, Japan

TEL +81-4-7094-0621　FAX +81-4-7094-2321

Access

<Train>

Tokyo - (JR Sotobo Line Approx. 2 to 3 hours) - Awa-Amatsu Station - (5-minute walk) - Amatsu office

<Express bus>

Tokyo Station Yaesu Exit - (Express bus Akushi Approx. 2 hours) - Kameda Medical Center - (Kamogawa Nitto Kotsu Bus Approx. 5 minutes) - Awa-Amatsu - (5-minute walk) - Amatsu office

Amatsu

Lodging

Kiyosumi lodge / Kiyosumi lodge 2 (log house)

Kiyosumi lodge: Capacity 40 people, meals provided

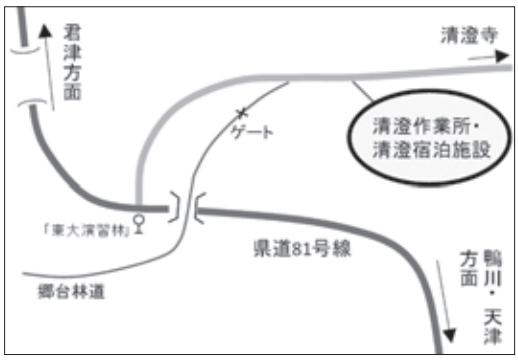
Log house: Capacity 7 people, no meals provided - self-catering

Address: 135 Kiyosumi, Kamogawa city, Chiba, 299-5505, Japan

TEL +81-4-7094-0585 (Kiyosumi Branch)

Access

Awa-Amatsu - (Community bus Kiyosumi Line, 12 minutes) - Todai enshurin bus stop - (3-minute walk) Kiyosumi lodges



Kiyosumi Branch · Kiyosumi lodges

Terms of use

UTCBF lodging facility fees (revised on 1 October 2019)

Name of facility	Capacity	Accommodation fee						
		The University of Tokyo		Other universities				Other
		Faculty and staff		Students		Faculty and staff		
		1 to 6 nights	7 nights or longer	1 to 6 nights	7 nights or longer	1 to 6 nights	7 nights or longer	
Kiyosumi lodge	40	1,100	900	700	600	1,400	1,200	2,200
Kiyosumi lodge 2 (log house)	7	2,400	2,000	1,500	1,200	2,900	2,400	4,800

- The facility fees are waived for university students, graduate students, research students, and students still attending compulsory education.
- 7 nights or longer: Refers to the accommodation fee per night from the 7th consecutive night.
- Meals can be provided by payment of separate fees - Breakfast: JPY500, Lunch: JPY600, Dinner: JPY900 (all 3 meals: JPY2000).
- Kiyosumi lodge 2 (log house) consists of self-catering dormitories.
- Kiyosumi lodge 2 (log house) requires payment of an additional charge of JPY600 per person per stay as a sheet washing fee.

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

UTFs website

UTCBF: The University of Tokyo Chiba Forest
UTHF: The University of Tokyo Hokkaido Forest
UTCF: The University of Tokyo Chichibu Forest
UTTF: The University of Tokyo Tanashi Forest
ERI: Ecohydrology Research Institute
FIWSC: Fuji Iyashinomori Woodland Study Center
ARI: Arboricultural Research Institute
EO: Executive Office
EEC: Education and Extension Center
FDRC: Field Data Research Center

The University of Tokyo Chiba Forest (UTCBF),
Graduate School of Agricultural and Life Sciences

770 Amatsu, Kamogawa city, Chiba, 299-5503, Japan
TEL +81-4-7094-0621　FAX +81-4-7094-2321
E-mail chibaen@uf.a.u-tokyo.ac.jp
Website: https://www.uf.a.u-tokyo.ac.jp/chiba/

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The University of Tokyo Chiba Forest Website

The University of Tokyo Chiba Forest Official Instagram

Cover photograph
Walking in natural forests during a student seminar