



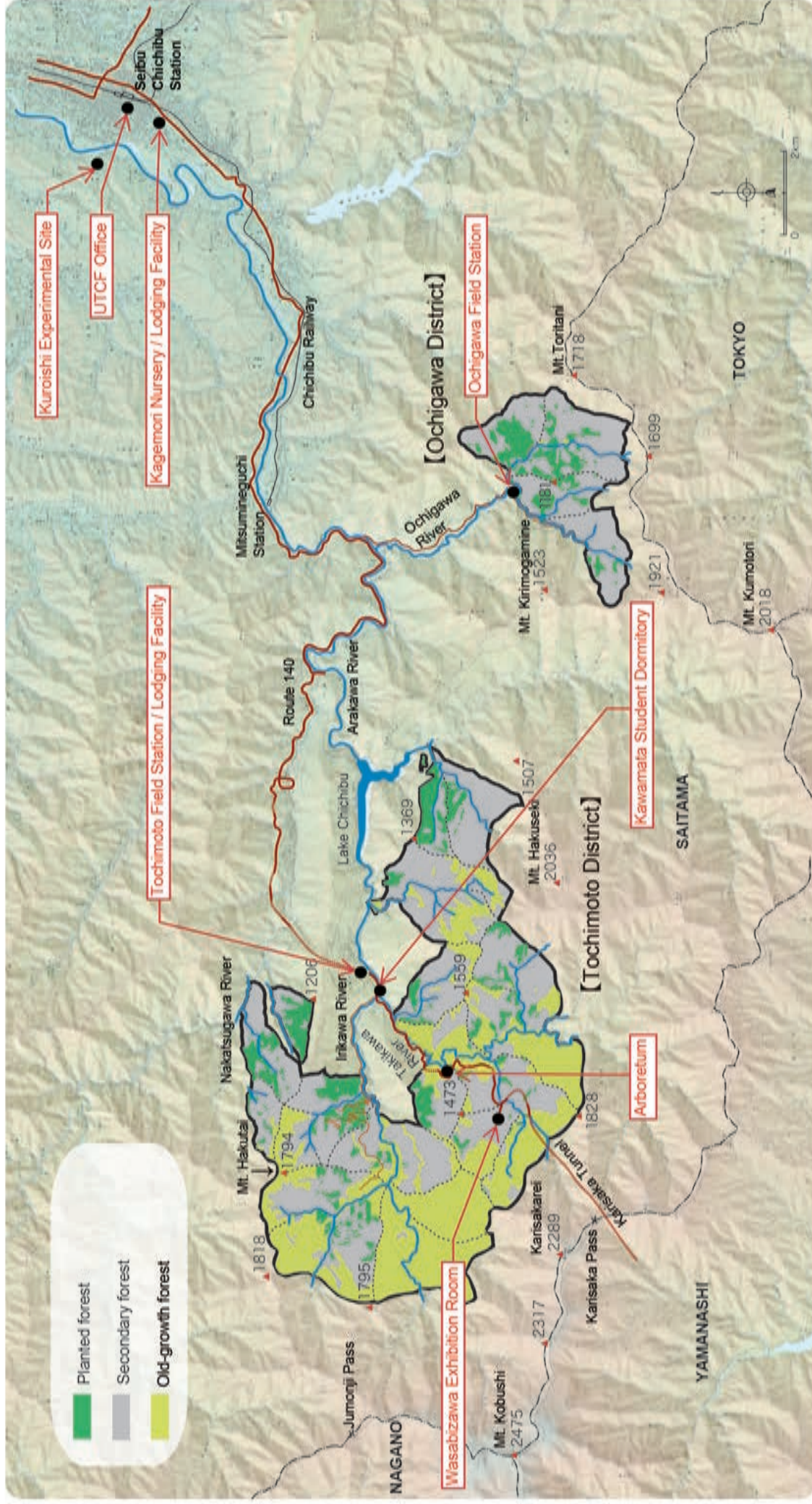
The University of Tokyo Chichibu Forest

2023

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



Location map of the University of Tokyo Chichibu Forest



This map is based on the Digital Topographic Map 25000 and the Digital Map 50m Grid (Elevation) published by Geospatial Information Authority of Japan under its permission

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1. History and overview

The University of Tokyo Chichibu Forest (UTCF) was established as a University Forest in 1916 by the purchase of a private forest of about 6,000 ha in Otaki Village (currently Chichibu City), Saitama Prefecture—situated in a cool temperate region—as an education and research facility affiliated with the Faculty of Agriculture of the University of Tokyo. After subsequent land transfers, the total area of the university forest now stands at 5,812 ha. At the time of establishment, the management policy was to expand the planted forests, but, from 1971, the policy combined research on the ecology of natural forests with management of the planted forests. From 1991, the policy shifted to long rotation and regeneration cutting of the planted forest was suspended. Education and research on cool-temperate forest ecosystems was set as the main priority since 2011.

2. Location and environmental characteristics

UTCF is located in Chichibu in the western part of Saitama Prefecture bordering the Tokyo Metropolitan area and 3 prefectures—Yamanashi, Nagano, and Gunma. The forest is located in the upstream area of the Arakawa river at altitudes ranging from 530 to 1,990 m above sea level. It is made up of two sections: the Ochigawa District (932 ha) is 22 km to the west of Chichibu City, while the Tochimoto District (4,875 ha) is 40 km to the west. The entire area of both districts is designated as the Chichibu-Tama-Kai National park. The terrain is marked by very steep slopes resulting from deep erosion, and deeply carved V-shaped valleys. The geology comprises a Mesozoic Jurassic accretionary complex in the Chichibu belt and Cretaceous accretionary complex in the Shimanto belt. The soil is comprised of dry weakly podzolized soil distributed on mountain ridges at and above 1,000 m and mountainsides at and above 1,700 m, while brown forest soil is widely distributed in areas at lower elevations. Tephra-derived black soil is distributed on gentle slopes. The climate is a typical Pacific Ocean climate, with high rainfall in the summer and little snow in the winter. Weather recordings at the



Photograph 1 Source of the Arakawa river
The Arakawa river starts as a Class A river at the confluence (meeting point) of the Akasawa and Irikawa tributaries.



Photograph 2 V-shaped valley
Mameyakizawa valley seen from the Mameyakibashi Bridge in front of the Karisaka Tunnel

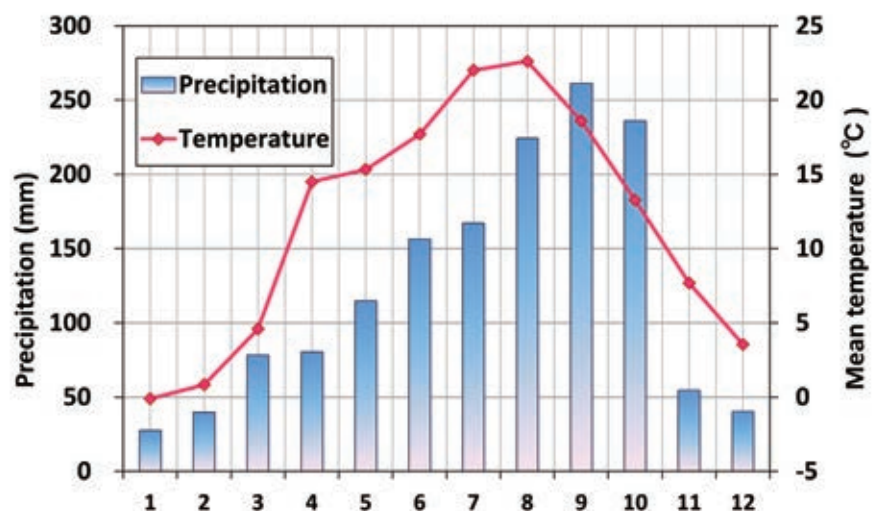


Figure 9 Monthly average temperature and precipitation at Tochimoto Observatory from 2011 to 2020

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Tochimoto observatory (760 m above sea level) from 2011 to 2020 indicated an average annual temperature of 11.7 °C and average annual rainfall of 1,481 mm. Although the snow depth varies widely from year to year, it is usually 20–30 cm.

3. Forest characteristics

At the establishment of the UTCF, hardwood felling sites or secondary forest for charcoal and fuel wood comprised about 2,000 ha. The remaining 3,800 ha or so were occupied by untouched primary natural old-growth forest, while plantations occupied only a small area (18 ha). At present, natural forest occupies 87.5% of the entire area (5,013 ha, natural forest of old-growth: 37.7% [1,887 ha], secondary forest: 62.2% [3,118 ha]), while planted forests occupy 12.5% of the entire area (713 ha, cypress: 36.7%, Japanese larch: 27.5%, cedar: 24.8%, Sawara cypress [*Chamaecyparis pisifera*]: 3.9%). UTCF covers a wide range of elevations, ranging predominantly from montane to sub-alpine vegetation zones, so the forest has a diverse range of tree species. There are approximately 250 species of naturally growing trees belonging to 118 genera and 56 families, characterized by a large number of maple species, with 20 of the 28 Japanese maple species growing in this area. The montane vegetation zone occupies elevations of 600–1,600 m, with evergreen coniferous forests dominated by southern Japanese hemlock covering the dry mountain ridges, *Fagus crenata* and *Fagus japonica* occupying mesic habitats on mountain slopes, and deciduous broad-leaved forests dominated by *Fraxinus platypoda* and *Pterocarya rhoifolia* in riparian forest habitats on concave slopes or along valleys. There are also stands of natural cypress forest in habitats drier than where *Tsuga sieboldii* dominates. Higher elevations in the sub-alpine zone (at and above 1,600 m) are covered by evergreen coniferous forests dominated by *Tsuga diversifolia* and *Abies veitchii* (at and above 1,800 m), and natural *Larix kaempferi* forests are also present.

4. Facilities

There is a field station in Ochigawa District, and a field station and

lodging facilities in Tochimoto District. There is also an office at Hinoda in the town area of Chichibu City, nursery and lodging facilities at Kagemori, and an experimental site established at Kuroishi. The Tochimoto District Kawamata student dormitory may be used by many students, including those from the University of Tokyo and other universities, conducting practical forest-related training. Seismic retrofitting of the facilities was completed in 2022. In the Tochimoto District, the Wasabizawa Exhibition Room is open to the general public to provide PR for UTCF.

5. Education

Easy accessibility to various types of natural forest stands, ranging from mountainous areas to sub-alpine zones with diverse elevations and terrains, means that the UTCF is in high demand as a field site for ecological education. UTCF maintains planted forests and nurseries for the basic curriculums of Forest Science Courses, and offers many different

field training courses for students of the Forest Science Course and Field Science Course of the Faculty of Agriculture, the University of Tokyo, as well as for students from other faculties of the University of Tokyo and other universities. Fieldwork programs are available to undergraduate students in their first two years at the College of Arts and Sciences, which includes liberal arts education, taking full advantage of the nature around the Oku-Chichibu mountains and the mountain village culture.

6. Research

Although the UTCF is located near a metropolitan area, it retains the primeval natural environment formed by the headwaters of the Arakawa River. Comprehensive research has been conducted on cool-temperate forest ecosystems, including conservation and management of the forests within UTCF and collaboration with local communities, which capitalizes on the characteristics of various natural and planted forests that change at different



Photograph 3 Experiment in Basic Forest Science III
Plants are collected to prepare pressed leaf specimens as part of practical training in the field of dendrology.



Photograph 4 Fieldwork program - Tour of Chichibu in the spring
Attempt to make "Tsutokko," a local dish of the Chichibu region.



Photograph 5 Tree census
Tree trunk diameter is measured every year for the continuous monitoring of changes in the forest

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altitudes. The three critical themes for research are set out below.

(1) Forest ecosystem processes

Long-term data on forest dynamics have been accumulated from large plots and at permanent experimental plots at many locations in the natural forests. Long-term changes in forest ecosystem processes, such as forest regeneration and litter decomposition,



Photograph 6 Attempt to convert unsuccessful plantations into natural forests
Natural regeneration four years after clear-cut logging (top: June 2022) and just after cleaning cutting (bottom: December 2022).

are also monitored. These data are used to elucidate how forest ecosystem structures and functions respond to environmental changes. In planted forests, the research focuses on changes in ecosystem processes associated with final cutting and thinning, and induction of natural forests in unsuccessful plantations. Research is also conducted on the watershed protection function of forests and environmental sensing.



Photograph 7 Bark-stripping damage caused by deer
Certain tree species, such as the Nikko fir (*Abies homolepis*) in the photograph, are preferentially stripped of bark, which causes them to wither and die.

(2) Conservation of biodiversity

UTCf and the surrounding Oku-Chichibu Mountains have a high level of biodiversity resulting from various geographical factors, such as the broad range in elevation and limestone outcrops, and is inhabited by many rare animals and plants. Work is underway to conserve biota and genetic resources. In particular, the Kagemori nursery has been established to perform ex-situ conservation of endangered species, such as the Chichibu birch (*Betula chichibuensis*), which are endemic to the Oku-Chichibu Mountains. We are also working with the local community to establish arboreta for flora and fauna unique to the area (e.g., maple).

(3) Adaptive management of the ecosystem

The increasing population density of sika deer severely impacts the forests in the Oku-Chichibu Mountains and the understory vegetation is in decline, which are expected to have various impacts on ecosystem processes, including forest regeneration, biodiversity, and material circulation. Therefore, deer exclusion fences have been installed at different altitudes, and long-term observation is underway to assess the effect of herbivore pressure on the forest ecosystem. We are also conducting research on deer ecology and density estimation, with the aim of managing deer density in cooperation with the local community and private companies.

7. Extension

UTCf concluded a local exchange agreement with Chichibu City in 2019, which is promoting collaboration in various fields, such as nature protection, forest conservation, forest and environmental education, and forest resource utilization. UTCf holds public lectures with the cooperation of the Saitama Entomological Society as a forum for communicating research results to the public and help local residents better understand the activities implemented by the UTCf. Guided tours are also held by the volunteer organization "Shioji-no-kai," which supports UTCf. Furthermore, scientific information and research data are available through the website and the Wasabizawa Exhibition Room.



Photograph 8 Public lecture - Collecting insects in the University of Tokyo Forests
Collection site (left) and prepared specimen (right)

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○ Monorail

Forestry monorails have been established at three locations in the forest (Bakemonozawa, Iriyama, Nakayamazawa) to allow access to locations high in the mountains of the UTCF, with its multitude of steep slopes. The Bakemonozawa monorail allows access to altitudes ranging from 1,050 m to 1,550 m within about 45 minutes.



Bakemonozawa Monorail



Wasabizawa Exhibition Room

○ Wasabizawa Exhibition Room

This exhibition room introduces the research and flora and fauna of the UTCF and is located on the second floor of the rest area (national highway facility), close to the Saitama side exit of the Karisaka Tunnel. Mounted specimens of mammals and photographic panels of the plants that inhabit the Chichibu mountains are on display. The display is changed in the spring and fall. Anyone who would like a tour of the exhibition should contact the management office on the first floor of the rest lounge.

○ Flow-measuring weirs

There are two weirs in the forest (Bakemonozawa, Yatakezawa) where the volume of river runoff is measured. It is challenging to measure the volume of river runoff in mountain river basins, which tend to have large fluctuations in water volume and considerable movement of sediment. With these weirs, we have obtained valuable data not available elsewhere.



Bakemonozawa weir (left) and nearby Wasabizawa Meteorological Observatory (right)

○ Arboretum

The arboretum was established in 1940 by transplanting trees from the surrounding area, or introducing tree species from Hokkaido or overseas into a predominately natural forest. Tree labels have been attached to approximately 70 tree species.



Arboretum

○ Kagemori nursery

The Kagemori nursery has an area of 1.6 ha and is situated in the city of Chichibu. The nursery is used for field experiments and as a conservation site for forest plants. Lineage of the birch genus from Chichibu, Japanese beech by provenance, and Monarch birch by provenance are also maintained in the nursery.

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User guide

Advance permission is required to use the UTCF and facilities. Those wishing to use the facilities should complete the required fields of the Use Application Form, Accommodation Use Application Form, provide a list of names of the users, and submit these documents to the UTCF office. The Use Application Form can be downloaded from the UTCF website.

Contact details for usage inquiries

UTCF office

1-1-49 Hinodamachi, Chichibu, Saitama, 368-0034, Japan
 TEL +81-494-22-0272 FAX +81-494-23-9620

Access:

<Train>

Ikebukuro - (Seibu Ikebukuro Line Limited Express 80 minutes) -
 Seibu Chichibu - (7-minute walk) - UTCF office

<Car>

Kanetsu Expressway (Hanazono IC) - (away from Tokyo on
 National Route 140 approximately 50 minutes) - UTCF office



Lodging facility

Name of lodging facility: UTCF Kawamata lodging facility (catering and camp facilities)

3423-2 Otaki, Chichibu, Saitama, 369-1901, Japan

Capacity: 28 people

Meals provided

Access: Seibu Chichibu - (3-minute walk) - Ohanabatake - (Chichibu Railway 20 minutes) - Mitsumineguchi -
 (bus 40 minutes) - Kawamata - (3 minutes on foot) - Kawamata lodging facility

Name of lodging facility: UTCF Kawamata lodging facility (self-catering)

Capacity: 5 people

No meals provided - self-catering

Access: Same as the Kawamata lodging facility (catering and camp facilities)

Name of lodging facility: UTCF Tochimoto lodging facility

3450-2 Otaki, Chichibu, Saitama, 369-1901, Japan

Capacity: 6 people

No meals provided - self-catering

Access: Seibu Chichibu - (3-minute walk) - Ohanabatake - (Chichibu Railway 20 minutes) - Mitsumineguchi -
 (bus 40 minutes) - Kawamata - (10-minute walk) - Tochimoto lodging facility

Name of lodging facility: UTCF Kagemori lodging facility

764 Shimokagemori Chichibu, Saitama, 369-1871, Japan

Capacity: 6 people

No meals provided - self-catering

Access: Seibu Chichibu - (20-minute walk) - Kagemori lodging facility

Use of lodging facility

For use of facilities (per person, per night, unit: JPY)

Lodging facility		Maximum capacity	The University of Tokyo		Other universities		Other	Students still attending compulsory education
			Students	Faculty and staff	Students	Faculty and staff		
Meals included	Kawamata lodging facility (catering and camp facilities)	28	0	1,100	800	1,400	2,200	0
Self-catering	Kawamata lodging facility (self-catering)	5	0	700	500	900	1,400	0
	Tochimoto lodging facility	6	0	1,900	1,400	2,300	3,800	0
	Kagemori lodging facility	6	0	800	600	1,000	1,600	0

- A separate payment of JPY300 is required as a linen laundry fee.
- A separate payment of JPY2000 per day is required for meals at the Kawamata lodging facility (catering and camp facilities, breakfast: JPY500, lunch: JPY600, dinner: JPY900).
- Please contact us regarding use of the Kawamata lodging facilities (catering and camp facilities).
- Meals are not provided in self-catering dormitories (fully equipped with cooking utensils; please bring your own groceries).
- Both the speed and capacity of internet access are severely limited at the Kawamata lodging facility (catering and camp facilities) and Tochimoto lodging facility.
- A separate payment of JPY100/day is required for heating at the Kagemori lodging facility between 1 November and 31 March the following year.

Points to note

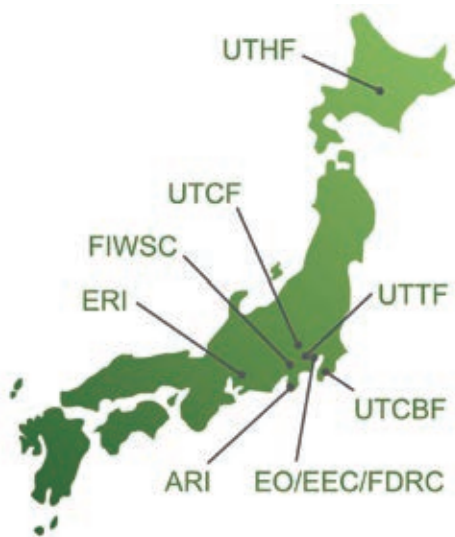
Entry of the general public to the forest at UTCF is restricted due to long-term academic research being conducted. We appreciate your understanding and cooperation.



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 Forests, Graduate School of Agricultural and Life Sciences,
The University of Tokyo Chichibu Forest (UTCF)

1-1-49 Hinodamachi, Chichibu, Saitama, 368-0034, Japan

TEL +81-494-22-0272 FAX +81-494-23-9620

Website: <https://www.uf.a.u-tokyo.ac.jp/chichibu/>

E-mail: chichibu2012@uf.a.u-tokyo.ac.jp

Cover photograph

Top photograph: View towards the Takizawa dam from forest compartment 34
Middle photograph: Fall colors in the natural deciduous broad-leaved forest
along the Takadaira trail
Bottom photograph: Secondary forest along the trails at forest compartment 1