Report about Sophia Forest External Seminar for Students of Global Environmental Studies of Graduate School, Sophia University

Nov-18, 2026

Haemi Park



Figure 1At the entrance of Sophia Forest

The Sophia Forest external seminar program was conducted on November 13-14, 2026, in the national forest known as Sophia Forest located in Karuizawa. Under an agreement between the Forestry Agency of Japan and the *Graduate School of Global Environmental Studies, Sophia University*, educational and research activities are permitted within Sophia Forest. The external seminar was supported by *the Green and Water Forest Fund of the National Land Afforestation Promotion Organization*. A total of 25 students from the Graduate School of Global Environmental Studies and two faculty members participated in the seminar.

At 1:00 p.m. on November 13, a field lecture was delivered at Sophia Forest by three instructors from the Toshin District Forest Office: Mr. Kato (Senior Forest Management Officer), Mr. Watazawa (Forest Technical Advisor), and Ms. Kida (Regional Technical Officer) (Figure 2). The lecture covered topics including forest damage caused by Japanese deer, conservation of rare wildlife species, and forest management practices.

The participants also discussed concerns regarding the shortage and aging of workers engaged in forestry and wildlife management, as well as the future of sustainable


Figure 2 Lecture by Toshin District Forest Office



Figure 3 Demonstration of Trap setting for capturing Japanese deer

forest management. One particularly noteworthy topic was the economic challenge of reforestation. It was explained that the cost of planting seedlings on one hectare of forest land can reach approximately ¥2.6 million, while the expected revenue is only about ¥1 million. As a result, roughly 70% of reforestation costs are currently supported by government subsidies. Students were particularly interested to learn that forest management in Japan is typically planned over a 50-year rotation period, which discourages participation by many private companies because of the long investment horizon.

Figure 3 shows students experiencing the installation of traps used for capturing Japanese deer. One student group suggested that hunting might be a more humane method than trapping because it could potentially reduce animal suffering. This topic generated lively discussion among participants and continued even after returning to the accommodation. It was encouraging to observe students engaging critically with the ethical dimensions of wildlife management. However, the shortage of skilled forestry and hunting personnel remains a significant challenge, making simple solutions difficult to implement. Further discussion and research on this issue are warranted.



Figure 4 Biomass and Soil Moisture Observation

Following the lecture, students were divided into groups to conduct forest biomass and soil moisture surveys. Within each group, students assumed specific roles, including GPS data collection, tree species identification using Google Image Search, diameter at breast height (DBH) measurement, tree height measurement using laser instruments, soil moisture measurement, field recording, and photography. Each group selected its own study site and carried out field observations.



Figure 5 TIme of Group Work

The activity provided students with hands-on experience in the entire field investigation process, from site selection and instrument operation to data recording and management. All participants actively engaged in the survey work, and observations continued until late afternoon. Due to warnings regarding the presence of wildlife, including bears, field activities were concluded at 4:30 p.m. for safety reasons. The participants then returned by bus from Mitsuishi Community Center to their accommodation.

After dinner, students gathered in a meeting room to organize and discuss the data collected during the day and to prepare for presentations scheduled for the following day. Group members shared their assigned tasks and collaboratively edited documents using online platforms such as Google Docs (Figure 5). It was particularly impressive to observe how smoothly the students adapted to a global Microsoft Office service disruption that occurred during the training period, continuing their collaborative work without significant confusion or interruption.



Figure 6 Left is man-made coniferous forest, and right is natural biome

On the morning of Saturday, November 14, the participants walked around Sophia Forest to conduct ecological observations and drone-based aerial photography. The excursion began along a trail through the typical broadleaf forest

that characterizes Sophia Forest, dominated by species such as Japanese beech (Fagus crenata). Continuing along the route, the participants eventually reached an area of planted coniferous forest (Figure 6). The striking contrast between these two forest types provided an excellent opportunity to observe how tree species composition influences forest structure and light conditions. Some students commented that the conifer plantation felt noticeably darker than the surrounding broadleaf forest due to the denser canopy cover.

One student in particular expressed an interest in distinguishing coniferous and broadleaf forests using satellite imagery. Observing these forest types firsthand allowed the student to connect remote sensing concepts learned in the classroom with real-world field conditions.



Figure 7 Landscape of Wisteria and dead trees

In addition, the participants learned about tree mortality caused by the aggressive growth of wisteria vines (Wisteria spp.) (Figure 7). Evidence of previous control efforts could still be observed along the trail, where large numbers of wisteria vines had been removed during trail maintenance activities supported by *the Green and Water Forest Fund*. Wisteria spreads laterally and climbs surrounding trees, eventually overtopping the canopy and placing substantial physical and physiological stress on host trees. In severe cases, this can lead to the decline and eventual death of otherwise healthy trees.

Because unchecked wisteria growth can reduce the survival of native tree species and alter forest structure, its removal was considered a necessary management measure for maintaining forest health and biodiversity. The participants recognized this issue as an important example of active forest management, particularly in the context of the increasing number of abandoned or insufficiently managed forest lands in Japan. The site provided a valuable opportunity to discuss the ecological consequences of reduced forest management and the challenges associated with conserving biodiversity in human-influenced forest ecosystems.

Forest canopy imagery was also collected using drones, and the importance of drone-based observations for validating satellite-derived canopy measurements was discussed (Figure 8). Many students showed great interest in the activity and had the opportunity to operate the drones themselves. However, because the drone flights were conducted at an altitude of approximately 10 meters, the area that could be surveyed during each flight was relatively limited.



Figure 8 Drone photography

On the afternoon of November 14, student presentations were held in the conference room of the Karuizawa Kensyujyo (Training Center). The field survey identified several dominant tree species, including Mizunara Oak (Quercus crispula), Japanese White Birch (Betula platyphylla var. japonica), and Japanese Beech (Fagus crenata). Based on field measurements and allometric calculations, the average tree height was estimated at 11.55 m, the average diameter at breast height (DBH) at 63.6 cm, the average tree carbon stock at 1,091.73 kg, and the average dry biomass at 1,594.13 kg. The average soil moisture content was measured at 66%.



Figure 9 Group Presentation

By directly measuring tree diameters and heights in the field, students gained a more intuitive understanding of forest conditions and structure. This hands-on experience is expected to help participants better interpret and contextualize quantitative datasets in future studies involving forest inventory, biomass estimation, and carbon accounting.

In conclusion, although the external seminar lasted only two days and one night, it provided an enriching opportunity for students to leave the classroom environment and learn about forests and soils through direct observation and hands-on experience. Participants ranged from students conducting research on forest ecosystems to those interested in natural resource management, creating a diverse learning environment that fostered interdisciplinary discussions from multiple perspectives. Such interactions highlighted the unique value of off-campus field seminars as a platform for integrating knowledge, experience, and dialogue.

The organizers would like to express sincere appreciation to all 25 participants, as well as to the four student leaders, Afrin, Zeng, Wang, and Miguel, who assisted with the preparation of the seminar for more than three months prior to its implementation. Special thanks are also extended to Professor Longfor for his invaluable support and contributions to the success of the external seminar.



Figure 10 Group Photos