

# 15

## LIFE ON LAND



2019-2023  
Publications

31



2019-2023  
Percentage of all  
Taiwan Publications

1.9%



Course Units

51



Student Engagements  
with Units on SDG 15

847



## Research

### Forest Landscape Planning Policy

Green spaces improve both physical and mental health, and the seasonal changes in greenery can alter the characteristics of forest landscapes. Professor Chun-Cheng Lin from the Department of Industrial Engineering and Management at our university and his research team adopted the Attention Restoration Theory (ART) to assess the psychological benefits of different forest landscape colors within Taiwan's renowned Aowanda National Forest Recreation Area. The research findings indicate that varying forest landscape colors impact attention restoration, landscape preferences, and the willingness to stay. Visitors preferred warmer-colored forest landscapes and were more inclined to spend more time in such environments. The study recommends that future national forest park planning and landscape design consider local climate change and environmental shifts by selecting tree species with seasonal foliage changes, such as bald cypress and sweetgum. Additionally, maintaining color consistency throughout the landscape is essential to enhancing the effects of environmental restoration. The research findings have been published in the international journal *Forest Policy and Economics*.

### Relationship Between Slope Failure and Rainfall

Taiwan, an island nation near the subtropics, is prone to typhoons every summer. Professor Chia-Ming Lo from the Department of Civil Engineering at our university and his research team have conducted a study on rainfall infiltration-induced rock slope failures. Using the discrete element method (DEM) numerical software 3DEC developed by Itasca, they simulated the impact of rainfall infiltration on the stability of rock slopes. By coupling simulation results with inflow and outflow time curves, the study confirmed that their proposed method could, to a certain extent, simulate the continuous changes in slope failure caused by rainfall. This method can be a reference for future studies on modeling surface water infiltration-induced rock slope slides and changes in pore water pressure using discrete element simulation. The research findings have been published in the *Journal of Chinese Soil and Water Conservation*.

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## Social Impact

### Participation in Trail Volunteer Action

Mountain trails offer an important way for people to connect with nature. The Fitipower Environment Foundation organized a two-day "Handmade Trail" initiative to promote the care and maintenance of these natural trails. The event rallied students from National Yang Ming Chiao Tung University and National Tsing Hua University, with participation from 6 departments and 2 student organizations, totaling 60 volunteers. These volunteers traveled to the Tea Pavilion Ancient Trail in Hengshan Township, Hsinchu, to serve as forest conservation volunteers. Under the guidance of the Taiwan Thousand Miles Trail Association, the volunteers used a "local sourcing" method to maintain the trail, utilizing fallen trees and scattered rocks from the area, thus avoiding using heavy machinery and external materials that might disturb the local environment. They worked on maintaining an 800-meter stretch of the Tea Pavilion Ancient Trail. The goal was to strengthen the volunteers' sense of sustainability through hands-on experience, fostering a mindset of coexisting with nature that extends into their daily lives and encourages continued positive influence.



### 2023 GOOD DESIGN AWARD

Hsinchu Living Museum Project

### A New Sustainable Urban Lifestyle with Chickens and Bats as Learning Partners



### Sustainable Urban Living with Chickens and Bats as Companions

Led by Professor Wen-Shu Lai from the Graduate Institute of Applied Arts, the "Six-Fuel" team was awarded the 2023 Good Design Award in Japan for their project "Sustainable Urban Living with Chickens and Bats as Companions." Since 2018, the team has been promoting the idea of considering chickens and bats as learning partners, integrating smart technology and ecological ethics to care for chicken coops and bat habitats. The project is centered on the concepts of non-human-centric sustainable living and ecological conservation education. During the annual visits of the Japanese pipistrelle bat, the team organizes a series of workshops, including bat observation, bat caretaking, bat rescue, and the construction of bat nest boxes. Additionally, activities such as bat monitoring and counting are carried out. These initiatives help surrounding residents and the university community develop a positive understanding of bats, promoting awareness and respect for diverse species.



## Education & Cultivation

### "Multi-Species Touqian River" Walking Tour Activity

In collaboration with the International Center for Cultural Studies, the Department of Humanities and Social Sciences at our university organized the "Multi-Species Touqian River" walking tour activity. Through two outdoor workshops, students were guided to get hands-on experience and explore the Touqian River. The first session, "Good Water in Hsinchu," focused on water issues in the Touqian River. Led by the president of the Taiwan Clean Water Action Alliance, participants followed the river from its upstream to downstream regions, gaining insights into the water-related challenges of the Touqian River basin. The second session, "Collecting Memories by the Riverbank," was a plant workshop led by the author and ecological illustrator of *The River Without a Mouth*. This workshop took students to the riverbed of the Touqian River, where they learned about the riverbank plants, their habitats, and the history of migration, understanding the river as a habitat for non-human species.

### Environmental History and Multispecies Justice Workshop

In collaboration with the International Center for Cultural Studies, the Department of Humanities and Social Sciences at our university hosted the "Environmental History and Multispecies Justice Workshop." This event brought together researchers in environmental history and multispecies studies, aiming to move beyond the human-centered perspective typical of humanities and social research. It also sought to transcend the "human vs. single species" dichotomy often found in animal studies, instead exploring the entangled relationships between humans and non-humans and the modern power dynamics within food, agriculture, and the environment. The workshop's keynote topics included "How to Decolonize Death? Multispecies Justice Reflections on the Stray Dog Controversy" and "The Socio-Ecological Connections between Taiwan and Southeast Asia under Japanese Imperial Rice Trade."

## Stewardship

### Campus Tree and Habitat Health Inventory Project

Trees play a crucial role in the carbon cycle, and our university's Office of General Affairs is dedicated to properly maintaining and managing trees on campus to ensure their healthy growth and enhance carbon sequestration efficiency, supporting the goal of net-zero transition by 2050. The following initiatives are being implemented:

- **Natural Ecological Environment Creation**  
The university regularly assesses the current state of the campus environment. The Yangming campus, built on a hillside, features a largely natural forest landscape, with artificial elements like flower beds and lawns only present near buildings. The plants on the slopes help with water retention and soil conservation, creating a natural habitat that supports campus biodiversity. On the Chiao Tung campus, the eastern area consists of sloped terrain with campus roads running through, lined with artificially planted trees. The western part, adjacent to National Tsing Hua University, is a low-density development with areas of natural secondary forest that fall within the environmental impact assessment zone.
- **Tree Maintenance and Management**  
Twice a year, large-scale pruning of shrubs (e.g., *Ficus microcarpa*) and designated trees is carried out. In addition, safety measures and emergency response plans are in place to handle tree hazards or falls caused by typhoons, heavy rain, strong winds, or unexpected tree collapses to ensure road accessibility and the safety of faculty and students. Monthly inspections of campus trees are conducted to monitor conditions such as hazardous dead branches, obstructed streetlights, and signs of pests or diseases. Immediate pruning and preventive measures are taken as needed to address these issues.

