SDG 15
LIFE ON LAND

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01 Events about Sustainable Use of Land

Universiti Malaya actively promotes the conservation and sustainable utilisation of land ecosystems through educational events, environmental awareness programmes and community-based conservation initiatives. These activities extend beyond the University's campus, engaging students, local communities and external stakeholders in understanding the ecological importance of forests and other natural landscapes. Through collaborative initiatives involving government agencies, conservation organisations, external partners, and local communities, these activities promote responsible land management, the restoration of natural habitats and greater awareness of the importance of conserving forests and other natural environments for biodiversity and long-term environmental sustainability.

Evidences include:

- **Langkah Hijau 24/25: Berembang Tree** **(Page 3)**
- **Educational Events on Limestone Karst Conservation** **(Page 4)**

Langkah Hijau 24/25: Berembang Tree







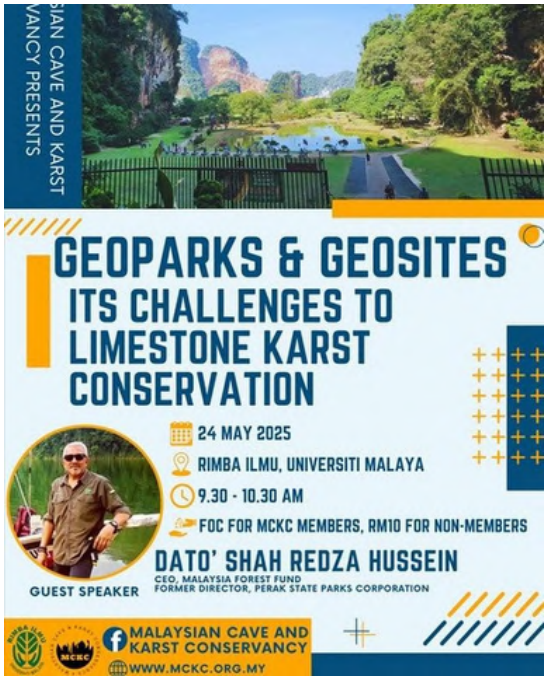
The Langkah Hijau 24/25 programme was held on 4 July 2025 at Taman Kelip-Kelip Kampung Kuantan, Selangor, bringing Universiti Malaya students into a practical environmental conservation activity outside the university campus. Organised by Kolej Kediaman Tuanku Abdul Rahman under the ASTARCares initiative, the programme involved 40 students who participated in planting 111 berembang (Sonneratia caseolaris) saplings. The activity highlighted the ecological importance of berembang trees in supporting habitats associated with fireflies, including *Pteroptyx tener*.

By planting berembang saplings at an established firefly site, the programme supported awareness and practical action related to the conservation of vegetation and wildlife habitats. The initiative also provided students with an opportunity to engage directly in environmental stewardship and understand the relationship between native vegetation and local biodiversity. Through activities conducted beyond the university campus, the programme contributed to wider efforts to encourage the conservation and sustainable management of natural environments.

Educational Events on Limestone Karst Conservation

Rimba Ilmu Botanic Garden hosted educational activities addressing the conservation of limestone karst landscapes, including a seminar sharing discoveries and experiences from the Malaysian-Swiss Caving Expedition on 14 March 2025 an a talk on *Geoparks and Geosites: Challenges to Limestone Karst Conservation* on 24 May 2025. The sessions provided opportunities for participants to learn about Malaysia's cave environments, karst landscapes, and the challenges involved in conserving these distinctive land ecosystems.





02 Maintain and Extend Current Ecosystems' Biodiversity

Universiti Malaya undertakes direct conservation and ecosystem management activities to maintain existing terrestrial biodiversity and support the recovery of degraded habitats. These efforts include the maintenance of botanical collections and green spaces at Rimba Ilmu, mangrove rehabilitation initiatives at Matang Mangrove Forest Reserve, Perak and Taman Alam Kuala Selangor, and the planting of native tree species across the campus. In addition, UM engages relevant conservation authorities, including PERHILITAN, to address human–wildlife interactions and strengthen the management of wildlife habitats within its campus ecosystem.

Evidences include:

- **One Million Trees Programme: Supporting Mangrove Ecosystem Restoration** (Page 6)
- **Mangrove Replanting to Support Ecosystem Conservation at Taman Alam Kuala Selangor** (Page 7)
- **Managing Human–Wildlife Conflict for Campus Biodiversity** (Page 8)

One Million Trees Programme: Supporting Mangrove Ecosystem Restoration



The One Million Trees Programme, a long-term conservation initiative launched in 2025, led by Dr. Sarah Abdul Razak from the Institute of Biological Sciences, Faculty of Science, Universiti Malaya, in collaboration with Yayasan PETRONAS, aims to support long-term tree planting, ecosystem restoration and biodiversity conservation. Implemented at Compartment 27 of the Matang Mangrove Forest Reserve, Kuala Sepetang, Perak, the programme is supported by the Perak State Forestry Department and the local community.

As part of this initiative, a Communication, Education and Public Awareness (CEPA) programme was conducted in 25 November 2025, bringing together representatives from the Universiti Malaya Ecology Biodiversity Society (EcoBio UM), Universiti Malaya Community Engagement Centre (UMCares), volunteers and local stakeholders. Participants engaged in hands-on mangrove propagule sowing and seedling planting activities, contributing to the restoration of degraded mangrove habitats. The programme also provided valuable opportunities for experiential learning and enhanced participants' awareness of the ecological importance of mangrove forests in supporting coastal biodiversity, ecosystem functioning and environmental resilience.

Through sustained collaboration between academia, government agencies, corporate partners and local communities, the One Million Trees Programme demonstrates Universiti Malaya's continued commitment to maintaining and restoring mangrove habitats, supporting the biodiversity of both plant and animal species.

Mangrove Replanting to Support Ecosystem Conservation at Taman Alam Kuala Selangor



On 29 June 2025, the Institute of Ocean and Earth Sciences (IOES), Universiti Malaya (UM), conducted the Climate Change Mitigation Programme: Nature-Based Solution for Greenhouse Gas Monitoring at Taman Alam Kuala Selangor, Selangor. The programme included mangrove sapling replanting to support the conservation of existing mangrove forests. Participants included research collaborators from the Leibniz Centre for Tropical Marine Research, Germany, UM's Corporate Communications Centre, IOES staff, postgraduate students and sea scout volunteers.

The replanting activity contributed to practical efforts to conserve mangrove ecosystems beyond the university campus. Mangrove forests provide important habitats for diverse plant and animal species and support ecological functions in coastal environments. By participating in mangrove replanting, UM supported efforts to maintain these habitats and their biodiversity through collaboration with research partners and volunteers.

Managing Human–Wildlife Conflict for Campus Biodiversity



A structured discussion held at Universiti Malaya with the Department of Wildlife and National Parks (PERHILITAN) addressed increasing human–wildlife interactions involving macaques and other species within the campus ecosystem. The session highlighted UM's green campus environment, including Rimba Ilmu, as an important urban habitat supporting diverse flora and fauna. However, rising disturbances linked to human activities—particularly improper waste disposal and feeding of wildlife—were identified as key pressures affecting ecological balance and biodiversity.

Key strategies focused on maintaining ecosystem stability and reducing human-induced disruption to wildlife populations within Universiti Malaya. These included improving waste management systems to limit wildlife access to food waste, discouraging feeding practices through targeted awareness initiatives, and promoting responsible behaviour to preserve natural feeding patterns. The discussion also emphasised broader ecological relationships, including predator–prey dynamics involving macaques, snakes, and lizards, underscoring the importance of sustaining balanced populations within the campus ecosystem. Wildlife monitoring and relocation measures were recognised as supporting actions to maintain long-term biodiversity and ecosystem health at UM.



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03 Educational Programmes on Ecosystems

Universiti Malaya promotes public understanding of ecosystems and biodiversity through educational programmes and community engagement activities. These free access initiatives provide opportunities for local communities to learn about wild flora and fauna, understand their ecological importance, and develop greater awareness of the need to conserve natural habitats and protect biodiversity.

Evidences include:

- **Pewaris: Fungal Biodiversity Awareness** (Page 10)
- **Biodiversity Talk 2025** (Page 11)
- **Varsiti Biodiversity Odyssey Educational Programme** (Page 11)
- **Eco Guide 2025** (Page 12)
- **Biodiversity Education Programme at Kertih** (Page 12)
- **Langkah Hijau: Mangrove Conservation Education** (Page 13)
- **InsectART 2025** (Page 13)
- **Klang Valley City Nature Challenge** (Page 14)
- **Borneo Citizen Science in Action** (Page 15)

Pewaris: Fungal Biodiversity Awareness

Universiti Malaya, through the Institute of Ocean & Earth Sciences (IOES), leads the PEWARIS: Fungal Biodiversity Awareness programme in Lenggong Valley, supported by Think City and Yayasan Hasanah. The programme provides free educational activities for the local community to increase awareness and understanding of fungal biodiversity, forest ecosystems and conservation. The initiative involves the UM Fungi Guardian Club and partners including Majlis Lenggong, Lenggong Geopark, Lenggong360, the University of Idaho and Grusson. On 9 August 2025, the programme organised a fungal foray and community engagement session at Rumah Warisan Wakaf Komuniti Che Teh Fatimah, where children participated in interactive activities exploring fungi, biodiversity and climate change.

The initiative provides hands-on learning experiences that introduce local communities to wild fungal species and their ecological importance. It also involves documenting fungal diversity in the forests of Lenggong Geopark, with the findings contributing to a publication supporting UNESCO Global Geopark efforts. Through these educational and community engagement activities, the programme promotes ecosystem awareness and strengthens local understanding of biodiversity conservation.







Biodiversity Talk 2025

The Biodiversity Talk 2025, organised by the Universiti Malaya Ecology Biodiversity Society (EcoBio UM) in collaboration with the Malaysian Palm Oil Green Conservation Foundation (MPOGCF), brought together professionals, academics, and students at the Faculty of Science, to share insights on ecosystem restoration and sustainable development. Featuring sessions on Ecosystem Restoration for Forest and Biodiversity Recovery and Biodiversity and the Sustainable Development Goals (SDGs), the programme highlighted the importance of collective responsibility in biodiversity conservation.



Varsiti Biodiversity Odyssey Educational Programme

Organised by the UM student group Eco Varsity, the Varsiti Biodiversity Odyssey introduced participants to the rich ecosystems around Tasik Varsiti through a series of guided learning activities. The programme featured a biodiversity talk and guided walk led by the Urban Biodiversity Initiative (UBI), where participants explored key habitats such as wetland and identified native plants, birds, and insects. A hands-on mini biodiversity survey using iNaturalist enabled participants to document species and gain practical understanding of ecosystem balance.



Eco Guide 2025

The Eco-Guide program, organised by students of Kolej Kediaman Tun Syed Zahiruddin (KK9), with participation from international students, was held on 6 February 2025 at Rimba Ilmu. Through guided tours, hands-on research, and practical training on plant and animal biodiversity, participants explored ecosystems and learned about conservation and sustainable practices. The program also included a Training of Trainers (TOT) session to prepare student guides, ensuring accurate knowledge transfer. By blending education with immersive experiences, Eco-Guide enhanced environmental awareness and fostered ecological responsibility.





Biodiversity Education Programme at Kertih

FRIM's Program Sains Masyarakat Siri 2.0 were held from 8–10 July 2025 at the ecoCare Environmental Education Centre in Kertih, bringing together FRIM, JPNT, ecoCare Kertih, Malaysian Nature Society (MNS), and UM. The programme engaged 40 Form Four students and teachers in hands-on biodiversity learning through activities such as birdwatching, water quality testing, iNaturalist documentation, and introductions to avifauna and biodiversity systems, as part of an RMK-12 initiative to strengthen biodiversity education outreach in Terengganu. UM contributed through community science and monitoring activities, alongside eco-printing and group tasks. A total of 54 bird species were recorded, strengthening ecological awareness and collaboration in biodiversity education.





Langkah Hijau: Mangrove Conservation Education

As part of Projek ASTARCares, 40 UM students participated in Langkah Hijau 24/25 at Taman Kelip-Kelip Kampung Kuantan, learning about the importance of mangrove ecosystems and their role in supporting biodiversity, including fireflies (*Pteroptyx tener*). The programme combined practical activities, such as planting 111 *Sonneratia caseolaris* seedlings, with guidance on sustainable planting techniques and ecosystem functions. Through this hands-on experience, students gained awareness of the delicate balance between human activity and natural habitats, while reflecting on individual responsibility in conservation.





InsectART 2025

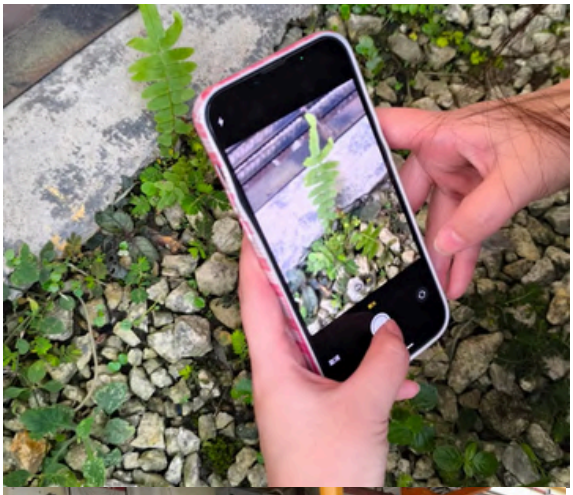
The InsectART program, led by students from the Institute of Biological Sciences and collaborators, engaged 102 secondary school students from Johor, Negeri Sembilan, and Selangor in hands-on activities exploring insect biodiversity at Suaka Burung Panti. Over three days, participants learned field sampling techniques, insect preservation, and created STEM-inspired art, fostering both scientific understanding and environmental awareness. By combining hands-on activities with creative learning, the programme fostered appreciation of ecosystems and biodiversity while encouraging ecological responsibility among young learners.





Klang Valley City Nature Challenge

Bringing communities together to explore urban nature, UM, with Sekitar Kita and partners, co-organised the Klang Valley City Nature Challenge 2025—a community bioblitz held in April as part of the global City Nature Challenge. Residents and nature enthusiasts across the Klang Valley documented urban flora and fauna using iNaturalist, recording over 2,000 observations of more than 800 species in four days, with nearly 100 observers and 125 identifiers involved. Preparatory sessions on using the platform and understanding local ecosystems helped build community skills in biodiversity observation and responsible engagement with urban environments.





Borneo Citizen Science in Action



Borneo's rich rainforests and river systems come alive through Borneo Adventures: Citizen Science in Action, a collaborative programme designed to bring science closer to communities while nurturing a shared responsibility for environmental stewardship. By engaging librarians, researchers, students, and the wider public, the initiative transforms scientific learning into an inclusive, hands-on experience. Through interactive sessions and field-based activities, participants are introduced to the value of citizen science in understanding and protecting biodiversity, as well as monitoring water quality—two areas vital to the ecological health of Sabah and Sarawak. In doing so, the programme also supports Malaysia's broader push to strengthen STEM education by making science accessible, practical, and relevant to everyday life.

At the heart of the programme is the Borneo Nature Challenge, a dynamic initiative that encourages communities across Sabah and Sarawak to document local flora and fauna using iNaturalist. Running from 13 January to 13 February 2025, the challenge fosters a spirit of friendly competition as cities strive to record the highest number of wildlife observations and species. Beyond competition, it cultivates curiosity, sharpens observation skills, and contributes valuable data for conservation efforts.

This programme is jointly organised by the Standing Committee on Library Services to Special Groups under the Librarians Association of Malaysia, in partnership with Sekitar Kita and the U.S. Embassy Kuala Lumpur. It is further supported through collaborations with American Corners Malaysia, Universiti Malaya Sustainable Development Centre (UMSDC), Public Library Sarawak, Public Library Sabah, Universiti Malaysia Sabah, Universiti Teknologi MARA (Pahang Branch Library), and the Librarians Association of Malaysia Sabah and Sarawak groups. Together, these partners create a platform where knowledge, community action, and environmental awareness come together, demonstrating how collective effort can support conservation outcomes in Borneo.

04 Sustainable Management of Land for Agriculture (Educational Outreach)

Universiti Malaya supports sustainable agricultural development by providing free educational programmes, practical training and knowledge-sharing opportunities for local communities. These initiatives promote responsible land use, soil health, resource efficiency and sustainable farming practices, equipping participants with knowledge and skills to support agricultural productivity, environmental protection and long-term food security.

Evidences include:

- **Community Education on Sustainable Urban Agriculture and Soil Health** **(Page 17)**
- **Training on Soil Classification and Land Suitability for Sustainable Agriculture** **(Page 18)**
- **Community Training in Sustainable Agriculture and Precision Farming** **(Page 19)**
- **Hands-on Training in Sustainable Urban Gardening and Soil Management** **(Page 20)**
- **Vertical Farming Innovation for Sustainable Herbal Cultivation** **(Page 21)**
- **Community Training in Sustainable Pineapple Cultivation for B40 Empowerment** **(Page 22)**
- **Promoting Sustainable Soil Management through the Soil Doctor Programme** **(Page 23)**

Community Education on Sustainable Urban Agriculture and Soil Health







The programme *Inovasi Teknologi Hijau Pemangkin Tanah Sihat, Bandar Sejahtera, held at Kebun Komuniti Sejahtera Rasah Kemayan* in Negeri Sembilan in conjunction with World Soil Day, provided community members with practical learning opportunities in sustainable urban agriculture and soil management. Participants were introduced to approaches including composting organic waste, organic pest control, the use of eco-friendly fertilisers, water-efficient systems and integrated crop techniques to support soil health and sustainable food production.

Organised through collaboration among Universiti Malaya (UM), community organisations, academic institutions, industry partners, NGOs and relevant government agencies, the programme facilitated knowledge-sharing between researchers and local communities. By combining practical demonstrations with community engagement, the initiative strengthened awareness and capacity in sustainable soil management and urban food production, supporting the adoption of environmentally responsible agricultural practices beyond the university campus.

Training on Soil Classification and Land Suitability for Sustainable Agriculture



The Soil Classification and Evaluation for Agriculture Course was held on 25–26 February 2025, bringing together researchers, agricultural practitioners and farmers to strengthen knowledge of soil assessment and sustainable agricultural land management. Organised by the Malaysian Society of Soil Science in collaboration with the Department of Agriculture Malaysia and Universiti Malaya (UM), the two-day programme covered soil classification, land suitability and sustainable soil management to support informed agricultural planning and land-use decisions.

The course involved 35 participants from 13 organisations, including government agencies, research institutions, universities, agricultural companies and local farmers. Through expert-led sessions and discussions, participants gained insights into evaluating soil characteristics and land suitability for agricultural use. The programme supported knowledge-sharing among agricultural stakeholders and strengthened understanding of how appropriate land-use decisions and soil management practices can improve agricultural productivity, reduce crop failure risks and contribute to long-term food security.

Community Training in Sustainable Agriculture and Precision Farming

The Community Agro Science Carnival was held in Kampung Seri Gambut, Tanjung Karang, to bring scientific knowledge and technology closer to local farmers. Organised by the Institute of Biological Sciences, Universiti Malaya (UM), in collaboration with JPKKP Kampung Seri Gambut, HS Megah Enterprise, Carbon Zero Sdn. Bhd. and local authorities, the programme provided community members with opportunities to learn about sustainable agricultural practices and innovations.

More than 200 community participants took part in demonstrations, training sessions, forums and exhibitions covering approaches such as biofertilisers and drone-based precision farming. Through practical activities and knowledge-sharing between the university, local farmers, government and industry, the carnival supported the development of agricultural knowledge and skills within the community. These activities encouraged the adoption of more sustainable farming practices and contributed to efforts to strengthen local food production and long-term food security.



Hands-on Training in Sustainable Urban Gardening and Soil Management

The Suburkan Tanah @ Kobunden programme in Seremban, Negeri Sembilan, brought together local community members and international students to promote sustainable urban gardening through practical learning. Organised by Universiti Malaya (UM) in collaboration with Heritage Environment Sdn. Bhd., KEMAS Seremban and the local community, the programme also provided hands-on training for 22 Master's students in Environmental Technology Management. Activities focused on soil restoration, composting, organic fertilisers and urban farming techniques.

Through demonstrations and practical activities, students applied their academic knowledge in a real-world setting, while community members gained exposure to sustainable agricultural practices. By promoting better soil management, organic waste recycling and urban food cultivation, the programme supported community skills development and knowledge exchange. These activities also contributed to local food security by encouraging more sustainable approaches to growing food within urban and community spaces.



Vertical Farming Innovation for Sustainable Herbal Cultivation

A vertical farming initiative for Kacip Fatimah was introduced at FELCRA Seberang Perak in December 2025, applying agricultural technology to traditional herbal cultivation. Led by UMCares, Universiti Malaya (UM), in collaboration with the Ministry of Higher Education under the Social Innovation Fund, the project aimed to improve crop productivity while supporting local community livelihoods.

The initiative incorporates vertical planting structures and smart irrigation systems to optimise land use and improve water management in herbal cultivation. By applying research-driven solutions to agricultural production, the project demonstrates the potential of innovative farming methods to support more efficient resource use and create income opportunities for local communities. It also illustrates how university research and multi-stakeholder collaboration can contribute to sustainable agricultural development.







Community Training in Sustainable Pineapple Cultivation for B40 Empowerment



The Ladang Nanas MPower B40 programme, held at the Glami Lemi Biotechnology Research Centre in Negeri Sembilan, provided practical agricultural learning opportunities for B40 participants through community-based pineapple cultivation. Participants, including individuals from the Methadone Treatment Therapy Programme, gained hands-on exposure to pineapple farming and sustainable agricultural practices, developing practical skills that could support agriculture-based livelihoods and community resilience.

The programme brought together several Universiti Malaya entities, including the Universiti Malaya Centre of Addiction Sciences, Faculty of Science, AMMP Centre, Pusat Asasi Sains and Academy of Islamic Studies, alongside the Ministry of Health and the Malaysian Pineapple Industry Board. Through practical training and knowledge-sharing, the initiative connected academic and industry expertise with community learning, supporting the development of agricultural skills and promoting sustainable farming as a potential source of livelihood.

Promoting Sustainable Soil Management through the Soil Doctor Programme

The Universiti Malaya Soil Doctor Programme (UMSDP), led by Associate Professor Dr. Rosazlin Abdullah is a pioneering initiative in Malaysia adapted from the Food and Agriculture (FAO) Soil Doctors Programme. It promotes sustainable soil management through education and community outreach. Conducted in collaboration with the Department of Agriculture Malaysia, the programme trains youth and farmers to perform practical soil tests, identify and address soil issues, and enhance crop productivity. Students trained as "Soil Doctors" act as knowledge-sharing agents to peers and local communities, raising awareness about soil health, food security, and climate adaptation.

UMSDP combines theoretical knowledge, hands-on field training, and Educational Soil Kits to help participants understand the link between soil, food production, and the environment. By empowering local farmers and youth, the programme strengthens practical capacity for sustainable agriculture while fostering early awareness among future leaders, researchers, and policy-makers about the importance of soil in ecosystem stability and national food security. In 2025, the initiative was highlighted during the World Soil Day celebrations in Klang, Selangor, demonstrating UM's commitment to expanding educational outreach on sustainable land management and supporting agricultural ecosystems beyond the university campus.



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05 Sustainable Management of Land for Tourism (Educational Outreach)

Universiti Malaya promotes sustainable land management in tourism-related landscapes through free educational outreach, knowledge-sharing and community engagement. These initiatives seek to strengthen the capacity of local communities and relevant stakeholders to manage natural tourism assets responsibly, including forests, geoparks and other environmentally sensitive destinations. Through education on biodiversity conservation, responsible visitor management, habitat protection and sustainable tourism practices, UM supports the integration of environmental stewardship into nature-based tourism development.

Evidences include:

- **Community Outreach and Capacity Building with Mah Meri Community in Pulau Ketam, Selangor** (Page 25)
- **Ecotourism Educational Outreach in Lenggong, Perak** (Page 26)

Community Outreach and Capacity Building with Mah Meri Community in Pulau Ketam, Selangor







Universiti Malaya undertook free community-based outreach and engagement with local and Indigenous Mah Meri communities in Pulau Ketam, Selangor, focusing on the relationship between local natural resources and sustainable livelihood opportunities. The initiative explored opportunities for strengthening community capacity to participate in tourism development, including the potential to diversify existing tourism activities through land-based tourism experiences.

Drawing on the wider context of Mah Meri cultural spaces and heritage-based tourism initiatives in locations such as Pulau Carey and Tanjung Sepat, the outreach considered how cultural practices, traditional knowledge, local landscapes and community spaces could contribute to tourism experiences while supporting local livelihoods.

This work is supported by Universiti Malaya research examining coastal resources, livelihood activities and challenges faced by local and Indigenous Mah Meri communities along the coastlines of Port Klang and the Klang Islands. The study identifies tourism, cultural industries and small-scale economic activities as important livelihood opportunities, while highlighting the need for inclusive, community-based approaches that balance economic development with environmental sustainability.

Ecotourism Educational Outreach in Lenggong, Perak

A team from Universiti Malaya conducted an educational outreach and stakeholder engagement initiative for free in Lenggong, Perak, aimed at promoting sustainable ecotourism and strengthening community participation in local tourism development. The initiative involved collaboration with the local community, Lenggong360 and Pejabat Daerah dan Tanah Lenggong, providing a platform for knowledge-sharing and engagement on the potential of Lenggong's natural biodiversity assets as resources for sustainable tourism.

Through stakeholder discussions and sharing sessions, the initiative sought to strengthen awareness of nature-based ecotourism opportunities through supporting small-scale local enterprises and businesses, including fungal foraging, gastroeconomy and beekeeping, while promoting tourism activities that are sensitive to the area's environmental and local community context. Engagement with local stakeholders also provided opportunities to exchange perspectives on the role of community participation in tourism planning, destination development and the responsible use of local natural and cultural resources.





06 Local Biodiversity Included in Planning and Development

(1) UM Master Plan 2050

Universiti Malaya integrates local biodiversity conservation into its long-term campus planning and development through the UM Master Plan 2050. Under Key Principle 6: Advocating Environmental Sustainability, the Master Plan establishes the vision of an Urban Ecological Campus, where biodiversity conservation and ecological connectivity are incorporated into the university's physical development strategy.

The Master Plan emphasises the conservation of existing flora and fauna, enhancement of biodiversity within the campus landscape, and connectivity between existing green spaces and forested areas. It also identifies the rehabilitation of existing water bodies as an important measure to strengthen campus ecology. In particular, Rimba Ilmu Botanic Garden, a significant 60-hectare green space and living conservation site within its main campus is recognised as a key area for biodiversity conservation, with an emphasis on protecting native species and safeguarding its ecological value. These provisions demonstrate that local biodiversity considerations are incorporated into UM's long-term campus planning and development framework.



Right: *UM Master Plan 2050 can be accessed here: https://jpphb.um.edu.my/img/UMMP2050/230821%20-%20Blueprint%20Pelan%20Induk%20UM%202050.pdf*

Conservation Collections and Local Biodiversity Monitoring at Rimba Ilmu

Rimba Ilmu maintains several specialised botanical collections that contribute to the conservation and appreciation of tropical plant diversity. Designed to replicate the environmental conditions and characteristics of a tropical rainforest, the conservatory provides a dedicated environment for maintaining and showcasing plant species of conservation significance. The garden also supports ongoing biodiversity documentation and monitoring to record species occurrence, assess the condition of its ecological environment and inform conservation and management priorities.

Its core collections include medicinal plants, palms, and bamboos, while its Rare Plants and Orchid Conservatory houses rare, endemic and conservation-significant plant species. Examples documented in its botanical collections include *Musa beccarii*, an endemic Bornean dwarf banana; *Musa gracilis* and *Barringtonia corneri*, both endemic to southern Peninsular Malaysia; and *Alocasia melo,* a species with highly specialised habitat requirements in northern Borneo. The conservatory also maintains more than 40 species of wild orchid species, including *Paphiopedilum rothschildianum*. These collections demonstrate UM's contribution to safeguarding native plant diversity, particularly species with restricted geographical distributions and specialised ecological requirements.

Complementing its living collections, UM's Herbarium houses more than 81,000 preserved plant specimens, encompassing ferns, dicotyledons, monocotyledons and seaweeds. The herbarium serves as an important scientific reference and research resource, regularly accessed by visiting researchers for botanical identification, taxonomic studies and plant biodiversity research. Together, the living collections and herbarium strengthen UM's contribution to plant biodiversity documentation, scientific research and ex-situ conservation.



(2) UM Development Checklist

Universiti Malaya incorporates biodiversity conservation into its campus development process through the UM Development Checklist (Revision 03, May 2024), prepared by the Estates Department (JHB). The checklist establishes environmental assessment and landscape planning requirements to ensure that ecological considerations are taken into account when planning and implementing development projects across the university.

Under Part 2, Section 1: Environmental Impact Assessment and Requirements, project proponents are required to consider the biodiversity characteristics of the proposed development site. This includes reviewing available biodiversity reports, identifying native and rare, threatened or endangered species, assessing the potential impact on existing greenery and trees, and undertaking biodiversity mapping and conservation assessments where relevant.

The checklist also establishes specific landscape and biodiversity requirements. These include the protection and retention of existing trees measuring 30 cm or more in Diameter at Breast Height (DBH), as well as trees belonging to rare, threatened or endangered species. In addition, Section 1.5 requires development projects to incorporate landscape planning that provides at least 30% outdoor space relative to the total site area, with a minimum of 25% of that outdoor space vegetated or covered by a vegetated canopy. It also specifies the use of native trees for landscaping, with project proponents required to provide a list of tree species and planting quantities.

Through these requirements, Universiti Malaya establishes a framework for integrating local biodiversity considerations into campus development, supporting the protection of existing ecological assets, retention of native vegetation and enhancement of green spaces.

06 Collaboration for Shared Land Ecosystems

Universiti Malaya (UM) works collaboratively with local communities, government agencies, industry partners and volunteers to maintain, restore and conserve shared terrestrial ecosystems. These efforts include community volunteering at UM Rimba Ilmu Botanic Garden, mangrove restoration through the One Million Trees Programme in Matang Mangrove Forest Reserve, Perak, and rainforest conservation activities at the Elmina Rainforest Knowledge Centre. Complementing these initiatives, UM's Plant A Tree Campaign encourages students and staff to participate in enhancing campus biodiversity through native tree planting.

Together, these initiatives demonstrate different forms of collaborative environmental stewardship, from maintaining existing habitats and restoring degraded ecosystems to enhancing urban green spaces. They strengthen partnerships and promote shared responsibility for the long-term conservation of terrestrial biodiversity.

Evidences include:

- **Community Volunteering for Biodiversity Conservation and Maintenance of Rimba Ilmu** (Pages 31 - 32)
- **Community Collaboration for Rainforest Ecosystem Conservation** (Page 33)
- **Plant A Tree Campaign** (Page 34)

Community Volunteering for Biodiversity Conservation and Maintenance of Rimba Ilmu

Rimba Ilmu Botanic Garden engaged volunteers in the conservation and maintenance of its botanical collections and terrestrial ecosystems. Throughout 2025, Rimba Ilmu organised recurring *gotong-royong* (community volunteering) activities involving university staff, students, volunteers and external partners, fostering shared responsibility for supporting the long-term maintenance and enhancement of this important urban green space.

A notable initiative was the collaborative tree-planting programme conducted on 31 October 2025 with VCI Global, involving UM staff and student volunteers. The programme resulted in the planting of 60 trees, including *Aquilaria malaccensis*, classified as Critically Endangered, and *Anisoptera laevis*, classified as Vulnerable. The initiative contributed to the enrichment of native tree populations within the garden and supported efforts to conserve species of high conservation significance.

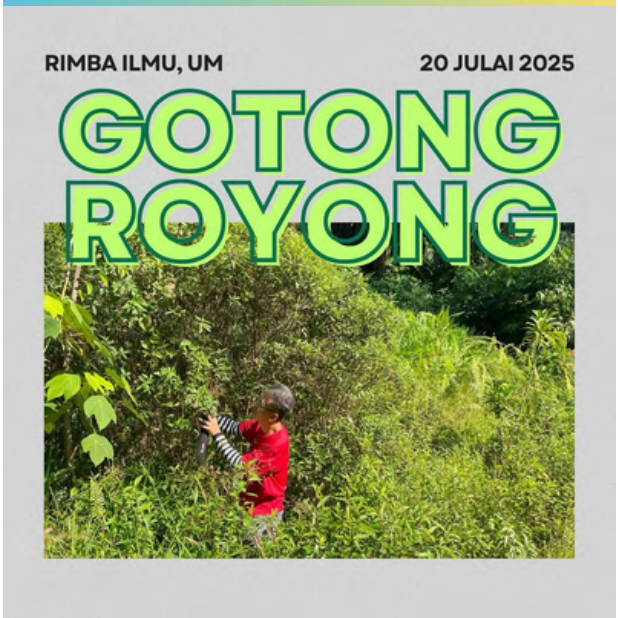


Additionally, in July 2025, Rimba Ilmu staff also undertook maintenance of its research trails, nurseries and fernarium. Working alongside the Rimba Ilmu and Agroforestry team, volunteers participated in tree planting, vegetation management, nursery maintenance and the upkeep of botanical collections and forest trails. Such interventions support the continued management of established habitats, facilitate botanical research and help maintain the ecological and educational functions of the garden.

Other activities included collaborative tree planting and general ecosystem maintenance with Forest House and the SULAM UM programme in May 2025, as well as a further tree-planting and gotong-royong initiative in December, during which tropical native tree saplings supplied by Forest House were introduced into the garden.

These activities provided opportunities for the wider community to contribute directly to the stewardship of a shared terrestrial ecosystem while gaining practical experience in biodiversity conservation. Through continued collaboration, Rimba Ilmu strengthens community engagement in maintaining its botanical heritage, conserving plant diversity and supporting the long-term ecological health of the garden.







Community Collaboration for Rainforest Ecosystem Conservation

The UM Green Community (UMGC) carried out a sustainability activity at the Elmina Rainforest Knowledge Centre, where student volunteers participated in hands-on activities including weeding and rubbish collection to support the maintenance and conservation of the rainforest ecosystem. By contributing practical work to the upkeep of the site, UM volunteers supported the conservation of a local land-based ecosystem while gaining direct experience in environmental stewardship.





The activity also provided an opportunity for participants to engage in discussions on rainforest conservation and the importance of protecting Malaysia's forest ecosystems. The collaboration between UM volunteers and the Elmina Rainforest Knowledge Centre demonstrates community engagement in the care and conservation of a shared land ecosystem, contributing to its continued environmental value and encouraging responsible stewardship.

Plant A Tree Campaign

The Plant A Tree Campaign was launched in October 2025 at the Faculty of Medicine in conjunction with UM's 120 years of excellence celebration. Faculty members and students planted native trees, including *Shorea roxburghii* and *Syzygium polyanthum*, across campus, with each tree symbolising a commitment to nurture the environment, strengthen biodiversity, and support a healthier planet.

The initiative is part of the "Planting Trees for Planetary Health Equity" movement under the APRU Global Health Conference 2025 and aligns with UM's efforts to enhance campus ecosystems. Through tree planting, the UM community contributed to biodiversity conservation and strengthened environmental stewardship, reflecting shared responsibility for maintaining campus land ecosystems.









07 Water Discharge Guidelines and Standards

Water Discharge Standards and Pollution Prevention Measures

Universiti Malaya (UM) implements wastewater management procedures, pollution prevention measures and environmental monitoring to minimise water contamination and protect aquatic ecosystems. These arrangements combine compliance with national environmental regulations, institutional waste management procedures and preventive measures across campus operations.

1. Wastewater Discharge Standards

UM's wastewater from facilities connected to the centralised sewerage network is managed through Indah Water Konsortium (IWK), Malaysia's national sewerage services company, with treatment provided at the Pantai 2 Regional Sewage Treatment Plant in Kuala Lumpur. The treatment facility is designed to meet Standard A effluent discharge requirements under Malaysia's Environmental Quality (Sewage) Regulations 2009. These arrangements provide a regulated framework for treating wastewater before discharge into the environment.

2. Institutional Pollution Prevention Measures

UM implements preventive measures to minimise pollutants entering sewage and drainage systems. Campus cafeterias are required to install oil and grease traps at wastewater discharge points to prevent grease and oil from entering the sewage network. The University also implements laboratory and scheduled waste management procedures to prevent hazardous substances from contaminating water systems. The UM Laboratory Safety Guidelines 2022 establish requirements for the segregation, handling and disposal of chemical, biological and radioactive waste. Complementary procedures under UM's scheduled waste management Waste Card require immediate containment measures to prevent accidental spills from reaching drainage systems and nearby rivers.

3. Environmental Monitoring and Safeguards

UM conducts water-quality monitoring at its main water bodies (Tasik Varsiti, Sungai Anak Air Batu and Sungai Mustafa) to detect potential pollution and assess the condition of campus water bodies. At Tasik Varsiti, monitoring is undertaken with reference to the Department of Environment Malaysia's Class IIB water-quality classification for recreational waters. The UM Development Checklist also requires water-quality monitoring for development projects to identify and manage potential impacts on surrounding water bodies. In addition, the constructed wetland near Tasik Varsiti provides a natural filtration mechanism that helps reduce pollutants in stormwater before it enters the lake. Together, these regulatory arrangements, institutional procedures and environmental safeguards demonstrate UM's approach to managing wastewater, preventing pollution and protecting water quality across its campus.