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NCHUARCH

8
Mar, 2025

Ascension
Research
Collaboration
Habitat

Environment and Sustainability:
Embrace the Present, Envision the Future.

Publisher | Fuh-Jyh Jan, President of National Chung Hsing University
Editor-in-Chief | Chi-Chung Chou, Senior Vice President for International Affairs
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Editors | Jen-Wen Chang, Siuo-Ling Cheng, Inger Tsai
Executive committee | Office of International Affairs, National Chung Hsing University
Layout and Design | Chiu Sheng Art

Huisun Experimental Forest Station of NCHU
Photo credit:
Siuo-Ling Cheng

Cover Photo
Embrace of Home
Photo credit: Jia-Dian Tien
Location: Tataka, Taiwan
Spread Design
Ascension
A Green Leafhopper on a Rice Spikelet
Photo credit: Zong-Ze Wu
Research
Ecological Showcase
Photo credit: Siuo-Ling Cheng
Collaboration
Professor Lu and His International Intern Team
Photo credit: Jia-Yi Ling, Secretariat Office
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Preface

As we present the 8th issue of **NCHU ARCH**, we are pleased to share National Chung Hsing University's recent achievements and initiatives. In the Times Higher Education (THE) 2024 Impact Rankings, NCHU is placed in the global 201-300 range and 8th in Taiwan. NCHU also ranked globally 101-200 for five SDGs: SDG 2 "Zero Hunger" (6th in Taiwan), SDG 7 "Affordable and Clean Energy" (4th in Taiwan), SDG 12 "Responsible Consumption and Production" (5th in Taiwan), SDG 15 "Life on Land" (2nd in Taiwan), and SDG 17 "Partnerships for the Goals" (4th in Taiwan), showcasing our diverse contributions to sustainable development.

In the QS World University Rankings for Sustainability 2024, NCHU ranked 430th globally, 91st in Asia, and 7th in Taiwan, with notable strengths in "Environmental Sustainability" (3rd in Taiwan) and "Knowledge Exchange" (4th in Taiwan).

NCHU's dedication to excellence, sustainability, and global impact enhances our position as a leading institution. This issue highlights our foundational pillars—Ascension, Research, Collaboration, and Habitat—demonstrating our commitment to a sustainable future.

A prime example is our Plant Hospital, crucial for sustainable agriculture and promoting biodiversity. In the **Ascension** unit, Dean Yi-Yuan Chuang and Mr. Chih-En Wu spotlight its impact through innovative measures.

In the **Research** unit, we feature Profs. Hsi-Te Shih, Ming-Feng Chuang and Yu-Hsi Wang from the Global Change Biology Research Center, which focuses on biodiversity and interdisciplinary research, while managing the NCHU Natural History Museum. We also introduce Prof. Hsing-Juh Lin, who has devoted 30 years to study "Blue Carbon" and its role in mitigating global warming.

Our global **Collaborations** reinforce our responsibility to nurture future leaders for a sustainable world. Prof. Ming-Chun Lu from the Department of Environmental Engineering's TEEP program hosted international students from Vietnam, the Philippines, and Lithuania, improving their expertise. This program, along with the EQC International Symposium, has advanced global academic exchange.

In the **Habitat** unit, we present Profs. Chiou-Rong Sheue and Peter Chesson's ecological restoration project, which involves repurchasing farmland and removing concrete embankments to restore a stream's natural state and support native flora and fauna.

Finally, the Art Center showcases the work of the following renowned Taiwanese artists: Yen-Nang Yang, Chun-Sheng Wang and Chun-Ming Huang. Their artworks reflect profound contemplation on sustainability, exploring humanity's relationship with the natural world through diverse mediums and perspectives.

We extend our gratitude to all faculty, students, and staff for their contributions. As we celebrate these milestones, we look forward to future challenges that are devoted to innovation, sustainability, and nurturing global citizens.

We hope you find inspiration in this issue and join us in our journey towards excellence and global impact.

Chi-Chung Chou
Senior Vice President for International Affairs
National Chung Hsing University

OFFICE OF INTERNATIONAL AFFAIRS
NATIONAL CHUNG HSING UNIVERSITY

Preface

Major Events
From January to December 2024

January

- NCHU teams and partners shine at the 20th National Innovation Awards: probiotic formulation by Professor En-Pei Isabel Chiang, carbon-neutral microbial solutions through collaboration between Plant Pathology team and Agricultural Technology Research Institute, renal diet innovations by NCHU's Incubation Team, brain-computer interface for rehabilitation by Mechanical Engineering team, intelligent real-time precision monitoring for meat quality by Professor Yao Tung Lin, and Startup Enterprise Award by NCHU-incubated StarBIA Meditek Co., Ltd.
- NCHU hosts UCSD-NCHU Joint Symposium and ENABLE/IDCSA/SMARTer Annual Meeting, highlighting achievements in sustainable and advanced interdisciplinary research.
- NCHU signs the University Sustainable Development Initiative with Taiwan Institute for Sustainable Energy (TAISE).

February

- Food Science and Biotechnology Professor Yeh Chen's team decodes human immune system evolution, publishing findings in Nature Communications.
- Entomology Professor Hou-Feng Li's team discovers two new termite species in Taiwan, bringing the total to 23 species across 5 families.
- NCHU's Office of International Administrative Support (OIAS) launches, elevating services for international faculty and students.

March

- NCHU collaborates with Academia Sinica and Utah State University to uncover drought's impact on forest ecosystems and the semiconductor industry.
- Materials Science and Engineering Professor Ying-Chih Lai's team develops self-powered, flexible touch panels with unrestricted movement, advances in robotic skin technology; findings are published in Nature Communications.

April

- Former NSF official from the United States leads a delegation to NCHU's "Taiwan-US Smart Agriculture Symposium", advancing cross-border academic and research collaboration.
- NCHU co-hosts the 14th International Conference on Applied Physics and Mathematics (ICAPM 2024) with the Science and Engineering Institute (SCIEI), marking Taiwan's first time hosting the conference and advancing international academic exchanges.
- NCHU partners with Cheng Loong Corp. and indigenous communities to restore wildfire-damaged areas of Huisun Experimental Forest Station, and aims to recover millions in lost carbon sink value.

May

- NCHU partners with Swiss research teams from the University of Geneva and ETH Zurich to develop Vitamin B1-enriched rice, aiming to combat nutritional deficiency.
- NCHU and UK's Royal Veterinary College create first-ever 'life tables' for predicting companion cat life expectancy.
- NCHU signed an MOU with Asia and Pacific Seed Association (APSA) and Taiwan Seeds Trade Association (TSTA), marking a new milestone in international collaboration.

June

- NCHU launches "Shennong TAIDE", world's first agriculture-specific generative AI knowledge Q&A system.
- NCHU international students join Mini General Education Course led by NCHU's Organic Farmers' Market, achieving global vision with local practice.

July

- NCHU makes a significant leap in 2024 THE "World University Impact Rankings," placed in the global 201-300 range.
- Life Sciences Professor Hsing-Juh Lin receives the Ocean Conservation Contribution Model Award from the Ocean Affairs Council for ecosystem and blue carbon research.
- NCHU College of Management renews AACSB accreditation, affirming quality standards.
- NCHU hosts the International Leadership Texas (IL TEXAS) Mandarin Learning Program, marking a new chapter in cultural exchange.

Fuh-Jyh Jan
President,
National Chung Hsing University
(2023-present)
Lifetime Distinguished Professor,
Department of Plant Pathology

August

- NCHU takes the first step towards a 2040 net-zero emission campus, earning ISO 14064-1:2018 International Certification for Organizational Greenhouse Gas Inventory.
- Six NCHU professors and alumni are named among the 48th National Top Ten Outstanding Agricultural Experts: Professor Wen-Hsin Chung (Plant Pathology), Professor Wan-Yu Liu (Forestry), and alumni from Horticulture, Entomology, and Bio-Industrial Mechatronics Engineering.
- Taiwan Carbon Solution Exchange, Taiwan Stock Exchange, and NCHU co-host the first 'Net-Zero Transformation Forum'.

September

- NCHU study led by Life Sciences Professor Ho Lin reveals that common diabetes medication may affect fetal brain development in animal models.
- NCHU Graduate Institute of Veterinary Pathobiology identifies Taiwan's first case of porcine circovirus type 4 (PCV4), published in an international journal.
- NCHU Senior Vice President for International Affairs Professor Chi-Chung Chou led a delegation of 21 renowned scholars from the University Academic Alliance in Taiwan (UAAT) to the Texas A&M University System (TAMUS). The collaboration conference focuses on deepening international collaboration and academic exchanges in semiconductors, space technology, agriculture, and Mandarin language education.

October

- NCHU joins the Ministry of Foreign Affairs' 2024 New Southbound Policy Elite Study Program, focusing on sustainable development and climate change issues.
- The International Cooperation and Development Fund (ICDF) and the International Regional Organization for Plant and Animal Health (OIRSA) visit NCHU to establish the Taiwan-Central America plant and animal disease prevention cooperation platform.
- NCHU men's volleyball team visits Vietnam for friendly matches under the Ministry of Education-supported New Southbound Sports Exchange Program.
- NCHU signs a MOU with Malaysia's UCSI University, expands Malaysia's partnership blueprint.

November

- Director Tzu-Pi Huang of NCHU's Academy of Circular Economy Degree Programs develops probiotics from healthy soils, combining them with recycled agricultural waste materials to enhance plants' disease resistance and climate adaptability.
- NCHU Biochemistry Professor Kuei-Yang Hsiao's team wins the "2024 Moderna Taiwan mRNA Innovation Award."
- NCHU leads with Platinum Award for Sustainability Report and earns a spot in the Top 10 Exemplary Sustainable Universities in Taiwan.
- NCHU alumni Yang Shuang-Zi's "Taiwan Travelogue" wins the U.S. National Book Award for translated literature, marking the first Taiwanese work to receive this prestigious honor.

December

- NCHU hosts the first-ever Omani delegation for the Ministry of Foreign Affairs-supported semiconductor training program, opening a new chapter for Taiwan-Oman international exchange.
- NCHU Veterinary Pathobiology Professor Cheng-Yao Yang assists Paraguay in enhancing African Swine Fever prevention capacity.
- The Ministry of Education announces the fourth phase (2025-2027) approval results for the University Social Responsibility (USR) Program. NCHU secures approval for all five proposed projects, including one sustainable development project and four university distinctive characteristics projects, advancing social responsibility through interdisciplinary efforts.

ASCENSION

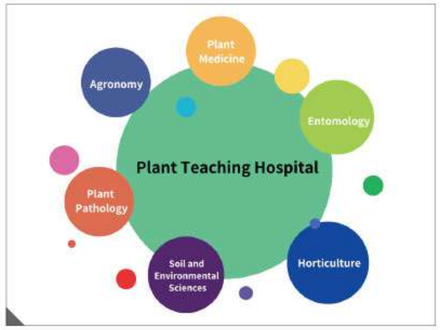
A Green Leafhopper on a Rice Spikelet

Photo Credit Zong-Ze Wu, Plant Teaching Hospital, NCHU

Plant Teaching Hospital of NCHU: The First Botanical Diagnostic Center in Taiwan Advances Agricultural Health and Education

Source Yi-Yuan Chuang, Director of Plant Teaching Hospital, NCHU
Chih-En Wu, Research Assistant of Plant Teaching Hospital, NCHU

The Plant Teaching Hospital of National Chung Hsing University, established in 2018, stands as an indispensable unit of the College of Agriculture and Natural Resources (CANR). This innovative institution synergizes the efforts from the Departments of Entomology, Plant Pathology, and Soil and Environmental Sciences to foster local agricultural development and establish sustainable farming practices.



Interdisciplinary support from various field experts.

Comprehensive Diagnostic Services

The primary mission of the Plant Teaching Hospital is to provide expert diagnostic services and tailored plant care recommendations for agricultural practitioners. Farmers can either bring their ailing crops directly to our facility or request on-site expert evaluations. Following thorough assessments, our specialists offer strategic advice on pest management and cultivation enhancement techniques.

National Plant Health Surveillance

The Plant Teaching Hospital also plays a crucial role in conducting national plant disease and pest monitoring surveys. These efforts are instrumental in preventing the invasion of harmful exotic species, mitigating the occurrence and spread of domestic crop diseases and pests, and maintaining a robust and healthy agricultural production environment.

Promoting Sustainable Agricultural Practices

In its commitment to sustainable agriculture, the Plant Teaching Hospital aims to provide guidance on the judicious use of agricultural chemicals, introduce safer, environmentally-friendly materials, and advocate for the implementation of Integrated Pest Management (IPM) strategies.

Farmers bring ailing crops, to the hospital for diagnosis.

Guiding the farmers on the proper use of pesticides is one of the Plant Teaching Hospital's services.

Staff at the Plant Teaching Hospital monitors the extent of damage caused by the invasive pest Fall Armyworm.

Educational Collaboration and Professional Development

The Plant Teaching Hospital maintains strong collaborative ties with NCHU's Master Program in Plant Medicine and the Good Agricultural Practice of CANR. Through these partnerships, the Plant Teaching Hospital offers hands-on case diagnosis training and immersive field internships. The state-of-the-art botanical diagnostic center serves as a training hub for aspiring and practicing plant health professionals. These educational initiatives significantly contribute to enhancing the professional competence of personnel in the agricultural sector.

By bridging academic expertise with practical agricultural challenges, the Plant Teaching Hospital of National Chung Hsing University continues to be at the forefront of agricultural innovation, education, and sustainable development in Taiwan.

The Plant Teaching Hospital provides professional skills training for plant doctors.

RESEARCH

Ecological Showcase

Photo Credit Siuo-Ling Cheng, Office of International Affairs, NCHU

Location College of Life Sciences, NCHU

Pioneering Global Change Research: NCHU's GCBRC Leads Biodiversity and Sustainability Studies

Source Hsi-Te Shih, Chief Director, Global Change Biology Research Center, NCHU
Ming-Feng Chuang, Deputy Director, Global Change Biology Research Center, NCHU
Yu-Hsi Wang, Research Assistant, Global Change Biology Research Center, NCHU

Established in 2013, the Global Change Biology Research Center (GCBRC) at NCHU has emerged as a crucial research hub integrating resources across disciplines. The center investigates global change impacts on biodiversity and ecosystems while developing proactive response strategies. Through interdisciplinary research, sustainable development solutions, and professional development, GCBRC advances our understanding of environmental changes and challenges.

The Museum of Natural History was established in July 2022 after three years of preparation.

The GCBRC offers the course "Museums and Biodiversity," utilizing the Natural History Museum as a teaching platform.

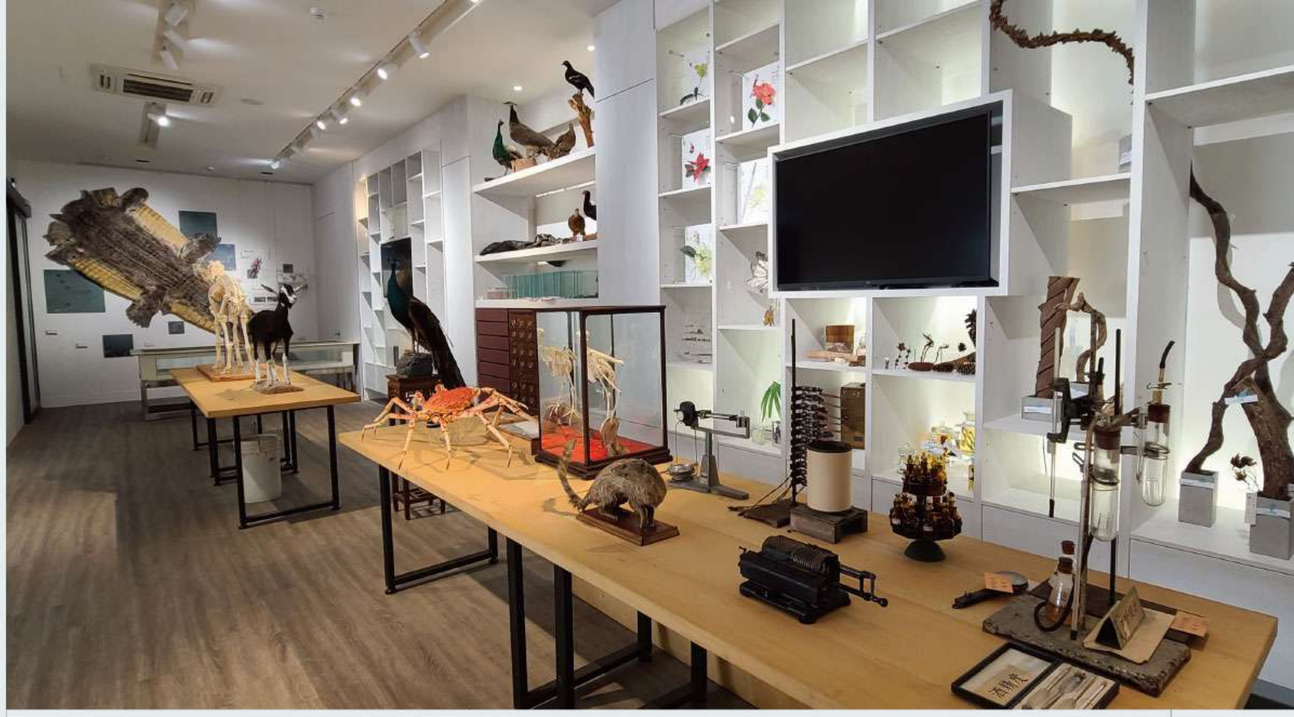
The GCBRC conducts tracking research on the endangered Yellow-margined Box Turtle.

Core Mission and Research Focus

GCBRC conducts comprehensive research spanning disaster prevention and mitigation, food security, emerging energy sources, and socioeconomic impacts of environmental change. The center's research portfolio includes biological resources surveys, endangered species monitoring, and ecosystem response studies. By integrating these diverse research areas, GCBRC develops holistic approaches to environmental challenges.

Educational Initiatives and International Collaboration

The center enhances environmental education through specialized courses like "Museums and Biodiversity," fostering deeper understanding of biodiversity and conservation issues. GCBRC's international research network includes partnerships with institutions across Asia—Republic of Korea, Japan, Vietnam, Singapore, the Philippines, and Indonesia— resulting in numerous collaborative publication advancing our understanding of global change impacts on biodiversity and ecosystems.



The Museum of Natural History showcases representative biological specimens, serving as an excellent platform for biology education and public outreach.

The Museum of Natural History of NCHU: A Crowning Achievement

One of the GCBRC's significant achievements in recent years has been its assistance in planning and managing the Museum of Natural History. The museum, which opened in July 2022, serves as a prominent attraction to the campus and a vital platform for showcasing biodiversity and ecological conservation. The museum's exhibits include animal and plant specimens collected by faculty and students of the Department of Life Sciences over sixty years, bird specimens co-exhibited with the Taiwan Biodiversity Research Institute, and precious specimens donated by alumni of the Department of Life Sciences and private specimen collectors. The collection encompasses representative specimens of organisms from both land and sea, such as dinosaur embryo fossils, giant squid, giant spider crab, and the trunk of the elephant Malan.

Future Outlook

The Museum of Natural History's establishment represents a tangible accomplishment of the GCBRC's efforts in promoting environmental sustainability and a significant manifestation of fulfilling the university's social responsibility. It disseminates knowledge about biodiversity to the public, raising awareness of ecological conservation. Moving forward, the GCBRC will continue its dedication to research, education, and outreach, contributing to the protection of our planet's sustainable future.

Taiwan's Coastal Blue Carbon Systems: A Research Journey

Source Hsing-Juh Lin, Department of Life Sciences and Innovation and Development Center of Sustainable Agriculture, NCHU

The story of Taiwan's coastal blue carbon research represents a significant milestone in our understanding of climate change mitigation. Led by Professor Hsing-Juh Lin from the Department of Life Sciences and Innovation and Development Center of Sustainable Agriculture at National Chung Hsing University (NCHU), this comprehensive study has unveiled the hidden potential of our coastal ecosystems in the fight against global warming.

Salt marshes in Taichung City, Taiwan.

Understanding Blue Carbon: Nature's Hidden Climate Solution

While forests have long been recognized as nature's carbon capture systems, coastal ecosystems play an equally crucial role in sequestering greenhouse gases from our atmosphere. These coastal systems, known as "blue carbon" ecosystems, possess remarkable abilities to capture and store carbon over extended periods. The term "blue carbon" encompasses three main coastal ecosystems: mangrove forests, salt marshes, and seagrass beds, each with its unique characteristics and contributions to carbon storage.

The Diversity of Taiwan's Coastal Carbon Sinks

Taiwan's coastline harbors an impressive array of blue carbon ecosystems, each playing a vital role in carbon sequestration. Along the western coast, mangrove forests spread across 939 hectares, creating complex root systems that excel at trapping carbon-rich sediments. These remarkable trees can store between 12.81 and 25.07 metric tons of carbon per hectare annually, establishing themselves as powerful allies in carbon sequestration.

The salt marshes, though smaller in area at 188 hectares, demonstrate remarkable efficiency in carbon capture. These ecosystems, particularly prominent in Kinmen, can sequester between 3.45 and 24.33 metric tons of carbon per hectare each year. The exotic Spartina alterniflora has become a significant player in these environments, now accounting for more than two-thirds of Taiwan's salt marsh area.

Perhaps most impressive are the seagrass beds, covering 7,818 hectares, with the vast majority found in the pristine waters of Dongsha Island. These underwater meadows vary in their carbon storage capacity, with intertidal areas storing between 2.93 and 6.22 metric tons of carbon per hectare annually, while the subtidal beds in Dongsha demonstrate even greater efficiency, capturing 14.73 metric tons per hectare each year.

The Science Behind Blue Carbon Storage

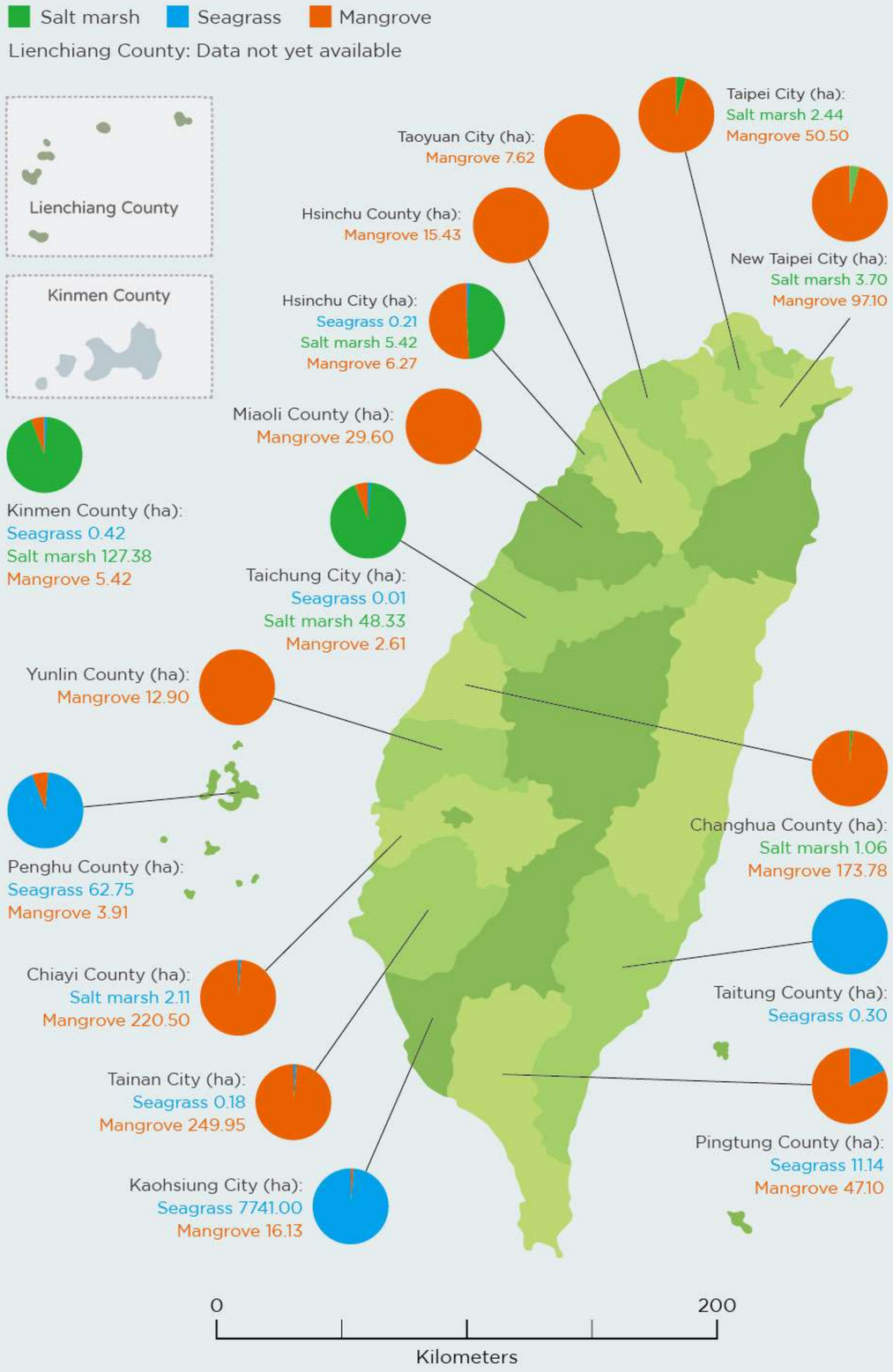
The exceptional carbon storage capability of these coastal ecosystems stems from their unique environmental conditions. The waterlogged soils create oxygen-poor environments that significantly slow down the decomposition of organic matter. This anaerobic setting, combined with the high productivity of these ecosystems, creates an ideal environment for long-term carbon storage. As plants grow, die, and become buried in the sediment, they create a continuous cycle of carbon capture and storage that can persist for centuries.

Research Impact and Environmental Significance

The research team's findings have revealed that Taiwan's coastal blue carbon systems collectively sequester 132,421 metric tons of carbon annually, equivalent to removing 485,544 metric tons of CO_2 from the atmosphere. This significant carbon storage capacity positions these ecosystems as crucial components in Taiwan's strategy to combat climate change and achieve its carbon neutrality goals.

Beyond carbon storage, these ecosystems serve as vital habitats for marine biodiversity. They provide nursery grounds for countless marine species, support complex food webs, and offer natural coastal protection against erosion and storm surges. The economic value of these services extends beyond carbon sequestration to include potential carbon credit trading opportunities and support for sustainable coastal development.

Seagrass beds in Pingtung County, Taiwan.



Distribution area of coastal blue carbon ecosystems in Taiwan.

Challenges and Future Directions

Despite their importance, these ecosystems face numerous challenges. Their limited distribution makes them particularly vulnerable to coastal development pressures, while climate change poses an ongoing threat to their stability and effectiveness. The research team continues to monitor these systems, refining measurement techniques and analyzing how they respond to environmental changes.

The protection of these valuable coastal systems requires a multi-faceted approach, combining enhanced legal protection, sustained scientific monitoring, and active restoration efforts to ensure their preservation. Additionally, the research team emphasizes the need for improved carbon measurement techniques and a better understanding of how these ecosystems respond to climate change.

Looking Forward: A Call for Action

The significance of Taiwan's coastal blue carbon systems extends far beyond their shores. As the world grapples with climate change, these ecosystems offer a natural solution that combines carbon sequestration with biodiversity conservation. Their protection represents a win-win strategy that aligns with both environmental preservation and economic development goals.

The research led by Professor Lin and his team has laid a crucial foundation for understanding and protecting these vital ecosystems. As we move forward, the continued study and conservation of these areas will play an increasingly important role in Taiwan's environmental future and its contribution to global climate action. Through sustained research, conservation efforts, and sustainable management practices, these natural carbon sinks can continue to provide their valuable services for generations to come.

This research not only advances our scientific understanding but also serves as a call to action for policymakers, coastal managers, and the public. The protection of these ecosystems requires ongoing commitment, resources, and cooperation across all sectors of society. As we face the challenges of climate change, Taiwan's coastal blue carbon systems stand as a testament to nature's capacity to help solve our most pressing environmental challenges.

Mangroves in Tainan City, Taiwan.

TEEP
Internship in NCHU

Professor Lu and His International Intern Team

Photo Credit Jia-Yi Ling, Secretariat Office, NCHU

Location National Chung Hsing University

Global Excellence in Environmental Engineering: NCHU's TEEP Program Cultivates International Talents

Source Ming-Chun Lu, Department of Environmental Engineering, NCHU
Edited by Inger Tsai, Office of International Affairs

The Taiwan Experience Education Program (TEEP), a flagship initiative of Taiwan's Ministry of Education, continues to attract international students for short-term professional internships and research projects. By providing hands-on experience across various academic fields, TEEP strengthens Taiwan's position in global education while fostering valuable cross-cultural exchange. The program enables students to collaborate with Taiwanese institutions, enhance their professional capabilities, and immerse themselves in Taiwan's vibrant academic and cultural landscape.

Professor Ming-Chun Lu and his International interns.

Building Global Bridges Through Academic Excellence

National Chung Hsing University's (NCHU's) Department of Environmental Engineering has marked another milestone through its successful completion of the 2023 TEEP Program. Seven exceptional students from prestigious institutions—Vietnam National University, Hanoi, the University of the Philippines, Mapua University in the Philippines, and Kaunas University of Technology in Lithuania—completed their six-month internships at NCHU. Their March 2024 departure to their home countries marks not an end but a beginning, as the department prepares to welcome an expanded cohort of 14 students from the Philippines, Lithuania, and the United States for the 2024 program.

Global Collaboration: Visited by Interns' Supervising Professors.

During their time in Taiwan, these international students achieved significant personal and professional growth. They gained valuable practical experience, developed strong collaboration and teamwork skills, and enhanced their academic, professional, and cultural qualities through intensive study and research. This comprehensive experience has established a robust foundation for their future career development in environmental engineering.

Expanding Horizons: The EQC 2023 International Symposium

The department's commitment to international collaboration reached new heights with the hosting of the EQC 2023 International Symposium. This landmark event drew approximately 200 scholars and students from seven nations across the Asia-Pacific region, including Australia, Malaysia, South Korea, Thailand, the Philippines, Indonesia, and Vietnam, to engage in academic exchange with NCHU and other environmental science-related departments in Taiwan.

Excellence Recognized: Outstanding Paper Award Winners at the EQC 2023 Closing Ceremony.

This symposium's success extended beyond academic discussions, as it strengthened connections with universities that haven't yet participated in the internship program. These new relationships have opened additional pathways for the university's ongoing internationalization efforts, creating fresh opportunities for future collaboration and exchange.

Impact and Future Prospects

The success of both TEEP and the EQC International Symposium underscores NCHU's growing influence in international environmental engineering education. The Department of Environmental Engineering continues to demonstrate its leadership in promoting academic exchange and collaborative partnerships between Taiwan and other countries, strengthening the university's position as a key player in international education.

Hands-on Learning: International Interns Conducting Experiments or Research Projects in the Laboratory.

HABITAT

Common Kingfisher

Photo Credit

Chiou-Rong Sheue, Department of Life Sciences, NCHU
Peter Chesson, Department of Life Sciences & Centre of Global Change Biology, NCHU

Location

Nantou, Taiwan

From Concrete to Nature: Rewilding Zhong Gua River

Source Peter Chesson, Department of Life Sciences & Research Center for Global Change Biology, NCHU
Chiou-Rong Sheue, Department of Life Sciences, NCHU

Taiwan has many beautiful streams and rivers teaming with wildlife, but too often they are not respected for their natural values. Instead, they are often treated as risks needing to be controlled with concrete structures that interfere with their natural functions. As a consequence, stream habitats in Taiwan are greatly at risk, limiting the potential for recovery of many rare and threatened aquatic species and ecosystems. Surveying the small river, Zhong Gua River (種瓜溪), adjacent to their property in Nantou County, NCHU professors Chiou-Rong Sheue and Peter Chesson were dismayed by how 4-6 m high concrete walls and various weirs, high and low, had interfered with the natural flow of the water, creating extensive silted areas full of invasive African elephant grass. The natural habitat for many native species was gone, and Zhong Gua River had become a concrete canyon dangerous for both people and wildlife that tried to access the river or cross it.

Learning of their concerns, Observer Environmental Consulting Company offered to help Sheue and Chesson solve these problems. They appealed to the Agency for Rural Development and Soil and Water Conservation (ARDSWC) to remove the walls and modify the weirs to make them more environmentally friendly. The idea gained support from both the environmental community and the scientific community seeking solutions to serious environmental problems resulting from channelizing streams with concrete. ARDSWC was ultimately convinced, and starting in March, 2023, began removing the wall along Zhong Gua River and restoring the habitat.

The river as it was choked with elephant grass and barely able to flow.

The wall starts coming down, March 2023.

Reconstructed weir, now friendly to aquatic organisms, and bottom left, rocky plant covered bank that was previously a concrete wall four meters high.

The recreated natural stream structure with pools, riffles and sloping vegetated banks.

A striking caddisfly larva that cuts leaves to make a case,
which it uses to protect its body as it crawls around Zhong Gua River scraping food from the rocks.

Phase I of the project, the removal of the first 186 m of wall, along with weir and habitat reconstruction, was completed a year ago (October, 2023), and Phase II, involving another c. 150 m of wall, is approaching completion. Results were immediately observable. Diverse native aquatic animals colonized and began breeding in the newly reconstructed habitat. Many native aquatic plant species began colonizing too, both on the newly restored rock and soil stream banks and in the bed of the stream. Gone are the stagnant areas that were previously created by concrete weirs and thickets of elephant grass. And gone are the extensive silted stretches where the elephant grass choked the river. Instead, the stream has returned to its natural state with highly diverse habitat able to support a high diversity of species.

A golden thread turtle (*Mauremys sinensis*) exploring the newly accessible banks of Zhong Gua River.

Without the walls and concrete barriers, water flow is more variable, with fast flows preferred by some adult native fish and a number of aquatic insects, and slow flows among rocks near the edge preferred by fish larvae, shrimps, some aquatic insects and water snails. Rocks emerging from the water are now perches for beautiful damselflies and dragonflies. The iridescent common kingfisher is seen flitting from rock to rock in search of fish, and several birds, including two wagtail species, use these rocks as convenient perches too. Up to four species of heron (the night heron and three egrets), can be seen wading in the shallows, while the spot-billed duck prefers the several deep pools within the stream. And plant diversity has gone from just two invasive species to nearly forty native and naturalized aquatic and riparian species, including some rare and endangered species.

Local residents, initially skeptical, now appreciate their rewilded river as a beautiful asset. It has also become a place for teaching and study, attracting more than 800 visitors in the last year. Classes come to learn about aquatic ecology and stream functioning, while researchers study the restoration of the ecosystem and the natural stream flow. Sheue and Chesson hope that this successful project marks just the beginning of stream restoration in Zhong Gua River and Taiwan as a whole, revitalizing these rich aquatic ecosystems.

Peter Chesson and Chiou-Rong Sheue observing juvenile fish at the rewilded Zhong Gua River.

Chun-Sheng Wang,
Hidden the Message in Valley,
Ink Painting, 96×58cm, 2024

中興大學藝術中心

The Art Center of National Chung Hsing University

Sustainable Environment: Seeing the Beauty of Nature with Artists

Art transcends language, conveying complex meaning, eternal existence, and spatial expansiveness. Artists use diverse media, whether tangible or abstract, to create visual images to reflect their life experiences, thoughts, concepts, and emotions. The Art Center of National Chung Hsing University (NCHU) proudly presents three of Taiwan's renowned artists, showcasing works in oil painting, ink painting, and puppet installations, among other media. Each piece reflects the artist's lifestyle and cultural heritage, offering insights into humanistic care and multifaceted perspectives.

Half-Century of Artistic Path: Yen-Nang Yang's Oil Paintings

Yen-Nang Yang masterfully incorporates vibrant and auspicious colors of Taiwanese folk traditions—gold, indigo, red, and black—into his fragmented structures, layered blocks, and flowing lines. His works exemplify the allure of Eastern visual aesthetics with simple yet striking compositions. The textures of trees and mountain walls are meticulously detailed, with natural symbols like moss and mottled bark interwoven into the landscapes. Through artistic language, Yang's paintings reveal rich layers of texture and depth.

Artist | Yen-Nang Yang

Balancing theory with technique and drawing from careful observation of nature, Yang's works combine innovative ideas and dynamic energy. He transforms intuitive impressions into abstract forms, communicating profound thoughts and extending life experiences onto the canvas. The evolution of his style throughout different stages reflects his inner emotional landscapes. While rooted in Western abstraction, his style maintains deep local sentiment, radiating vitality and joy.

Creation is a spiritual endeavor that must begin with life itself as its solid "foundation." Contrasting urban noise and haste, Yang finds inspiration in nature's tranquility. This connection to nature offers viewers both aesthetic experience and philosophical reflections.

Yen-Nang Yang,
The Spring Comes in Full,
Mixed Media, 50F, 2020

Yen-Nang Yang,
Summer Joy,
Mixed Media, 80F, 2021

Intended Creation of Nature: Chun-Sheng Wang's Ink Paintings

Artist | Chun-Sheng Wang

Professor Chun-Sheng Wang has spent decades practicing various artistic media, including watercolor, acrylic, and ink painting, emphasizing equally on creativity and theoretical understanding. Through deep exploration, he has honed his expertise in the distinct characteristics of each medium. Eventually, he applied this knowledge to ink painting, merging Eastern spatial awareness with Western perspective. His works seamlessly blend the realism of watercolor, the textured depth of acrylic, and the metaphysical allure of ink, showcasing his refined and nuanced observations of nature and aesthetics.

Wang's creations express philosophical reflections, drawing inspiration from nature while offering deep introspection. His compositions serve as a medium for self-exploration, combining subjective color techniques, temporal-spatial variations, and layers of light, shadow, and perspectives. Through overlaid images and occasional visual displacements, his works express complex emotions and artistic creation, particularly in exploring humanity, bringing modernity to traditional Chinese ink painting.

Professor Wang believes each universe element possesses unique form. While artistic expressions shift with time and space, artistic creation's core essence transcends boundaries. In his view, art is about observing objects, expressing emotions, and manifesting the inner artistic vision.

Chun-Sheng Wang,
Mindfulness,
Ink Painting, 53×70cm, 2023

Chun-Sheng Wang,
The Rhythm of Glorious Youth,
Ink Painting, 186×95cm, 2017

Collective Memory of Cultural Heritage: Chun-Ming Huang's Visual and Literary Art

Artist | Chun-Ming Huang

Chun-Ming Huang, a national treasure-level master of literature, is renowned for his deep concern for grassroots figures and vivid portrayal of local dialects. His work diversely spans essays, poetry, scripts, and children's literature, with several novels adapted to films. Beyond literature, Huang channels creative energy into visual art, including torn paper paintings, oil paintings, ink paintings, Taiwanese leaf drawings, and puppet installations for children's theater.

Chun-Ming Huang,
The Old Man and the Time,
Torn Paper Paintings.

Chun-Ming Huang,
Cockscomb,
Torn Paper Paintings.

In children's drama "Little Sparrow and the Scarecrow," Huang addresses mutualism, ecological sustainability, and environmental protection, issues of pressing importance today. In another notable work "New Peach Blossom Spring," he explores land-people connections, illustrating how an ideal world, symbolized by the Peach Blossom Spring, can flourish through community development and inner nurturing.

Huang's literary creations serve as both artistic expressions and era records, becoming part of our collective memory and cultural heritage.

Chun-Ming Huang,
Little Sparrow and the Scarecrow,
Puppet Installations of Children's Theatre

Chun-Ming Huang,
New Peach Blossom Spring,
Puppet Installations of Children's Theatre