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Author(s)	Muraoka, Hiroyuki; Nakaoka, Masahiro
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Ecological Research Special Feature: Biodiversity and Its Ecological Functions in East-Asia and Pacific Region: Status and Challenges

Title: Biodiversity and ecosystems in Asia: Studies and activities of an International Long-Term Ecological Research Network in East Asia and Pacific

Hiroyuki Muraoka

River Basin Research Center, Gifu University, 1-1 Yanagido, Gifu, 5011193 Japan
muraoka@green.gifu-u.ac.jp

Masahiro Nakaoka

Akkeshi Marine Station, Field Science Center for Northern Biosphere, Hokkaido University
Aikappu, Akkeshi, Hokkaido 088-1113, Japan
nakaoka@fsc.hokudai.ac.jp

Editorial

On the global scale, the Eastern Asian and Pacific regions are considered areas of high biodiversity because of their wide ranges of temperature and precipitation along latitudinal and altitudinal gradients, and the historically strong cultural bonds between humans and nature. Data and information about the biodiversity and ecosystem functions in these regions that clarify their present status and recent changes are needed to facilitate their conservation and management by local communities and academics. We can use long-term ecological research (LTER) to show the changes in biodiversity, ecosystem structure, functions, and services, and to monitor threats to both biodiversity and ecosystem services. The International Long-Term Ecological Research Network (ILTER <https://www.ilter.network/>), which comprises long-term research sites and scientists, was established to develop collaborative research and scientific exchange between the research sites and research groups in the member networks. The East Asia and the Pacific regional network of ILTER (ILTER-EAP) is made up of nine LTER member networks from Australia, China, Korea, Japan, Malaysia, Mongolia, Philippines, Taiwan, and Thailand. The history and activities of this network have been documented by Kim et al. (2018) in this issue, and readers who are interested in collaborating with the ILTER-EAP network are encouraged to contact the Hiroyuki Muraoka, the chair, and also the author of this preface and co-author of the paper by Kim et al. (2018).

This special issue is an outcome from the most recent biennial conference of ILTER-EAP,

which was established in 1996 to promote research collaboration, data management training, and community development. Further information is available in Kim et al. (2018). The 11th biennial conference was held jointly with the 5th International Conference for Environment and Natural Resources (ICENR 2016), organized by Vietnam National University, Ho Chi Minh (VNU-HCM), in October 2016 in Ho Chi Minh, Vietnam. The joint conference was attended by more than 300 local and international experts and scientists from universities, scientific institutions, government agencies, and industry. More than 15 countries and regions were represented, including Australia, Austria, Burkina Faso, China, Japan, India, Indonesia, Israel, Germany, Korea, Malaysia, Netherland, Philippines, Taiwan, the U.S., and Vietnam. The conference program comprised a training workshop on data management, oral and poster presentations, and a field visit to the Can Gio Mangrove forest. Sixty studies were presented at the plenary, and oral and poster sessions on themes such as the impacts of, and adaption to, climate change; biodiversity and ecosystems services; ecosystems under climate change; green growth and bio-based industries; integrated water resources management and ecohydrology; water treatment technologies; air quality management, and clean technologies. This special issue of Ecological Research is an outcome of the joint conference.

The aim of this issue is to share knowledge about the current environmental status of biodiversity and ecosystems, and changes in both because of possible climate and human impacts, in the East Asia and Pacific regions. Given its importance for environmental conservation and sustainability, this information should be disseminated to user communities and scientific communities. The seven papers in this special issue highlight the recent activities in the region.

As mentioned above, the contribution of Kim et al. (2018) overviews the history, current activities, and future directions of ILTER-EAP. Nakaoka et al. (2018) introduce their new interdisciplinary and transdisciplinary research project, which has been established to increase our knowledge about social-ecological systems in Asia, and to support conservation and management of ecosystems. A further four original articles include studies of the status of biodiversity, ecosystem structure, and ecosystem services in terrestrial, riverine, and marine environments in different parts of Asia. In their study, Trisurat et al. (2018) present a forecast of future changes in ecosystem services in the Lower Mekong Basin by quantifying changes in water yield, while Quan et al. (2018) review plans to conserve the wetlands in the Vietnamese Mekong Delta by changing the present hydrological management. Galindon et al. (2018) compare the status of biodiversity in forests in limestone quarries in different sub-regions of the Philippines with different management histories (reforestation). Leopardas et al. (2018) use data from the Japanese ‘Monitoring Sites 1000’ program to examine broad-

scale variations in marine biodiversity patterns in seagrass benthic communities. Finally, Fang et al. (2018) make special reference to the implications of classification methods used in different studies and interactions with human activities for ecosystem conservation and restoration in their review of ecological connectivity between land and sea.

These contributions demonstrate that the researchers of ILTER-EAP have numerous research outputs to share with the wider regional community, the global network of ILTER, and other international organizations engaged in biodiversity observation and conservation, such as the Group on Earth Observations Biodiversity Observation Network, the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem, and Future Earth. We hope these papers will provide opportunities to initiate and develop additional networks and scientific collaborations.

Last, but not at least, we would like to express our appreciation to the organizing committee of the joint conference held in Ho Chi Minh, Vietnam, and particularly to Dr. Nguyen Kim Loi (Nong Lam University), Dr. Nguyen Hong Quan (Vietnam National University), and Dr. Thu Huyen Do (Vietnam National University) for their hard work over almost 1 year. We would also like to thank Ecological Research, Prof. Atsushi Kume (EIC, Kyusyu University), Ms. Yuko Aoshima (editorial office), and several anonymous reviewers who made it possible for us to arrange this special issue.

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