An International Network for Biodiversity Research
DIWPA
Diversitas Western Pacific and Asia

DIWPA News Letter

No.28

Office: Center for Ecological Research, Kyoto U

Our outgoing chairperson expects more buildup of biodiversity networks

Message from the Chairperson

Yoshitaka Tsubaki

Time flies like an arrow. Due to my mandatory retirement, I must convey my intention to step down. I would like to thank all staffs of DIWPA office for their dedicated efforts and all DIWPA members for their valuable contributions to our activities during my term of four years.

After the last DIWPA international field biology courses conducted in 2006, our activities had been in a prolonged slump mainly due to a lack of funding. However, the 10th Conference of Parties (Cop 10) of the CBD held in October of 2010 in Nagoya, Japan provided a good opportunity to reconstruct a new DIWPA. During COP 10, many DIWPA board members had a chance to get together and we succeeded to establish a new DIWPA steering committee there to take a fresh start. I must deeply appreciate for the support from the Center for Ecological Research, Kyoto University.

Since 2010, DIWPA has supported J-BON and AP-BON by expanding new DIWPA sites and including new DIWPA members, as reported in our recent issues. DIWPA has collected information on study sites as the biodiversity initiative. Moreover, we brought back DIWPA International Filed Biology Course in 2012, which activity was already reported in the previous issue (No.27). Such capacity building activities is very important for young people however it is always come with difficulty in sea for financial resources, but I hope next DIWPA office sta will also do their best.

In my opinion, biodiversity is a kind of philosophy to seek fairness not only between all people, but also between all living things on earth. Biodiversity is not a mere indicator of species richness. Science for biodiversity must provide information and knowledge to help for understanding how natural resources and environment should be shared between all living things. I expect DIWPA works as a cooperative network for exchanging scientific information of biodiversity. I also expect you to contribute in this network and to encourage young scientists to join our network for our prosperous future.

Message from the Secretary General

Shin-ichi Nakano

In the last November and December, I attended two important meetings on biodiversity researches: one was "International Workshop on Freshwater Biodiversity Conservation in Asia" held in Fukuoka, Japan, and the other "GEO-BON all-hands meeting" held at Asilomar Conference, Grounds, US. For the former, I chaired whole meeting, and it Asian freshwater biodiversity researchers to assemble for discussions. Please read two my reports on those meetings. I hope those would be useful for your considerations.

Contents

New Site

Ooyamazawa Riparian Forest Research Site and Network Group

Hitoshi Sakio

Sado Station, Field Center for Sustainable Agriculture and Forestry
Faculty of Agriculture, Niigata University
(Japan)

Research theme is understanding long-term dynamics of a riparian forest on Ooyamazawa, Chichibu Mountains from viewpoints of the tree life history, tree physiology and natural riparian disturbances. The study site (35°57'30"N, 138°45'32"E) is located in a riparian zone along a small stream (Ooyamazawa) of the Nakatsugawa branch of the Arakawa River, in Chichibu Mountains, central Japan. This site is located in the protected Chichibu-Tama National Park and ranged from 1,210 to 1,530 m above sea level. Annual precipitation averaged about 1,100 mm, and the maximum snow depth measured approximately 30 cm between January and March. The estimated mean annual temperature at the study site (1,450 m a.s.l.) was 6.2°C. The study site was situated in the cool temperate zone that deciduous broad-leaved forest zone extended from 700 to 1,600 m a.s.l. This riparian forest in this area phytosociologically belongs to the Chrysosplenio-Fraxinetum spaethianae, a typical riparian forest. Dominant canopy species in this area are *Fraxinus platypoda*, *Pterocarya rhoifolia* and *Cercidiphyllum japonicum* over 30 m in tree height. The subcanopy species are *Acer shirasawanum* and *Acer mono*, and the understory is primarily composed of *Acer carpinifolium* and *Acer argutum*. The area around the study plot is no human disturbances such as logging or erosion control works. This study site is a part of the Monitoring Sites 1000 Project launched by the Ministry of the Environment, Japan, and also is one of Japan Long-Term Ecological Research (JaLTER) Sites.

Photo 1. Research members

We have studied on regeneration dynamics and coexistence mechanisms of tree species in this research site from 1987. We have surveyed tree size, litter and seed production. And we have rese

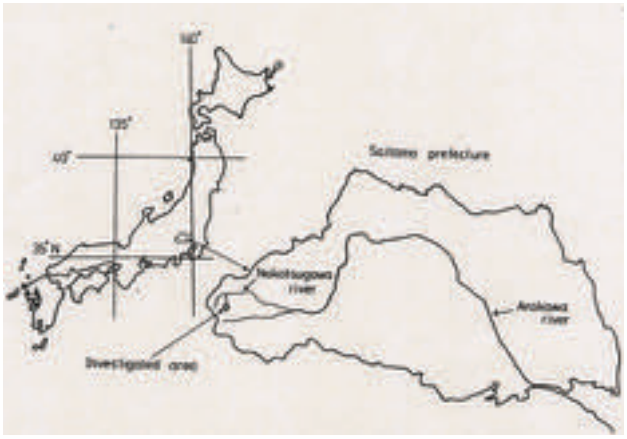

Figure 1. Research site

Photo 2. *Cercidiphyllum japonicum*

seeds production of *Fraxinus platypoda*.

Three canopy tree species (*Fraxinus platypoda*, *Pterocarya rhoifolia*, and *Cercidiphyllum japonicum*) coexist in riparian forests in the Chichibu Mountains of central Japan. *F. platypoda* was the dominant canopy species. It produced many saplings and grew in abandoned channels and foodplains, both l and small disturbance sites. *P. rhoifolia* was a subdominant species that occurred on the deposits of large-scale landslides and grew in patches containing even-aged trees. *C. japonicum* was the other subdominant species that produced few saplings and invaded large disturbance sites together with *P. rhoifolia*. Establishment sites of *C. japonicum* were restricted to allen logs. We found tradeoffs in reproductive characteristics (seed size, seed number, irregular seed production, and sprouting) among the three canopy species. *F. platypoda* and *P. rhoifolia* had large seeds and fruited irregularly. *C. japonicum* produced many small seeds every year and sprouted prolifcally arou causes the coexistence mechanism of the three riparian canopy tree species may be both niche- and chance-determined to varying degrees. In riparian areas, the three canopy species were well adapted to disturbances throughout their life-history.

Photo 3. Core site in spring

Photo 4. Herb layer in summer

Photo 5. Winter season

References

Sakio, H. & Tamura, T. (eds.) 2008 *Ecology of riparian forests in Japan: Disturbance, life history and regeneration.* Springer, Tokyo.

Kubo, M., Sakio, H., Shimano, K., & Ohno, K. 2007 Adaptive regeneration traits and habitat in *Cercidiphyllum japonicum* to riparian disturbances in the Chichibu Mountains, central Japan. In: Scaggs, A. K. (ed.) *New Research on Forest Ecology*, Nova Science Publishers, New York, pp.207-46.

Sakio, H., Kubo, M., Shimano, K., & Ohno, K. 2002 Coexistence of three canopy tree species in a riparian forest in the Chichibu Mountains, central Japan. *Folia Geobotanica* 37:45-61.

Sakio, H. 1997 Effects of natural disturbance on the regeneration of riparian forests in a Chichibu Mountains, central Japan. *Plant Ecology* 132(2):181-195.

New Site

Riparian Forest Research Group in Japan

This group established in 1991 is a regional research network of riparian ecology including riparian vegetation, forest ecology, tree physiology, interaction between forest and river, aquatic insect and river man and so on. Symposium and excursion of this group were held all over Japan from 1991. In 2011, Twentieth anniversary workshop was held under Taiwan University and Taiwan Forestry Research Institute. In future, we hope to hold this workshop in other country.

Also we published some textbooks about riparian forest ecology and forest management. We published the book "Ecology of riparian forests in Japan" from Springer in 2008.

Photo 6. Twentieth anniversary workshop in Taiwan

For more information, visit our website:
http://www-sci.edu.kagoshima-u.ac.jp/~kawanishi/riparian/index.htm

Photo 7. Ooyamazawa Riparian Forest Research Site in autumn

Report 1

Penang's Nature Classroom has a Dream!

Wong Yun Yun

Environmental Educator
Nature Classroom, Penang
(Malaysia)

Nature Classroom – Forest, Water and Us is an environmental education project initiated under a non-profit organisation Watch Penang. The project was funded by UNEP Eco-Peace Leadership Center for the 5th UNEP-EPLC Leadership Programme in year 2011 to 2012. Our main purpose of running this project is to create public awareness on water and forest conservation t e mang wetlands in Penang, Malaysia. Apart from that, the on-site environmental programmes and events encourage "learning outside the classroom" for nature related topics, which consider a rare opportunity in the formal education system in this country.

Our project site is located at the west coast of Penang island and the area is generally known as "Balik Pulau". Compare to the highly urbanised eastern zone, there is relatively less development in Balik Pulau and therefore some nicely reserved mangroves still can be found. The mangrove forests and fsheries possess beautiful sceneries and rich biodiversity of coastal for fauna, are ideal to be developed into a "nature classroom". Through the *Nature Classroom* project, we brought participants to Balik Pulau for a journey of learning the wildlife and ecosystems as well as experiencing the local lifestyle.

From the feld visits encountered plants and animals were photographed, identifed and documented in the *Nature Classroom*. There are more than 100 species have been recorded for the past one year and these include mammals, birds, reptiles, fsh, crustaceans, fungi, mangroves and others. One surprising encounter was during a survey trip on 4th December 2011 when the world's critically endangered mangrove species,

Photo 1. Learning the coastal biodiversity in the wild as the core activity of feld programme

Bruguiera hainesii or Eye of the Croc discovered in Penang. According to the IUCN red list, the species are found across Malaysia, Singapore, Indonesia and Papua New Guinea with an estimation of 200 individuals in the wild. We felt very glad that the solely *B. hainesii* has drawn some attention from government agencies, NGOs and general public with concerning the mangrove issues.

The documentation of mangrove biodiversity was non-scientifc and thus it is species living in the project site are not found and recorded. It becomes more diffcult whe scientifc data and literature detailed research study is highly needed to understand the mangrove ecology and biodiversity for saving the few remaining coastal forests in Penang island. At this moment, the *Nature Classroom* database can be served as a reference to the current conservation efforts, and hopefully to support the future research studies.

Gratefully, after a year of working, the *Nature Classroom* project was ended with satisfying outcome. Our work was even recognised and awarded during the Asia

Report 1

Pacifc Environment Forum

Nevertheless, this is not the end of our dream but only the beginning! Considering the positive impacts brought to the people and environments, we decided to convert the non-profitable environmental sustainable career. By this way, we hope to bring people together for sharing, learning and loving the nature. In this year, with the establishment of new *Nature Classroom*, the dream goes on.

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For more details, please visit our website:
http://natureclassroom.webs.com/
http://www.facebook.com/penangmangrove

Photo 2. The *Bruguiera hasskii* or Eye of Crocodile in Penang, Malaysia

Photo 3. The project site of *Nature Classroom – Forest, Water and Us* at Balik Pulau, Penang, Malaysia. In recent years, housing development has changed the landscape rapidly. I hope my work will raise attention to protect the nature in this area.

Report 2

International Workshop on Freshwater Biodiversity Conservation in Asia

Shin-ichi Nakano

Center for Ecological Research, Kyoto University
(Japan)

Biodiversity crisis in freshwater systems is at the worst among those in other natural systems. For the better conservation of freshwater biodiversity, we have to urgently collect the information about the status quo of freshwater biodiversity and ecosystem through appropriate environmental monitoring together with compiling the data already collected by and independently stored at individual institutions, to identify the drivers which affect freshwater biodiversity in each system, and to identify the biodiversity hotspots where conservation efforts should focus on. In most of environmental monitoring in Asian countries, the fruits (data) derived from those monitoring are usually written in local languages and independently stored at individual institutions. If those data become publicly accessible and available, they would yield more contributions not only to local and domestic communities but to international ones.

To develop further network for freshwater biodiversity researches and discuss future collaboration, International Workshop on Freshwater Biodiversity Conservation in Asia was held from 26 to 28 November at Kyushu University in Fukuoka, Japan. In the current workshop, we discussed about data sharing among Asian countries, appropriate methods to identify the drivers on biodiversity of a particular freshwater and the way how to identify the biodiversity hotspots for better conservation of the systems.

We had about 40 participants, two Keynote lectures, 18 talks and general discussions (The program is shown on the next page). Dr. Ian Harrison, one of the two Keynote speakers, pointed out that biological diversity in Asian ecosystems is relatively high, and emphasized that only limited information about many of biological species or the condition of the ecosystems is available in Asia. So, he introduced some IUCN's assessments on the distribution and conservation status of freshwater species through several parts of Asia. Dr. Lu Cai, another Keynote speaker, talked about the concept and framework of Ecological Character Description (ECD) developed by the Ramsar Convention, together with some case studies using ECD. ECD provides the baseline and acceptable changes in ecological components, processes and services in freshwaters.

According to our interaction, I was very much impressed how we are searching for collaboration and further development in our freshwater biodiversity

Photo 1.
A group photo of International Workshop on Freshwater Biodiversity Conservation in Asia.

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researches. Now I am completely sure our future success through our tight friendship and partnership.

The workshop was financially supported by the program of Kyushu University "Asian Conservation Ecology", "Environment Research and Technology Development Fund (S9) of the Ministry of the Environment, Japan", "Integrative Observations and Assessments of Asian Biodiversity" and Nagao Natural Environment Foundation.

International Workshop on Freshwater Biodiversity Conservation in Asia

26 to 28 November, 2012 at Kyushu University, Fukuoka, Japan

Program

Day 1 (26 November)

S. Nakano *Opening remarks and workshop aim*

T. Yahara *Introduction of AP-BON*

Ian Harrison *Biodiversity assessments for conservation and management of freshwater resources* (Keynote lecture)

Dina Muthmainnah, Zulkifi Dahlan, Robiyanto H. Susanto, A.
Utilization of freshwater fshes biodiversity as income
trict of South Sumatra province, Indonesia)

R. Lurniawan, Triyanto and L. Subehi *Biodiversity of various tropical lakes at the main islands in Indonesia*

Jianhua Li, Liangliang Huang wKJKMR6UU)fR YJKf)RGP6OP7f)RPK'P0K f'0SK!f)P7f)GJRP0tP0J

Xiaolin Zhang, Jun Xu, Te Cao and Le-Yi Ni
Aquatic macrophytes diversity in Erhai lake China, and conservation strategy

Jun Xu, M. Zhang, Q. Tian and B. Fang *Biodiversity of Chinese freshwater macrophytes in lakes*

Tran Dac Dinh, K. Shibukawa, K. Utsugi, T. X. Loi and N. T. Phuong hP7f)RPK'6URfRP0gPfK0J2fRfbfj60S

Mohd Shalahuddin bin Adnan, Zawawi Daud, Y. Kano, T. Yamashita, T. Sato, Y. Shimatani
iffEJTTf0SfRJ0OH)6GTf2RP0E60Rf)7P0SU)fR YJKf)RGP7f)RPK'P0bJTJ'RPJ

Day 2 (27 November)

Lu Cai, L. Guan, G. C. Lei, Y. M. Zhang, Y. F. Jia *Ecological Character Description:*
An ecosystem-based tool for dynamic monitoring on freshwater biodiversity (Keynote lecture)

So Nam, Peter Degen and Eric Baran lPRJ0ORf)PfR6UKffT6Yf)bfj60SGJRP0

Tuantong Jutagate, Chaiwut Grudpan, Apinun Suvanaraksha, and Michio Fukushima
l)fR YJKf)RGP7f)RPK'P0iJPTJ0OJ0OKffEJTTf0SfR60PKRH)6RHf)PK'OMfK6)P7f)Y6)j

Noriko Takamura *Introduction of S9 Freshwater project*

Shin-ichiro S. Matsuzaki
i2H6)JIEJ0SfRPKJz6062PEJ0GUM0EKP60JTOP7f)RPK60JKP7f)fR YJKfRJRRf2GTJSfR0bHJ0fRfTJfR

J. Shibata, Z. Karube, Y. Sakai, T. Takeyama, I. Tayasu, Y. Satoh, S. Yachi, S. Nakano and N. Okuda
Historical and geographical patterns of benthic macro-invertebrate biodiversity in the ancient Lake Biwa, Japan

N. Takamura, T. Kizuka, Y. Sakuno, S. Ishida, T. Kadoya, M. Akasaka
Assessment of biodiversity in irrigation ponds as refugia for aquatic life

H. Fujita, M. Takada, H. Kobayashi, E. Niime, H. Kura
Biodiversity and conservation of mire ecosystems in Hokkaido, Japan

Nakamura, F., Akasaka, T., Mitsuhashi, M., Inoue, M., Onitsuka, N., Miyake, Y., Kawaguchi, Y., Katano, I.,
Mori, T., and Ichiyanagi, H e7JTMJKP606UoJHJ0fRf)P7f)J0O66OHTJP0fE6R'RKf2JE)6RR7J)P6MRREJTfR

Y. Oyama, F. Yang, B. Matsushita, and T. Fukushima
Satellite remote sensing of inland waters and their watersheds by monitoring aquatic macrophytes, cyanobacterial bloom and impervious surfaces

Yuichi Kano and Y. Shimatani
d0TP0fOJKJGJRf6Ubfj60SRfRJ2fK 6OK6P0KfS)JKf0OHMGT PEP!fJTJ)Sf026M0K6UOJKJ

General Discussions for future collaboration (chaired by S. Nakano)

Day 3 (28 November) Excursion

Report 3

Report on GEO-BON Asilomar all-hands meeting in December 2012

Shin-ichi Nakano

Center for Ecological Research, Kyoto University
(Japan)

I, together with Prof. Tet Yahara (Kyushu University), attended GEO-BON Asilomar all-hands meeting held from 3 to 7 December 2012. The meeting was held at Asilomar Conference Grounds (ACG). ACG is located Pacifc Grove, California, US, facing to the Pacifc. ACG has "a breathtakingly gorgeous 107 acres of ecologically diverse beachfront land" (from ACG website), together with cozy cottages, rustic lodges and pine forests. It was so nice to stay there with fruitful international discussions.

On the frst day of 3 December, several plenary talks were given, followed by Regional BON Statements. Prof. Yahara provided a talk on the history and activity of Asia-Pacifc Biodiversity Observation Network (AP-BON), and it was praised by the attendants as one of the most impressive talks among those given in the frst date.

GEO-BON consists of nine working groups (WG), and the freshwater team is assigned as WG4. I am reporting here some important discussions extracted from my notes on WG4 discussions, because I mainly attended to WG4 meetings. I enjoyed talking with the people from some international projects and frameworks such as Biofresh, Wetlands International, CBD, SCOR and USGS, together with visiting the nice beach and pine forest park.

What I was the most impressed was that our Asian biodiversity researches have been paid great attentions and highly welcomed by GEO-BON people. There is an active biodiversity initiative for freshwater, Biofresh, in Europe. However, they know their coverage is still limited, though this is also the case for us Asian biodiversity researches. In addition, we Asian freshwater people have just started our discussion for future collaboration including data collection, data analysis, mapping and so on in Asia, and I personally think our collaboration should be extended to other areas as wide as possible in future. I feel this is also shared by other WG4 people attended there.

1. State of the World's Wetlands and their Ecosystem Services (SoWW) & Global Wetland Observing System (GWOS)

To address the urgent need for information about ecosystem and biodiversity in wetlands globally, the

Photo 1.
On 3 December 2012, we f
together in the Chapel of Asilomar
Conference Grounds.

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Ramsar Convention on Wetlands has expressed a keen interest in producing a report on The State of the World's Wetlands and their Ecosystem Services (SoWW) which would present comprehensive and objective information and analysis on the current global state of coastal and inland water systems.

The primary mission of the Global Wetland Observing System (GWOS) is to address the information needs for SoWW reports. The GWOS and the SoWW reports would provide useful information not only to the Ramsar Convention but also to the Convention on Biological Diversity, though GWOS has not yet been launched due to some challenges to be solved.

Biofresh has been collecting the information about biodiversity mainly from European and African countries and developing an information platform as a gateway for scientifc research on freshwater biodiversity.

At this stage, Biofresh mainly covers status-quo of biodiversity in Europe, though it aims to do that for world wide. So, Biofresh is very much interested in the collaboration with Asian biodiversity researchers, because biodiversity in Asian freshwaters has not yet fully assessed. If the collaboration between Biofresh and Asian biodiversity researchers goes well, our coverage of biodiversity information would become more worldwide, and this would lead to the foundation of GWOS.

2. Global atlas of Freshwater Biodiversity & Global map of wetland extent

Many of those items have been conducted by Ramsar, GBIF, Biofresh and Wetlands International, though the introduction of remote sensing technology is needed for Global map of wetland extent. Here again, the collaboration with Asian biodiversity researchers is probably needed.

3. Citizen science

WG4 is very much interested in conducting data collection by citizens. There are already available technologies such as smart-phone with GPS, and they may make citizen science for biodiversity feasible. In Japan, Wetlands International Japan has been collecting the data of Japanese wetlands with the help by citizens.

When we conduct citizen science, to collect reliable data, we need to have standard methods and careful guidance for the citizens supporting us. It may be better for regional BONs to prepare the directory which is a list of appropriate methods for collecting biodiversity data. The directory would be informative for other WG and/or regional BONs.

For more information about the all-hands meeting, please visit the website:
http://www.earthobservations.org/geobon_docs_20121203.shtml

Photo 2.
We sometimes visited the nice beach of the Pacifc to be released fro relaxation.

Announcement *from DIWPA secretariat*

2013 DIWPA International Field Biology Course:

Detailed information will be announced in the website of DIWPA

One of our purposes is capacity building of young scientists in the Western Pacific and Asia. Last year we organized the international field biology course (IFBC) at Kiso biological station, Japan. (Please read DIWPA Newsletter No. 27 for further information.)

Because of our funding constraints, DIWPA secretariat cannot decide whether we will have the IFBC in the next fscal year. However, we are doing special effort to hold it continually. In 2013, we intend to plan the course on the forest ecosystem in an Asian country. We will let you know the detailed information in our website as soon as we decide.

Please check our announcement at the DIWPA website on occasion. We thank you for your interest in DIWPA IFBC.

Table 1. History of International Field Biology Course

Year	Place
1995	Tropical Rainforest, Sarawak, Malaysia
1996	Lake Baikal, Russia
1997	Tropical Forests, Thailand
1998	Yakushima Island, Japan
2000	Cape Tribulation, Australia
2001	Paso Forest Reserve, Malaysia
2004	Gunung Halimun National Park, Indonesia
	Lambir Hills National Park, Malaysia *
	Lake Biwa, Japan **
2005	Cibinong, West Java + Gunung Halimun National Park, Indonesia
	Khao Chong, Thailand *
	Lake Biwa, Japan **
	Mount Kinabalu, Malaysia **
	Cibinong, Indonesia
2006	Sabah, Malaysia
	Cibinong, West Java + Gunung Halimun National Park, Indonesia
2012	Kiso, Nagano, Japan

* CTFS-AA IFBC(co-organized), ** DIWPA-COE IFBC

Source: http://diwpa.ecology.kyoto-u.ac.jp/activities.html

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DIWPA OFFICE
Center for Ecological Research, Kyoto University
509-3, 2-chome, Hirano, Otsu, 520-2113
JAPAN

DIWPA OFFICE

CHAIRPERSON

Yoshitaka Tsubaki

SECRETARY GENERAL

Shin-ichi Nakano

VICE-SECRETARY GENERAL

Atsushi Ishida

SECRETARY

Shigeo Yachi, Takashi Osono

ASSISTANT SECRETARY

Takuya Tanaka

Center for Ecological Research, Kyoto University

509-3, 2-chome, Hirano, Otsu 520-2113, JAPAN

Tel & Fax: +81-77-549-8238

E-mail: diwpa@ecology.kyoto-u.ac.jp

http://diwpa.ecology.kyoto-u.ac.jp/