Biodiversity activities by Japanese researchers to facilitate biodiversity researches in Asia

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Outline

1. IGY, IBP, IGBP
2. DIVERSITAS & DIWPA
3. GEO-BON & AP-BON
4. Future Earth?
Thanks to , , , , ,

- Prof. K. Kitayama (Kyoto Univ)
- Prof. T. Yahara (Kyushu Univ)
- Prof. ??? (a Japanese Univ)
- “20th Anniversary”, Center for Ecological Research, Kyoto Univ
- CER Newsletters
International Geophysical Year (IGY)

1. IGY activities, which consisted of 67 countries, literally spanned the globe from the North to the South Poles, coordinating observations of various geophysical phenomena.

2. Special attention was given to the Antarctic, where research on ice depths yielded radically new estimates of the earth's total ice content.

3. IGY Antarctic research also contributed to improved meteorological prediction, advances in the theoretical analysis of glaciers, and better understanding of seismological phenomena in the Southern Hemisphere.

4. Cosmic ray recorders, spectroscopes, and radiosonde balloons had opened the upper atmosphere to detailed exploration, while newly developed electronic computers facilitated the analysis of large data sets.

5. The most dramatic of the new technologies available to the IGY was the rocket, inviting us to space science.
The International Biological Program (IBP), 1964-1974

The International Council of Scientific Unions (ICSU) and the International Union of Biological Sciences (IUBS) were interested in the productivity of biological resources, human adaptability to environmental change, and environmental change itself, recommending that the IBP focus on the effect on biological communities of changes in the natural environment, and on the conservation and growth of natural resources for human benefit.

The focus of the IBP’s scientific activities were:
- Conservation of Terrestrial Communities (CT)
- Human Adaptability (HA)
- Productivity of Freshwater Communities (PF)
- Productivity of Marine Communities (PM)
- Production Processes (PM)
- Productivity of Terrestrial Communities (PT)
- Use and Management of Biological Resources (UM)

In Japan, main activities were conducted in Lake Biwa (PF), and the leader of the project was Prof. Mori, Otsu Hydrobiological Station, Kyoto University. So, ESJ had initiated the discussions on the foundation of a joint-usage research center in the field of freshwater biology.
CER was responsible for IGBP - Global Change and Terrestrial Ecosystems (GCTE) - Terrestrial Ecosystems in Monsoon Asia (TEMA). During the project, Japanese ecologists became aware of the needs for biodiversity conservation.
The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives:

• To conserve biological diversity
• The use biological diversity in a sustainable fashion
• To share the benefits of biological diversity fairly and equitably
DIVERSITAS was established in 1991 under the auspices of ICSU and UNESCO, with the goal of developing an international, non-governmental umbrella programme that would address the complex scientific questions posed by the loss of and change in global biodiversity.
In 1992, the project “Symbiosphere: Ecological Complexity for Promoting Biodiversity”, which was submitted as a research proposal by Japanese ecologists, had been accepted by IUBS, SCOPE and UNESCO. In addition, in the early 1990’s, biodiversity issues were one of the most important challenges for United Nations. During the period, Japanese ecologists had successful results at several international meetings for biodiversity. So, Japanese ecologists came to think that they would take leadership in biodiversity researches by having tighter relationship with DIVERSITAS.
DIWPA: DIVERSITAS in the Western Pacific and Asia
Established in 1993

Secretariat: Center for Ecological Research, Kyoto University

516 members from 45 countries (2013)

400 members from 41 countries (1993)
DIWPA is charged to answer the questions below:

1. Consequences of climate variability and change for biodiversity?
2. Resilience of the ecosystems in Monsoon Asia to different intensities and forms of use?
   - What are the consequences of changes in biodiversity (losses and biological invasions) for ecosystem functions?
   - How much redundancy is enough?
3. How conservation of biodiversity be incorporated into development strategies of transitional economies?
4. Does loss of biodiversity from the Asian Monsoon region have significant consequences for the Earth System?
5. Synthesis, integration, observation and coordination
DIWPA
DIVEFRSITAS Western Pacific and Asia

Tamiji Inoue proposed DIWPA and IBOY

Center for Ecological Research
Kyoto University (1991-)

DIWPA: DIVERSITAS in the Western Pacific and Asia [ Biodiversity Network ]

New!
Reports of DIWPA International Field Biology Course are available online

2012 DIWPA International Field Biology Course was held in Kino, Japan, from 17 to 24 August. A short report was provided by Dr. Okuda, one of the organizers of the course.

Monitoring data and scientific reports by participants are also obtainable in the following site.

>> Web site

New!

News Letter No.27
We published DIWPA News Letter No.27 on November, 2012.

>>DIWPA News Letter No.27

This issue contains:
- Essays about DIWPA International Field Biology Course
- Report of ASLO Lake Bwa meeting
- Introduction of AsiaFlux network
- New site of hill dipterocarp forests in Malaysia
- Guide to the Gordon Research Conference

DIWPA directory of biodiversity observation sites
DIWPA is ready for providing the directory of biodiversity observation sites. Please mail us (diwpa@ecology.kyoto-u.ac.jp) if you have further information. Four sites were registered in 2012.

>>DIWPA directory of biodiversity observation sites

Call for New Membership of DIWPA!
We are now calling for membership of DIWPA. Membership is no charge. If you would like to join DIWPA, please contact the DIWPA Office.

>>Call for New Member of DIWPA!

DIWPA (DIVERSITAS in the Western Pacific and Asia) is an international network for the promotion of cooperative studies and information exchange on biodiversity in the Western Pacific and Asia, under a close cooperation with its mother network, DIVERSITAS, organized by ICES, IUBS, SCOPE and UNESCO.

>> DIVERSITAS

We need your support
DIWPA needs your financial support.

>> More (We need your Support)

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>> CER (Center for Ecological Research)
Newsletters and website
Promoting DIWPA-IBOY (Internat’l biodiversity observation year)
Establishing a database
Fostering young scientists/seeding projects
Annual Internat’l Field Biology Course
Internat’l symposium for education and dissemination
Linkage with global change programs
DIWPA-IBOY
Promoting standardized sampling & monitoring with common traps and designs

Forest ecosystems
Fresh water ecosystems
Coastal marine ecosystems
Island ecosystems (PABITRA)

Protocol manuals
DIWPA-IBOY Core Sites

DIWPA-IBOY: Promoting standardized sampling & monitoring with common traps and designs.
2006 DIWPA/COE International Field Biology Course (Sabah, Malaysia)

The 4th DIWPA International Field Biology Course (Cibinong, West Java, Indonesia)

2012 DIWPA International Field Biology Course (Kiso Fukushima, Japan)
DIWPA International Field Biology Course 2013 in Ogasawara

Wildlife management (green turtle)

Determination of vulnerability curve of a plant

Measurement of photosynthesis
PABITRA is a collaborative program for investigating the function of biodiversity and the health of ecosystems in the tropical Pacific Islands. Particular emphasis is put on the comparative analysis of indigenous upland and inland forests of the volcanic high islands and their role as ecological reserves and watersheds. Their function under the natural biogeographic restraints of isolation and their watershed services in relation to the various lowland ecosystems will become the principal focus of collaborative research.

The PABITRA Methods Book, Biodiversity Assessment of Tropical Island Ecosystems is now available On-Line.

The Pacific Science issue on "The PABITRA Project: Island Landscapes under Global Change" has now been published.

Organization of PABITRA (including core participants)

PABITRA Sites

- Selection Criteria, Site Descriptions & Map
- Poster: Palau Workshop (poster)
- Poster: Samoa Joint Analysis Workshop (panel 1, panel 2)
- Poster: Fiji Joint Analysis Workshop (panel 1, panel 2)
- Poster: Kahana Valley Ahupua‘a (poster, vegetation map)
GEO: Group on Earth Observation

“Societal Benefit Areas”. are disasters, health, energy, climate, water, weather, ecosystems, agriculture and biodiversity. Those areas are mutually interdependent and cannot be addressed in isolation.

GEO was launched in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading industrialized countries. These high-level meetings recognized that international collaboration is essential for exploiting the growing potential of Earth observations to support decision making in an increasingly complex and environmentally stressed world.
The 190 member governments of the Convention on Biological Diversity (CBD) adopted a decision, recognizing the importance of the Group on Earth Observations Biodiversity Observation Network (GEO BON).

DIVERSITAS and NASA have been appointed to lead task of developing a global Biodiversity Observation Network.
“States”, “Drivers” and “Impacts” will be monitored.
AP BON (Asia-Pacific BON)

Tetsukazu Yahara (WG1), Shinichi Nakano (WG4), Dedy Darnaedi (LIPI), Eun-Shik Kim (LTER-Asia), Keping Ma (CAS), Sheila Vergara (ACB)
Focus Areas & Monitoring Programs

• The whole Asia-Pacific area
  – including Mongolia, Nepal, India, ASEAN countries, W Pacific countries
  – collaborating with Australia
• Genetic and Species diversity
  – Plant Diversity Assessments
  – Bee diversity and pollinator conservation
• Terrestrial biodiversity and ecosystems
  – Mapping forest functions and services
  – Identifying hotspots under agriculture (Satoyama)
• Freshwater biodiversity and ecosystems
  – Aquatic plants
  – Fish
• Marine biodiversity and ecosystems
  – Costal ecosystems; coral, sea grass/macro algae community
  – Microbes
DEVELOPMENT OF AP-BON

GEO BON Conference

AP-BON Workshop

GEO BON Meeting

MOE project started from July 2011 to support AP-BON

GEOSS-AP symposium

2nd GEOSS-AP

3rd GEOSS-AP

4th GEOSS-AP

5th GEOSS-AP

Postponed due to the disaster

Dec 2-3

4th AP-BON

Feb or March

5th GEOSS-AP
First publication of AP-BON

- Part 1: General Introduction
- Part 2: Networks for Monitoring and Research on Biodiversity in the Asia-Pacific Region
- Part 3: Establishing a Biodiversity Database
- Part 4: New Methods and Analyses for Biodiversity Studies
- Part 5: Biodiversity and Ecosystem Services
- 31 chapters, 480 pages
This volume focuses on new trends in monitoring biodiversity in the Asia-Pacific region, one of the most rapidly changing areas in the world. It provides reviews of the challenges in studying the spatial variability of biodiversity across various ecosystems. This book also describes newly developed concepts and methods for biodiversity observation including ubiquitous genotyping, systematic conservation, monitoring of the functions and services of ecosystems, and biodiversity informatics. These contributions will lead to establishing integrative observations and assessments of biodiversity, essential for reporting the current status and for the effective conservation and sustainable use of biodiversity. This work will interest biodiversity researchers not only in the Asia-Pacific region, but also across the entire globe.
Future Earth

Future Earth is a new 10-year international research initiative that will develop the knowledge for responding effectively to the risks and opportunities of global environmental change and for supporting transformation towards global sustainability in the coming decades. Future Earth will mobilize thousands of scientists while strengthening partnerships with policy-makers and other stakeholders to provide sustainability options and solutions in the wake of Rio+20.

New: Future Earth Blog launched

Future Earth has just launched a new online presence at http://www.futureearth.info. Intended to be a home for innovative new ideas and essential reading for everyone engaged in global sustainability, this online magazine will be a showcase and discussion forum for the latest ideas and developments in research in this area, both in the projects that form part of Future Earth’s network and beyond.