

Annual Review 2006

BioNET-INTERNATIONAL



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BioNET's mission is to enhance human well-being and biodiversity conservation by building capacity to discover, name and classify the world's living organisms.

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Photo courtesy of BioNET-WAFRINET

BioNET at a glance

BioNET is the leader in establishing and operating partnerships for taxonomy in developing countries. BioNET is a not-for-profit organisation comprising a UK-based Secretariat and ten regional networks world-wide, the “Locally Owned and Operated Partnerships” (LOOPs), endorsed by the respective governments of 115 countries in Africa, Asia, the Caribbean and Latin America, and Oceania.

Taxonomy - The science of discovery, naming and classification of all living things, enabling us to manage the world sustainably, understand our impact upon it, and the effects of our changing environment. It is integral to achieving the Millennium Development Goals and meeting agriculture, trade, health, food security and other needs of countries world-wide.

Taxonomic Impediment - The job of providing names falls on a very few individuals and institutions. Capacity is wholly insufficient to respond appropriately to people who need names to manage biodiversity, support agriculture, promote health and regulate trade. The Impediment is acute in most developing countries.

Director's Feedback



Welcome to this first BioNET Annual Review! Inside you will learn about the people and institutions that make BioNET what it is – the leading and

most comprehensive network for taxonomy world-wide – and you will meet some of the recent beneficiaries of our capacity building and networking activities.

BioNET's success depends on effective mobilisation of partnerships both locally and internationally. This year saw BioNET extended its network of regional partnerships (the so-called LOOPs) to a new region – South Asia – following government endorsements for BioNET-SACNET. In the Pacific Islands, leading institutions scaled up activities by establishing a full-time programme officer for BioNET-PACINET. In Africa, BioNET-EAFRINET reached a milestone with implementation of the preparatory phase of a multi-million dollar project to enhance the capacity of local taxonomic institutions to support biodiversity conservation. Here and elsewhere our Coordinating Institutions demonstrated renewed commitments to the BioNET LOOP roles, using them to mobilise expertise and resources, build capacity and provide taxonomic support to end-users.

Internationally, our Secretariat strengthened the strategic and policy framework for taxonomy through high-level advocacy. We had a leading role in securing new mandates under the Convention on Biological Diversity for taxonomy and sustainable financing. A cooperation agreement was

concluded with the Global Invasive Species Programme. Work was initiated with the Consortium for the Barcode of Life to promote DNA barcoding as a tool for taxonomy and delivering identification services in the developing world. With UK-government support, BioNET and the Natural History Museum, London, initiated a novel taxonomic needs assessment programme with the aim of presenting stakeholders with a basis for prioritising the allocation of resources.

The successes highlighted in this review were made possible by coupling international funding with national and regional financial contributions and the substantial and often in-kind support of our Coordinators and their institutions. International funding was provided principally by the Swiss Agency for Development and Cooperation. The Department for Environment Food and Rural Affairs (UK) funded a new initiative in support of implementation of commitments made at the World Summit on Sustainable Development. CABI (www.cabi.org) provided valuable support as the host organisation of our Secretariat. All contributions are greatly appreciated. I also sincerely thank all who contributed materials for use in this Review.

Taxonomy has vital contributions to make to sustainable development and conservation in our changing world. Together, in partnership, we can make taxonomy accessible to all.

Please read on and enjoy some glimpses of BioNET's world!

A handwritten signature in black ink, appearing to be 'RDS', written in a cursive style.

Implementing the Convention on Biological Diversity

– new mandates
in 2006

BioNET advises the Convention of the Biological Diversity (CBD) on taxonomy and taxonomy related issues through its membership of the Coordination Mechanism of the Global Taxonomy Initiative (GTI CM) of the CBD.

At the eighth meeting of the Conference of the Parties of the CBD in Brazil, March 2006, the CBD secretariat was requested to continue its work with BioNET, which was identified as an actor in the new “planned activities” on mountain biological diversity, invasive alien species and protected areas.

BioNET and the Global Invasive Species Programme (GISP) have developed joint work programmes on invasive alien species (IAS) in 2006. As an outcome of the GTI CM meeting November, BioNET received a leading role in developing targets for GTI support to IAS, agricultural biodiversity and Access and Benefit Sharing.

Photo courtesy of BioNET-NAFRINET



The global importance of pollination

Pollination is an intricate process. There are many different ways in which it occurs and to comprehend how it happens one must understand the biology and floral structure of the plant, the behaviour of the pollinator and their co-evolution. Knowledge about the pollination process is important e.g. to enhance the conservation of biological diversity, to understand the spread of alien invasive species, or to improve agricultural production.

BioNET-EAFRINET and BioNET-SAFRINET joined forces with BIOTA and the African Pollinator Initiative in Nairobi, in October 2006, to present a course on the methodology of studying pollination and how to identify the organisms involved. The three week course with 13 participants was oversubscribed, indicating the fascination in this subject, and it is planned to make it an annual event.

A proposal for a global project on pollination has been developed with support from the GEF and the Food and Agriculture Organization of the United Nations: "Conservation and management of pollinators for sustainable agriculture through an ecosystem approach". It is anticipated that this project will integrate and draw on taxonomic outputs and training.

Locally optimised products and services

Taxonomy – the process of discovery, naming and classification of all living things – is crucial to both biodiversity conservation and today's development challenges. Without taxonomic know-how, how can countries tackle their health, food and environmental needs? How can environment agencies identify and combat harmful invasive species, farmers control agricultural pests, pharmaceutical researchers discover new drugs, medical science identify diseases and developing countries benefit from their biodiversity while allowing scientific research on it?

To meet the development and conservation challenges of the 21st-century, taxonomists and taxonomic institutions such as natural

history museums must have the capacity to develop, use and offer tools and services for a range of specialist and non-specialist users. Diverse demands for taxonomic support include local-language and end-user-focussed taxonomic identification aids, lists of species such as potential invasives and pests, reference collections, as well as accurate and cost-effective identification, surveying and monitoring services. With its highly developed partnership structure and track record working with developing countries, BioNET is uniquely positioned to accelerate the development of taxonomic products and services by mobilising collective responses and customising taxonomic products according to the formats and languages required by end-users world-wide.

Connal Eardley (far right), Regional Coordinator of BioNET-SAFRINET, with the participants of the pollination workshop in Nairobi, October 2006.

Photo courtesy of BioNET-SAFRINET



Tools for biodiversity conservation and use

Taxonomy is crucial to both the preservation of life on earth (biodiversity conservation) and to making biological diversity accessible and useful for humankind (biodiversity use). It provides baseline data necessary for reducing the rate of biodiversity loss to meet the 2010 Biodiversity Target¹. Knowledge of species distributions derived from biological collections, surveys and monitoring allows prediction of climate change impacts, risk assessments and rational planning of protected areas. BioNET-LOOPS delivered many products and services supporting biodiversity conservation and use in 2006. One example is the data base for regional fungal collections including digitised images of specimens developed by BioNET-EASIANET that facilitates fungal conservation, the re-identification of specimens in surveys, and the access to fungal genetic resources.



Focus on foods

Agricultural productivity and the availability of wild foods are strongly connected with the well-being of the world's poorest people. Many taxonomic products developed by BioNET-LOOPS in 2006 were focussed on supporting agricultural productivity, for example the list of plant pests and diseases and the assessment of their economic impact in Benin (BioNET-WAFRINET) or the ongoing project to complete a catalogue of the bees important as pollinators for many food plants in sub-Saharan Africa and the East Indian Ocean Islands (BioNET-SAFRINET and BioNET-EAFRINET).

1: as adopted by Parties to the CBD, endorsed by the World Summit on Sustainable Development and the United Nations General Assembly and incorporated as a target under the Millennium Development Goals.

BioNET training to meet local needs

BioNET builds taxonomic capacity focusing on regional and national programmes for development, biodiversity conservation and sustainable use of natural resources. Many activities are specifically designed to support the implementation of the work programmes of the Convention on Biological Diversity (CBD) and the Sanitary and Phytosanitary (SPS) agreement of the World Trade Organisation.

Trade - facilitating access to world markets

2006 saw BioNET increase its taxonomic training in support of developing country exports - a key factor in poverty reduction. Taxonomic capacity is central to the technical needs of exporting countries as, to comply with the SPS agreement, to be able to certify their exports are free from proscribed pest and pathogen species. Equally, taxonomic identification tools and training are needed for monitoring imports so as to uphold SPS standards and avoid trade disputes. BioNET-LOOPS were involved in many outreach and training events on SPS issues in 2006, especially in Southeast Asia.

Taxonomic training for biodiversity conservation and sustainable agriculture

During 2006, BioNET-LOOPS created many opportunities for students and graduates to obtain taxonomic training through student prizes or scholarships, and many non-specialist training courses (for para-taxonomists, farmers, environmentalists, etc.) were conducted linking taxonomy with biodiversity conservation and/or agricultural productivity. Among these were training in species identification and conservation, in the identification of invasive species threatening biodiversity, workshops on plant pests and diseases damaging local agriculture, demonstrations of pest damage and eco-friendly control, and courses on plant pollinators.

Photo courtesy of BioNET-EAFRINET





Yusof Othman, Assistant Director, Crop Protection & Plant Quarantine Division, Department of Agriculture, Malaysia. Photo courtesy of BioNET-ASEANET

“BioNET is the platform for taxonomists to interact and solve their identification problems. The networking and hands-on training organized by BioNET help us to validate our biological collections and subsequently produce more reliable host-pest lists. This has led to higher agricultural productivity and increased market access in the developed countries.”



Photo courtesy of BioNET-PACINET

Sarlesh Kumar, an employee of the Secretariat of the Pacific Community (SPC) Division of Land Resources, was selected to work on a Taro pest project funded by the Australian Centre for International Research (ACIAR) and coordinated by the Queensland University of Technology. His role in that project was to collect information on all types of pests that affect Taro (e.g. arthropods, fungi, bacteria, nematodes, viruses) and help build a user friendly digital identification key (using Lucid software) for farmers, extension officers and scientists (<http://taropest.sci.qut.edu.au/>). Like most Lucid keys the Taro pest key has lots of targeted photographic images that make sure decision making is made as easy as possible for the end-user. Based on his experience Sarlesh strongly believes that hands on training with computer software and associated programs such as Lucid Keys, crop protection compendium and Global Plant Protection Information System are required within the region. He strongly encourages PACINET to continue providing this type of training.



Nazrana Nisha, participant of the BioNET-PACINET volunteer program on taxonomy and environmental management: “to keep a fish, learn what it eats.” Photo courtesy of BioNET-PACINET.

BioNET-PACINET has recently established a formal volunteer program that primarily aims to raise awareness of the role taxonomy plays in environmental management and provide interested regional people with valuable work experience that contributes to PACINET program goals. Six volunteers have submitted formal applications to the program and are now working on a variety of taxonomically related projects. Projects are individually tailored to fit each volunteer’s available time and personal interests.

The volunteers are eager and enthusiastic for anything that relates to increasing environmental friendliness. Most say it is their interest in supporting conservation that has led them to assist with this program. They also believe that the program is a baseline for those wishing to do further studies, it provides them with an opportunity to learn and improve their research skills, as well as developing better communication with others.



Dr. Hugues Baimey at the extreme right hand with farmers and extension staff before a training session. Photo courtesy of BioNET-WAFRINET.



Know your enemies!

Nematodes are plant pest species which can cause extensive damage to crops and vegetables. The soil borne microscopic worms are sometimes referred to as the hidden enemies of plants by farming communities. They often escape attention by growers and plant protection workers as, in the initial phase, their infection does not result in the sudden death or appearance of conspicuous above ground symptoms on the host plant. Nematode damage symptoms easily can be confused with other plant diseases, which may lead to the wrong choice of pest management option. Thus, farmers may indistinctly spray harmful pesticides which are not effective for nematodes.

In 1999-2000, the first Beninise nematologist, Mr. Hugues Baimey was trained for a MSc at the University of Gent in Belgium. He obtained his PhD at the University of Pretoria, South Africa in 2005 and is now leading the participatory training at farmer field schools (FFS) for national extension staff as well as vegetable farmers. So far, about 80 Beninise farmers have been taught about nematodes and it is expected that they will further train many of their colleagues.

2006 News Ticker - BioNET Products, Services and Training

BioNET-ANDINONET: delivers regional training on invasive species in the Andean countries and their management - **stop** - provides invasive species data base training - **stop** - develops a IABIN toolkit for invasive species - **stop** - **BioNET-ASEANET:** conducts two training workshops on the surveillance and diagnostics of pest fruit flies to enhance regional diagnostic networking - **stop** - organises a workshop on Citrus Greening Disease (Huanglongbing) - **stop** - delivers a practical series of presentations and workshops at the 1st South East Asian Lepidoptera Conservation Symposium aimed at identifying and creating a framework for Lepidoptera conservation in S.E. Asia. - **stop** - **BioNET-CARINET:** provides identification services to its member countries especially for arthropods and fungi - **stop** - identifies invasives occurring in the Caribbean including *Diaphorina citri*, the vector of Citrus greening; *Raoiella indica*, *Batrachedra nuciferae*, and more - **stop** - delivers regional workshops on mites and their natural enemies - **stop** - **BioNET-EAFRINET:** trains para-taxonomists on the role of pollinators for sustainable indigenous crop husbandry - **stop** - provides a three day plants and invertebrate para-taxonomy course for farmers - **stop** - **BioNET-EASIANET:** sets up databases for fun-

gal collections and a specific palm fungi database including digitised fungal specimens - **stop** - holds a workshop on the importance of taxonomy to plant quarantine to build regional capacity in detecting, recognising, identification, and reporting of plant diseases - **stop** - **BioNET-PACINET:** conducts a training workshop on creating digital identification keys for crop management, pest species and biodiversity conservation - **stop** - runs an eight week training course in insect taxonomy - **stop** - **BioNET-SAFRINET:** contributes to the completion of a digitised catalogue with all the bees in the world and 1 million specimens data based - **stop** - co-organises the first regional DNA barcode workshop - **stop** - delivers a three weeks bee taxonomy and pollination biology course - **stop** - **BioNET-WAFRINET:** develops a field guide for easy recognition of major storage pests found within the sub-region - **stop** - undertakes an inventory of the *Culcidae* of the city Lomé in order to better determine disease vectors involved in the transmission of malaria and filariasis - **stop** - provides two informal trainings for farmers and vegetable growers in Porto-Novo to increase the capacity to recognize and appreciate the importance of nematode damage and use eco-friendly alternatives to chemicals - **stop**.

Taxonomy targeting invasive alien species

Identifying the threats, managing the risks

Invasive alien species (IAS) are causing enormous and costly damage to ecosystem structure and function. The risks to ecosystem services and conservation, as well as to agricultural productivity are growing with climate change. Predicting and managing risks from invasive species requires international and cross-sectoral responses and taxonomy plays a key role at every step.

Invasive species have long been a major focus of BioNET's activities. In fact, BioNET has an important and unique role within the landscape of initiatives concerned with IAS management: whereas others focus, for example, on regulatory or informatics standard-setting aspects, BioNET addresses specifically taxonomic research, production and dissemination of identification aids, knowledge transfer and training on invasive species. BioNET thus functions as a vital link between taxonomic expert centres and the "end-users" of taxonomy - institutions in the agricultural and conservation sectors.

The spider mite *Tetranychus evansi* is an invasive alien pest species in Africa that causes damage to tomato fields. Proper identification of the target pest is indispensable for the development of integrated pest management and biological control strategies. Photo courtesy of Fabian Haas, ICIPE.



"Attending the BioNET-ASEANET / GISIN Workshop has enhanced my knowledge on invasive species and inspired me to keep on monitoring them. I will propose a center or office in my country that will deal with the management of invasive agricultural species which is a big help in maintaining the appropriate plant health status and thus very important for market access."



2006

New initiative for regional IAS Coordinators

New Global Taxonomy Initiative (GTI) planned activity on IAS

“Joint Work Programme” on marine, terrestrial and freshwater IAS

Global assessment of taxonomic needs: IAS

“Taxonomy Targeting Invasives” – case studies

“100 of the world’s worst invasive alien species” – booklet

Global activities

Building on its IAS track record, BioNET started an initiative in 2006 inviting its LOOP member institutions to nominate regional IAS Coordinators. These Coordinators will become the first point of contact for partners such as GISP, the International Plant Protection Convention (IPPC), the Nature Conservancy (TNC), and others wishing to engage the taxonomic sector and/or end-users in IAS-related activities.

BioNET is named as one of the contributors implementing the planned activity on invasive species agreed at CBD COP8, March 2006. The GTI Coordination Mechanism made BioNET jointly responsible for developing targets for IAS under the GTI.

As mandated by the CBD, the Global Invasive Species Programme is leading the development of a joint work programme designed to integrate the activities of major international partners in IAS management. BioNET’s Secretariat has contributed to the development of the programme in two workshops, the results of which were used by GISP in 2006 to develop the Joint Work Programme.

BioNET’s Secretariat together with the Natural History Museum (London) is implementing the first global assessment of needs for the CBD-GTI, a UK-supported project.

In collaboration with GISP and the IUCN Invasive Species Specialist Group, BioNET has published a collection of case studies highlighting the economic benefits and wider societal impacts of taxonomy on IAS management.

BioNET facilitated the publication of Spanish and French versions of this booklet containing extracts from the IUCN-SSG Global Invasive Species Database.



Plant identification.
Photo courtesy of BioNET-ANDINONET

BioNET and invasive alien species management

BioNET has strong relations with key players in invasive species management and partners in many regional and international IAS programmes. BioNET and the Global Invasive Species Programme, for example, agreed a Memorandum of Cooperation to help ensure that taxonomy-related activities have an appropriate place in GISP's programme and to strengthen the role of BioNET-LOOPS in supporting such activities. The Memorandum covers a range of activities including the assessment of needs, training in identification, development of verified sources of species names, raising awareness of IAS-taxonomy issues among decision makers and information sharing. BioNET is also represented on the Steering Committee of the Global Invasive Species information network (GISIN) and a member of the Technical Working Group of the Invasives Information Network (IABIN).

“Invasive alien species are more often than not pigeon-holed as an environmental or biodiversity issue, and consequently – especially in developing countries – do not receive due recognition by policy-makers. Yet the reality is that they are a major threat to human livelihoods, especially to agriculture and therefore food security, and are generally undermining human well-being.”

Denis Rangi, GISP Board and CABI; from the GISP brochure on “Invasive Species and Poverty”.

Participants of the IAS workshop during practice with the I3N Cataloger. Photo courtesy of BioNET-ANDINONET.



In March 2006, BioNET-ANDINONET and the Museo del Instituto de Zoología Agrícola of the Universidad Central de Venezuela (MIZA) jointly organized a workshop on Invasive Alien Species (IAS) in Maracay, Venezuela. The goal was to offer the participants a better knowledge of biological invasions and the importance of documenting these events properly. The audience was introduced to the software “I3N Cataloger” as a tool to gather and maintain IAS data.

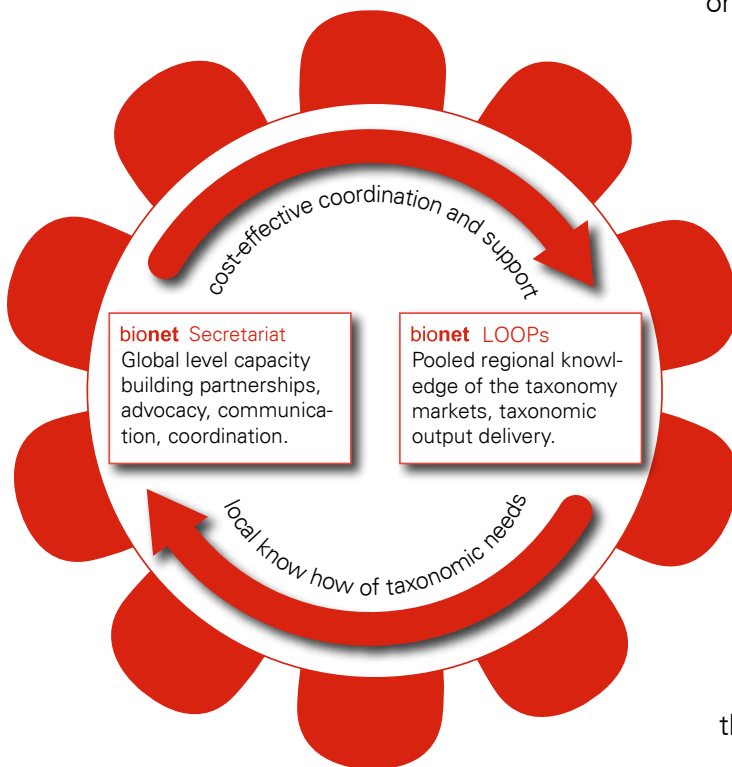
Participants came from Venezuela, Bolivia, Colombia and Perú and represented specialists from governmental agencies, universities, research institutions and NGO’s. This diversity in the background of the participants resulted in a perfect balance between basic and applied research interests. Some of the participants were more interested in the problems of proper taxonomic identifications of the IAS, others expressed interest in prevention and control practices. Both groups acknowledged the importance of proper databasing as the first step in making a working list of IAS to be used and shared between the participating countries. After the workshop an online forum was set up at the AndinoNET web page (<http://www.andinonet.org.ve/foros/>) to continue the open discussion of IAS issues by the participating countries.

BioNETworking - LOOPs to local know how partnerships and communications

Local partnerships on the rise

The BioNET network provides an excellent communication and information platform for everybody interested in learning more about and promoting taxonomy. This includes taxonomists as well as organisations focusing on capacity building, technology or informatics for biodiversity and taxonomy, beneficiaries of taxonomic products and services (such as farmers, conservation practitioners, customs agencies, traders in natural products), the environmental policy sector and the public interested in the application of taxonomy.

LOOPs – “Locally Owned and Operated Partnerships” – are BioNET’s unique capacity building and product delivery mechanisms, mobilising taxonomic responses to conservation and development challenges. They provide BioNET and its international partners with in-depth local knowledge and direct insights into local priorities and the institutional opportunities for delivering taxonomic products and capacity. They are a unique implementing mechanism for Multilateral Environmental Agreements: mobilising the taxonomic sector in response to policy priorities. LOOP membership is open to any institution involved in scientific or applied aspects of taxonomy.



The BioNET network with its UK-based Secretariat and now ten LOOPs facilitates the exchange of taxonomic news, information and know how, first, through connecting over 2,500 experts and practitioners in taxonomy, capacity building, environment and policy; second, through meetings, conferences, workshops, trainings, talks etc.; and third, by disseminating promotional material - brochures, mailings and especially electronic bulletins and communication to the “friends of BioNET” and others who joined the network.

The BioNET strategy: LOOPs are BioNET’s unique capacity building and product delivery mechanisms. Local know-how is complemented by the Secretariat’s in-depth knowledge of international taxonomic priorities and its strategic partnerships with leading international technology and capacity building organisations.



Photo courtesy of BioNET-SAFRINET



Connal Eardley, Regional Coordinator of BioNET-SAFRINET, Agricultural Research Council, Plant Protection Research Institute (ARC-PPRI), Pretoria, South Africa. Photo courtesy of BioNET-SAFRINET.

“Working through BioNET-SAFRINET I was able to collaborate with EAFRINET and WAFRINET to create a truly functional, pan-African, African Pollinator Initiative (API) in which taxonomy is rightfully recognised as being a kingpin in biodiversity conservation and agriculture.”



Mini-Profile

Coordinating Institute:

CABI

Regional Coordinators:

Lum Keng Yeang



CABI not only provides the UK headquarters of the BioNET-Secretariat; its regional offices in Selangor, Malaysia also are the network coordination institute of BioNET-ASEANET.

CABI’s mission is to improve people’s lives worldwide by providing information and applying scientific expertise to solve problems in agriculture and the environment. It is a not for profit, intergovernmental organization specialising in scientific publishing, research and communication. It brings together a group of highly qualified scientists and publishers working in about 70 countries on local, national and global projects dedicated to



Soetikno Sastroutomo,
Technical Secretary ASEANET

tackling some of the world’s most challenging problems in agricultural sustainability and biological diversity.

Mini-Profile

Coordinating Institute:

University of South Pacific, Suva, Fiji

Regional Coordinator:

Gilianne Brodie



The University of South Pacific (USP) is the

home to the Regional Coordinating Institute of BioNET-PACINET. USP is the premier provider of tertiary education in the Pacific region, as well as an international centre of excellence for teaching, research and consulting on all aspects of Pacific life. It is the only university of its type in the world, being jointly owned by the governments of twelve island countries: Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Samoa, with Campuses in all the twelve member countries. The main campus, Laucala, is located in Suva on Fiji, also housing the regional offices of PACINET.

BioNET-PACINET currently has a full-time Regional Coordinator, Gilianne Brodie, who is an official staff member of the SPC Division of Land Resources (Nabua) but located, hosted and supported by the Institute of Applied Sciences, USP in Suva, Fiji. This position is jointly funded by USP,

the Secretariat for the Pacific Community (SPC), and the Pacific Regional Environment Programme (SPREP).



Gilianne Brodie

“The BioNET Secretariat has been an invaluable support to me in my role as development officer of BioNET-PACINET. They assist no matter what my query, concern or need is - they are always there listening and encouraging when I need them.”

Gilianne Brodie, Regional Coordinator of BioNET-PACINET, University of South Pacific (USP), Suva, Fiji.



Sharon Agovau, laboratory assistant and curator in the Papua New Guinea national insect collection, National Agricultural Research Institute (NARI), Entomology Department, Port Moresby, PNG.

“I think having a full-time program coordinator for BioNET-PACINET is really helpful to us. ... we, the Pacific Island countries, have a lot of biodiversity which needs to be explored and exposed to the world. Now that we have a link like BioNET-PACINET this can help us share a lot of information.”



Photo courtesy of BioNET-ANDINONET

Mini-Profile

Coordinating Institute:

Museo del Instituto de Zoología Agrícola (MIZA), Maracay, Venezuela

Regional Coordinator:

José Clavijo



MIZA is the Regional Coordinating Institute of BioNET-

ANDINONET and, like other Natural History Museums, often goes beyond its institutional functions and reaches society as a whole in an attempt to contribute to preserve the biological heritage of Tropical America. It offers depositories for specimens, develops information products with particular interest in wildlife, agricultural pests, and vectors of human diseases, is a source for scientific research on evolution, taxonomy, and ecology in tropical zoology, a place of formal education in zoology, a National Reference Center for arthropod identification and serves as an interactive space for knowledge transfer on neo-tropical pests. It is nationally and internationally recognised as a



José Clavijo

center of excellence in biodiversity research and conservation.

Mini-Profiles

Coordinating Institute:

International Institute of Tropical Agriculture (IITA), Cotonou, Benin

Regional Coordinator:

Braima James



IITA is an Africa-based international research-for-development organization, established in 1967.

Its Benin station delivers insect identification services across West Africa and is the Regional Coordinating Institute of BioNET-WAFRINET. Its vision is to be one of Africa's leading research partners in finding solutions for hunger and poverty. A network of more than 100 scientists, based in various IITA stations across Africa, is dedicated to the development of technologies that reduce producer and consumer risk, increase local production, and generate wealth. IITA is supported primarily by the Consultative Group for International Agricultural Research.

Coordinating Institute:

National Museum of Kenya (NMK), Nairobi, Kenya

Regional Coordinator:

Wanja Kinuthia



The National Museums of Kenya is a governmental body maintaining museums and monuments

in Kenya. It is famous for its contribution to the study of early humankind. Since its early days beginning of the last century, the NMK has grown both in terms of its physical size and structure. The NMK now has more than twenty departments some of which are widely renowned research centres. Among these is the Department of Invertebrate Zoology, a premiere National resources centre for issues relating to ecology and other biological studies, and the Regional Coordinating Institute of BioNET-EAFRINET.

Photo courtesy of BioNET-SAFRINET



Hebert Talwana
Lecturer/Plant Nematologist
Department of Crop Science
Faculty of Agriculture,
Makerere University,
Uganda

"From the networking, I have received a number of publications, which are not necessarily in my personal area of interest (Plant Nematology) but have helped me provide a wider scope in my teaching other courses in Entomology (Pest Ecology, Pest Surveillance, Pest Management, etc). "



Welcome to BioNET-SACNET

In May 2006, the Government of Bangladesh (Ministry of Environment and Forests) joined Sri Lanka in endorsing The Proposal to Establish BioNET-SACNET, coordinated regionally by the IUCN Asia. Mr. Jafar Ahmed Chowdhury, Secretary and Focal Point to the Convention on Biological Diversity was appointed as National Coordinator for Bangladesh, and the Biodiversity Research Group of Bangladesh was appointed as the National Coordinating Institute. In December, the Government of Nepal (Ministry of Forestry and Soil Conservation) also formally endorsed the establishment of BioNET-SACNET, which is now formally operational as a Technical Cooperation Network under UNDP guidelines. BioNET warmly welcomes Bangladesh and Nepal to The Global Network for Taxonomy and believes that the regional joining of efforts and activities will enhance the capacity to meet priority taxonomic needs in South Asia.



Mini-Profile

Coordinating Institute:

Agricultural Research Council, Plant Protection Research Institute (ARC-PPRI), Pretoria, South Africa

Regional Coordinator:

Connal Eardley

The ARC-Plant Protection Research Institute is mandated to serve as BioNET-SAFRINET's Regional Coordinating Institute by the Southern African Development Community's Directorate for Food, Agriculture and Natural Resources. The institution provides solutions to agricultural and environmental problems through research aimed at the promotion of economic and environmentally-acceptable procedures to manage pests, diseases and invasive plants. To this end ARC-PPRI maintains centres of expertise on taxonomy, the ecology and epidemiology of invertebrate pests, fungi, useful and phytopathogenic bacteria, plant viruses as well as integrat-



Connal Eardley

ed control strategies for pests, diseases and invasive plant species.

“BioNET news and resources help us to keep up to date with the latest developments in taxonomy.”

Yusof Othman, Assistant Director, Crop Protection & Plant Quarantine Division, Department of Agriculture, Malaysia.



2006 - BioNETworking

The BioNET websites – the Secretariat’s and those of the individual regional partnerships (LOOPs) – serve as a popular tool for sharing news and information, offering LOOP profiles, taxonomy case studies, resource centre, events calendar, job, training and grant opportunities, and more. BioNET’s website (www.bionet-intl.org) maintained its top ten search engine ranking in 2006.

Two new BioNET LOOP websites go live in 2006 -



www.iita.org/wafrinethome



www.pbif.org/pacinet/default.html

The **bionet**® bulletin is published by **BioNET-INTERNATIONAL**'s Secretariat. It is available in English, Spanish and French and online @ www.bionet-intl.org.

BioNET is a not-for-profit initiative that promotes taxonomy via capacity building, advocacy and its affiliated local partnerships (LOOPs) so that all countries can know and identify their biodiversity and thereby address sustainable development and conservation priorities

The **BioNET bulletin** is a monthly electronic newsletter presently distributed in English, French and Spanish to over 150 countries. It features new developments in the taxonomy and biodiversity, agriculture and health landscape, and lists upcoming events, recent publications, grant opportunities and vacancies.

"The bulletins are a wonderful source of up to date information. I am teaching a course on insect taxonomy and I use the series "why taxonomy matters" as motivators to my student to take taxonomy as a discipline not only a course to get a degree."

Hebert Talwana Lecturer/Plant Nematologist Department of Crop Science Faculty of Agriculture, Makerere University, Uganda.

Feed back from the LOOPs

"Thank you for the good informative work you are doing." - Patience Rwamigisa, Department of Crop Science, Makerere University, Uganda.

"I work at the U.S. Geological Survey in Reston, VA, with Gladys Cotter, USGS Associate Chief Biologist for Information. Gladys has suggested I start receiving your wonderful publication, "Bionet Bulletin." Please add me to your distribution list." - Ron Sepic, USGS Biological Informatics Office, USA.

"I would like to say how much we appreciate the work that is done for the advance of science through receiving the monthly BioNET bulletin to inform us of what is going on. I will let you have some additional names of colleagues soon. " Pierre Hilaire Ngameni, Yaoundé, Cameroon.

"Thank you very much for providing valuable information through the BioNet-Bulletin." Tomas Muacanhia, Director of the Marine Biological Research Station, Universidade Eduardo Mondlane (EBMI/UEM), Maputo, Mozambique.

"The BioNET news and bulletin also facilitate us in keeping abreast with the latest development in taxonomy especially on new species, global distribution and economic importance." Yusof Othman, Assistant Director Crop Protection & Plant Quarantine Division, Department of Agriculture, Malaysia.

Joining forces

BioNET's technology partnerships

A major part of BioNET's work involves engaging developing country partners with developers of digital and molecular technologies and tools that enhance taxonomic product delivery. BioNET offers various services to its partners. Developing country institutions benefit from a tried and tested, internationally recognised communication and coordination platform for taxonomy, as well as from the Secretariat's technical support and guidance in management and operation of regional networks. BioNET's technology partners gain from the regional network and services, too, being able to identify needs and stakeholders locally and develop and disseminate their new technologies and products.

Among the key global players in the biodiversity and taxonomy landscape, BioNET has found a unique niche, being the only internationally active organisation with a central focus on people and institutions. Its main area of excellence is to understand the needs of the taxonomic markets (via LOOPs and policy fora), incorporate this knowledge into its capacity building operations and ultimately produce products that meet market needs. Joining forces with technology partners adds to the impact of our work and greatly furthers the achievement of our common goals.



Photo courtesy of BioNET-SAFRINET.

Technologies for species identifications molecules pave the way

Molecular studies and tools such as DNA-sequencing and chip technologies are transforming the practice of taxonomy, adding a rich new source of data for taxonomic work and services. Particularly fast developing is the so-called DNA-barcoding approach where a short DNA-fragment (usually from the mitochondrial COI gene) is used as a marker to distinguish species. The prerequisite for this are comprehensive DNA data bases representing the taxonomic group(s) under study, against which the sampled individuals can be compared. Efforts to create DNA barcode data bases for various organisms have increased hugely in the last few years, culminating in the establishment of the Consortium for the Barcode of Life (CBOL), which promotes DNA barcoding as a global standard in taxonomy.

BioNET has been identified as the “lead partner” for CBOL in outreach and promotion of DNA barcoding in the developing world that has least access to expert taxonomic knowledge and resources, yet the highest amount of genetic diversity. Together with its LOOPs and technology partners, BioNET is establishing prioritised, demand-driven barcoding projects, with careful consideration of the local technological, human resource, and biological collection needs.

Regional DNA barcoding workshops

In 2006, BioNET partnered with CBOL and others to organise the first two regional workshops in Africa to build awareness of DNA barcoding, discuss its potential applications and examine the practical steps needed to initiate barcoding activities in the region. The meetings in Kenya and in South Africa have already generated several outputs, such as the design of a pan-African initiative (SIBI) to barcode scale insects (that are major agricultural pests in the region and worldwide) and the development of a Southern African partnership to develop and apply DNA barcoding to agriculture and quarantine problems.



Counting (on) digits

Making knowledge available world-wide

Taxonomic data has been collected and stored in diverse forms, formats and locations, which is a serious obstacle to our ability to correlate and synthesize the information. Digital imaging of biological collections and scanning of literature held in expert centres have the potential to put over 250 years of taxonomic work within reach of taxonomists world-wide. The World Wide Web allows data to be easily accessed and effectively used. With appropriate database and communications platforms, species can be identified without actual movement of specimens, offering the prospect of democratising and enhancing both the practice of taxonomy and the delivery of its products and services.



BioNET's activities complement the objectives of its informatics partners. The Global Biodiversity Information Facility (GBIF), for example, aims to enhance the informatics infrastructure facilitating digitisation and global dissemination of primary biodiversity data, while BioNET focuses on the human resources and collections that underpin the practice of taxonomy and hence the data served by GBIF. In 2006, BioNET-EASIANET set up a GBIF fungal data base and BioNET-SAFRINET contributed a complete digitised catalogue for the bees of sub-Saharan Africa and the East Indian Ocean Islands to support the GBIF goal of having a catalogue with all bees in the world ready by March 2007.

BioNET-PACINET has a strong partnership with the Centre for Biological Information Technology at University of Queensland (CBIT) to disseminate and train users in their Lucid software for digital key development, and BioNET-ANDINONET contributes to the Inter-American Biodiversity Information Network (IABIN) particularly with activities related to I3N (IABIN Invasives Information Network) tools and their use.



Photos courtesy of BioNET-ANDINONET, SAFRINET, and MESOAMERINET.



David Boseto, South Pacific Regional Herbarium, Institute of Applied Sciences, University of the South Pacific, Suva, Fiji.
Photo courtesy of BioNET-PACINET.

"I am currently part of a team writing a book on the freshwater fish of Fiji. I'll use my knowledge that I learnt from the LUCID key development workshop that PACINET ran in February 2006 to incorporate it into the project, as we can include a Lucid Identification Key on CD attached to the book. This is important for Fiji and the region because we can share information, either on-line (through the internet) or on a CD."



BioNET

governance, funding and finances

Governance

The BioNET Secretariat reports to the BioNET Fund Supervisory Board. Finances are administered by CABI as a notional "BioNET Fund", managed by the Director of BioNET's Secretariat at the discretion of the BioNET Board. Board membership includes leading personnel from the CBD Secretariat, the Natural History Museum (London), the Swiss Agency for Development and Cooperation (SDC) and CABI. Further strategic guidance is provided by an informal Advisory Group including LOOP and GBIF representatives.

BioNET LOOPS are governed by Coordinating Committees comprised of locally appointed National and Regional Coordinators and invited strategic partners.



The orchid *Ophris ciliata*. Photo courtesy of BioNET-NAFRINET.

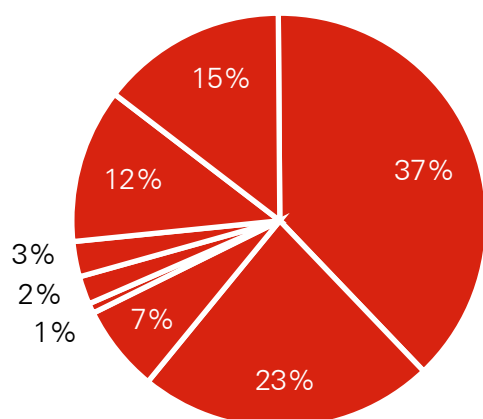
Funding and resource mobilisation

In 2006, the BioNET Secretariat was funded mainly by SDC who contributed GBP 137,000 for core activities and an additional GBP 22,100 for BioNET projects. Additional project income of GBP 22,500 was provided by DEFRA (UK).

BioNET LOOP funding is provided by a diversity of financial contributors. Importantly, 2006 saw again a great amount of in-kind support for time and facilities from the regional and national coordinating institutes, demonstrating the high local commitment to BioNET goals.

BioNET's role has grown among international organisations and demands on its centrally-managed services have evolved and are increasing. An Advisory Group meeting was convened in February 2006 to scope BioNET's new Global Programme 2007 - 2011 and define how to communicate and mobilise resources for the Secretariat. BioNET's work is fundamental to humankind everywhere and sustainable funding should therefore be based on a mix of public or private institutional sources. While developing nations are providing resources and institutional commitments for the regional partnerships, the costs of the Global Programme should rightly be borne by the developed nations. Our work at the global level has been supported since 1996 by the Swiss Agency for Development and Cooperation, with additional support from various bilateral and multilateral sources. BioNET is now seeking matching funding from new partners willing to help realise the ambitious yet realistic objectives of its 2007 - 2011 Programme.

Financial statements



EXPENDITURES

Secretariat (71%)		
staff costs ¹	£ 70.900,00	37%
production ²	£ 43.200,00	23%
travel ³	£ 12.200,00	7%
communication ⁴	£ 1.830,00	1%
office administration ⁵	£ 4.300,00	2%
LOOP catalytic funding⁶	£ 5.230,00	3%
Project funding (27%)		
SDC ⁷	£ 22.092,00	12%
DEFRA (UK) ⁸	£ 27.719,00	15%
Total	£ 187.471,00	

SUPPORT AND REVENUE

Secretariat core funding by SDC⁹	£ 136.968,00	72%
Project funding		
SDC ⁷	£ 22.092,00	12%
DEFRA (UK) ⁸	£ 22.500,00	12%
Interest on BioNET Fund	£ 7.552,08	4%
Total	£ 189.112,08	

* the statements give an overview on the non-audited breakdown of year-end budget for the BioNET Secretariat; they do not include the individual finances of the BioNET LOOPS; audited financial statements of the movement and position of the BioNET Fund (all income and expenditure including projects) may be obtained by writing to BioNET at the address on the back cover.

- (1) Director, Office Manager
- (2) promotional materials, webpage programming and maintenance, conference charges, hospitality and event sponsorship, consultants, advisory group, office materials, books, journals & membership
- (3) UK and international
- (4) telephone, fax, internet, email, web hosting; postage and couriers
- (5) staff training, equipment, insurance, bank charges, miscellaneous
- (6) for BioNET-WAFRINET and BioNET-EAFRINET
- (7) for DNA barcoding regional workshops in South Africa and East-Africa
- (8) for two projects on taxonomic needs assessments: the Ghana assessment on taxonomic needs and the global assessment focusing on invasive species
- (9) second installment of the 2004-7 agreement

A Special Fund

In May 2006, Parties to the Convention on Biological Diversity (CBD) invited BioNET to lead the establishment of a Special Fund for taxonomy. BioNET's role in establishing a fund was proposed by Ghana and enthusiastically supported by more than 20 Parties before being adopted by the Eighth Conference of the Parties to the CBD.

In accepting this challenge, BioNET recognises the need to respond to the CBD with a new and novel initiative to mobilise and focus new financial resources on addressing the taxonomic impediment to implementation of the CBD and other Multilateral Environmental Agreements. The strategy being followed is to establish a trust fund to be managed by a public-private partnership – a voluntary, multi-stakeholder initiative aimed at implementing sustainable development, as initiated by the World Summit on Sustainable Development in 2002.

A steering committee was formed that set to work on drafting (a) a fundraising plan and options; (b) options for governance and (c) a paper describing the concept for the fund, its scope and objectives. The concept, fundraising and governance of the proposed fund was debated at the meeting of the Coordination Mechanism of the GTI in November.

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Photo courtesy of BioNET-ANDINONET



See LOOP profiles on www.bionet-intl.org

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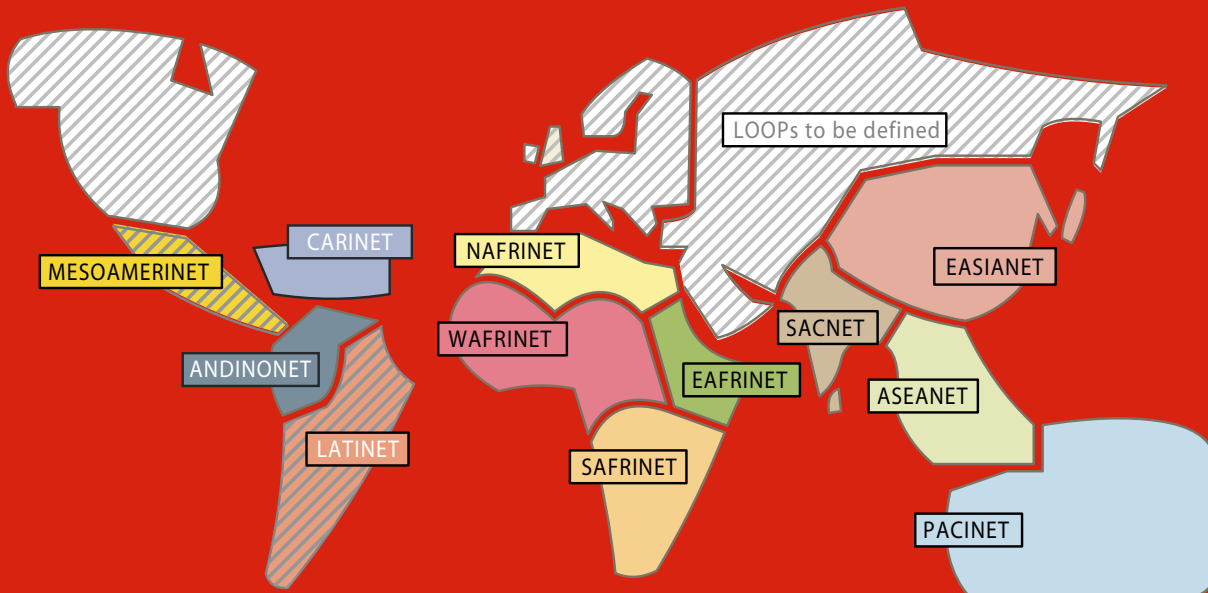
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The BioNET regional technical cooperation networks - LOOPs (Locally Owned and Operated Partnerships). Hatched areas indicate LOOPs to be defined / being in the process of establishment.

Photo courtesy of BioNET-SAFRINET

Who is BioNET?

BioNET was founded in 1993 and, today, is the only international not-for-profit organisation dedicated to promoting taxonomy through capacity building and partnerships.

The organisation comprises a UK-based Secretariat linking regional, government-endorsed partnerships - the "Locally Owned and Operated Partnerships" (LOOPs) - with international technology, informatics and capacity building partners.

Ten LOOPs have been established to date, bringing together institutions from 115 countries in Africa, Asia and Oceania, the Caribbean and Latin America.

The LOOPs are BioNET's unique taxonomic product and capacity delivery mechanism. They deliver taxonomic tools and services needed in many fields of human interest: biodiversity conservation, sustainable use and benefit sharing, agricultural productivity, poverty reduction and food security, international trade, health, basic science, and more.

BioNET's driving force is the timely and accurate provision of species identifications where they are most needed - helping people everywhere name of the elements of their living world.



Why is BioNET needed?

With few exceptions, taxonomic institutions are in critical decline worldwide. Expertise is fragmenting, the number and range of specialists decreasing. The need for taxonomy to contribute to biodiversity management and socio-economic development is greatest in the less developed countries. The capacity of the taxonomic sector to respond to such needs, on the other hand, is very limited in most developing nations, preventing the implementation of key elements of the CBD and other Multilateral Environmental Agreements. This is why BioNET focuses its activities particularly in these regions.

Get involved - join BioNET's World!

contact: bionet@bionet-intl.org

Become a Friend!

We will keep you in touch with new developments and events in taxonomy and its application to biodiversity conservation and development through the monthly BioNET e-Bulletin.



Photo courtesy of BioNET-NAFRINET

Become a Member!

If you are interested in contributing to capacity building or have taxonomic product and service needs, we will register you with the BioNET network (LOOP) in your region.



Become a Supporter!

Help sustain and expand our work - contribute to our unique partnership as a funding or technical supporter.



bionet  the global network for taxonomy

BioNET-INTERNATIONAL

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