

New butterfly species discovered in Nigeria

IITA Forest Project instrumental in discovery of new butterfly species

Sáfián Szabolcs, a leading authority on West African butterflies from the Institute of Silviculture and Forest Protection, University of West Hungary, and an IITA collaborator, has discovered a new species of butterfly in Cross River, southeast Nigeria.

The new species was named *Neurellipes rhoko* after the Rhoko River conservation area in the Cross River Loop where it was first discovered during an exploratory trip by Szabolcs and his supervisor, Deni Bown, Manager of the IITA Forest Project, to the Rhoko Forest Reserve.

The conservation area is maintained by the Centre for Education, Research and Conservation of Primates and Nature (CERCOPAN). The aim of the trip was to compare the richness and abundance of flora and butterflies in the Rhoko Reserve and the IITA Forest. Specimens of *N. rhoko* were caught and compared with species in the same genus at the IITA Forest and with specimens at the African Butterfly Research Institute, Nairobi. Differences in appearance, coloring, behavior, and genitalia confirmed the status of *N. rhoko* as a new species.



The newly discovered butterfly species.

The newly discovered species belongs to the forest dwelling *Neurellipes mahota* group in which scientists had long recognized three species: *N. georgiadisi*, *N. gola*, and *N. mahota*. These are separated by bio-geographical gaps and subtle differences in appearance and structure. But despite extensive scientific studies of butterflies in West Africa, the

newly discovered species had remained unknown until now.

Details of the discovery, published in the September 2014 edition of *Zootaxa*—the foremost journal in zoological taxonomy—conclusively validates the discovery, providing in the process, new and exciting knowledge on entomology in general and the scientific study of butterflies in particular.

Butterflies are indicators of a healthy environment and ecosystems and part of the natural heritage. They have been studied for centuries to investigate many areas of biological research, including such diverse fields as navigation, pest control, evolution, genetics, population dynamics, and biodiversity conservation. The IITA Forest Reserve is one of the few surviving secondary forests in southwest Nigeria and is the best protected, with more than 230 different butterfly species. It has been at the forefront of butterfly research in Nigeria, partnering with academics in facilitating ground-breaking research such as this.

Ms Bown said, “The IITA Forest Project is proud to have contributed to the career of such a talented young scientist.”

Research on bacterial-wilt resistant banana in East Africa featured in *Nature Biotechnology*

IITA’s work on developing transgenic banana that is resistant to *Xanthomonas* wilt was featured in the journal *Nature Biotechnology*. The paper presents the latest results of field trials conducted in East Africa on using transgenes obtained from sweet pepper to control the deadly *Xanthomonas* wilt.

The results provide the first field-based evidence for transgenic control of a bacterial disease in banana. Read more at <http://www.nature.com/nbt/journal/v32/n9/full/nbt.3007.html>.



Director’s day out

Dr Robert Asiedu, Director, Western Africa Hub, recently visited the virus-free yam production site in Ibadan. He expressed appreciation on the Virology Team’s efforts to generate virus-free stocks of popular yam varieties under the YIIFSWA project. “Now farmers can grow clean yam, which presents opportunities to address some of the outstanding questions on host-virus interactions and impact on tuber yield,” he said.



Got a story to share? Please email it with photos and captions to Andrea Gros (a.gros@cgiar.org), Katherine Lopez (k.lopez@cgiar.org), Jeffrey T. Oliver (j.oliver@cgiar.org), Catherine Njuguna (c.njuguna@cgiar.org), or Adaobi Umeokoro (a.umeokoro@cgiar.org).

Farmers in Ghana become more aware of aflatoxin menace



Participants intently listening to a presentation during the awareness workshop.

IITA, Kwame Nkrumah University of Science and Technology (KNUST), and the Ministry of Food and Agriculture (MOFA) have organized awareness, information, and training workshops for stakeholders as part of efforts to minimize aflatoxin contamination. A suite of management practices was used including aflasafe™, a novel biocontrol technology for reducing aflatoxin contamination in crops. The workshops were held in three cities in Northern Ghana: Tamale (1 August), Bolgatanga (4 August), and Wa (6 August).

Maize and groundnut farmers, agricultural extension agents (AEAs),

and MOFA District Directors of Agriculture were present at the workshops. The aim was to raise awareness about contamination in maize and groundnut, collaborate with MOFA at the district level in the implementation of biocontrol activities, and train AEAs and farmers on the mode of applying aflasafe™.

Maize and groundnut are the most important crops in the region, and are also the most susceptible to aflatoxin contamination. “Data from surveillance studies from 1964 to 2013 show that this contamination in maize and groundnut is a perennial problem, affecting both health and trade in Ghana,” said Daniel

Agbetiameh, a PhD student conducting research in Ghana.

Over the years, farmers in Northern Ghana have used indigenous knowledge to describe and note the conditions promoting mold growth—*Yuwa* or *Nangom*—on these two crops. They, however, had limited knowledge or awareness about these molds as expressions of aflatoxin contamination. Mrs Hawa Musah, Director for the Tolon District Agricultural Development Unit, lamented that this could have been the cause of the prevalence of food poisoning and liver complications among the people in some parts of Northern and Upper East regions.

Dr Joseph Atehnkeng, IITA’s West Africa Coordinator for the aflasafe™ project, said that insect control and the application of aflasafe™ had been proven to combat contamination at the preharvest stages. “At postharvest we promote practices such as timely harvest, rapid drying of produce, sorting before processing, maintenance of good storage structures and environment, insect control during storage, and maintenance of good hygiene and sanitation,” Dr Atehnkeng said.

Participants were actively involved in the discussions and questions. Feedback obtained during an open forum indicated that participants’ knowledge had been significantly improved. Awareness materials were also distributed, including flyers on aflasafe™ and instructions on how to use it, a factsheet on aflatoxin, and mycotoxin research at IITA.

Funds from *Africa Research in Sustainable Intensification for the Next Generation* (Africa RISING) and Meridian Institute supported these events.

Partner selected for Borlaug LEAP

Ms Anagbogu Chinyere Florence has been selected as a fellow for the prestigious Norman E. Borlaug Leadership Enhancement in Agriculture Program (Borlaug LEAP) of the US Government’s Feed the Future Borlaug 21st Century Leadership Initiative.

Chinyere was a visiting research (master’s) student in the IITA Bioscience Center and worked with former IITA Molecular Geneticist Dr Bi Irie Vroh on DNA extraction, genotyping and characterization of *Musa* spp. Gene sequences generated from the work are registered in the Genebank database (www.nih.ncbi.org) under registration numbers ET165586 to ET165601. She



works at the Cocoa Research Institute of Nigeria (CRIN) on evaluating coffee (*Coffea canephora*) genotypes from Nigeria for quality traits to generate breeding lines for the crop’s improvement.

She has been at the University of California, Davis (UC-Davis), since the beginning of September where she will undertake extensive research on “Exploring the chemical diversity of *Coffea canephora* from Nigeria using genomic and metabolomic tools for quality improvement”.

Dr Ranjana Bhattacharjee, Molecular Geneticist (IITA) and Dr Diane Beckles, Associate Professor/Plant Biologist (UC-Davis), will be her mentors.

IITA and CIRAD to strengthen collaboration in Central Africa



IITA and research partners/collaborators meeting in Cameroon.

IITA-Cameroon hosted high-level delegates from *Centre de Coopération Internationale en Recherche Agronomique pour le Développement*–Agricultural Research Centre for International Development (CIRAD)–on 26 August to exchange information on strategies and programs. This was part of efforts to strengthen the relationship between the two institutions and their common partners in Cameroon and the rest of Central Africa.

The delegates included CIRAD Directors of the Departments of Performance of Tropical Production and Transformation Systems (François Cote), Society and Environment (Alain Billand), and Biological Systems (Daniel Barthelemy); Patrick Jagoret, Deputy Director *Unité Mixte de Recherche* (UMR) System Functioning and Management of Tropical and Mediterranean Crops, Christian Cilas, Director of UMR Pests and Diseases, Sylvie Lewicki-Dhainaut, Deputy Director UMR Plant Genetic Improvement and Adaptation, and Pierre Couteron, Director of Vegetation Ecology Unit in UMR *Botanique et Bioinformatique de l'Architecture des Plantes* (AMAP). They were accompanied by CIRAD's Regional Representative for Central Africa, Patrice de Vernou, and CIRAD's Resident Scientist, Martijn ten Hoopen. Martin Yeboah, Liaison Officer for the World Vegetable Center (AVRDC), and the

Deputy Director General of Cameroon's *Institut de Recherche Agricole pour le Développement* (IRAD) were also present at the meeting.

Dr Rachid Hanna, IITA-Cameroon Country Representative, and Mr Boubakari Simila, IITA-Cameroon Administrator, received the delegates.

In his welcome, Dr Hanna noted that the two institutions had complementarity in agricultural research and the advancement of sustainable technologies aimed at making farming more productive and more profitable for African farmers.

He presented an overview of IITA and its hub approach with emphasis on the Central Africa Hub and its strategy, followed by a presentation of ongoing programs at IITA-Cameroon in the areas of genetic improvement, integrated pest management, natural resources management, risk assessment, and adaptations in relation to climate change, and social and gender studies. He also gave an overview of the CGIAR Research Program on Humidtropics with reference to the ongoing establishment of the Cameroon action site.

In response, Dr Billand said that plans were in progress for the placement of a CIRAD Innovation Systems Scientist at IITA-Cameroon in the framework of the Humidtropics program and its Cameroon Action Site.

There was also quite a bit of discussion on the rejuvenated IITA cocoa program in Cameroon through the SNV/IITA Cocoa-Eco project in which two IRAD-based CIRAD scientists are involved—for the establishment of a cocoa seed production field using selected hybrids developed by IRAD and CIRAD and in the development of biopesticides for cocoa mirids through a PhD student seconded from IRAD.

Dr de Vernou also announced that the CGIAR Research Program on Roots, Tubers and Banana (RTB) complementary grant would place a CIRAD-affiliated member of staff from 1 October—for at least one year—to assist the joint CIRAD-CIAT-IITA collaboration in evaluating consumers' preferences for various cassava products with an emphasis on yellow cassava. Several varieties were being tested in Cameroon along with a dozen white varieties for the quality of their derived products under various environments. This is part of the World Bank project on cassava development in which IITA-Cameroon is heavily involved.

In a follow-up meeting with Dr Hanna, Dr Jagoret, Deputy Director of UMR Systems, provided detailed information on CIRAD's past and present research on the analysis of cocoa agroforestry systems in Cameroon and the possibility of placing a CIRAD Systems Agronomist and sharing PhD students.

The visitors were also taken on a guided tour of the four main laboratories at the station—Plant Protection and Climate Change and Risk Analysis and Adaptations, Soils and Plant Analysis, Molecular Biology, and Tissue Culture. These facilities and the functioning and organization of IITA-Cameroon clearly left a very good impression on the visitors. This together with the earlier discussions and the imminent placement of CIRAD staff in Cameroon highlights a new phase of collaboration that will considerably strengthen the relationship between IITA and CIRAD in Cameroon and the rest of Central Africa.

IITA bibliography gets a boost

IITA's repository of knowledge on research outputs is steadily increasing with the regular addition of new publications from scientists. To date, there are 8,321 publications in the IITA knowledge bank. The Knowledge Center now provides updates on journal citations, which reported recent figures on impact factors for 2013.

Elsie Ezomo, Knowledge Center Manager, said that the IITA bibliography, as a storehouse for research findings, preserves the body of knowledge within the Institute and also acts as a reflection of research outputs. "We have the mandate to collect published research papers from our scientists and maintain them in a database

for easy retrieval and reference. The repository also shows the strength of our science and the impact of our research among peers," she said.

Oloyede Olusoji, Subject Librarian, enjoined scientists to provide the Knowledge Center with copies of their published work, regularly and promptly.

IITA-Ondo State partnership gets a boost in project flag-off

Last Monday, a flag-off ceremony on cassava planting was held in Ore, one of the four agro business cities (ABC) in Ondo State. This activity is part of the IITA-Ondo State project that includes the transformation and development of 1,000 hectares of land in Ore City to productive agriculture, and a 13-hectare demonstration farm for cassava, plantain, cowpea, soybean, yam, and maize.

Ondo State Governor Olusegun Mimiko graced the launch, along with local village leaders and partners including IITA. IITA was represented by Dr Kenton Dashiell, Deputy Director General for Partnerships and Capacity Development.

During the program, the chair of Wealth Creation Agency (WECA)—the Ondo State entity for empowerment, Barrister Bolanle Olafunmiloye, said “We want to create a new generation of youth entrepreneurs who can compete in the agriculture sector. The Ore ABC provides an agriculture training and agribusiness incubation center that allows youth and professional farmers (“profarmers”) to learn and practice agriculture through the entire value chain of production, processing, packaging, and marketing, including export.”

Since the project started in May, 280 youths from different disciplines have participated in the activity, 120 of them in Ore ABC, with 100 women representing different cooperative groups involved as well.

In his goodwill remarks, Dr Dashiell told the audience of more than 200 professional farmers, youth “agripreneurs”, “profarmers”, partners, media, community representatives, and government officials: “We didn’t just come to plant cassava today. Today marks another step forward in the process to create agripreneurs—professional farmers who would move



IITA’s Richardson Okechukwu (with microphone) explains about IITA’s improved cassava varieties while the dignitaries, led by Governor O. Mimiko (in green coat) and Dr K. Dashiell (rightmost) plant IITA cassava during the project flag-off at Ore Agro Business City, Ondo State.

agriculture forward and develop careers and generate income from agriculture.”

He further emphasized that “Agriculture is a profession that requires precision like in any other business, and we must treat it that way...if we don’t plant cassava properly and use good varieties and the best agronomic practices, we will not get the 30 tons that we are expecting...we should thus continue working as a team in making sure that we meet our goals.”

Governor Mimiko, in his remarks, said that one of the biggest challenges in Africa is youth unemployment so the Ondo State government is putting the means in place to empower youths and ensure that agriculture gets a central place. “Agriculture is the way to go; it will ensure your future,” he said speaking to the profarmers and agripreneurs. “Empower yourselves through technical and marketing skills.”

Early this year, IITA had signed a memorandum of understanding (MoU) with the Ondo State Government, Forum for Agricultural Research in Africa (FARA), West and Central African Council for Agricultural Research and Development

(CORAF/WECARD), and the Federal University of Technology, Akure (FUTA). Under the MoU, the partner institutions agreed to work together towards increasing the agricultural productivity of the state, create wealth and jobs for the youths, and contribute towards efforts to eradicate poverty. Governor Mimiko came to IITA to sign the agreement and visit IITA facilities in Ibadan, coinciding with the FARA Board meeting held in IITA.

The governor had established agricultural villages in Ondo almost 4 years ago with farms and other facilities for training would-be farmers (youths, adults, and women) with the aim of making agriculture a profitable profession for wealth creation. Under the project agreement, IITA will help rehabilitate the Ore settlement to fully harness its role as a platform for training and demonstration and of farming and processing. IITA, including the youth agripreneurs, is working with many partners including WECA in rehabilitating and improving the condition of operation of the ABC to better serve the youth, women, and adults of the State.

IITA signs MOU with Japanese company

The partnership promises to boost fish and vegetable production in Africa



Dr Dashiell (left) signing the MoU.

On 12 September, Masanori Ito, Chairman/CEO Taiyo Industry Inc., signed a memorandum of understanding with IITA to deploy Japanese technologies which are expected to significantly boost fish and vegetable production in Africa.

Under the agreement, Taiyo Industry will pilot and replicate improved agricultural technologies in vegetable and fish production using Japanese experiences in agriculture while working collaboratively with the IITA Youth Agripreneurs. The collaboration also offers a gateway for other future Japanese investors.

Eric Mulwaka, Chief Operating Officer Taiyo Industry Inc., said the partnership

was the first of its kind in Africa.

“Taiyo is taking the lead and working with IITA as a platform to launch novel technologies such as using high quality screenhouses and recycling water to boost fish and vegetable production, especially for resource-poor farmers in Africa.”

Dr Kenton Dashiell, who signed for IITA, said the partnership supported the mission of IITA to lift African farmers from poverty and malnutrition.

“As an institute, we are happy to partner with Taiyo. This indeed offers African farmers a promise to make their lives better,” he said.