

International Symposium

**The Impact of Systemic Pesticides on
Ecosystems and Strategies for Pesticide
Reduction and Improving Food Safety**

26-28 March 2017

Sanli New Century Grand Hotel

Hangzhou, China



Zhejiang Academy of Agricultural Sciences



IUCN Task Force on Systemic Pesticides

组织委员会 Organizing Committee

主席 Chairmen:

主办 *Organized by*

浙江省农业科学院

Zhejiang Academy of Agricultural Sciences

Le-Ming Cai

协办 *Coorganized by*

国际自然保护联盟

International Union for Conservation of Nature

吕要斌

承办 *Sponsored by*

浙江省植物有害生物防控重点实验室——省部共建国家重点实验室培

育基地

State Key Laboratory Breeding Base for Zhejiang Sustainable Pest and

Disease Control

Lie-Zhong Chen

陈列忠

Yan Shi

石 岩

秘书 Secretariats:

Xiao-Wai Li

李晓维

Jun-Ce Tian

田俊策

Hong-Xing Xu

徐红星

Zhi-Jun Zhang

张治军

组织委员会 Organizing Committee

主席 Chairmen:

Jian-Ping Chen
陈剑平 院士

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Executive chairmen:

执行主席:

Lei-Ming Cai
蔡磊明

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

K. L. Heong
香广伦 院士

CABI SE Asia, Zhejiang University
国际应用生物科学中心, 浙江大学

Zhong-Xian Lu
吕仲贤

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Yao-bin Lu
吕要斌

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

成员 Members:

Xiao-Wei Li
李晓维

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Jun-Ce Tian
田俊策

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Hong-Xing Xu
徐红星

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Ya-Jun Yang
杨亚军

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Zhi-Jun Zhang
张治军

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Lie-Zhong Chen
陈列忠

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

Yan Shi
石岩

Zhejiang Academy of Agricultural Sciences, China
浙江省农业科学院

秘书 Secretariats:

Xiao-Wei Li
李晓维

lixiaowei1005@163.com; 0086-13588281346

Jun-Ce Tian
田俊策

tianjunce@163.com; 0086-15968107571

Hong-Xing Xu
徐红星

hxxuhx@gmail.com; 0086-13588332930

Zhi-Jun Zhang
张治军

zhijunzhanglw@hotmail.com; 0086-13757178416

立德厅示意图

会议注意事项

Meeting notes

1. 议程安排 *Agenda*

3月26日 报到, 三立开元大厅

March 26 Check-in, The lobby of Sanli New Century Grand Hotel

3月27日 8:00 – 18:00, 研讨会, 立德厅

March 27 8:00 – 18:00, The Symposium, Lide Hall

3月28日 8:35 – 18:00, 与外宾洽谈合作适宜; 国内代表离会

March 28 8:35 – 18:00, Discussions on collaborations with ICUN

3月29日 外宾离会

March 29 Departure

2. 用餐地点 *Dining place*

凭当日餐券就餐, 请妥善保管餐券。

就餐地点: 1楼夏威夷厅

Dining place: 1st floor Hawaii Hall

3. 其他注意事项 *Other issues*

1) 请注意个人财产安全, 避免将个人财务遗留会场。

Please take care the belongings by yourself.

2) 会议期间, 请将手机静音, 保持会场秩序。

Please keep mobile phone mute during the symposium.

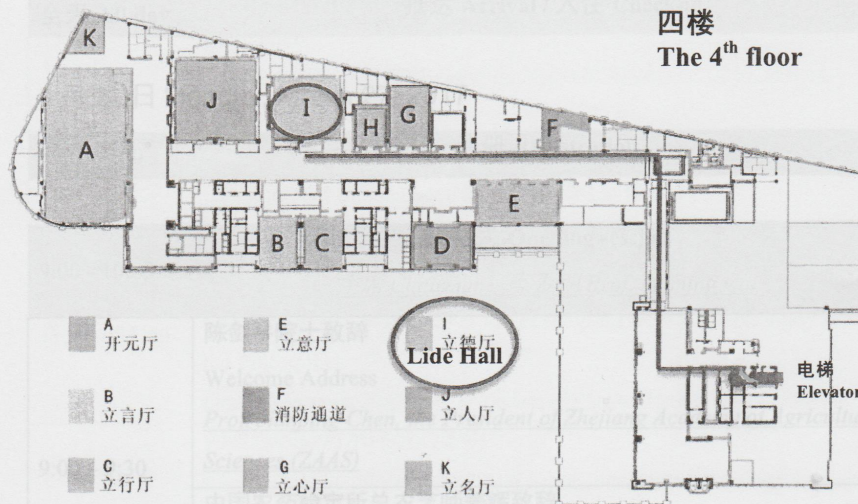
3) 参会人员住宿、交通费用自理。

立德厅示意图

The Lide Hall

3月26日 Sunday, March 26, 2017

四楼
The 4th floor



9:30 - 10:00 拍照 Picture taking / 茶歇 Coffee break

10:00 - 10:20

10:00 - 10:20 系统性农药和内吸性农药特别工作组
Systemic pesticides and the Task Force on Systemic Pesticides (TFSP)
- a historical perspective
Marcel A. F. de Lencastre, Chairman, TFSP, Neuchâtel, Switzerland

<p>中国农药注册的环境风险评估现状</p> <p>会议议程 Program</p> <p>Status of Environmental Risk Assessment (ERA) for pesticide registration in China</p> <p>汇报 Hui Jiang, Director, ICAMA, Beijing, China</p>	
<p>3月26日 Sunday, March 26, 2017</p>	
全天 All day	抵达 Arrival / 入住 Check-in
<p>3月27日 Monday, March 27, 2017</p>	
8:00 - 9:00	注册 Registration
<p>开幕式 Opening session</p>	
9:00 - 10:00	主席 Chairman: 蔡磊明 Prof. Leiming Cai
9:00 - 9:30	<p>陈剑平院士致辞</p> <p>Welcome Address</p> <p><i>Prof. Jianping Chen, the President of Zhejiang Academy of Agricultural Sciences (ZAAS)</i></p>
9:30 - 10:00	<p>中国农药检定所总农艺师姜辉致辞</p> <p>Welcome Address</p> <p><i>Prof. Hui Jiang, Deputy Director, ICAMA</i></p>
9:30 - 10:00	拍照 Picture taking / 茶歇 Coffee break
<p>报告 A: 内吸性杀虫剂的使用情况和结果</p> <p>SESSION A: Current knowledge on systemic pesticides use and consequences</p> <p>主席 Chairman: 蔡磊明 Prof. Leiming Cai and Dr. Waihong Loke</p>	
10:00 - 10:20	<p>内吸性农药和内吸性农药特别工作组</p> <p>Systemic pesticides and the Task Force on Systemic Pesticides (TFSP) – a historical perspective</p> <p><i>Maarten Bijleveld van Lexmond, Chairman, TFSP, Neuchâtel, Switzerland</i></p>

10:20 – 10:40	<p>中国农药注册的环境风险评估现状</p> <p>Status of Environmental Risk Assessment (ERA) for pesticide registration in China</p> <p><i>姜辉 Hui Jiang, Director, ICAMA, Beijing, China</i></p>
10:40 – 11:00	<p>内吸性农药在农业上的使用及其对授粉生物的影响</p> <p>Agricultural use of systemic insecticides and their impacts on pollination</p> <p><i>Jean-Marc Bonmatin, CNRS-Center for Molecular Biophysics (CBM), Orléans, France</i></p>
11:00 – 11:20	<p>中国农药抗性的发展</p> <p>Development of resistance to insecticides in China</p> <p><i>刘泽文, 南京农业大学 Zewen Liu, Nanjing Agricultural University, Nanjing, China</i></p>
11:20 – 11:40	<p>内吸性农药在发展中国家使用——以菲律宾为例</p> <p>Use of systemic pesticides in the developing world. A case study from the Philippines</p> <p><i>Elizabeth Lumawig-Heitzmann, Marinduque Biological Field Station, Philippines</i></p>
11:40 – 12:00	<p>内吸性农药对水环境的影响</p> <p>Systemic pesticides in aquatic environments and implications for the large ecosystem</p> <p><i>Francisco Sánchez-Bayo, Faculty Agriculture & Environment, University of Sydney, Australia</i></p>

12:00 – 13:30

午饭 Lunch

<p>报告 B: 农药减施及提高食品安全策略</p> <p>SESSION B: Strategies for pesticide reduction and improving food safety</p>	
13:30 – 17:30	<p><i>主席 Chairman: 程家安 Prof. Jiaan Cheng and Dr. Maarten Bijleveld van Lexmond</i></p>
13:30 – 13:50	<p>小麦土传病害: 从大田到实验室再回到大田</p> <p>Soil-borne wheat viruses: from fields to laboratory, then back to fields</p> <p><i>陈剑平, 浙江省农业科学院</i></p> <p><i>Jianping Chen, Zhejiang Academy of Agricultural Sciences, Hangzhou, China</i></p>

13:50 – 14:10	<p>害虫综合防治结合互助保险替代在耕地作物上的内吸性农药的使用</p> <p>IPM and protection of growers by a mutual insurance against pitfalls: powerful alternatives to systemic insecticides in arable crops</p> <p><i>Lorenzo Furlan, Veneto Agricoltura, Centre for Agricultural Research/ University of Padua, Italy</i></p>
14:10 – 14:30	<p>调节非稻田生境的生物多样性促进水稻害虫的可持续控制</p> <p>Manipulation of biodiversity in non-rice habitats for sustainable management of rice insect pests</p> <p><i>吕仲贤, 浙江省农业科学院</i></p> <p><i>Zhongxian Lu, Zhejiang Academy of Agricultural Sciences, Hangzhou, China</i></p>
14:30 – 14:50	<p>稻麦轮作田的杂草可持续控制策略</p> <p>Quantitative Sustainable Weed Management Strategy in Intensive Rice-Wheat Double Cropping Fields.</p> <p><i>强胜, 南京农业大学</i></p> <p><i>Sheng Qiang, Weed Research Laboratory, Nanjing Agricultural University, China</i></p>
14:50 – 15:10	<p>蔬菜蓟马的聚集素及其在蔬菜生产中的应用</p> <p>Aggregation pheromone of vegetable thrips and its application vegetable production</p> <p><i>吕要斌, 浙江省农业科学院</i></p> <p><i>Yaobin Lu, Zhejiang Academy of Agricultural Sciences, Hangzhou, China</i></p>

15:10 – 15:30

茶歇 Coffee break

15:30 - 15:50	<p>农药减量使用的社会和政策问题</p> <p>Social and policy issues related to pesticide reduction</p> <p><i>K. L. Heong, Zhejiang University, Hangzhou, China</i></p>
15:50 – 16:10	<p>"植物智慧" 在合理使用农药和农药减量策略中的应用——来自东亚和东南亚的经验</p> <p>PLANTWISE – The PLANTWISE strategy for rational pesticide use and pesticide reduction - Experiences from East and S E Asia.</p> <p><i>A. Sivapragasam, Min Wan and W.H. Loke, CABI SE Asia and China Regional Centres, Beijing, China and Serdang, Malaysia</i></p>

16:10 – 16:30	稻田除草剂优化系统 Herbicide dose optimization decision support system in paddy rice field 吴长兴, 浙江省农业科学院 <i>Changxing Wu, Zhejiang Academy of Agricultural Sciences, China</i>
16:30 – 18:00	自由讨论 General Discussions <i>Chaired by KL Heong and Zhongxian Lu</i>

18:00 – 20:00

晚饭 Dinner

Speakers' Biographies and Abstracts

3 月 28 日 Tuesday, March 28, 2017

探讨国际合作事宜

8:30 – 10:00

Discussions on international collaborations (ZAAS-IUCN)

Chaired by Prof. Leiming Cai

10:00 – 18:00

大田参观 Field trip

3 月 29 日 Wednesday, March 29, 2017

全天 All day

离会 Departure

Maarten Bijleveld van Lexmond

Maarten Bijleveld van Lexmond is a biologist and conservationist by training. He studied at Leiden and Amsterdam Universities obtaining his PhD in 1974 with the publication of his first book: *Birds of Prey in Europe*. As one of the founders of the World Wildlife Fund in the Netherlands he joined the WWF international secretariat in Switzerland and later led the Commission on Ecology of the International Union for the Conservation of Nature (IUCN). In the mid-eighties he founded the Swiss Tropical Gardens in Neuchâtel, now in Kerzers (Switzerland), in parallel with the Shipstern Nature



Speakers' Biographies and Abstracts

Vulture, which succeeded in reintroducing the species into the Alps and other parts of Europe. At present, dividing his time between Switzerland and the south of France most of it since 2009 is taken up by his function as Chairman of the International Task Force on Systemic Pesticides (ITSP) which now looks into the worldwide impact of these chemicals on biodiversity and ecosystems, and in particular on pollinators such as honey bees, bumble bees, butterflies, but also at suspected consequences for public health.
Email: mbvl@club-internet.fr

Maarten Bijleveld van Lexmond

Maarten Bijleveld van Lexmond is a biologist and conservationist by training. He studied at Leiden and Amsterdam Universities obtaining his PhD in 1974 with the publication of his first book: *Birds of Prey in Europe*. As one of the founders of the World Wildlife Fund in the Netherlands he joined the WWF international secretariat in Switzerland and later led the Commission on Ecology of the International Union for the Conservation of Nature (IUCN). In the mid-eighties he founded the Swiss Tropical Gardens in Neuchâtel, now in Kerzers (Switzerland), in parallel with the Shipstern Nature



Speakers' Biographies and Abstracts

Vulture, which succeeded in reintroducing the species into the Alps and other parts of Europe. At present, dividing his time between Switzerland and the south of France most of it since 2009 is taken up by his function as Chairman of the International Task Force on Systemic Pesticides (ITSP) which now looks into the worldwide impact of these chemicals on biodiversity and ecosystems, and in particular on pollinators such as honey bees, bumble bees, butterflies, but also at suspected consequences for public health.
Email: mbvl@club-internet.fr

Maarten Bijleveld van Lexmond

Maarten Bijleveld van Lexmond is a biologist and conservationist by training. He studied at Leiden and Amsterdam Universities obtaining his PhD in 1974 with the publication of his first book: *Birds of Prey in Europe*. As one of the founders of the World Wildlife Fund in the Netherlands he joined the WWF international secretariat in Switzerland and later led the Commission on Ecology of the International Union for the Conservation of Nature (IUCN). In the mid-eighties he founded the Swiss Tropical Gardens in Neuchatel, now in Kerzers (Switzerland), in parallel with the Shipstern Nature Reserve in Belize, Central America. For many years he also served as President of the Foundation for the Conservation of the Bearded Vulture, which succeeded in reintroducing the species into the Alps and other parts of Europe. At present, dividing his time between Switzerland and the south of France most of it since 2009 is taken up by his function as Chairman of the International Task Force on Systemic Pesticides (TFSP) which now looks into the worldwide impact of these chemicals on biodiversity and ecosystems, and in particular on pollinators such as honey bees, bumble bees, butterflies, but also at suspected consequences for public health.

Email: mbvl@club-internet.fr



Systemic Pesticides and the International Task Force on Systemic Pesticides, a historical perspective

Maarten Bijleveld van Lexmond

Chairman Task Force on Systemic Pesticides (TFSP)
46, Pertuis-du-Sault, 2000 Neuchâtel, Switzerland

In July 2009, a group of entomologists and ornithologists met at Notre Dame de Londres, a small village in the French Department of Hérault, as a result of an international enquiry amongst entomologists on the catastrophic decline of insects (and arthropods in general) all over Europe. They noted that after a perceptible and gradual decline of insects from the 1950's onwards, a much steeper decline in insect populations had started in the decade 1990-2000. This first began in Western Europe, followed by eastern and southern Europe, and is best documented in the decline of butterflies and the global disorders amongst honeybees. They concluded that these phenomena reflected the now general collapse of Europe's entomofauna. On the basis of existing studies and overwhelming circumstantial evidence, they came to the hypothesis that the new generation of pesticides, the persistent, systemic and neurotoxic neonicotinoids and fipronil, invented and introduced in the early 1990s, are likely responsible at least in part for these declines. They, therefore, issued the Appeal of Notre Dame de Londres under the heading "No Silent Spring again" referring to Rachel Carson's book "Silent Spring" then published almost half a century ago. In response, an international Task Force on Systemic Pesticides was set up at the end of 2009. Over the years, membership grew and today counts 17 nationalities in four continents. In undertaking the Worldwide Integrated Assessment (WIA), over the course of the last four years, the TFSP has examined over 1.100 scientific peer-reviewed papers published over the last two decades. The WIA was almost simultaneously launched in June 2014, and published in a special issue of the peer-reviewed Springer journal "Environmental Science and Pollution Research" in January 2015. The TFSP's scientific assessment indicates that the current large-scale prophylactic use of systemic insecticides is having significant unintended ecological consequences. The evidence indicates that levels of systemic pesticides that have been documented in the environment are sufficient to cause adverse impacts on a wide range of non-target organisms in terrestrial, aquatic, wetland, marine and benthic habitats. There is also a growing body of evidence that these effects pose risks to ecosystem functioning such as for example pollination and nutrient cycling, as well as to human health.

Status of Environmental Risk Assessment (ERA) for pesticide registration in China

Hui Jiang

Senior agronomist in Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), Vice Director of National Pesticide Quality Control Center (Beijing)

“中国农药环境风险评估现状”

环境风险评估作为农药的安全使用和管理重要内容之一，一直受到政府、社会各界的高度重视。国家农业部作为农药登记和使用监管行政职能主管部门，一直以来通过各种管理和手段推动农药环境风险评估技术的研发和登记资料的科学评审，目前，通过建立完善的政策法规、技术和管理标准、技术研发、风险跟踪监测等体系，围绕中国主要的保护目标和中国地理气候特征、农耕条件，已初步建立一套与国际接轨的农药登记的环境风险评估法规要求、技术方法、管理标准，并全面应用于现实的登记资料的技术评审、风险监测、农药再评估管理工作。当然，我们在相关法规要求方面还不够系统；技术体系还不够完整、方法和标准还不够健全；基础数据和信息还不够丰富；专业队伍和研发能力不足。

Environmental Risk Assessment (ERA), as an important component to ensure pesticide safety use and management. The Chinese government is placing high priority on ERA and the Ministry of Agriculture in charge of pesticide registration and management/regulation has been improving ERA research and regulation (R&D) and implementing strict and scientific evaluations using various management tools and measures. So far, through establishing a policy framework, rules, technical and management standards and risk monitoring an ERA system is in place. This system encompasses regulation requirements, technical methods and management criteria in line with international standards and China's protection goals, geographical climate features and agriculture practices. At this preliminary stages efforts are placed on improving the ERA system to make it a part of pesticide regulations.

Jean-Marc Bonmatin

Jean-Marc BONMATIN is researcher for the Centre National de la Recherche Scientifique (CNRS, France). He completed his thesis in 1987 (Chemistry and Physics) by studying biological membranes in interactions with various peptides, especially a bee venom. Just after, he worked for the National Research Council of Canada (Ottawa, Canada) until 1989. Here, he was interested in dynamics of cholesterol in membranes. He joined the Centre de Biophysique Moléculaire late 1989 (CBM, CNRS, Orleans, France) where he started his researches on structure-activity relationships of various natural toxicants (antibacterial, antifungal, neurotoxins, etc.). From 2008 he was involved during twelve years in coordination of European research programs on the Colony Collapse Disorder (CCD). This concerned analytics of insecticides in soil, water, pollen and honey, as well as the finding of the first virus of bee mites (*Varroa destructor*). From 2009 he also joined the Task Force on Systemic Pesticides, being now the vice-chairman. He is also involved in risk assessments for pollinators for several public organisms such as ITSAP (French Institute of Bee and Pollination), ANSES (French Agency of Environmental and Food Safety) and OECD. (<https://www.triodosfoundation.nl/nl/bijen-triodos-foundation/>)
*<http://www.ipbes.net/article/press-release-pollinators-vital-our-food-supply-under-threat>
**http://ec.europa.eu/environment/nature/conservation/species/redlist/downloads/Europe_an_bees.pdf

Email: bonmatin@cnrs-orleans.fr



World-wide integrated assessment on systemic pesticides: Neonicotinoids, pollinators, biodiversity and food

Jean-Marc Bonmatin

Deputy Chairman TFSP, Centre National de la Recherche Scientifique, Centre de Biophysique Moléculaire, rue Charles Sadron, 45071 Orléans Cedex 02, France

Neonicotinoids constitute a small family of insecticides acting on the central nervous system (nAChRs). They are often preventively used as seed dressing, foliar sprays, tree injections, etc. They represent about one third of the insecticide market worldwide, particularly in America, Europe and Asia, for diverse arable, horticultural and forest crops. Every year, mean losses of about 30% of honey bee colonies occur in countries where agriculture is intensive. These bee disorders are recognized worldwide by IPBES*, and IUCN founds that 9% of bees are threatened with extinction in Europe**. Pesticides, and particularly neonicotinoids insecticides, are involved in colony losses of both honey bees and wild bees such as bumblebees (DOI: 10.1016/j.cosust.2013.05.007; DOI: 10.1126/science.1259159; DOI: 10.1126/science.1255957). Bee disorders are accompanied by a general collapse of entomofauna. A Worldwide integrated assessment on systemic pesticides was carried out to explore the role of neonicotinoids (DOI: 10.1007/s11356-014-3220-1). Our meta-analysis has described the uses and metabolism in soil, plants, water and air (DOI: 10.1007/s11356-014-3470-y). The environmental fate and exposures via these compartments (DOI: 10.1007/s11356-014-3332-7) have been linked to large effects on non-target invertebrates (aquatic and terrestrial, DOI: 10.1007/s11356-014-3471-x), and on vertebrates such as fishes and birds (DOI: 10.1007/s11356-014-3180-5). Neonicotinoids threaten agricultural productivity through their impact on ecosystem functioning and services (DOI: 10.1007/s11356-014-3277-x). More sustainable approaches are readily available, both in agriculture and forestry (DOI: 10.1007/s11356-014-3628-7). Three neonicotinoids have been restricted in Europe (2013), but our conclusions and conclusions from EASAC*** support further restrictions of their prophylactic uses (DOI: 10.1007/s11356-014-3229-5) in favour of integrated pest managements (IPM) practices which minimize pesticide use, and therefore the contamination of our food. This work has been supported by the Triodos foundation.

Zewen Liu

He got his Ph.D degree in Nanjing Agricultural University in 2004, and worked in IACR-Rothamsted and University college of London from 2004 to 2006. He is professor of insect neuropharmacology and insecticide resistance in College of Plant Protection, Nanjing Agricultural University, China. He has published more than 50 SCI papers, including PNAS, J Neurochem, Insect Biochem Mol Biol.



The metabolic enhancement and target insensitivity mechanisms for imidacloprid resistance in the brown planthopper

Zewen Liu, Yixi Zhang, Haibo Bao, Na Yu

College of Plant Protection, Nanjing Agricultural University, Nanjing, China.

The brown planthopper (BPH), *Nilaparvata lugens*, is a major insect pest of rice crops throughout Asia. In laboratory selection and fields, high levels of imidacloprid resistance were detected in recent years. The mechanisms of imidacloprid resistance in *N. lugens* mainly were from two aspects, metabolic enhancement and target insensitivity. Metabolic resistance is always important in insecticide resistance among all insect species, and is prevalent in *N. lugens* field populations for imidacloprid resistance, in which cytochrome P450 monooxygenases (P450s) were found to be the most important enzymes in detoxification. Two P450s, CYP6ER1 and CYP6AY1, were reported to contribute importantly to imidacloprid resistance, such as the over-expression in resistant individuals and efficient metabolism of imidacloprid by two P450s. In an imidacloprid resistant strain, Y151S mutations had been identified in two α subunits (Nla1 and Nla3) in nicotinic acetylcholine receptors (nAChRs), the target of neonicotinoids including imidacloprid. The mutations were found to decrease imidacloprid sensitivity on nAChRs, and consequently result into high resistance. In another imidacloprid resistant strain, the decrease in Nla8 levels conferred high resistance to imidacloprid too, and thus provided a rare example of target-site resistance associated with a quantitative rather than qualitative change. In summary, detoxification enzymes and target changes, in quality and quantity, are important factors for imidacloprid resistance in *N. lugens*.

Elizabeth Lumawig-Heitzmann

Ms. Elizabeth Lumawig-Heitzmann, BSc, Secretary of TFSP Public Health Working Group, Marinduque Biological Field Station. Cawit, Marinduque, Philippines.

Elizabeth Lumawig-Heitzmann was born in Manila, Philippines, where she grew up in a household immersed in entomology. Her parents collected and discovered Philippine butterflies and other insects, some of which have been named after members of her family. In 1986, she received a BS in Secondary Education with a major in Biology and a minor in Earth Science. In 1996, she established the first butterfly house in the Philippines in Quezon City. She has been the owner of Flora Farm (Butterfly House) since 1991, and serves as the director of the Philippine Exotic Butterfly Fund and as Director of the Subic Bay Freeport Zone Butterfly Garden & Breeding Centre since 2004. During her professional career, she routinely conducted seminars on butterfly farming and watershed management, served as an expert for the Department of Environment and Natural Resources (DENR), advised or managed butterfly houses and trails for provincial governments in the Philippines, and served as a consultant on the Livelihood Project on Butterfly Breeding. She previously served as the honorary secretary of IABES External Liaison Committee in 2009, and as a member of the IUCN Task Force on Systemic Pesticides representing the Philippine Protected Areas and Wildlife Bureau in 2011. She is currently the Hon. Sec. of TFSP Public Health Working Group. She now heads the Marinduque Biological Field Station. Email: beth_heitzmann@yahoo.com



Usage of Systemic Pesticides in the Philippines

Elizabeth Lumawig-Heitzmann

Secretary of TFSP Public Health Working Group, Marinduque Biological Field Station.
Cawit, Marinduque, Philippines

Usage of Systemic Pesticides in the Philippines. Like in other Asian countries use of neonicotinoid pesticides is widespread in the Philippines. Given the virtual absence of marketing regulations these products can be sold under multiple trade names at the lowest retailer levels with the well-entrenched agrochemical industry strengthening its marketing networks, penetrating into local villages. In addition, the pesticide regulatory process appears to be far too pro-industry to play an effective role. From 2011 statistics it appears that the three principle neonicotinoid pesticide, clothianidin, imidacloprid, and thiamethoxam, are being sold under 13 different brand names and imported, however, is available and an early survey of usage of neonicotinoid pesticides around nature reserves was discontinued. The Worldwide Integrated Assessment on the Impact of Systemic Pesticides (TFSP) was first launched in Manila in June 2014 to be followed in hours by press conference in Brussels, Ottawa and Tokyo. In response to the WIA the Governor of the Province of Marinduque in order to protect the island's famous butterfly breeding industry, declare to ban all usage, sale and importation of Neonicotinoid pesticides and Fipronil, an initiative that awaits its implementation. As an immediate result of the symposium hosted by the De La Salle University in Manila in June 2016, the University, in cooperation with TFSP, has now embarked on a first project to assess the impact of systemic pesticides on the Philippine environment, while the establishment of a biological field station is being prepared amidst and in support of the national butterfly industry.

Francisco Sánchez-Bayo

Dr. Francisco Sánchez-Bayo, PhD. School of Life & Environmental Sciences, Faculty Agriculture & Environment, The University of Sydney, 1 Central Avenue, C81 – Australian Technology Park, Eveleigh, NSW 2015, Australia

Dr Sánchez-Bayo was born in Spain and studied at the Autonomous University of Madrid, where he obtained a Master's degree in Environmental Sciences and a doctorate in Ecology. After a post-doctoral stint in Australia, he worked and taught for five years as an Assistant Professor at Chiba University, Japan where he became concerned about the ecological impacts of neonicotinoids in paddy fields. Back in Australia, he worked for the Office of the Environment & Heritage NSW and is currently Honorary Associate at the Faculty of Agriculture & Environment of the University of Sydney. He is author and co-author of over seventy scientific articles and book chapters on the environmental impact and risk of pesticides, ecology and related subjects, and co-authored and edited the book "Ecological Impacts of Toxic Chemicals". He serves as reviewer of some 40 international journals and acts as expert assessor for evaluating scientific projects in seven countries. In the article "The trouble with Neonicotinoids" published in Science in November 2014 he largely confirmed the findings of the "Worldwide Integrated Assessment of the Impact of Systemic Pesticides on Biodiversity and Ecosystems" published later that year.

Email: sanchezbayo@mac.com



aquatic communities, mostly using mesocosms, will be shown. A comparison of the findings of these studies with toxicological data helps sort out the communities most at risk from those that undergo little or no impact. Finally, the ecological links between aquatic and terrestrial organisms are considered. Two essential ecological aspects will be discussed: i) impairment of the organic matter decomposition carried out by aquatic detritivorous species, and ii) starvation of insectivorous amphibian and terrestrial species due to elimination of their main food sources – the arthropods. The consequences for other species in the ecosystem that depend mainly on invertebrate food sources pose a real and present threat to the biodiversity of the planet. Difficulties in obtaining long-term experimental data that relates the direct effects on arthropods to indirect impacts on vertebrate populations and ecosystems are recognized; they explain our current gaps in knowledge about the ecological damage that stems from the large-scale use of these insecticides.