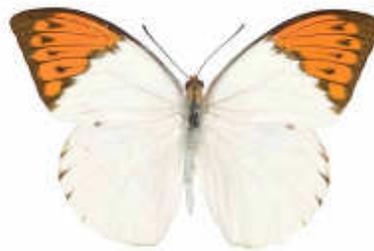


The Philippines, its butterflies and the threat of systemic pesticides

The Philippines harbour a great diversity of diurnal butterflies. Roughly 927 species and 939 subspecies are known to exist, divided in 239 Genera and 6 Families. This extraordinary richness reflects the enormous biodiversity of Asia and S.E. Asia, but is also the result of the speciation that took place on and between the about 7,107 islands with their great variety of climate and habitat that make up the Philippines. It has to be feared that a number of butterfly species linked to primary forest may eventually disappear as, presently, only 10% of the original primary rainforest cover is left. This mostly happened after the Second World War because of ruthless exploitation, lack of management, corruption and a burgeoning population now reaching 100 million. In spite of this, the Philippines are today still remarkably rich in butterflies and well-known for that.



PHILIPPINE BUTTERFLIES BELONGING TO FAMILIES OF PIERIDAE, PAPILIONIDAE, DANAIDAE AND NYMPHALIDAE

Different Habitats



As from the seventies of the last century, the Philippine lepidopterist Romeo Lumawig (1925- 2010), born on Marinduque, a small island to the south of Luzon, not only started to build up the most important butterfly collection of the country, but also initiated captive breeding of butterflies. The butterfly pupae production industry became established in the late 1970's when live displays of tropical butterflies were first built in Europe. Since that time displays of live tropical butterflies have become popular throughout the world with exhibits in most European countries, USA, Canada, Mexico, Argentina, South Africa, Singapore, Hong Kong, Japan, Australia, and New Zealand. Thus, the Philippines, with Marinduque as its center, became rapidly one of the world's chief producers of pupae of common butterflies followed by breeders in countries of S.E. Asia, Africa, Central- and South America. Whilst the exact value of the industry is difficult to determine, it is known that the amount of money being repatriated to the above countries exceedsr US\$ 10,000,000 annually, while the industry provides employment for more than 5000 families in the developing world.

In the Philippines, a programme has started with pilot projects on the islands of Mindanao (Davao and Bukidnon) and northern Luzon (Banaue), later on to be followed by those planned for Palawan and Mindoro, in cooperation with the Department of Environment and Natural Resources. Butterfly breeding had so far not been developed on these islands despite the great potential they possess. To raise awareness of biodiversity issues and to prevent forest depletion amongst all the participants are goals in this livelihood programme.

With the arrival on the world market of the systemic pesticides (Neonicotinoids and Fipronil) - mainly produced by a few companies in Germany, Switzerland and China - in the middle 1990's, the Philippines belonged to the over 120 countries now importing these neurotoxic pesticides of a new generation on a largely unknown scale. At present three neonicotinoids are now being used there under 11 product names for application to 16 different crops and registered with the Fertilizer and Pesticide Authority. However, data on volume of importations of these products as well as data on volumes of usage are not available, and data on importations are often used as an indicator of usage. In July 2012, at the conference of the RAMSAR Convention on Wetlands of International Importance adopted a resolution on rice cultivation and usage of pesticides was adopted in Bucharest, Romania, urgently requesting moderation from rice producers and manufacturers of pesticides as well as further research on the impact of the use of pesticides in rice paddies as aquatic habitats. On Luzon, largest landmass of the Philippines, it is known that Imidacloprid and Fipronil (the use of the latter being forbidden in China because of its toxicity) are now extensively being used in rice production.



Rice Field in Bicol (south Luzon)



Photo by: Sylvia Villareal (IRRI)
Upland Rice Field- Banaue Rice Terraces

List of Pesticides Imported by Chemical Firms in the Philippines

<u>ACTIVE INGREDIENT</u>	<u>PRODUCT NAME</u>	<u>NAME OF COMPANY</u>	<u>USE/S</u>	<u>CROP/S</u>	<u>PEST/S</u>	<u>APPLICATION RATES</u>
CLOTHIANIDIN	DANTOP	Jardine Distribution Inc.	I	Mango	Hopper, tipborer, floral thrips, cecid fly/capsid bug	12.5-15.62 g/100 L
				Eggplant Rice	Eggplant hopper, aphids Green leafhopper, brown & white backed planthopper, leaf folder, stem borer, black bug & rice bug	90-95 g/ha 60-70 g/ha
	DANTOTSU 16 WSG	Sumitomo Chemical Philippines, Inc.	I	Mango	Hopper, tipborer, floral thrips, cecid fly/capsid bug	12.5-15.62 g/100 L
				Eggplant Rice	Eggplant hopper, aphids Green leafhopper, brown & white backed planthopper, leaf folder, stem borer, black bug & rice bug	90-95 g/ha 60-70 g/ha
IMIDACLOPRID	ADMIRE SL 200	Bayer Cropscience, Inc.	I	Mango	Leafhopper	200-250G/1000L water
				Banana	Flower thrips	0.5 ml prod./l. water
				Pineapple	Mealybug	28L/ha
	CONFIDOR 100 SL	Bayer Cropscience, Inc.	I	Okra	Leafhopper	25 mL/ha
				Mango	Hoppers	200-250 mL/1000L water
			Banana	Flower thrips	1.0 mL prod./L water	
			Watermelon	Thrips, aphids	150-200 mL/ha	
			Citrus	Rindborer, mealybug, scale insects	0.375-0.875 L/ha	
			Cabbage	Diamondback moth, flea beetle	250-300 mL/ha	
			Sugarcane	Termites	0.2-0.3 L/ha	
			Asparagus	Asparagus thrips	150 mL/ha	
	GAUCHO 350 FS	Bayer Cropscience, Inc.	I	Corn	Seedling maggot, ants, field crickets & mole crickets	75-100mL product/18 to 20 Kg seeds
	GAUCHO 70 WS	Bayer Cropscience, Inc.	I	Corn	Seedling maggot	35-45 g product/ 20kg

<u>ACTIVE INGREDIENT</u>	<u>PRODUCT NAME</u>	<u>NAME OF COMPANY</u>	<u>USE/S</u>	<u>CROP/S</u>	<u>PEST/S</u>	<u>RATES</u>
THIAMETHOXAM	ACTARA 25 WG	Syngenta Philippines, Inc.	I	Rice	Green leafhopper, brown planthopper, white backed planthopper & rice bug Black bug	30-40 g/ha 40-60 g/100L water
	CRUISER 350 FS	Syngenta Philippines, Inc.	I	Stringbean	Aphids, leafhopper	10-30 g/hill
				Eggplant	Aphids, leafhopper	10-30 g/hill
				Mango	Leafhopper	105.6-123.2 g/ha
				Pineapple	Mealybug	100-200 g/ha
				Corn	Seedling maggot	200-600 mL prod/100 kg seeds
				Rice	Green leafhopper, brown planthopper, white backed planthopper	25-44 mL prod/40 kg seeds
THIAMETHOXAM+ CHLORANTRANILIPROLE	VIRTAKO 40 WG	Syngenta Philippines, Inc.	I	Rice	Green leafhopper, rice stemborer	75-100 g/ha
	VOLIAM FLEXI 300 SC	Syngenta Philippines, Inc.	I	Eggplant	Fruitborer, cutworm, shootborer, leafhopper, whiteflies, aphids, flea beetle & 28-spotted beetle	100-200 mL/ha
				Cabbage	Diamondback moth, cutworm, aphids	75-125 mL/ha
				Stringbeans	Podborer, cutworm, leafhopper, aphids & white flies	100-200 mL/ha
THIAMETHOXAM+ LAMBDCYHALO- THRIN	ALIKA 247 ZC	Syngenta Philippines, Inc.	I	Potato	Whiteflies, aphids, thrips	100-200 mL/ha
				Stringbeans	Green leafhopper, aphids, mites	100-200 mL/ha
				Eggplant	Whiteflies, green leafhopper, aphids	100-200 mL/ha
				Bittergourd	Leafhopper, thrips, aphids	100-200 mL/ha
				Mango	Leafhopper, tipborer	6.0-12.0 mL/100L water
				Corn	Asian corn borer, earworm, cutworm, leafhopper & aphids	250-400 mL/ha
				Banana	Flower thrips	1.0-3.0 mL/liter

Seen the fast declining butterfly populations on the European Continent - in France alone 16 species are, reportedly, on the verge of disappearing - a study on the impact of neonicotinoid insecticides on butterflies is being carried out at Stirling University, Scotland, there is sufficient reason to worry about the fate of butterflies, other invertebrates, including aquatic life, in the Philippines. Its Protected Areas and Wildlife Bureau is planning a survey of pesticide usage in the surroundings of the Protected Areas in cooperation with the IUCN Task Force on Systemic Pesticides. Possibilities for research on the impact of neonicotinoid pesticides on biodiversity and ecosystems at the University of the Philippines in Laguna, in cooperation with Universities elsewhere, are being looked into.