Trapping airborne insects aboard interisland ships in the Philippine archipelago, with emphasis on the brown planthopper (BPH)

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We studied the movement of airborne insects in the Philippines by trapping them aboard interisland ships during four voyages each in 1979 to 1981 dry and wet seasons. The study traced interisland movement of the BPH.

Airborne insects were collected using 6 wind-propelled, cone-shaped nylon nets (0.5 m diam, 2 m long) and 4 cross-shaped sticky board traps (0.45 × 0.45 m). During each voyage, one net was installed at the bow, two at the yardarms of the mast, two on each side of the flying bridge, and one at the stern. The sticky traps were operated from the front railing of the flying bridge. Traps were opened about 30 min after sailing from each port and closed about 30 min before docking. Insect catches were then placed in coded vials for later identification in the laboratory.

During the 8 voyages, 1,874 insects, 46 spiders, and an ixodid tick were collected. Dipterans (47.9%) were most numerous, followed by 31.4% hemipterans, 13.5% hymenopterans, 6.4% coleopterans, and 1.0% lepidopterans, orthopterans, a psocopteran, an embiopteran, and a collembolan. More arthropods (1,066 insects and 33 araneids) were trapped in wet season than in dry season (808 insects, 13 araneids, and an ixodid tick) (Table 1). Among the delphacids trapped, the whitebacked planthopper *Sogatella furcifera* was most abundant, followed by BPH and *Sogatodes pusanus* (Table 2).

Southwesterly winds, 23.6-33.2°C temperature, and 56.5-99% relative humidity prevailed in wet season. Calm to variable winds punctuated by northeasterly and southeasterly air currents, 22.4-34°C temperature, and 43.8-95.8% relative humidity prevailed in dry season.

The relatively higher insect catches in wet season indicate that warm, humid air masses are ideal for transporting insects over long distances in the Philippines. Sea between islands was not an effective barrier to migrant insects. The catches also indicate that the bulk of *N. lugens* originated from rice producing areas lying along the path of the southwest monsoon. □

Table 1. Arthropods caught in nylon nets and on sticky traps installed aboard interisland vessels sailing along different routes in the Philippine archipelago in 1979-81 dry and wet seasons.[a]

Insect order	Insects caught					
	Dry season (4 voyages)		Wet season (4 voyages)		8 voyages	
	No.	%	No.	%	Total	%
Diptera	381	47.2	516	48.4	897	47.9
Hemiptera	204	25.2	384	36.0	588	31.4
Hymenoptera	131	16.2	122	11.4	253	13.5
Coleoptera	83	10.3	36	3.4	119	6.4
Lepidoptera	6	0.7	6	0.6	12	0.6
Orthoptera	1	0.1	1	0.1	2	0.1
Psocoptera	0	0	1	0.1	1	0.1
Embioptera	1	0.1	0	0	1	0.1
Collembola	1	0.1	0	0	1	0.1
S	*808*		*1066*		*1874*	
Araneida	13		33		46	
Acari	1		0		1	

[a]Routes and duration of each voyage during dry and wet seasons. *Dry season:* I. Manila-Cagayan de Oro-Manila, 26 Jan-2 Feb 1980, II. Manila-Iligan-Manila, 7-15 May 1980, III. Manila-Cagayan de Oro-Manila, 14-22 Feb 1981, IV. Manila-Cagayan de Oro-Manila, 21-29 May 1981. *Wet season:* I. Manila-Butuan-Manila, 27 Jun-6 Jul 1979, II. Manila-Iligan-Manila, 3-11 Oct 1979, III. Manila-Iligan-Manila, 15-24 Jul 1980, IV. Manila-Iligan-Manila, 17-25 Oct 1980.

Table 2. Delphacids caught in nylon nets and on sticky traps installed aboard interisland vessels sailing along different routes in the Philippine archipelago during 1979-81 dry and wet seasons.

Species	Insects caught (no.)	
	Dry season (4 voyages)	Wet season (4 voyages)
Nilaparvata lugens	1	22
Sogatella furcifera	8	35
Euidellana	0	1
Harmalia anocharsis	1	0
Harmalia nr. *heitensis*	1	0
Harmalia spp.	1	2
Nilaparvata bakeri	2	2
Nilaparvata spp.	2	3
Opiconsiva dodona	2	0
Opiconsiva sp.	0	1
Perkinsiella sp.	0	1
Sogatella eupompe	0	1
Sogotella kolophon	0	2
Sogatella panicicola	2	3
Sogatella terryi	0	1
Sogatella spp.	0	7
Sogatodes pusanus	0	11
Sogatodes sp.	0	2
Toya close to *propinqua*	0	1
Unidentified delphacids	1	14
S	*21*	*108*

Influence of light traps on incidence of yellow stem borer (YSB) *Scirpophaga incertulas* Wlk. in the trap zone and field

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We studied the influence of a light trap on YSB infestation in surrounding fields. A Robinson light trap with a 125-W mercury lamp was operated from Dec 1981 to Feb 1982 on the Agricultural College Farm, Madurai, during which time YSB incidence was high. The trap operated from 1800 to 0600 h in a field cropped with IR20.

Each morning, 10 hills were randomly selected at 1 m from the trap and the number of YSB on the hills was estimated. Counts were made for 2 wk during peak infestation.

There was a significantly positive correlation (r = 0.79) between the number of YSB on 10 hills and the daily light trap catch (Table 1). Moths which were at-