

STUDY OF POPULATION FLUCTUATION ON THREE PSOCOPTERAN SPECIES

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INTRODUCTION

Practically no work has been initiated on population dynamics of foliage frequenting Psocoptera in India, except a single published record, (Prasad, et al 1975). Keeping this in view, the present investigation was undertaken, with three species of Psocoptera e. g. *Ectopsocus cinctus* Thornton, *Ectopsocus bengalensis* Datta (Ectopsocidae) and

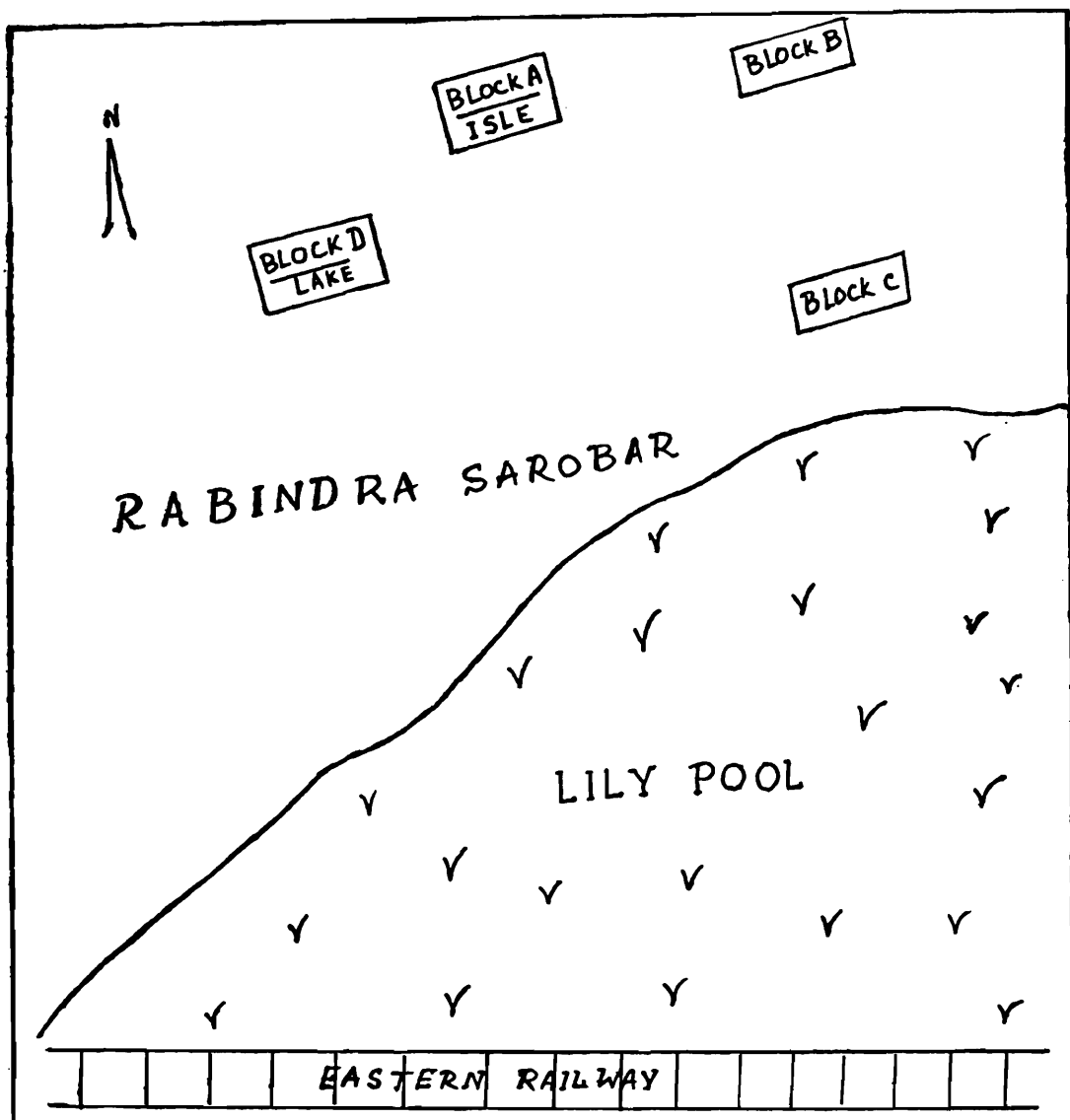


Fig. 1. Collection site with Host-plants

Tapinella fasciata Thornton & Wong (Pachytroctidae), which were available throughout the year on two species of garden host plants e. g. *Hibiscus rosa-sinensis* Linn. (Malvaceae) and *Corypha elata* Roxb. (Palmae) in natural environmental conditions.

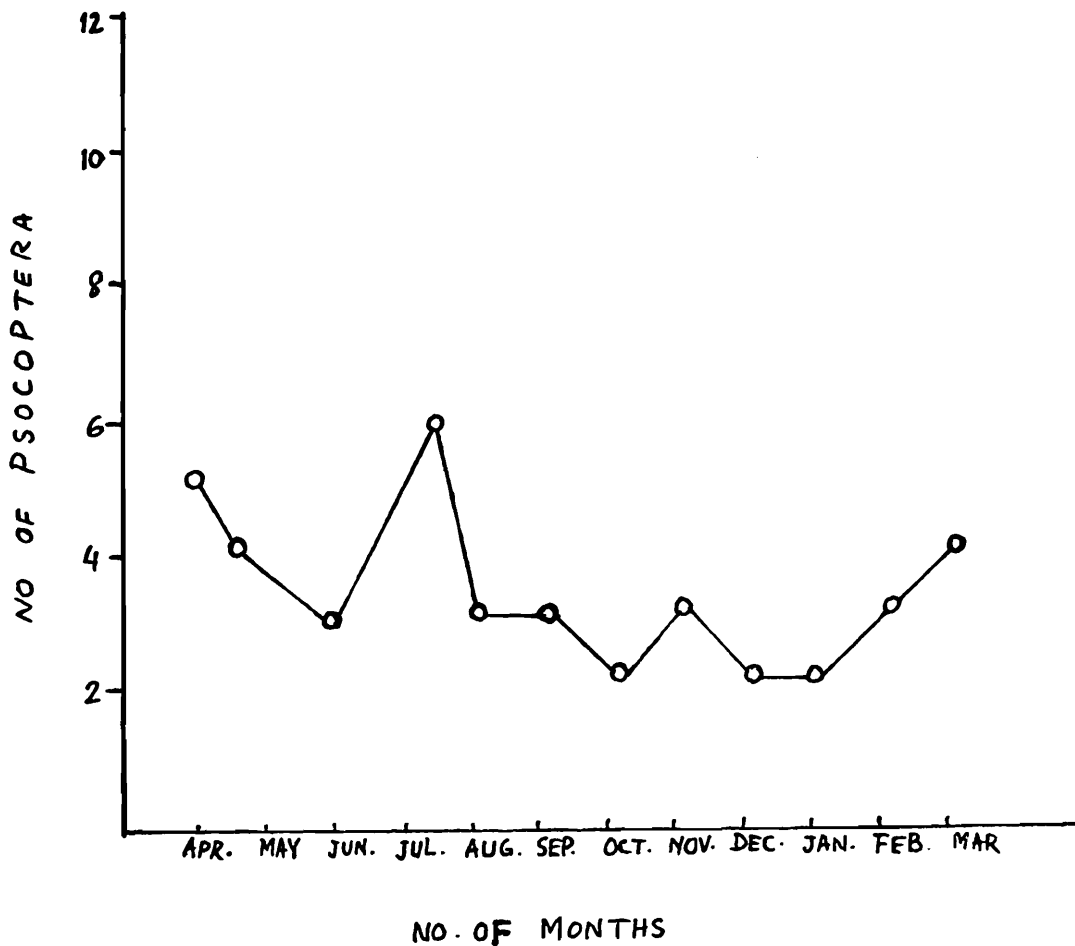


Fig. 2. *Tapinella fasciata* Th. & Wong.—Graphical representation.

MATERIAL AND METHOD

The material for three species of Psocoptera was collected fortnightly, throughout the year, from April, 1983 to March, 1984, from two species of host-plants e. g. *Hibiscus rosa-sinensis* Linn. (Malavaceae) and *Corypha elata* Roxb. (Palmae), at Rabindra Sarobar area, south Calcutta (Fig. 1) by applying five beatings on each branch of the plants and collecting the foliage frequenting morphs (nymphs and adults) in a white enamel tray placed horizontally under the branches.

OBSERVATION

The investigation was carried out from April, 1983 upto March, 1984. The minimum and maximum temperature recorded at the time of collection in the field for these species ranged between 24.2°C to

26.9° c and 32.3° c to 37.9° c respectively with relative humidity of 31% to 69% at minimum and 78% to 98% at maximum and with rainfall range between 0.6 mm to 20.2 mm. The period of optimum infestation of these species could be observed in April and July in an annual cycle. During the entire course of investigation, each colony of these species was dominated for all the time by apterae and nymphs, the adults being lesser in number within the colonies. It was also observed that the psocids preferred the microflora of dry and semidry leaves of the plants studied. Two seasonal peaks were noticed i. e. April and July while studying their population fluctuation (Fig. 2 & 3). Total number of these three species of Psocoptera found on two host plants are represented, here, in a table (Tab. A)

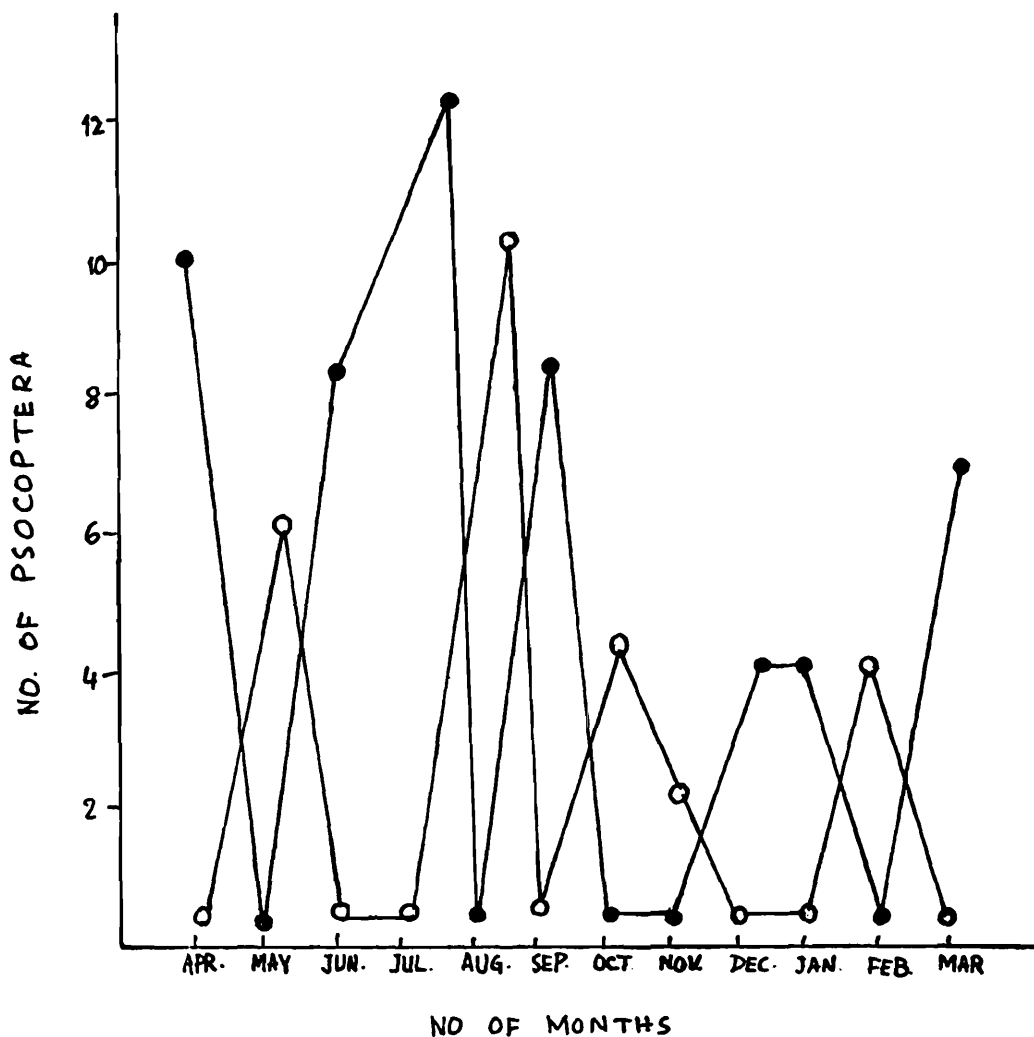


Fig. 3. *Ectopsocus cictus* Th. & *E. bengalensis* Datta—Graphical representation.

Few examples of *Anobus* sp. (Anobiidae : Coleoptera) and *Reduvius* sp. (Reduviidae : Hemiptera) were found in association with the psocid colony from *Hibiscus rosa-sinensis* Linn. (Malvaceae) and one example of *Cloeon* sp. (Baetidae : Ephemeroptera) from *Corypha elata* Roxb.

Tab. A. MONTHWISE COLLECTION RECORD FOR
THREE SPECIES OF PSOCOPTERA

<i>Months</i>	<i>Species</i>	<i>Host-plants</i>	<i>No. of specimens</i>
April	<i>Ectopsocus cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	10
	<i>Tapinella fasciata</i> Th. & Wong	<i>Corypha elata</i> Roxb.	5
May	<i>Ectopsocus bengalensis</i> Datta	<i>Hibiscus rosa-sinensis</i> Linn.	6
	<i>Tapinella fasciata</i> Th. & Wong	<i>Corypha elata</i> Roxb.	4
June	<i>Ectopsocus cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	8
	<i>Tapinella fasciata</i> Th. & Wong	<i>Corypha elata</i> Roxb.	3
July	<i>Ectopsocus cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	12
	<i>Tapinella fasciata</i> Th. & Wong.	<i>Corypha elata</i> Roxb.	6
August	<i>Ectopsocus bengalensis</i> Datta	<i>Hibiscus rosa-sinensis</i> Linn.	10
	<i>Tapinella fasciata</i> Th. & Wong	<i>Corypha elata</i> Roxb.	3
September	<i>Ectopsocus cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	8
	<i>Tapinella fasciata</i> Th. & Wong.	<i>Corypha elata</i> Roxb.	3
October	<i>Ectopsocus bengalensis</i> Datta	<i>Hibiscus rosa-sinensis</i> Linn.	4
	<i>Tapinella fasciata</i> Th. & Wong.	<i>Corypha elata</i> Roxb.	2
November	<i>Ectopsocus bengalensis</i> Datta	<i>Hibiscus rosa-sinensis</i> Linn.	2
	<i>Tapinella fasciata</i> Th. & Wong.	<i>Corypha elata</i> Roxb.	3
December	<i>Ectopsocus cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	4
	<i>Tapinella fasciata</i> Th. & Wong.	<i>Corypha elata</i> Roxb.	2
January	<i>Ectopsocus cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	4
	<i>Tapinella fasciata</i> Datta	<i>Corypha elata</i> Roxb.	2

Months	Species	Host-plants	No. of specimens
February	<i>Ectopsocus bengalensis</i> Datta	<i>Hibiscus rosa-sinensis</i> Linn.	4
	<i>Tapinella fasciata</i> Th. & Wong	<i>Corypha elata</i> Roxb.	3
March	<i>Ectopsocus Cinctus</i> Th.	<i>Hibiscus rosa-sinensis</i> Linn.	7
	<i>Tapinella fasciata</i> Th. & Wong	<i>Corypha elata</i> Roxb.	4

SUMMARY

It was noticed that infestation of these three species of Psocoptera i. e. *Ectopsocus cinctus* Thorn., *Ectopsocus bengalensis* Datta and *Tapinella fasciata* Th. & Wong on the particular host plants of *Hibiscus rosa-sinensis* Linn. and *Corypha elata* Roxb. was continued to be more or less throughout the season for natural controlling factors like temperature humidity and rainfall. The population density of these three species was recorded more during the summer and monsoon months, whereas it was found to be less in winter months. A total number of 10 host-plants of *Hibiscus rosa-sinensis* and 5 in number of *Corypha elata* were utilised for each monthly observation. From the Tab. A., it is evident that *Tapinella fasciata* is present throughout the year at optimum population level while *E. cinctus* is present only during seven months in a discontinuous manner (January, March, April, June, July, September, December) and *E. bengalensis* during five months (February, May, August, October, November).

The host-specificity of these 3 species of Psocoptera are recorded, here, for the first time in India.

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