

## CICADAS OF SAYAP-KINABALU PARK, SABAH: A PRELIMINARY SURVEY

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*This survey records a total of 16 cicada species, belonging to a genera. Comparison of records shows all of these 16 species are new records for the Sayap sector of Kinabalu Park; 10 of which (Tanna insignis Distant, Orientopsaltria duarum walker, Orientopsaltria padda Distant, Platylomia spinosa Fabricius, Pomponia Jusca olivier Pomponia linearis Walker pomponia picta Walker and Abroma maculicollis Guerin) are also new records for Sabah; and one (T insignis) is a new record for Borneo.*

### INTRODUCTION

Moulton (1923) published a monograph on cicadas (Homoptera: Auchenorrhyncha) of Malaysia (now called Malesia) and accounted a total of 27 species for Sabah. The record was based on specimens collected from Sandakan, Banggi Island and Kundasang sector of Kinabalu Park.

Since then, after almost 70 years, no studies have been carried out to revise the systematics of cicadas of Sabah, nor has there been any survey of cicada fauna within a particular locality in Sabah. Thus, the one week Sayap Expedition (June 2-8, 1992) provided an opportunity towards achieving, to some extent, the above mentioned goal.

Presented in this paper are the results of the survey of the cicada fauna that has been carried out within the Sayap sector of Kinabalu Park.

### MATERIALS AND METHOD

In this survey, night-time collections of cicada specimens were carried out. Cicada which came to the base camp lights and the light trap (250 watt mercury vapour bulb run by 500 watt portable generator) located on the waterfall trail, were collected by hand and/or nets. Day-time collections of cicadas from shrubs within 2km area from the base camp were also carried out. Unfortunately, the day-time collections were not successful in getting cicadas.

Identification and species naming of the cicada specimens were carried out based on keys given by Moulton and other references (Overmeer and Duffels, 1967; Duffels 1968, 1976 & 1991). Classification of the cicada species in this report is in accordance with that of Duffels and van der Laan (1985).

The cicada specimens from this survey are presently kept in the Insect Systematics Centre, Department of Zoology, Universiti Kebangsaan Malaysia and a representative set is lodged at

Taman Sabah.

## RESULTS AND DISCUSSION

The sampling period for this survey is obviously short. However, as a preliminary survey, the results do provide some interesting information, especially with regard to the systematics, composition and richness of cicada species for the Sayap sector of Kinabalu Park.

### Cicada Fauna

Table 1 shows a total of 16 species of cicadas, belonging to 8 genera, recorded for the Sayap sector of Kinabalu Park. According to the classification by Duffels and van der Laan (1985), 14 of these 16 species belong to the family Cicadidae and the other 2 species to the family Tibicinidae.

An interesting feature of the results of this survey is that all these 16 species of cicadas are new records for the Sayap sectors of Kinabalu Park (Table 1). Previously, there has been no publication of cicada species from this sector of the park.

Comparison of records (Moulton, 1923; Overmeer & Duffels, 1967; N Duffels, 1986, 1976 & 1991) also shows that all of these species except *Tacus speciosa* are new records for Kinabalu Park (Table 1). Previously, only 10 species of cicada belonging to 8 genera have been recorded for Kinabalu Park, based on specimens collected from its Kundasang sector. Thus, the present survey has increased the record of cicada species of Kinabalu Park to a present total of 25 species belonging to 13 genera (Table 2).

Apart from the above, it has also been found that 10 of these 16 species, namely *Tanna insignis*, *Orientopsaltria duarum*, *Orientopsaltria guttigura*, *Orientopsaltria ida*, *Orientopsaltria padda*, *Platylomia spinosa*, *Pomponia fusca*, *Pomponia linearis*, *Pomponia picta*, *Abroma maculicollis* are new records for Sabah (Table 1). Previously, only 27 species of cicadas belonging to 17 genera have been recorded for Sabah. Thus, the present survey has also increased the record of cicada species for Sabah, to a present total of 37 species belonging to 18 genera (Table 2).

**Table 1**

#### **Cicada specimens obtained during the expedition in Sayap sector of Kinabalu Park.**

Family/ Species	No. of specimens		
	Male	Female	Total
<b>CICADIDAE</b>			
1. <i>Tacua speciosa</i> Illiger	1	0	1
2. <i>Tana bakeri</i> Moulton *	1	0	1
3. <i>Tanna insignis</i> Distant *##+	2	4	6

4. <i>Dundubia rufivena</i> Walker *	1	5	6
5. <i>Dundubia vaginata</i> Fabricius *	10	8	18
6. <i>Orientopsaltria duarum</i> Walker *#	1	0	1
7. <i>Orientopsaltria guttigura</i> Walker *#	5	10	15
8. <i>Orientopsaltria ida</i> Moulton *#	15	8	23
9. <i>Orientopsaltria paddy</i> Distant *#	1	0	1
10. <i>Platylomia spinosa</i> Fabricius *#	1	8	9
11. <i>Pomponia decem</i> Walker*	1	0	1
12. <i>Pomponia fusca</i> Olivier *#	9	3	12
13. <i>Pomponia linearis</i> Walker *#	1	0	1
14. <i>Pomponia picta</i> Walker *#	1	0	1
<b>TIBICINIDAE</b>			
15. <i>Abroma maculicollis</i> Guerin *#	0	1	1
16. <i>Muda obtusa</i> Walker *	2	6	8
Total specimens	52	53	105
total species	15	9	16

Note: \* New record for Kinabalu Park # New record for Sabah

+ new record for Borneo.

It is also found that *T. insignis* is not only a new record for Sabah but also a new record for Borneo (Table 1). Previously, 64 species of cicadas, belonging to 24 genera, have been recorded for Borneo. Thus, for Borneo, this survey has also added one more species to the previous total of genera remains 24 as other species of Tanna have been recorded previously in Borneo.

**Table 2****Number (and %) of species representation for the families and genera of Sabah cicadas in the Sayap and Kundasang sectors of Kinabalu Park.**

FAMILY	Genus	No. of species in Sabah#	No. of (and %) representation of Sabah species in Kinabalu Park:		
			Sayap Sector *	Kundasang sector **	Both sectors +
<b>CICADIDAE</b>	Tacua	1	1 (100.00%)	1 (100.00%)	1 (100.00%)
	Chremistica	1	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Terpnosia	2	0 (0.00%)	0 (50.00%)	1 (50.00%)
	Purana	1	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Tanna	3	2 (67.00%)	0 (0.00%)	2 (67.00%)
	Maua	1	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Champaka	1	0 (0.00%)	1 (100.00%)	1 (100.00%)
	Dundubia	3	2 (67.00%)	0 (0.00%)	2 (67.00%)
	Orientopsaltria	6	4 (67.00%)	2 (33.00%)	6 (100.00%)
	Platylomia	2	1 (33.00%)	0 (0.00%)	1 (55.00%)
	Ayesha	2	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Pomponia	6	4 (67.00%)	2 (33.00%)	6 (100.00%)
	Mogannia	2	0 (0.00%)	1 (50.00%)	1 (50.00%)
	Nabalua	2	0 (0.00%)	2 (100.00%)	2 (100.00%)
	Total	33	14 (42.00%)	9 (27.00%)	22 (67.00%)
	<b>TIBICINIDAE</b>	Huechys	1	0 (0.00%)	1 (100.00%)
Abroma		1	1 (100.00%)	0 (0.00%)	1 (100.00%)
Nelcyndana		1	0 (0.00%)	0 (0.00%)	0 (0.00%)
Muda		1	1 (100.00%)	0 (0.00%)	1 (100.00%)
Total		4	2 (50.00%)	1 (25.00%)	3 (75.00%)
<b>TOTAL</b>		37	16 (43.00%)	10 (27%)	25 (75.00%)

**Notes:** Sources for 1991, # Moulton (1923), duffels (1968,1976,1976, Overmeer & Duffels (1967) with 10 new records found in this survey; \* this survey; \*\* Moulton (1923), Duffels (1968, 1976, 1991), Overmeer & Duffels (1967), + as \*\* top up with 15 new records found in this survey

### Species composition and richness

Although the sampling period is short, the survey was able to show that the richness of cicada species in the Sayap sector of Kinabalu Park is relatively greater than the Kundasang counterpart, in terms of representation of species in toto (16 species: 10 species), family Cicadidae (14 species: 9 species), Tibicinidae (2 species: 1 species), genus *Dundubia* (2 species: 0 species), *Orientopsaltria* (4 species: 2 species), *Platylomia* (1 species: 0 species), *Pomponia* (4 species: 1 species), *Tanna* (2 species: 0 species), *Abroma* (1 species: 0 species) and *Muda* (1 species: 0 species); only it was not able to obtain equivalent number of species belonging to the genus *Terpnosia* (0 species: 1 species), *Nabalua* (0 species: 2 species), *Mogannia* (0 species: 1 species) *Champaka* (0 species: 1 species) and *Huechys* (0 species: 1 species) (Table 2).

It is now known that cicadas of Sabah are fairly well represented in Kinabalu Park, especially in terms of species in toto (68%) species belonging to the family Cicadidae (67%) Tibicinidae (75%), genus *Dundubia* (67%) *Orientopsaltria* (100%), *Platylomia* (50%), *Pomponia* (83%), *Tanna* (67%), *Abroma* (100%), and *Muda* (100%) (Table 2).

As can be seen in Table 2, species belonging to the genera *Chremistica*, *Purana*, *Maua*, *Ayasha* and *Nelcyndana* have yet to be discovered in Kinabalu Park.

In this survey, the sampling coverage area was less extensive but the sampling period was more less equivalent to that carried out for Fraser's Hill in Peninsular Malaysia (Zaidi & Ruslan, 1993). Yet the number of cicada species obtained was higher than Fraser's Hill (13 species, all belonging to the family Cicadadae). This seems to indicate that the Sayap sector of Kinabalu Park is relatively richer in cicada species than Fraser's Hill.

### Species relative abundance

Results of this survey (Table 1) seem to show that, in June, the most abundant species in the Sayap sector of Kinabalu Park is *O. ida*, followed by *D. vaginata*, *O. guttigura*, *P.fusca* and *P.spinosa*. Such order of relative abundance is not absolute, it is likely to vary between months and localities. Of these species, *D. vaginata* and *P spinosa* have been noted as common species in Sabah (Moulton, 1923). They also been found to constitute among the most abundant species in a number of localities in Peninsular Malaysia, e.g. Fraser's Hill (Zaidi et al., 1990) and Bangi Forest Reserve (Zaidi & Ruslan 1993)

Generally, as moths, more males are attracted to light and hence generally more male specimens were obtained in this survey (Table 1). Comparisons of records indicate that females of *T speciosa*, *O. duarum*, *O. padda* and *R linearis* have yet to be discovered for description.

### CONCLUDING REMARKS

This preliminary survey has shown some interesting features and it should be continued over a longer period. If such is possible to be carried out, the present faunal list is most likely to be

extended. It is also believed that additional information, such as population periodism, altitudinal distribution are likely to be obtained if the survey is able to be carried out over a longer period.

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