



Journal of
Entomology

ISSN 1812-5670



Academic
Journals Inc.

www.academicjournals.com

Biodiversity of Jumping Plant-lice of the Psyllidae Family (Hemiptera: Psylloidea) from the South Region of Cameroon: Faunistics, Phenology and Host Plants

¹Y.P. Mveyo Ndankeu, ¹J.L. Tamesse, ²D. Burckhardt and ³J. Messi

¹Laboratory of Zoology, Higher Teacher's Training College, University of Yaounde I, P.O. Box 47, Yaounde, Cameroon

²Naturhistorisches Museum, Augustinergasse 2, CH-4001 Basel, Switzerland

³Laboratory of Zoology, Faculty of Sciences, University of Yaounde I, P.O. Box 812, Yaounde, Cameroon

Corresponding Author: Joseph Lebel Tamesse, Laboratory of Zoology, Higher Teacher's Training College, University of Yaounde I, P.O. Box 47, Yaounde, Cameroon

ABSTRACT

The psyllids of Psyllidae family are known from the West and the Center regions of Cameroon. None is published in the South region of this country. From January 2006 to December 2007, the prospections undertaken in the south region of Cameroon permitted to investigate the biodiversity of psyllids of the Psyllidae family. Psyllids were collected in different localities in south region on various host plants. Adult psyllids were captured with a sweep net of 0.5 mm mesh size and an aspirator. Larvae were sampled directly from buds and leaves of the host plant. All specimens were preserved in 70% ethanol. This study documented 35 species belonging to 16 genera and 6 subfamilies: Aphalaroidinae with *Yangus* genus (5 species); Ciriaceminae with 3 genera, *Heteropsylla* (1 specie), *Ciriaceum* (4 species) and *Kleiniella* (4 species); Diaphorininae with 2 genera, *Diaphorina* (1 specie) and *Epipsylla* (2 species); Euphalerinae with 5 genera, *Colophorina* (1 specie), *Euryconus* (1 specie) and 3 new genera with have respectively 1 specie; Paurocephalinae with 3 genera, *Paurocephala* (3 species), *Diclidophlebia* (6 species) and *Syntomoza* (1 specie); Psyllinae/Arytaininae with 2 genera, *Palaeolindbergiella* (2 species) and a new genus with 1 specie. Four genera remain undescribed. All those psyllids were collected in 15 different localities of the South Region of Cameroon. Three species (*Ciriaceum* sp.2, *Kleiniella* sp. 4 and *Paurocephala* sp. 3) were collected in the South region of Cameroon. Any of these species weren't recorded in the Center and west region of Cameroon. The phenology of the host plants permit us to justify the proliferation period of each species. Host plants belong to 7 families; the Fabaceae constitutes the family with the largest number of associated psyllid species. The damage caused by the psyllids on their host plants were recorded and photographed. The present survey permitted to enrich the biodiversity of the psyllids of the Psyllidae family of Cameroon.

Key words: Aphalaroidinae, ciriaceminae, diaphorininae, euphalerinae, paurocephalinae, psyllinae/arytaininae, host plants, South-Cameroon

INTRODUCTION

Cameroon is situated in central Africa between latitudes 2° and 13° North and longitudes 9° and 16° East with a surface area of 475,000 km². The South region is one of the ten administrative

regions of Cameroon; this region is situated between latitudes 2°12' (Olamze) and 3°26' (Bengbis) North and longitudes 9°50' (Campo) and 13°18' (Mintom II) East with a surface area of 47,191 km²; it has 4 divisions: Dja and Lobo, Mvilla, Ocean, Valley of Ntem. The South Cameroonian plateau crosses this region. The climate is equatorial of Guinean type with four seasons: two rainy seasons (August-November; March-July) and two dry seasons (November-March; July-August); the precipitations are abundant, between 1500-2000 mm water year⁻¹; the temperature is high but constant at the average of 25°C. This particular climate influences the vegetation of this region, mainly characterised by a tropical humid thick forest (Suchel, 1988).

Jumping plant-lice or psyllids (Hemiptera, Psylloidea), are plant sap-sucking insects which are predominantly associated with dicotyledons (Hodkinson, 1974; Burckhardt, 1987; Brown and Hodkinson, 1988). Some psyllids are narrowly associated to specific host plants family (Burckhardt *et al.*, 2004). When psyllid population is high, serious damage caused by larvae or adults psyllids can transmit plant diseases (Burckhardt, 2005; Tamesse, 2005). Damage caused by psyllids are numerous: deformations of leaves, buds or flowers including formation of galls, discolouration and necrosis of leaves, flowers or fruits; larvae secrete honeydew which stimulates fungal growth on plant organs.

The inventory of local fauna, particular in Afrotropical region, constituted an important data in conservation and sustainable use of the biodiversity. In various groups, particular those rich in number of species like insects, only a little proportion of species is described; currently 3000-3500 psyllid species are described, this may represent less than half the number of existing species. More taxonomic literature was done, but these studies are important in temperate and subtropical regions. For Afrotropical region, they are few important biodiversity and taxonomic studies: Vondracek (1963) on jumping plant-lice from Central Africa (Congo); Capener (1968, 1970, 1973) on the Psyllidae from South Africa; Hollis (1976, 1984) on Jumping plant-lice of Ethiopia region and Afrotropical region; Burckhardt and Misfud (2003), Burckhardt *et al.* (2006) on the *Diclidophlebia* genus from Afrotropical region; Alene *et al.* (2007) on Ciriacreminae from Gabon and Malenovsky and Burckhardt (2009) on Afrotropical Jumping plant-lice of Phacopteronidae. In Cameroon particularly, few studies are done: Messi and Nguefang (1993) on a new species, *Mesohomotoma hollisi*, recorded on *Scaphopetalum Blackii*, Messi *et al.* (1998a, 1998b) on a new species, *Diclidophlebia xuani*, recorded on *Ricinodendron heudolotii*, Tamesse (2005) on the biodiversity, taxonomy and biology of psyllids of Cameroon, Tamesse *et al.* (2007) on Jumping plant-lice of Triozidae family, Malenovsky *et al.* (2007) on Jumping plant-lice of Phacopteronidae family, Dzokou *et al.* (2009) recognised 37 species, 22 genera and 7 subfamilies of psyllidae in West region of Cameroon, Yana *et al.* (2009, 2010) recognised 45 species, 24 genera and 7 subfamilies of psyllidae in Center region of Cameroon. Within the Psyllidae family, any study have been recorded in South region of Cameroon, which have characteristic flora different for the others regions.

In this study, we report the results from the survey from the South region of Cameroon with respect to the Psyllidae family as defined by Burckhardt (1987, 2005).

MATERIALS AND METHODS

From January 2006 to December 2007, psyllids were collected in 15 different localities of the South Region of Cameroon. This region comprised four divisions; altitudes and geographical coordinates of all localities where psyllids were collected are included in Table 1. Two localities were chosen for regular monthly inspections: Nkoemvone and Nkolandom. Additional localities were

Table 1: List of localities in South region of Cameroon, where psyllids were collected with altitudes and geographical coordinates

Divisions	Subdivisions	Localities	Altitudes (m)	Latitude (N)	Longitude (E)
Mvila	Ebolowa	Ebolowa	583	2°55'	11°09'
		Nkoemvone	583	2°55'	11°09'
		Nkolandom	583	2°55'	11°09'
		Ngallan	583	2°55'	11°09'
Dja et Lobo	Ngoulemakong	Ngoulemakong	730	3°05'	11°25'
	Meyonmesala	Nvo'meka	688	3°06'	12°15'
	Sangmelima	Sangmelima	704	2°56'	11°59'
	Zoetele	Zoetele	691	3°15'	11°53'
Ocean	Lolodorf	Lolodorf	457	3°14'	10°43'
		Madong	606	3°17'	10°46'
		Bikoka	457	3°14'	10°43'
	Bipindi	Bipindi	79	3°04'	10°24'
		Bijouka	289	3°07'	10°31'
		Makoure	49	3°03'	10°08'
Vallee du Ntem	Ambam	Ambam	565	2°23'	11°16'

visited occasionally. The method used in this study is the same method used by Dzokou *et al.* (2009) and Yana *et al.* (2010).

Adult psyllids were captured with a sweep net of 0.5 mm mesh size and an aspirator. Larvae were sampled directly from buds and leaves of the host plant. All specimens were preserved in 70% ethanol. The damage caused by the psyllids on the host plants was recorded and photographed. Specimens of the host plant were taken for identification by botanists of the University of Yaounde I and the National Herbarium in Yaounde.

At the Laboratory of Zoology of the Higher Teacher's Training College of the University of Yaounde I, were parts of the material is preserved, the insects were examined under a stereomicroscope, sorted to species and provisionally identified using psyllid identification keys. Representatives of most species were examined at the Naturhistorisches Museum Basel, Switzerland, where detailed taxonomic studies were done. A collection of dry and slide mounted specimens as well as material preserved in 70% ethanol is preserved in this institution.

RESULTS

During the survey 4813 specimens (1306 males, 2146, females and 1361 larvae) of Psyllidae were captured representing 6 subfamilies, 16 genera and 35 species. Host plants of 34 psyllid species could be recorded; only one plant specie remains unknown.

Subfamily aphalaroidinae loginova 1964

Genus *Yangus* fang 1990: *Yangus* sp.1 (host plant: *Albizia adiantifolia*, Fabaceae): Nkoemvone: 27 i 2006, 3 males, 4 females, 3 larvae; 28 i 2006, 2 males, 1 female, 4 larvae; 18 ii 2006, 1 male, 4 females, 1 larva; 23 iii 2006, 2 males, 6 females, 12 larvae; 26 v 2006, 7 males, 10 females, 11 larvae; 23 vi 2006, 8 males, 16 females, 22 larvae; 21 ix 2006, 1 male, 3 females; 14 xii 2006, 1 male, 2 females; 24 iii 2007, 2 males, 8 females, 10 larvae; 24 iv 2007, 6 males, 9 females, 5 larvae; 29 vi 2007, 1 male, 1 female; 25 vii 2007, 3 males, 5 females, 4 larvae; 17 viii 2007, 1 male, 8 females, 2 larvae; 25 x 2007, 3 males, 12 females, 14 larvae. Ngoulemakong: 2 vi 2006, 2 males, 1 larva; 15 viii 2006, 7 males, 15 females, 20 larvae; 30 iii 2007, 3 males, 6 females, 1 larva. Ngallan: 23 xii 2006, 3 males, 4 females, 4 larvae; 27 i 2007, 1 male, 4 females. Nkolandom:

23 vi 2006, 4 males, 6 females; 21 x 2006, 3 males, 6 females 3 larvae; 30 viii 2007, 4 males, 8 females. Madong: 08 ix 2007, 2 males, 5 females, 4 larvae.

Yangus sp. 2 (host plant: *Albizia attissima*, Fabaceae): Nkoemvone : 29 I 2006, 3 males, 5 females; 23 ii 2006, 1 male, 2 female; 25 v 2006, 4 males, 10 females, 7 larvae. Nvo'meka: 26 x 2006, 2 males, 5 females, 5 larvae; 14 xii 2006, 1 male, 2 females; 27 vii 2007, 2 females. Nkolandom: 28 i 2006, 1 female; 24 v 2006, 1 male, 2 females; 25 x 2006, 1 male, 1 female; 13 xii 2006, 1 female; 21 v 2007, 5 females, 3 larvae; 22 ix 2007, 3 males, 7 females, 2 larvae.

Yangus sp. 3 (host plant: *Albizia glaberrima*, Fabaceae): Zoetele: 29 iii 2007, 3 males, 12 females; 22 v 2007, 7 males, 8 females, 3 larvae. Bikoka: 08 ix 2007, 10 males, 17 females, 7 larvae. Nkoemvone: 16 iii 2006, 2 males, 4 females, 6 larvae; 20 iv 2006, 1 male, 3 females, 1 larva; 25 v 2006, 2 females; 21 vi 2006, 4 females, 1 larva; 20 vii 2006, 2 males, 3 females; 28 ix 2006, 3 males, 8 females, 14 larvae; 26 x 2006, 1 male, 4 females; 16 xi 2006, 3 males, 5 females; 27 I 2007, 1 male, 3 females; 29 iii 2007, 2 males, 3 females.

Yangus sp. 4 (host plant: *Albizia zygia*, Fabaceae): Nkolandom: 23 vi 2006, 2 males, 10 females, 5 larvae; 20 vii 2006, 2 males, 4 female, 29 ix 2006, 5 males, 7 females, 4 larvae.

Yangus sp. 5 (host plant: *Albizia ferruginea*, Fabaceae): Lolodorf: 08 ix 2007, 9 males, 14 females, 7 larvae; Nkoemvone : 28 i 2006, 1 male, 3 female; 28 iii 2006, 2 females; 21 iv 2006, 2 males, 5 females, 10 larvae; 22 vi 2006, 3 males, 4 females; 25 ix 2006, 8 male, 14 females, 21 larvae; 15 xi 2006, 5 males, 11 females, 6 larvae; 28 i 2007, 2 females; 22 v 2007, 4 males, 6 females, 3 larvae; 29 vi 2007, 1 male, 3 females.

Subfamily ciriacreminae enderlein 1960

Genus *Heteropsylla* crawford 1914: *Heteropsylla cubana* Crawford (host plant: *Leucaena* sp., July 8, 2010 Fabaceae): Nkoemvone: 22 iv 2006, 9 males, 13 females, 16 larvae; 24 v 2006, 8 males, 10 females, 12 larvae; 25 v 2006, 6 males; 26 vi 2006, 4 males, 8 females, 6 larvae; 27 vii 2006, 5 males, 7 females, 9 larvae; 28 ix 2006, 14 males, 20 females, 14 larvae; 24 x 2006, 1 male, 3 females, 2 larvae; 15 xii 2006, 7 males, 9 females, 4 larvae; 28 I 2007, 11 males, 15 females, 9 larvae; 25 iii 2007, 16 males, 18 females, 7 larvae; 23 iv 2007, 7 males, 10 females, 7 larvae; 27 v 2007, 11 males, 13 females, 4 larvae; 26 vi 2007, 2 males, 10 females, 12 larvae; 25 viii 2007, 10 males, 14 females, 11 larvae; 25 xi 2007, 2 females, 2 larvae; 12 xii 2007, 2 males, 6 females. Ambam: 27 vi 2006, 10 males, 13 females, 7 larvae; 25 x 2006, 5 males, 8 females, 4 larvae; 14 xii 2006, 12 males, 17 females, 12 larvae. Bikoka: 08 ix 2007, 22 males, 31 females, 18 larvae; Bijouka: 09 ix 2007, 18 males, 24 females, 21 larvae; Zoetele: 29 iii 2007, 14 males, 21 females, 10 larvae.

Genus *Ciriacremum* enderlein 1960: *Ciriacremum nigeriense* Hollis (host plant: *Hylodendron gabunense*, Fabaceae): Nkolandom: 28 i 2006, 3 males, 7 females, 6 larvae; 30 iii 2006, 7 males, 14 females, 6 larvae; 21 iv 2006, 2 males, 5 females, 1 larva; 24 v 2006, 3 males, 8 females, 4 larvae; 23 vi 2006, 7 males, 10 females, 7 larvae; 27 vii 2006, 5 males, 9 females, 6 larvae; 26 ix 2006, 4 males, 10 females, 9 larvae; 24 x 2006, 4 male, 7 females, 6 larvae; 23 xi 2006, 2 males, 4 females, 4 larvae; 15 xii 2006, 5 female, 2 larvae; 27 i 2007, 3 females, 1 larva; 27 ii 2007, 3 males, 4 females, 3 larvae; 28 iii 2007, 5 males, 12 females; 23 iv 2007, 9 males, 12 females, 6 larvae; 21 vii 2007, 7 males, 10 females, 6 larvae; 23 ix 2007, 3 males, 3 females, 2 larvae; 26 x 2007, 1 male, 4 females, 1 larva; 16 xii 2007, 2 males. Nkoemvone: 27 vii 2006, 2 males, 3 females, 1 larva; 26 ix 2006, 7 females, 2 larvae; 23 xi 2006, 2 males, 3 females; 27 i 2007, 1 male, 2 females; 28 iii 2007, 2 males, 4 females, 2 larvae; 21 vii 2007, 6 males, 12 females, 3 larvae. Sangmelima: 28 iii 2007, 3 males, 3 females, 2 larvae. Ambam: 27 vi 2006, 6 males, 4 females, 4 larvae.

Ciriacremum sp. 1 (host plant: *Plagiosiphon longitubus*, Fabaceae): Nkoemvone: 28 i 2006, 2 males, 4 females; 30 iii 2006, 5 males, 3 females, 2 larvae; 22 iv 2006, 10 males, 17 females, 8 larvae; 24 v 2006, 15 males, 27 females, 20 larvae; 27 vii 2006, 11 males, 19 females, 34 larvae; 28 ix 2006, 12 males, 17 females, 10 larvae; 24 x 2006, 5 male, 6 females, 2 larvae; 15 xii 2006, 2 males, 3 females, 2 larvae; 26 i 2007, 6 males, 5 females, 3 larvae; 25 iii 2007, 4 males, 7 females, 1 larva; 23 iv 2007, 7 males, 11 females, 5 larvae; 26 v 2007, 22 males, 34 females, 16 larvae; 26 vi 2007, 12 males, 14 females, 9 larvae; 24 viii 2007, 9 males, 14 females, 6 larvae; 25 xi 2007, 6 males, 11 females, 12 larvae; 12 xii 2007, 4 males, 6 females, 2 larvae. Nkolandom: 23 ii 2006, 3 males, 7 females, 2 larvae; 25 v 2006, 12 males, 15 females, 7 larvae; 27 vii 2006, 7 males, 9 females, 10 larvae; 26 i 2007, 1 male, 13 females, 1 larvae; 23 iv 2007, 6 males, 17 females, 20 larvae; 25 viii 2007, 8 males, 11 females, 8 larvae. Lolodorf: 08 ix 2007, 12 males, 21 females; 09 ix 2007, 8 males, 12 females, 2 larvae; Nvo'meka: 26 x 2006, 7 males, 12 females, 4 larvae; 14 xii 2006, 4 females; 27 vii 2007, 3 males, 7 females. Zoetele: 26 vii 2007, 1 male, 2 females.

Ciriacremum sp. 2 (host plant: *Hymenostegia felicis*, Fabaceae): Nkoemvone: 30 iii 2007, 2 males, 3 females, 2 larvae; 22 iv 2007, 7 males, 10 females, 5 larvae; 05 v 2007, 12 males, 15 females; 10 larvae; 27 vi 2007, 2 males, 4 females, 4 larvae; 26 vi 2007, 4 males, 3 females, 3 larvae; 24 viii 2007, 3 males, 4 females, 3 larvae; 22 ix 2007, 1 male, 2 females, 1 larva; 26 x 2007, 6 males, 9 females, 4 larvae; 12 xii 2007, 3 males, 5 females, 2 larvae; Nkolandom: 27 vi 2007, 2 males, 2 females, 2 larvae; 24 viii 2007, 1 male, 2 females, 2 larvae; 23 ix 2007, 4 males, 5 females, 2 larvae; 27 x 2007, 3 males, 8 females, 3 larvae; 13 xii 2007, 2 males, 3 females, 2 larvae.

Ciriacremum sp. 3 (host plant: *Hymenostegia afzelii*, Fabaceae): Makoure: 27 xii 2007, 2 males, 3 females.

Genus *Kleiniella* aulman 1912: *Kleiniella* sp. 1 (host plant: *Hymenostegia brachyura*, Fabaceae): Ngoulemakong: 26 v 2006, 2 male, 3 female; 27 vii 2006, 1 male; 23 iv 2007, 2 female. Nkolandom: 24 iv 2007, 1 male, 2 females.

Kleiniella sp. 2 (host plant: *Loesenera talbotii*, Fabaceae): Nkoemvone: 27 v 2007, 1 male, 2 females; 23 ix 2007, 2 males, 1 female.

Kleiniella sp. 3 (host plant: *Zenkerella citrina*, Fabaceae): Ngallan: 27 vii 2006, 1 male, 2 females; 25 x 2006, 2 females; 23 iv 2007, 1 male, 2 females; 20 vii 2007, 1 female.

Kleiniella sp. 4 (host plant: *Hymenostegia felicis*, Fabaceae): Nkoemvone: 30 iii 2007, 5 males, 8 females, 5 larvae; 22 iv 2007, 9 males, 14 females, 9 larvae; 05 v 2007, 15 males, 17 females; 9 larvae; 27 vi 2007, 4 males, 6 females, 3 larvae; 26 vi 2007, 5 males, 4 females, 2 larvae; 24 viii 2007, 3 males, 5 females, 2 larvae; 22 ix 2007, 2 males, 2 females; 26 x 2007, 10 males, 18 females, 12 larvae; 12 xii 2007, 5 males, 8 females, 4 larvae; Nkolandom: 27 vi 2007, 3 males, 3 females, 1 larva; 24 viii 2007, 2 males, 3 females, 3 larvae; 23 ix 2007, 4 males, 6 females, 4 larvae; 27 x 2007, 9 males, 12 females, 8 larvae; 13 xii 2007, 2 males, 5 females, 3 larvae.

Subfamily diaphorininae vondracek 1957

Genus *Diaphorina* low 1879: *Diaphorina* sp. (host plant: *Vernonia amygdalina*, Asteraceae): Ebolowa: 24 ix 2007, 14 males, 22 females, 24 larvae; 25 xi 2007, 10 males, 16 females, 13 larvae.

Epipsylla sp. 1 (host plant: *Margaritaria discoidea*, Euphorbiaceae): Nkolandom: 26 v 2007, 2 males, 1 females; 24 x 2006, 2 females; 25 viii 2007, 1 male, 1 female; 28 xi 2007, 1 female.

Epipsylla sp. 2 (host plant: *Baphiopsis* sp., Fabaceae): Nkoemvone: 26 v 2007, 1 male, 2 females.

Subfamily euphalerinae becker-migdisova 1973

Genus *Colophorina capener* (1973): *Colophorina* sp. (host plant: *Baphiopsis parviflora*, Fabaceae): Nkoemvone: 29 i 2006, 3 males, 2 females, 2 larvae; 30 iii 2006, 1 male, 4 female, 1 larva; 22 iv 2006, 1 male, 2 females, 1 larva; 25 v 2006, 3 males, 14 females, 5 larvae; 23 vi 2006, 2 males, 9 females, 3 larvae; 27 viii 2006, 2 males, 3 females, 1 larva; 25 x 2006, 7 females, 2 larvae; 27 i 2007, 2 males, 3 females, 2 larvae; 28 ii 2007, 4 males, 5 females, 3 larvae; 27 iv 2007, 9 males, 15 females, 15 larvae; 23 v 2007, 2 males, 6 females, 2 larvae; 22 vii 2007, 3 males, 2 females; 26 x 2006, 3 females; 20 vii 2007, 3 males, 5 females, 1 larva; 22 ix 2007, 1 female; 26 x 2007, 1 male, 3 females, 1 larva; 16 xii 2007, 4 females, 1 larva. Bipindi: 10 ix 2007, 2 males, 3 females, 2 larvae. Nkolandom: 22 iv 2006, 3 male, 6 females, 2 larvae; 24 ix 2006, 5 males, 7 females; 23 v 2007, 6 males, 12 females, 4 larvae. Ambam: 27 vi 2006, 5 males, 8 female, 2 larvae.

Genus *Euryconus aulman* 1912: *Euryconus* sp. (Host plant: *Dalium* sp., Fabaceae): Madong: 08 ix 2007, 1 male, 3 females, 1 larva. Bitchoka: 09 ix 2007, 3 females.

Gen. sp. 1 (host plant: *Millettia laurentii*, Fabaceae): Nkolandom: 28 i 2006, 5 males, 8 females, 3 larvae; 22 ii 2006, 4 males, 7 females, 2 larvae; 30 iii 2006, 2 males, 6 females; 22 iv 2006, 19 males, 27 females, 52 larvae; 25 v 2006, 21 males, 25 females, 43 larvae; 23 vi 2006, 10 males, 11 females, 19 larvae; 27 viii 2006, 3 males, 5 females, 1 larva; 26 ix 2006, 2 males, 3 females, 3 larvae; 25 x 2006, 12 males, 16 females, 15 larvae; 23 xi 2006, 4 males, 9 females, 2 larvae; 27 I 2007, 1 male, 2 females, 2 larvae; 28 ii 2007, 2 males, 2 females; 27 iv 2007, 9 males, 13 females, 11 larvae; 23 v 2007, 12 males, 20 females, 16 larvae; 22 vii 2007, 2 males, 6 females, 1 larva; 26 x 2007, 6 males, 10 females, 4 larvae. Bipindi: 10 ix 2007, 8 males, 11 females, 9 larvae. Nkoemvone: 27 iii 2006, 2 males, 6 females, 2 larvae; 22 iv 2006, 22 males, 32 females, 27 larva; 24 ix 2006, 6 males, 11 females, 2 larvae; 23 v 2007, 7 males, 9 females, 8 larvae. Ngallan: 22 iv 2006, 11 males, 17 females, 16 larvae; 25 v 2006, 8 males, 12 females, 22 larvae; 27 viii 2006, 2 males, 4 females, 2 larvae; 23 xi 2006, 2 males, 8 female, 3 larvae; 28 ii 2007, 2 females; 27 iv 2007, 13 males, 22 females, 17 larvae; 23 v 2007, 10 males, 18 females, 9 larvae; 23 vii 2007, 3 males, 5 females; 26 x 2007, 3 males, 7 females, 2 larvae.

Gen. sp. 2 (host plant: *Detarium macrocarpum*, Fabaceae): Bikoka: 09 ix 2007, 2 males, 5 females; 10 ix 2007, 1 male, 3 females. Bijouka: 10 ix 2007, 2 females. Nkolandom: 28 xii 2007, 1 female.

Gen. sp. 3 (host plant: *Millettia* sp., Fabaceae): Nvo'meka: 27 vii 2007, 2 females; 27 vii 2007, 1 male, 1 female.

Subfamily paurocephalinae vondracek (1963)

Genus *Paurocephala crawford* 1914: *Paurocephala* sp. 1 (host plant: *Cnestis ferruginea*, Connaraceae): Nkolandom: 22 iv 2006, 7 males, 12 females, 6 larvae; 26 v 2006, 5 males, 9 females, 5 larvae; 24 vi 2006, 4 males, 4 females, 3 larvae; 27 viii 2006, 2 males, 3 females, 1 larva; 27 ix 2006, 2 males, 3 females; 25 x 2006, 3 males, 6 females, 2 larvae; 27 i 2007, 2 males, 3 female, 2 larvae; 28 ii 2007, 3 males, 4 females, 3 larvae; 25 iii 2007, 4 males, 6 females; 27 iv 2007, 7 males, 12 females, 9 larvae; 23 v 2007, 3 males, 4 females, 1 larva; 26 vi 2007, 2 males, 6 females, 3 larvae; 27 x 2007, 1 male, 2 females, 4 larvae; 28 xi 2007, 6 males, 9 females, 10 larvae; 16 xii 2007, 1 male, 3 females. Bipindi: 10 ix 2007, 7 males, 10 females, 12 larvae. Nkoemvone: 24 vi 2006, 5 males, 7 females, 4 larvae; 24 ix 2006, 3 males, 5 females; 23 i 2007, 3 males, 4 females, 2 larvae; 28 v 2007, 7 males, 14 females, 7 larvae. Ambam: 27 vi 2006, 2 males, 2 females, 3 larvae.

Paurocephala sp. 2 (host plant: *Agelaea hirsuta*, Connaraceae): Nkoemvone: 05 v 2007, 5 males, 8 females, 3 larvae; 27 vii 2007, 2 males, 2 females, 1 larva; 28 ix 2007, 1 male, 2 females; 23 x 2007, 2 males, 5 females, 2 larvae; 17 xii 2007, 1 male, 1 female. Bijouka: 10 ix 2007, 3 males, 5 females, 1 larva.

Paurocephala sp. 3 (host plant unknown): Nkoemvone: 26 v 2006, 2 males, 4 females; 28 vii 2006, 1 male, 2 females; 25 x 2006, 2 females.

Genus *Diclidophlebia* crawford 1920: *Diclidophlebia eastopi* Vondráček, 1963 (host plant: *Triplochiton scleroxylon*, Sterculiaceae): Ngallan: 28 ix 2006, 1 male, 1 female; 26 x 2006, 3 females; 23 xi 2006, 1 male, 2 females, 1 larva; 24 i 2007, 1 male, 2 females; 26 ii 2007, 1 male, 2 females, 1 larva; 27 iv 2007, 4 males, 7 females; 25 v 2007, 3 males, 4 females; 28 vii 2007, 1 female; 27 ix 2007, 1 male, 2 females, 2 larvae; 25 xi 2007, 1 male. Zoetele: 29 iii 2007, 2 males, 3 females.

Diclidophlebia harrisoni Osisanya, 1969 (host plant: *Triplochiton scleroxylon*, Sterculiaceae): Ngallan: 26 x 2006, 1 female; 23 xi 2006, 1 male, 1 female; 24 i 2007, 2 males, 1 female; 26 ii 2007, 2 females; 28 vii 2007, 1 male.

Diclidophlebia xuani Messi, 1998 (host plant: *Ricinodendron heudelotii*, Euphorbiaceae): Nkoemvone: 27 x 2006, 2 males, 3 females; 26 xi 2006, 4 males, 5 females, 2 larvae; 16 xii 2006, 1 male, 2 females, 2 larvae; 24 ii 2007, 7 males, 8 females, 4 larvae; 25 iii 2007, 7 males, 8 females, 16 larvae; 26 iv 2007, 7 males, 12 females, 10 larvae; 27 vi 2007, 2 males, 1 female, 4 larvae; 26 ix 2007, 1 male, 2 females, 1 larva. Nkolandom: 26 iv 2007, 3 males, 7 females, 8 larvae; 26 vii 2007, 3 males, 4 females, 3 larvae; 28 viii 2007, 2 males, 3 females; 25 ix 2007, 3 females; 24 x 2007, 1 male, 1 female.

Diclidophlebia irvingiae Burckhardt *et al.* (2006) (host plant: *Irvingia gabonensis*, Simaroubaceae): Ngallan: 24 iv 2007, 1 male, 1 female.

Diclidophlebia leptonychia Burckhardt *et al.* (2006) (host plant: *Leptonychia macrantha*, Sterculiaceae): Lolodorf: 10 ix 2007, 1 male, 2 females; 11 ix 2007, 2 females.

Diclidophlebia sp. (host plant: *Urena lobata*, Fabaceae): Nkoemvone: 05 v 2007, 7 males, 10 females, 2 larvae; 24 vi 2007, 3 males, 7 females, 2 larvae; 27 vii 2007, 2 males, 5 females; 27 ix 2007, 1 male, 1 female; 29 x 2007, 3 males, 6 females; 26 xi 2007, 1 male, 4 females. Bijouka: 10 ix 2007, 6 males, 12 females.

Genus *Syntomoza* enderlein 1921: *Syntomoza* sp. (host plant: *Homalium letestui*, Flacourtiaceae): Nvo'meka: 27 vii 2007, 4 males, 8 females; 28 vii 2007, 7 males, 10 females, 3 larvae.

Subfamily psyllinae/arytaininae crawford 1879

Genus *Palaeolindbergiella* heslop-harrison 1961: *Palaeolindbergiella* sp.1 (host plant: *Dalbergia* sp, Fabaceae): Nkoemvone: 28 vii 2007, 3 males, 4 females, 4 larvae; 25 viii 2007, 2 males, 3 females, 1 larva; 28 x 2007, 2 males, 6 females, 2 larvae; 26 xi 2007, 1 male, 2 females, 1 larva.

Palaeolindbergiella sp. 2 (host plant: *Dalbergia* sp, Fabaceae): Nkoemvone: 28 vii 2007, 2 males, 5 females, 3 larvae; 25 viii 2007, 2 males, 3 females; 28 x 2007, 7 males, 8 females, 5 larvae.

Gen. sp. (host plant: *Anthonotha macrophylla*, Fabaceae): Bijouka: 10 xii 2007, 15 larvae; Makoure: 27 xii 2007, 3 males, 5 females.

DISCUSSION

Faunistics: From January 2006 to December 2007, a survey in the South Region of Cameroon permitted to collect 35 species of Psyllidae. They belong to the following 6 subfamilies: Aphalaroidinae (1 genus, 5 species), Ciriaceminae (3 genera, 9 species), Diaphorininae (2 genera, 3 species), Euphalerinae (5 genera, 5 species), Paurocephalinae (3 genera, 10 species) and Psyllinae/Arytaininae (2 genera, 3 species). The biodiversity of psyllids of Psyllidae family recovered in the south region of Cameroon was in contrast of what previous works showed in Cameroon. But some species collected in this region were also collected by previous researched in the West and Center regions of Cameroon. Tamesse (2005) listed 26 species of Psyllidae from the entire territory of Cameroon; Dzokou *et al.* (2009) and Yana *et al.* (2010) listed respectively 37 and 45 species of Psyllidae in West and Center region of Cameroon. Thirty one psyllids species of Psyllidae family recorded in the Center region of Cameroon (Yana *et al.*, 2010), were collected during this study in South region of Cameroon. These species are: *Yangus* sp. 3; *Yangus* sp. 4; *Yangus* sp. 5; *Heteropsylla cubana*; *Ciriacremum nigeriense*; *Ciriacremum* sp. 1; *Ciriacremum* sp. 3; *Kleiniella* sp. 1; *Kleiniella* sp. 2; *Kleiniella* sp. 3; *Diaphorina* sp.; *Epipsylla* sp. 1; *Epipsylla* sp. 2; *Colophorina* sp.; *Euryconus* sp.; *Gen.* sp. 1; *Gen.* sp. 2; *Gen.* sp. 3; *Paurocephala* sp. 1; *Paurocephala* sp. 2; *Diclidophlebia eastopi*; *Diclidophlebia harrisoni*; *Diclidophlebia xuani*; *Diclidophlebia irvingiae*; *Diclidophlebia leptonychiae*; *Diclidophlebia* sp.; *Syntomoza* sp.; *Palaeolindbergiella* sp.1; *Palaeolindbergiella* sp.2 and *Gen.* sp. The common species were very high; this can be explain by the similar climate and vegetation we have in the Center and South regions; the population of *Ciriacremum nigeriense* and *Ciriacremum* sp. 1 was more important in South region than in the Center region; some species were less important in density compare to what we recorded in the Center region: *Yangus* sp. 4; *Ciriacremum* sp. 3; *Kleiniella* sp. 2; *Epipsylla* sp. 1; *Epipsylla* sp. 2 and *Paurocephala* sp. 2. Fourth species recorded in the South region: *Yangus* sp. 2; *Ciriacremum* sp. 2; *Kleiniella* sp. 4 and *Paurocephala* sp. 3 were not collected in the Center region.

Nine psyllids species of Psyllidae family recorded in the West region of Cameroon (Dzokou *et al.*, 2009), were collected during this study in South region of Cameroon. These species are: *Yangus* sp.1; *Yangus* sp. 2; *Yangus* sp. 3; *Yangus* sp. 4; *Heteropsylla cubana*; *Diaphorina* sp.; *Paurocephala* sp. 1; *Palaeolindbergiella* sp.1 and *Palaeolindbergiella* sp.2. Some important difference between climate and vegetation in this two regions, can explain this result; all those species have more representative effective in South region except *Diaphorina* sp. Twenty six species recorded here were not observed in the Western region according to Dzokou *et al.* (2009).

Three psyllids species of Psyllidae family were collected in the South region of Cameroon. Any of these species weren't recorded in the Center and west region of Cameroon. These species are: *Ciriacremum* sp.2, *Kleiniella* sp. 4 collected in host plant, *Hymenostegia felicis* and *Paurocephala* sp. 3. *Hymenostegia felicis* can be a host plant which is endemic of certain localities of the south region.

One specie is exotic pest which recently have been introduced into Cameroon: *Heteropsylla cubana* develops on *Leucaena* spp. Both are pests on their hosts and have been reported also from elsewhere in Africa.

Seven species were common being collected at least Twenty times: Euphalerinae *Gen.* sp. 1 (30 times), *Ciriacremum* sp. 1 (27 times), *Paurocephala* sp. 1 (26 times), *Ciriacremum nigeriense* (26 times), *Heteropsylla cubana* (22 times), *Colophorina* sp. (22 times), *Yangus* sp. 1 (23 times). Seventeen species were collected less than five times: *Ciriacremum* sp. 3, *Kleiniella* sp. 1, *Kleiniella* sp. 2, *Kleiniella* sp. 3, *Diaphorina* sp., *Epipsylla* sp.1, *Epipsylla* sp. 2, *Euryconus* sp.,

Euphaleurinae Gen. sp. 2, Euphaleurinae Gen. sp. 3, *Paurocephala* sp. 3, *Diclidophlebia irvingiae*, *Diclidophlebia leptonchiaie*, *Syntomoza* sp., *Palaeolindbergiella* sp. 1, *Palaeolindbergiella* sp. 2 and Psyllinae/Arytaininae Gen. sp.

Phenology: From January 2006 to December 2007, *Heteropsylla cubana* was collected 22 times at Nkoemvone. Most of the time all developmental stages were observed on its host plant, *Leucena* sp. Psyllids pullulation were noted from April and September 2006, from March and August 2007. The monthly variation of larvae, males and females of *Heteropsylla cubana* collected at Nkoemvone on *Leucena* sp. showed that psyllid pullulation varied during the period of observations (Fig. 1). Phenology of host plant justifies this proliferation because during the rainy season, this plant renews its leaves.

From January 2006 to December 2007, *Ciriacremum nigeriensis* was collected 26 times at Nkolandom. Most of the time all developmental stages were observed on its host plant, *Hylodendron gabunensis*. Four peaks of proliferation were observed: March, June and September 2006 and April 2007. The monthly variation of larvae, males and females of *Ciriacremum nigeriense* collected at Nkolandom on *Hylodendron gabunensis* showed that psyllid pullulation varied from one month to another during the period of observations (Fig. 2). Phenology of host plant justifies this proliferation because during the rainy season it renews their leaves.

From January 2006 to December 2007, *Yangus* sp. 1 was collected 23 times at Nkoemvone. Most of the time all developmental stages were observed on host plant, *Albizia adiantifolia*. Three peaks of proliferation were observed: a major peak at June 2006, a constant peak from March to June 2007 and the last peak at October 2007. The monthly variation of larvae, males and females of *Yangus* sp. 1 collected at Nkoemvone on *Albizia adiantifolia* showed that psyllids pullulation varied from one month to another during the period of observations (Fig. 3). This difference of proliferation was dued by the phenology of host plant.

From January 2006 to December 2007, *Ciriacremum* sp. 1 was collected 27 times at Nkoemvone. Most of the time all developmental stages were observed on host plant, *Plagiosiphon*

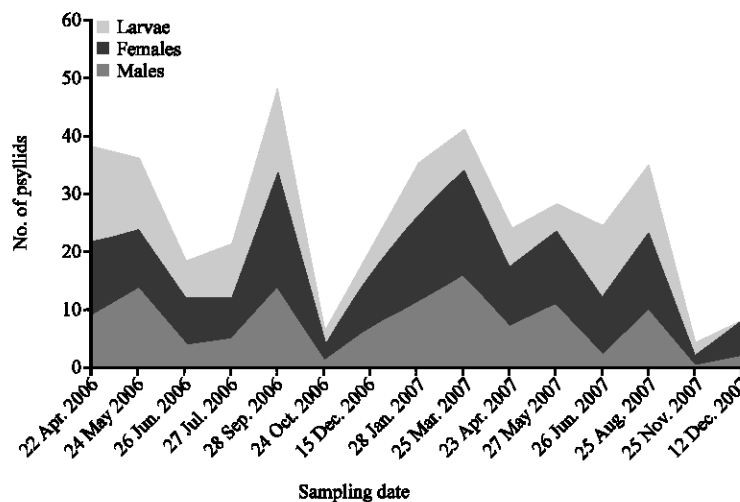


Fig. 1: Numbers of larvae, males and females of *Heteropsylla cubana* collected at Nkoemvone on *Leucena* sp.

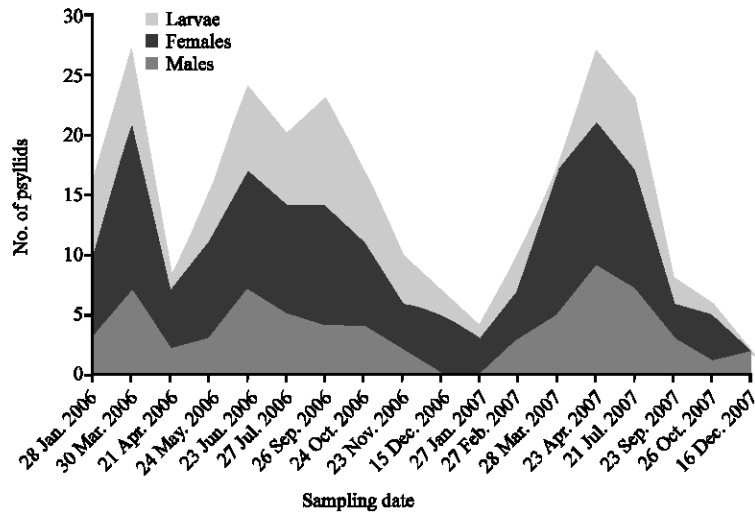


Fig. 2: Numbers of larvae, males and females of *Ciriacremun nigeriense* collected at Nkolandom on *Hylodendron gabunensis*

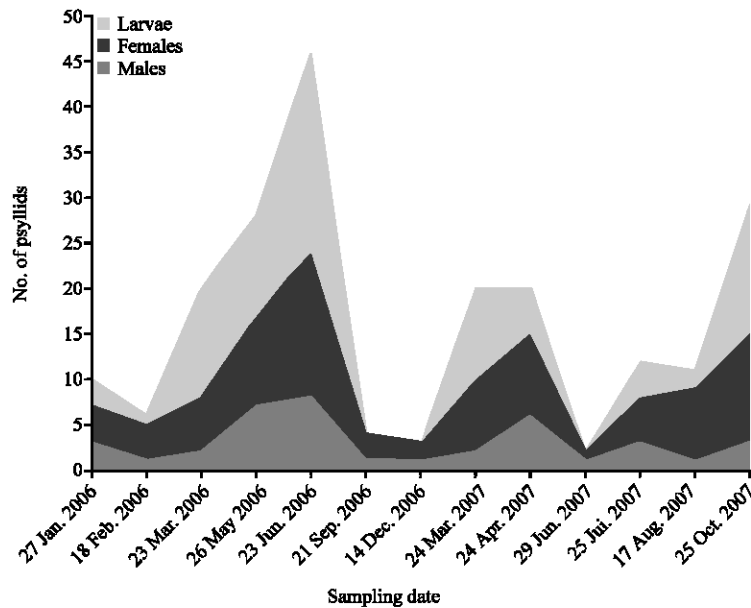


Fig. 3: Numbers of larvae, males and females of *Yangus* sp. 1 collected at Nkoemvone on *Albizia adiantifolia*

longitubus. Two peaks of proliferation were noted: May to July 2006 and May 2007. The monthly variation of larvae, males and females of *Ciriacremun* sp. 1 collected at Nkoemvone on *Plagiosiphon longitubus* showed that psyllid pullulation varied from one month to another during the period of this study (Fig. 4). Phenology of host plant justifies this proliferation because during the rainy season it renews their leaves.

From January 2006 to December 2007, *Colophorina* sp. was collected 22 times at Nkoemvone. Most of the time all developmental stages were observed on host plant, *Baphiopsis parviflora*. Two

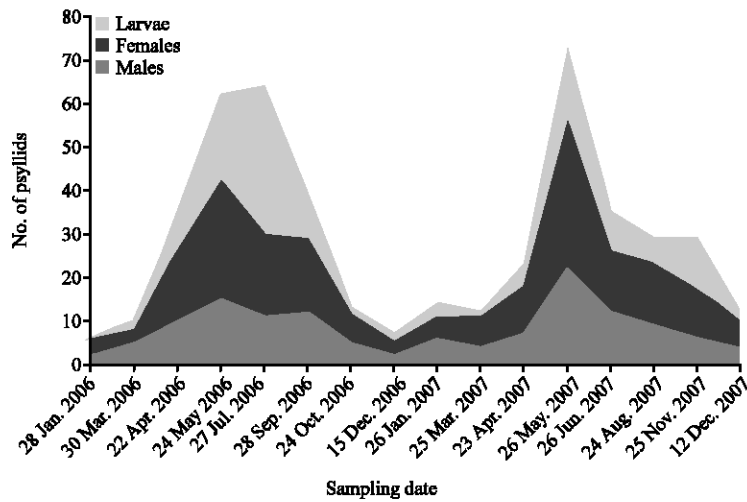


Fig. 4: Numbers of larvae, males and females of *Ciriacremun* sp. 1 collected at Nkoemvone on *Plagiosiphon longitubus*

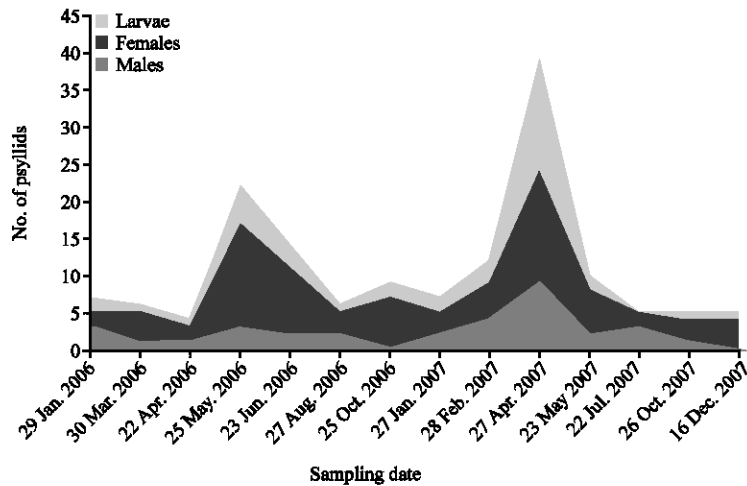


Fig. 5: Numbers of larvae, males and females of *Colophorina* sp. collected at Nkoemvone on *Baphiopsis parviflora*

peaks of proliferation were observed: a minor peak at May 2006, a major peak at April 2007. The monthly variation of larvae, males and females of *Colophorina* sp. collected at Nkoemvone on *Baphiopsis parviflora* showed that psyllid pullulation varied from one month to another during the period of observations (Fig. 5). After the rainfall, this host plant renews their leaves, Phenology of host plant justifies this proliferation.

From January 2006 to December 2007, Euphalerinae *Gen.* sp. 1 was collected 30 times at Nkolandom. Most of the time all developmental stages were observed on host plant, *Millettia laurentii*. Three peaks of proliferation were noted: a major peak at April 2006, two minor peaks at October 2006 and May 2007. The monthly variation of larvae, males and females of Euphalerinae *Gen.* sp.1 collected at Nkolandom on *Millettia laurentii* showed that psyllid pullulation varied from one month to another during the period of observations (Fig. 6).

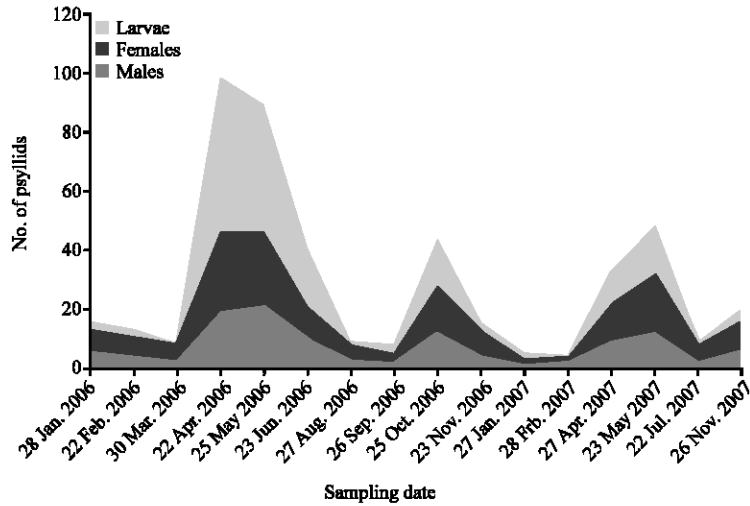


Fig. 6: Numbers of larvae, males and females of *Euphalerinae Gen. sp.1* collected at Nkolandom on *Millettia laurentii*

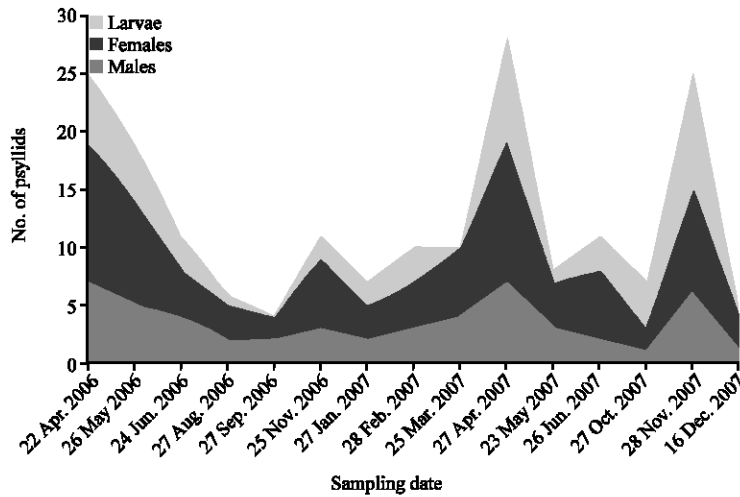


Fig. 7: Numbers of larvae, males and females of *Paurocephala. sp.1* collected at Nkolandom on *Cnestis ferruginea*

From January 2006 to December 2007, *Paurocephala. sp.1* was collected 26 times at Nkolandom. Most of the time all developmental stages were observed on host plant, *Cnestis ferruginea*. Three peaks of proliferation were observed: April 2006 and 2007, November 2007; two minor peaks insert to the major peak: November 2006 and June 2007. The monthly variation of larvae, males and females of *Paurocephala. sp.1* collected at Nkolandom on *Cnestis ferruginea* showed that psyllid pullulation varied from one month to another during the period of observations (Fig. 7). Phenology of host plant justifies this proliferation because during and after the rainy season it renews their leaves.

Table 2: List of Host plants families and genera with associated psyllid species from the South region of Cameroon

Host family	Host genus	Associated psyllid species
Asteraceae	<i>Vernonia</i>	<i>Diaphorina</i> sp.
Connaraceae	<i>Agelaea</i>	<i>Paurocephala</i> sp. 2
Connaraceae	<i>Cnestis</i>	<i>Paurocephala</i> sp. 1
Euphorbiaceae	<i>Margarit aria</i>	<i>Epipsylla</i> sp. 1
Euphorbiaceae	<i>Ricinodendron</i>	<i>Diclidophlebia xuani</i>
Fabaceae	<i>Loesenera</i>	<i>Kleiniella</i> sp. 2
Fabaceae	<i>Albizia</i>	<i>Yangus</i> sp. 1; <i>Y.</i> sp. 2; <i>Y.</i> sp. 3; <i>Y.</i> sp. 4; <i>Y.</i> sp. 5
Fabaceae	<i>Anthonotha</i>	Psyllinae Gen. sp.
Fabaceae	<i>Baphiopsis</i>	<i>Colophorina</i> sp.; <i>Epipsylla</i> sp. 2
Fabaceae	<i>Dalbergia</i>	<i>Palaeolindbergiella</i> sp. 1; <i>P.</i> sp. 2
Fabaceae	<i>Detarium</i>	Euphalerinae Gen. sp 2
Fabaceae	<i>Dialium</i>	<i>Euryconus</i> sp.
Fabaceae	<i>Hylodendron</i>	<i>Ciriacremum nigeriense</i>
Fabaceae	<i>Hymenostegia</i>	<i>Ciriacremum</i> sp. 2; <i>C.</i> sp. 3; <i>Kleiniella</i> sp. 1; <i>K.</i> sp. 4
Fabaceae	<i>Leucaena</i>	<i>Heteropsylla cubana</i>
Fabaceae	<i>Millettia</i>	Euphalerinae Gen. sp.1; Euphalerinae Gen. sp.3
Fabaceae	<i>Plagiosiphon</i>	<i>Ciriacremum</i> sp. 1
Fabaceae	<i>Urena</i>	<i>Diclidophlebia</i> sp.
Fabaceae	<i>Zenkerella</i>	<i>Kleiniella</i> sp. 3
Flacourtiaceae	<i>Homalium</i>	<i>Syntomoza</i> sp.
Simaroubaceae	<i>Irvingia</i>	<i>Diclidophlebia irvingiae</i>
Sterculiaceae	<i>Leptonychia</i>	<i>Diclidophlebia leptonychia</i>
Sterculiaceae	<i>Triplochiton</i>	<i>Diclidophlebia eastopi</i> ; <i>D. Harrisoni</i>

Host plants: Host plants families and genera with associated psyllid species are listed; only one psyllid specie reported from the South Region of Cameroon have unknown host plant (Table 2).

The Fabaceae constitutes the family with the largest number of associated psyllid species, it includes 14 species of host plants; their psyllids belong to the genera: *Ciriacremum*, *Colophorina*, *Diclidophlebia*, Euphalerinae Gen. sp., *Euryconus*, *Heteropsylla*, *Kleiniella*, *Palaeolindbergiella* sp., Psyllinae/Arytaininae Gen. sp. and *Yangus*. In this family, *Hymenostegia felicis* hosted two different species: *Ciriacremum* sp. 2 and *Kleiniella* sp. 4; and *Dalbergia* sp. hosted also two different species of *Palaeolindbergiella* genus. *Albizia* and *Hymenostegia* genera host plant were respectively associated five and four psyllid species. The family of Connaraceae includes two species; their psyllids belong to the *Paurocephala* genus. The family of Euphorbiaceae includes two species; their psyllids belong to the *Diclidophlebia* and *Epipsylla* genera. The family of Sterculiaceae includes two species; their psyllids belong to the *Diclidophlebia* genus. The other families are represented by only one species: Asteraceae, its psyllid belongs to the *Diaphorina* genus; Flacourtiaceae and Simaroubaceae, its psyllids belong respectively to *Syntomoza* and *Diclidophlebia* genera. *Triplochiton scleroxylon* hosted two species: *Diclidophlebia eastopi* and *D. harrisoni*.

Some damages caused by psyllids of Psyllidae family on their host plants were recorded and photographed. During higher proliferation, larvae of Euphalerinae Gen. sp1 invaded leaves of *Milletia laurentii* (Fig. 8a); larvae of Psyllinae/Arytaininae Gen. sp on *Anthonota macrophylla* secreted a white waxy flocculence on the flowers and buds of their host plants (Fig. 8b); *Ciriacremum* sp. 3 on *Hymenostegia afzelii*, induced distortion and deformation on leaves (Fig. 8c). Larvae and adults of *Yangus* sp. 4, induced galls on leaves of *Albizia zigia* (Fig. 8d) and *Colophorina* sp. on *Baphiopsis parviflora* induced discoloration on leaves (Fig. 8e).



Fig. 8: Psyllids damages on host plants, (a) Larvae of Euphaleurinae *Gen. sp1* fixed on leaves of *Milletia laurentii*, (b) white waxy flocculence produced by Psyllinae/Arytaininae *Gen. sp* on *Anthonota macrophylla*, (c) distortion and deformation induced by larvae of *Ciriactremum sp. 3* on leaves of *Hymenostegia afzelii*, (d) distortion and galls induced by *Yangus sp. 4* on leaves of *Albizia zigia*, (e) white waxy flocculence and discoloring produced by *Colophorina sp.* on buds of *Baphiopsis parviflora*

In various regions of Cameroon, Tamesse (2005) collected 26 species of psyllids of Psyllidae family, within 14 genera and 8 subfamilies. In the Western region of Cameroon, Dzokou *et al.* (2009) recognised 37 species, 22 genera and 7 subfamilies. In the Center region of Cameroon, Yana *et al.* (2010) recognised 45 species, 24 genera and 7 subfamilies. During the present survey, we recorded within the same family in the South region of Cameroun, 35 species belonging to 16 genera and 6 subfamilies. Four genera and 18 species are undescribed. Among the 35 species, 30 are reported for the first time from the South region. The Psyllidae family is more diversify in Cameroon than Triozidae and Phacopteronidae families; according to Tamesse *et al.* (2007) who included 2 genera and 35 psyllids species in Triozidae family and Malenovskiy *et al.* (2007) who indicated 9 psyllids species in Phacopteronidae family in Cameroon.

ACKNOWLEDGMENTS

We thank Prof. B. Sonke (University of Yaounde I) and Dr. Tadjoute (National Herbarium Yaounde) for the identification of plants. This study was partly funded by the Swiss National Science Foundation (Research Partnership with Developing Countries, Project No. 3170A0-109221/1, to DB and JLT).

REFERENCES

- Alene, D.C., R. Hoess and D. Burckhardt, 2007. Ciriacreminae (Hemiptera: Psylloidea) from Gabon. *B. Soc. Entomol. Suis.*, 80: 135-160.
- Brown, R.G. and I.D. Hodkinson, 1988. Taxonomy and ecology of jumping plant-lice of Panama (Homoptera: Psylloidea). *Entomograph*, 9: 1-304.
- Burckhardt, D., 1987. Jumping plant lice (Homoptera: Psylloidea) of the temperate neotropical region. Part 1: Psyllidae (Subfamilies Aphalarinae: Rhinocolinae and Aphalaroidinae). *Zool. J. Linn. Soc.*, 89: 299-392.
- Burckhardt, D. and D. Misfud, 2003. Jumping plant-lice of the Paurocephalinae (Insecta, Hemiptera, Psylloidea). *Syst. Phylo. Contib. Nat. Hist.*, 2: 3-34.
- Burckhardt, D., M.M. Espirito-Santo, G.W. Fernandes and I. Malenovsky, 2004. Gall-inducing jumping plant-lice of the Neotropical genus *Baccharopelma* (Hemiptera, Psylloidea) associated with *Baccharis* (Asteraceae). *J. Nat. Hist.*, 38: 2051-2071.
- Burckhardt, D., 2005. Biology, Ecology and Evolution of Gall-Inducing Psyllids (Hemiptera: Psylloidea). In: *Biology, Ecology and Evolution of Gall-inducing Arthropods*, Raman, A., C.W. Schaefer and T.M. Withers (Eds.). Science Publication Inc., Enfield, NH, USA, pp: 143-157.
- Burckhardt, D., D.C. Alene, D. Ouvrard, J.L. Tamesse and J. Messi, 2006. Afrotropical members of the jumping plant-lice genus *Diclidophlebia* (Hemiptera: Psylloidea). *Invert. Syst.*, 20: 367-393.
- Capener, A.L., 1968. A new genus and species of Psyllidae (Homoptera) from South Africa. *J. Entomol. Soc. Southern Afr.*, 31: 361-364.
- Capener, A.L., 1970. Southern African Psyllidae (Homoptera)-2: Some new species of Diaphorina Löw. *J. Entomol. Soc. Southern Afr.*, 33: 201-226.
- Capener, A.L., 1973. Southern African Psyllidae (Homoptera)-3: A new genus and new species of South African Psyllidae. *J. Entomol. Soc. Southern Afr.*, 36: 37-61.
- Dzokou, V.J., J.L. Tamesse and D. Burckhardt, 2009. Jumping plant-lice of the family psyllidae (Hemiptera: Psylloidea) from West-Cameroon: Biodiversity and host plants. *J. Entomol.*, 6: 1-17.
- Hodkinson, I.D., 1974. The biology of the psylloidea (Homoptera): A review. *Bull. Entomol. Res.*, 64: 325-339.
- Hollis, D., 1976. Jumping plant lice of the tribe Ciriacremini (Homoptera, Psylloidea) in the Ethiopian region. *Bull. Brit. Mus. Nat. Hist. Entomol.*, 34: 1-83.
- Hollis, D., 1984. Afrotropical jumping plant lice of the family. Triozidae (Homoptera, Psylloidea). *Bull. Brit. Mus. Nat. Hist. Entomol.*, 49: 1-103.
- Malenovsky, I. and D. Burckhardt, 2009. A review of the Afrotropical jumping plant-lice of the Phacopteronidae (Hemiptera: Psylloidea). *Zootaxa*, 2086: 1-74.
- Malenovsky, I., D. Burckhardt and J.L. Tamesse, 2007. Jumping plant lice of the family Phacopteronidae (Hemiptera Psylloidea) from Cameroon. *J. Nat. Hist.*, 41: 1875-1927.

- Messi, J. and M. Nguefang, 1993. *Mesohomotoma hollisi*, espèce nouvelle de psylle inféodée à *Scaphopetalum blackii* Mast (Homoptera, Psylloidea). Bull. Soc. Entomol. Fr., 98: 127-130.
- Messi, J., D.C. Alene and J.L. Tamesse, 1998a. Une Nouvelle Espèce De Psylle, *Diclidophlebia Xuani* (Homoptera, Psylloidea), Dépredateur De *Ricinodendron Heudelotii* (Bail). In: Actes du 2^{ème} Séminaire International Sur La Vulgarisation Du Safoutier et Des Oléagineux Non Conventionnels, Kapsenv C. and G.J. Kayem (Eds.). Cameroun, Ngaoundéré, pp: 71-79.
- Messi, J., D.C. Alene and J.L. Tamesse, 1998b. *Diclidophlebia xuani* (Homoptera-Psylloidea) espèce nouvelle de psylle inféodée à *Ricinodendron heudelotii*. Ann. Fac. Sci. Univ. Yaoundé I. Sér. Sci. Vie Nat., 34: 233-237.
- Suchel, J.B., 1988. Les climats du Cameroun. Doctorate Thesis, Université de Saint-Etienne, France, pp: 1188.
- Tamesse, J.L., 2005. Contribution of the study of the biodiversity, taxonomy and biology of psyllids (Hemiptera Psylloidea) in Cameroon. Doctorat d'Etat Thesis, University of Yaoundé I, Cameroon. pp: 285.
- Tamesse, J.L., D. Burckhardt, V.J. Dzokou, W. Yana and Y.P. Mveyo-Ndankeu *et al.*, 2007. Jumping plant-lice of the family Triozidae (Hemiptera: Psylloidea) from Cameroon: Biodiversity and host plants. J. Entomol., 4: 181-193.
- Vondracek, K., 1963. Jumping plant-lice (Psylloidea-Homoptera) of Central Africa: Part I (Congo). Sb. Entomol. Odd. Ndr. Mus. Praze, 35: 263-290.
- Yana, W., J.L. Tamesse and D. Burckhardt, 2009. Jumping plant-lice of the family Phacopteronidae (hemiptera: Psylloidea) from Center Region of Cameroon: Biodiversity and host plants. Syllab. Rev., 1: 1-9.
- Yana, W., J.L. Tamesse and D. Burckhardt, 2010. Jumping plant-lice of the family Psyllidae Latreille (Hemiptera: Psylloidea) from the center region of Cameroon: Faunistics, phenology and host plants. J. Entomol., 7: 1-18.