

closely related species require further experimental analysis, e.g. by means of play-back experiments. Table 1 presents some preliminary results of such experiments, which elsewhere will be reported on in more detail. At this stage it cannot be decided whether these results, which remarkably differ not only between different pairs of species but also between reciprocal combinations of the same pair of species, may be considered to reflect the actual significance of calling-signals in species isolation. Finally it should be emphasized that calling behaviour represents only the initial stage of mating behaviour in planthoppers and that more definite conclusions on possible acoustic isolation mechanisms require a complete analysis of courtship and mating behaviour.

Table 1: Mean levels of responsivity shown by females to play-back of male calling-signals of different species at 20°C. (For details on methodology see DE VRIJER, P. W. F., Neth. J. Zool.: in press)

Female species (n = 20)	Male species		
	<i>J. dubia</i>	<i>J. obscurella</i>	<i>J. pellucida</i>
<i>J. dubia</i> (KBM)	96%	8%	18%
<i>J. obscurella</i> (BOH.)	22%	99%	44%
<i>J. pellucida</i> (FAB.)	30%	10%	98%

Flight in grassland and arboreal Auchenorrhyncha

N. WALOFF

Imperial College at Silwood Park, Ascot, Berks. SL5 7PY, UK

Except in some major pest species, flight in Auchenorrhyncha has been insufficiently studied. Simple tests, e.g. releasing individuals from a height of 5.5 m, indicated that some species are primarily “flyers”, others “flitters” or “jumpers”. A comparative study of the flight apparatus should be rewarding.

Flight ability was also gauged by catches in a series of aerial suction traps, in which a third of all the species of British Auchenorrhyncha were recorded. For 10 years two identical traps were operated side by side at 1.2 and 9.1 m above ground level. More individuals of the arboreal species were caught in the higher trap, while the reverse was true of dwellers on low vegetation. Probably it is not migratory, but trivial flight that leads to this aerial stratification of species.

Alary polymorphism is common in Auchenorrhyncha, but in many taxa of the Hemiptera it is absent in the arboreal species. Thus all tree-dwelling cicadellids are fully winged and so are all Psyllidae and Aleyrodiade among the Sternorrhyncha and most of them live on woody Angiosperms. Again, most phytophagous, arboreal Heteroptera are macropterous and monomorphic (Table 1). Retention of wings by tree-dwellers may be related to the architectural complexity of trees and the wider spacing of their leaves and branches than in habitats of low vegetation. In complex and essentially three-dimensional arboreal habitats ability to fly may be more advantageous than the “option of brachyptery” with its possible increase in fecundity.

Tab. 1: Absence of wing polymorphism in some taxa of phytophagous, arboreal, British Hemiptera.

	Trees & Bushes n, spp. - n, polymorphic		Low Vegetation n, spp. - n, polymorphic	
HOMOPTERA				
Cicadellidae	104	0	164	26
Delphacidae	0	-	70	68
Psyllidae, Aleyrodidae	All fully-winged, most on woody Angiosperms			
HETEROPTERA				
(Excluding Cimicidae and shore and water-bugs	111	11*	240	75

* 9 spp predacious; 1 sp under bark

Typhlocybine damage to sycamore trees

J. B. WHITTAKER & S. WARRINGTON

Department of Biological Sciences, University of Lancaster, Lancaster LA1 4YQ, England

The visible "stippling" caused by mesophyll feeding typhlocybines on the leaves of many tree species is very extensive, but there have been few attempts to measure it and its effect on the tree. We measured the leaf area damaged by a moderate infestation of *Ossiannilssonola callosa* (THEN) on sycamore (*Acer pseudoplatanus*) in a mixed deciduous woodland in North Lancashire, England, and compared the effects of damage on infested trees with that on similar trees which were virtually free of typhlocybines because they were foraged by the ant *Formica rufa*. Ant-foraging on some trees was experimentally reduced by placing grease bands on the trunks (SKINNER & WHITTAKER 1981).

O. callosa were counted on the leaves at three heights in the canopy with access from scaffold towers 8 m high. Areas of dead mesophyll cells were assessed by placing a transparent grid over the leaf surface (WHITTAKER 1984).

Populations of Typhlocybinae

Following low numbers of *Empoasca vitis* (GÖTHE) observed in April, *Ossiannilssonola callosa* nymphs appeared in late May and the first adults by the end of June (Fig. 1). These declined in numbers by the end of July and a second generation occurred in August and September. The first generation tended to be more abundant in the upper than the lower canopy in 1982 but the reverse was true of the second generation. This distribution pattern was not repeated in 1983.

In both years, ant foraged trees had significantly fewer *O. callosa* nymphs and adults than had unforaged trees. Banded trees were intermediate.

Fifth Auchenorrhyncha meeting in Davos, Switzerland August 28-31, 1984

Objekttyp: **Appendix**

Zeitschrift: **Mitteilungen der Schweizerischen Entomologischen Gesellschaft =
Bulletin de la Société Entomologique Suisse = Journal of the
Swiss Entomological Society**

Band (Jahr): **57 (1984)**

Heft 4: **Festschrift Prof. P. Bovey**

PDF erstellt am: **18.01.2019**

Nutzungsbedingungen

Die ETH-Bibliothek ist Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Inhalten der Zeitschriften. Die Rechte liegen in der Regel bei den Herausgebern.

Die auf der Plattform e-periodica veröffentlichten Dokumente stehen für nicht-kommerzielle Zwecke in Lehre und Forschung sowie für die private Nutzung frei zur Verfügung. Einzelne Dateien oder Ausdrucke aus diesem Angebot können zusammen mit diesen Nutzungsbedingungen und den korrekten Herkunftsbezeichnungen weitergegeben werden.

Das Veröffentlichen von Bildern in Print- und Online-Publikationen ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. Die systematische Speicherung von Teilen des elektronischen Angebots auf anderen Servern bedarf ebenfalls des schriftlichen Einverständnisses der Rechteinhaber.

Haftungsausschluss

Alle Angaben erfolgen ohne Gewähr für Vollständigkeit oder Richtigkeit. Es wird keine Haftung übernommen für Schäden durch die Verwendung von Informationen aus diesem Online-Angebot oder durch das Fehlen von Informationen. Dies gilt auch für Inhalte Dritter, die über dieses Angebot zugänglich sind.

Fifth Auchenorrhyncha
Meeting
in Davos, Switzerland
August 28–31, 1984

Mitteilungen der
Schweizerischen
Entomologischen Gesellschaft

Bulletin de la
Société Entomologique Suisse

Vol. 57 (4), 393–452, 1984