

## MIXED SPECIES FEEDING ASSEMBLAGES OF PLANTHOPPER NYMPHS (HOMOPTERA: FULGOROIDEA)<sup>1</sup>

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### ABSTRACT

The occurrence of four species of southern Illinois fulgoroidea in mixed species feeding assemblages is reported.

During a study of the biology of southern Illinois planthoppers conducted from 1 April to 1 November, 1977 through 1979, we observed and/or collected 969 nymphs, 322 (33%) of which were found in mixed species feeding assemblages on herbaceous (e.g., *Rumex*) and woody (e.g., *Juglans*, *Morus*) vegetation (Wilson 1980). To our knowledge, these assemblages have not previously been reported for North American planthoppers. The assemblages consisted of combinations of the following four species: *Acanalonia conica* (Say) (Acanaloniidae), *Anormenis septentrionalis* (Spinola), *Metcalfa pruinosa* (Say), and *Ormenoides venusta* (Melichar) (Flatidae) (Fig. 1, Table 1).

The four species that comprised the feeding assemblages occupy similar habitats and overlap in seasonal distribution, food plants, and general oviposition sites (i.e., woody tissue) (Wilson 1980). Since so many aspects of their biologies are similar, it would seem disadvantageous for these planthoppers to form assemblages that put them in direct com-

Table 1. Number of planthopper nymphs occurring in various mixed species feeding assemblages.

Species composition of feeding assemblage <sup>b</sup>	Number of nymphs in each feeding assemblage combination <sup>a</sup>			
	Ac	As	Mp	Ov
Ac-As-Mp-Ov	13	17	7	43
Ac-As-Mp	2	2	7	0
Ac-As-Ov	17	17	0	18
As-Mp-Ov	0	24	19	36
Ac-As	29	13	0	0
Ac-Mp	1	0	2	0
Ac-Ov	7	0	0	9
As-Mp	0	3	1	0
As-Ov	0	5	0	5
Mp-Ov	0	0	10	15
Total	69	81	46	126

<sup>a</sup>Ac = *A. conica*, As = *A. septentrionalis*, Mp = *M. pruinosa*, Ov = *O. venusta*.

<sup>b</sup>The Ac-Mp-Ov combination was not found.

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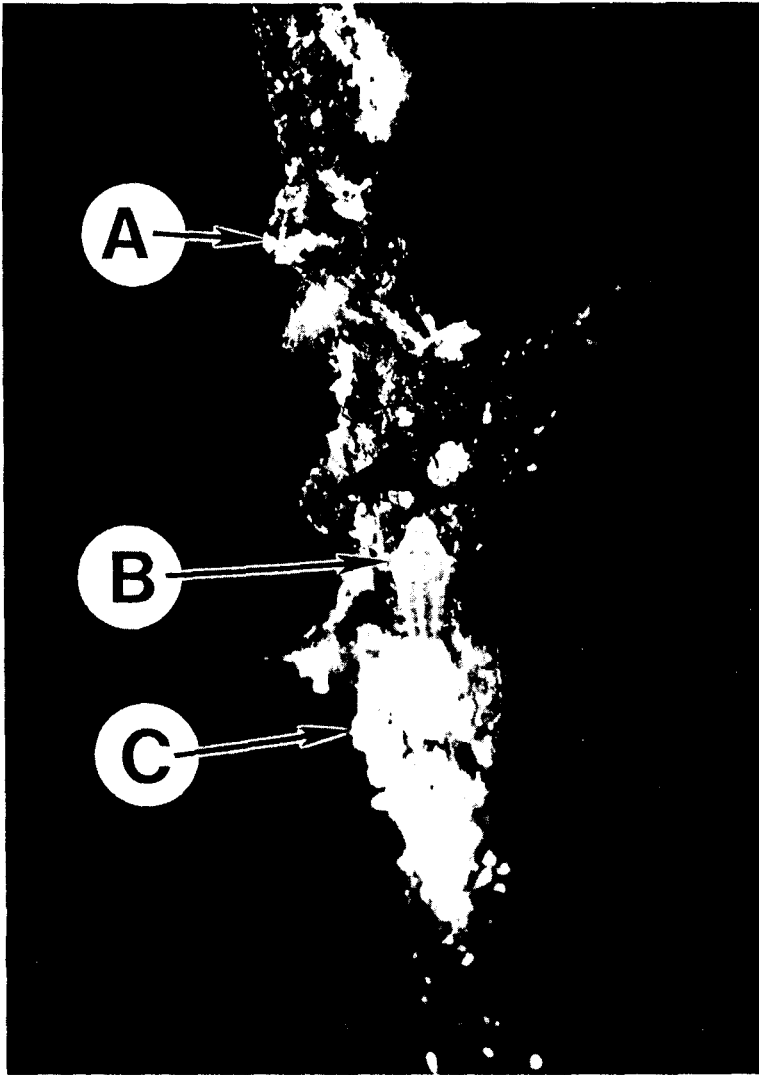


Fig. 1. Planthopper nymphs feeding on black locust stem (*Robinia pseudoacacia* L.). A, *A. conica*; B, *O. venusta*; C, *A. septentrionalis*.

petition for a food source. Feeding in assemblages must, therefore, outweigh any competitive disadvantage. For example, the feeding assemblages were often surrounded by copious amounts of wax produced by the planthopper nymphs; this wax may provide a barrier to other arthropods (Hepburn 1967), or may reduce predation by concealing the nymphs from natural enemies. Also, nymphs in assemblages are clumped in space, which may reduce predation from predators that search randomly. Further study of this phenomenon in planthoppers is needed.

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