

colour morphs of Philaenus spumarius. The colour morph frequencies in populations of Philaenus are known to vary in such a way that a change in the coverage relationships of the most important food plants is followed by a change in morph frequencies. If a coexisting competitor occupies some of the food plants favoured by certain of the Philaenus colour morphs, these morphs may show reduced fitness and consequently may decrease in frequency.

Lepyronia adults, 3300 altogether, were introduced into a meadow previously devoid of this species and with a Philaenus population which had maintained almost constant morph frequencies for 7 years. In the three years (generations) following the introduction, no one of the morphs showed a significant change of frequency.

The result indicates that either competition is nonexistent or that Philaenus is superior to Lepyronia in most of the competitive situations.

Curiously enough, Lepyronia is polymorphic with regard to colour at the nymph stage. The nymphs spend probably well over 90% of their (nymphal) lifetime within the spittle masses, which means that there is very little space for visual selection. At least 8 distinct colour morphs are present in the Svanvik population.

Nothing is known about the possible genetic basis of Lepyronia nymph colour polymorphism. Some of our results from work on food plant-colour morph combinations indicate that dark nymph morphs avoid Scirpus tabernae montani and certain other monocots and favour Filipendula ulmaria and some other dicots. Further study on food plant-nymph morph combinations is, however, necessary to establish possible differences in the food plant preferences of the various colour morphs. It also remains to be found out whether the Lepyronia morph frequencies in the presence and absence of Philaenus tend to be dissimilar.

#### HYBRIDIZATION, POLYPLOIDY AND PARTHENOGENESIS IN MUELLERIANELLA (DELPHACIDAE).

S.Drosopoulos (Kiphissia, Greece).

The wild M.-2.fairmairei-brevipennis appeared to have two genomes of M. fairmairei and one of M. brevipennis. In order to confirm this hypothesis reciprocal crosses involving different populations were made between the two biparentally reproducing species; these were followed by a cytological study of the hybrids.

The only successful process of crosses which resulted in the synthesis of the triploid pseudogamous species was as follows: hybrid progeny produced by

crossing the diploid species, Muellerianella fairmairei ♀ ♀ × M.brevipennis ♂ ♂. Backcrosses of the F<sub>1</sub> females to M.fairmairei produced only a few progeny, of which all were triploid females. Backcross of these females to M.fairmairei produced numerous matromorphous progeny very similar to the wild pseudogamous triploid "species" of M.-2-fairmairei-brevipennis.

FURTHER INVESTIGATIONS ON THE MUELLERIANELLA COMPLEX (DELPHACIDAE).

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The current research is a continuation of the work of Drosopoulos (1977). Some aspects on the geographic variation of the Muellerianella species complex are dealt with.

#### Distribution

Last year more information has been gathered on the distribution of M.brevipennis and M.fairmairei. Because the sweepnet-method is unsuitable for routine collecting of M.brevipennis, literature data tend to underestimate the distribution and abundance of this species. Global distribution maps of the hostplants of both species combined with data from vegetation studies revealed that the foodplant of M.brevipennis, Deschampsia caespitosa has a much wider distribution, especially in Northern and Eastern Europe, than Holcus lanatus. H.lanatus, the foodplant of M.fairmairei, is only common in Western and Central Europe.

#### Phenology

M.fairmairei seems to be a very flexible species in having one, two, or three generations per year depending on latitude, altitude and local climate. M.brevipennis is a more rigid species as regards diapause reactions. It always occurs in quite wet and relatively cool habitats where it has only one or two generations per year, depending primarily on latitude.

#### Crossing-experiments

Differences in food plant choice and acoustic behaviour are not sufficient to prevent interspecific mating. In some cases, a hybrid offspring is obtained but hybrid males are always sterile and sex-ratio's are skewed. Hybrid females which have an irregular meiosis and a low or zero fertility do not give rise to B1 generation when crossed back with M.brevipennis males. Backcrossing of hybrid