

species were involved (Spradbery & Kirk, unpublished) and 36 per cent. in several Belgian localities in which four parasitoids were present (Wolf, 1967).

In areas of Europe which are bioclimatically homologous with Ireland, the major siricid parasitoids are *R. persuasoria* and the cynipoid, *I. leucospoides* which are frequently found together in the same infested material (Spradbery & Kirk, unpublished). *I. leucospoides* is an established parasite of *U. gigas* (Spradbery, 1970) and common in England (Chrystal, 1930). It would therefore be expected that imported timber containing *R. persuasoria* would also contain *I. leucospoides* and that both species would become part of the siricid complex in Ireland. However, *I. leucospoides* has never been recorded and it is suggested that *R. persuasoria* is only rarely if ever imported into Ireland. A numerical taxonomic study of European *R. persuasoria* populations lends some support to the hypothesis, for the Irish population formed a fairly distinct group compared to other populations (Spradbery & Ratkowsky, 1974). The present population of *R. persuasoria* in Ireland is probably native, having survived in small pockets together with the indigenous *U. gigas* hosts. Of the remaining European species of siricid parasitoids, only *Ibalia drewseni* Borries would be climatically compatible with Ireland, but despite being established in England (Spradbery, 1970), it has never been recorded in Ireland.

The Irish siricid complex is thus only half that of the British which itself is poor in species content compared to the eight siricid and six parasitoid species of continental Europe. These results confirm Beirne's (1952) statement that, numerically, the entomological fauna of Ireland is half that of Britain which itself is half that of Europe.

SUMMARY

The siricid woodwasps, *U. gigas*, *U. augur augur*, *S. cyaneus* and their parasitoid, *R. persuasoria*, are established in Ireland. *S. juvenis* is an occasionally introduced but unestablished species. *U. gigas* is widespread, *U. augur augur* restricted to one known area and *S. cyaneus* was found in only one site. *R. persuasoria*, which accounted for 28.0 per cent. of total emergence, is widespread. The *U. gigas* and *R. persuasoria* populations are, to a large extent, native with a possible influx from imported timber, especially around the ports of Dublin and Belfast. Although siricids in Ireland are at a reasonably low economic level, *U. gigas* can reduce the value of salvagable timber and *S. cyaneus*, which may kill living trees, could become widespread.

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REFERENCES

Beirne, B.P., 1952, *The origin and history of the British Fauna*, Methuen, London, 164 pp. Benson, R.B., 1943, *Studies in Siricidae, especially of Europe and Southern Asia*

(Hymenoptera, Symphyta), *Bull. ent. Res.* 34: 27-51. Chrystal, R.N., 1928, The Sirex woodwasps and their importance in Forestry, *Bull. ent. Res.* 19: 219-47. 1930, Studies of the siricid parasites, *Oxford Forestry Memoirs*, 11. Spradbery, J.P., 1970, The biology of *Ibalia drewseni* Borries (Hymenoptera: Ibalidae), a parasite of siricid woodwasps, *Proc. R. ent. Soc. Lond.* (a) 45: 104-13. 1973, A comparative study of the phytotoxic effects of siricid woodwasps on conifers, *Ann. appl. Biol.* 75: 309-20. Spradbery, J.P. & Ratkowsky, D.A., 1974, An analysis of geographical variation in the parasitoid *Rhyssa persuasoria* (L.) (Hymenoptera: Ichneumonidae), *Bull. ent. Res.* 64: 653-68. Wolf, F., 1967, Les siricides en Belgique et les problèmes qu'ils soulèvent. Thèse, Facultés des Sciences Agronomiques de l'État Gembloux.

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Insects at flowers of Elecampane (Imula helenium L.) - Elecampane (*Inula helenium* L.) is an old herbal plant rarely found in the wild, a tall and very robust Composite with large heads of yellow flowers. As it happens, there are two colonies of this fine plant known to me in South Essex, about nine miles apart, and during the flowering period of 1973, between July 24th and August 19th, I kept both colonies under observation. In total, 51 species of insects were observed on the flowers, comprising 27 Diptera, 10 Lepidoptera, 7 Hymenoptera, 4 Coleoptera, 2 Hemiptera and an Earwig. Only 11 of the total were seen at both localities; these species are marked with an asterisk (*) in the following list:-

DIPTERA: *Anachactopsis zetterstedti* Ringdahl, *Coptophlebia albinervis* (Mg.), *Eriothrix rufomaculata* (Degeer)*, *Eristalis arbustorum* L.*, *E. intricarius* L., *E. sepulchralis* L., *E. tenax* L.*, *Helophilus hybridus* Loew, *H. pendulus* L., *Lucilia richardsi* Collin, *L. sericata* Mg., *Morellia hortorum* (Fin.), *M. simplex* Loew, *Musca autumnalis* Degeer, *Orthellia caesarion* (Mg.)*, *Paragle radicum* (L.), *Pegohylemyia fugax* Mg., *Physiphora demandata* F., *Platycheirus manicatus* (Mg.), *Sepsis cynipsea* (L.), *Sphaerophoria scripta* L., *Syritta pipiens* L.*, *Syrphus balteatus* Degeer, *S. corollae* F.*, *S. ribesii* L., *S. torvus* Ost.-Sack., *Tephritis bardanae* (Schrank).

LEPIDOPTERA: *Aglais ucaica* (L.), *Coenonympha pamphilus* (L.), *Inachis io* (L.), *Maniola jurtina* (L.), *Pieris brassicae* (L.), *P. napi* (L.), *P. rapae* (L.), *Polyommatus icarus* (Rott.), *Pyronia tithonus* (L.), *Thymelicus sylvestris* (Poda).

HYMENOPTERA: *A. mellifera* L., *Bombus humilis* (Ill.), *B. lapidarius* (L.)*, *B. ruderarius* (Muller), *B. terrestris* (L.), *Megachile ligniseca* (Kirby), *Osmia leaiana* (Kirby).

COLEOPTERA: *Aphonomus rubi* (Herbst), *Meligethes aeneus* F.*, *Oedemera lurida* (Marsham), *Rhagonycha fulva* (Scop.)*.

HEMIPTERA: *Lygus rugulipennis* Popp., *Plagiognathus arbustorum* (F.)*.

DERMAPTERA: *Forficula auricularia* L.

The only species in this list which was recorded from Elecampane by Knuth (1908, *Handbook of Flower Pollination*, trans. J.R.A. Davis, 2:598) is *Eristalis arbustorum*.

I am indebted to Dr. A.M. Easton and to Mr. D.M. Ackland for naming the *Meligethes* and the *Anthomyiidae* respectively. - R.M. PAYNE, 49 Galton Road, Westcliff-on-Sea, Essex: February 4th, 1974.

Calligypona reyi (Fieber) (Hem., Delphacidae) in the Isle of Wight. - I have taken a pair of this very local British species at Bembridge, Isle of Wight, on May 31st, 1971 and another male at the same locality on June 5th, 1973. It had been previously recorded in England from Weybourne, Norfolk; Seaford, Sussex and Arne, Dorset. All these localities are very close to the sea. - W.J. LE QUESNE, Anne Cottage, 70 Lye Green Road, Chesham, Bucks. HP5 3NB: April 3rd, 1974.