



Eva Crane Trust

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Welcome to the Bumble Bee Newsletter

Eva Crane, Woodside House, Woodside Hill, Gerrards Cross, Bucks.
SL9 9TE, UK

At the 6th International Symposium on Pollination at Tilbury last August, I was one of the few participants who had also taken part in the 2nd Symposium in London in 1964. These meetings had one feature in common: a new broadening of the concept of commercial crop pollination in a way that had been unexpected except by those already working in the new field. In 1964 it was the practical possibility of large-scale commercial use of non-Apis bees in open plots. Certain bumble bees - and also solitary bees, notably Megachile rotundata - were reported on and discussed, and since then M. rotundata has achieved great commercial importance in the USA for alfalfa pollination.

There are many candidate solitary bees for assessment as pollinators, and in the 1970s and 1980s more attention was paid to them than to bumble bees. Bombus has now once again become a main focus of attention, but for greenhouses, not field crops; in particular, ^{if it is} one species, B. terrestris, for one crop, tomato. Tomatoes produce no nectar and are wind-pollinated, but in a greenhouse there are no wind currents to move pollen between flowers. Hand-held vibrators, powered by batteries, had been used to dislodge the pollen, but this involved high labour costs. B. terrestris has the rather unusual habit of vibrating its body while clinging underneath a tomato flower to collect pollen, and this causes pollen to fall on to the bee's body, whence it is transferred to the next flower the bee visits. Marks are left on a flower, where a bee has gripped it, providing a useful indicator of pollination. ^{All} this was, however, of no commercial importance because a colony had a usefully large number of pollinating foragers only for a short period each year.

The 1990 Symposium was the first since Röseler in Germany had found that if newly emerged and mated Bombus terrestris queens were anaesthetized with carbon dioxide, they skipped their normal winter diapause, and founded colonies straight away.¹ This had made it possible to rear colonies continuously throughout the year, using a controlled environment room. In particular, a continuous succession of Bombus terrestris nests can be produced for year-round pollination of tomatoes in greenhouses.

Unlike the 1964 Symposium, the one in 1990 had participants from the south temperate zone. For nearly 120 years the north and south temperate zones have been linked by a common interest in bumble bees. New Zealand has no native bumble bees, and in early days red clover failed to set seed. Attempts were made to introduce Bombus species from 1873 onwards, although it is not clear how the New Zealand growers knew about the ⁱⁿ value,  since the classical monographs on pollination - by Darwin, Müller and Knuth - had not then been published. However, the vital importance of long-tongued bumble bees for red clover seed production had been stressed (for the first time) by Darwin in The origin of species in 1859, and this was probably their source. Bumble Bees, including long-tongued B. hortorum, were first successfully introduced to New Zealand in 1885², and red clover seed production prospered.

In welcoming the publication of this Newsletter, I value especially the opportunity it will provide for further links between those in the two temperate zones who are interested in bumble bees. And I look forward to meeting them at the 7th Symposium on Pollination.

¹Röseler, P. F. (1985) A technique for year-round rearing of Bombus terrestris (Apidae, Bombini) colonies in captivity. Apidologie 16(2): 165-170

²Thomson, G. M. (1922) The naturalisation of animals and plants in New Zealand (London: Cambridge University Press)
