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BIOLOGICAL CONTROL OF THE EUROPEAN FRUIT LECANIUM, *LECANIUM TILIAE* (HOMOPTERA: COCCIDAE), IN BRITISH COLUMBIA

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In 1928 and 1929 Glendenning (e.g., 1934) released specimens of the parasitic encyrtid *Blastothrix sericea* (Dalm.) from England in an intense and long-lasting outbreak of *Lecanium tiliae* (L.) in the Vancouver district of British Columbia. The infestation then collapsed: scale populations decreased from an average of 57 per 50 cm of branch in 1930 to virtually none in 1931. Parasitism of the scale increased from 25 per cent in 1930 to 99 per cent in 1983. This was later quoted widely as a classic example of successful biological control.

However, the subsequent appearance of long-lasting outbreak of *L. tiliae* in the Vancouver district showed that it was not in fact an economic success. Flanders (1970) concluded that the numbers of specimens of *B. sericea* that were released were too small to have had any influence in controlling the 1920's infestation, leading Rubin and Beirne (1975) to conclude that the increased percentage parasitism in the early 1930's was a consequence rather than a cause of the dramatic decrease in the scale population.

The natural enemies of *L. tiliae* were studied by Rubin and Beirne (1975) in 1969-72 in an infestation in the Vancouver district that began about 1964. The dominant parasite was the only species of

Blastothrix found. It was identified by E. S. Sugonjaev as *B. longipennis* (Howard), a native North American species that had earlier been regarded as a synonym of the European *B. sericea*. Rubin and Beirne deduced from this that *B. sericea* had not become established in the original biological control attempt which therefore was a technical failure as well as an economic one.

Sugonjaev (1983) recently reviewed the genus *Blastothrix* in North America and stated that the species from British Columbia that was earlier identified as *B. longipennis* is neither that species nor *B. sericea* but is *B. britannica* Girault, a parasite of several species of lecanium scales in Europe and not previously known from North America. Sugonjaev suggested that it had been introduced originally by Glendenning as *B. sericea*, became established, and subsequently spread into Washington and Oregon.

Rubin and Beirne (1975) suggested that *L. tiliae* was still a potential subject for successful biological control in Southern British Columbia and Sugonjaev (1983) now suggested that the true *B. sericea* would be suitable for introduction, since in Europe it is known to parasitize *L. tiliae* only and it has not been found in North America. This might now be done, some 60 years after it was first proposed by Glendenning.

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