Thaumastocoris: The solution

Thaumastocoris peregrinus *has rapidly become recognised as one of the most serious threats to eucalyptus forestry in South Africa.*

Researchers of the Tree Protection Co-operative Programme (TPCP) based at Fabi have the mandate from the South African forestry industry to study this scourge. They are constantly asked for a solution to the problem. Clearly, what is desired by all, including the researchers, is a rapid solution.

Thaumastocoris peregrinus is a sucking insect that feeds on eucalyptus leaves and is native to Australia. This bug (a true bug of the Order Hemiptera) was virtually unknown in its native range until recently, when it became a pest in the Sydney area. This build-up of populations in large centres in Australia most likely contributed to its spread to South Africa. This view is based on research that is increasingly showing that the build-up of large populations of insects in any one area, often introduced from elsewhere, give rise to introductions into new areas. The worldwide spread of the Sirex woodwasp illustrates this process very clearly.

Infestations of what is commonly referred to as the bronze bug have attracted the attention of foresters in South Africa, due to the damage it causes to eucalyptus. The speed with which it has spread throughout the country has also shocked many. The insect was first noticed in South Africa in 2003 in the Pretoria area by Dr Stefan Neser. When TPCP researchers and particularly Ryan Nadel who is doing his PhD studies on *T. peregrinus* began to work on the pest, one of the most obvious issues was the fact that virtually nothing was known about it. This is even in its Australian native land, where it was virtually unknown until recently when it became a pest on street trees in Sydney.

A plantation severly infested with Themastocoris

An aerial view of a plantation with the yellowing of canopy leaves inidicating initial Themastocoris infestation

After the appearance of *T. peregrinus* in plantations, intensive, countrywide surveys for the insect were conducted by TPCP researchers. These surveys spanned several eucalyptus species, hybrids and their clones, and various geological and climatic regions. The results, together with reports from other researchers in the country, have shown that the bronze bug occurs in all eucalyptus growing areas from Tzaneen in the north to Cape Town in the south. The main species or hybrids being attacked are *E. camaldulensis*, *E. grandis* x *camaldulensis* and *E. grandis* x *urophylla*. However, *E. grandis, E. tereticornis* and *E. smithii* have also been severely infested in some areas. No consistent climatic or geographic restrictions on the distribution or population build-up of *T. peregrinus* have been observed.

Infestation of Themastocoris *on eucalyptus leaves*

There is currently no easily available control for *Thaumastocoris*, neither in South African or elsewhere in the world. One potential control option at this stage is to apply chemical pesticides. The lack of tested and registered products, the large area now covered by *T. peregrinus*, the habit of the insect to aggregate in the mid-canopy that is difficult to penetrate with insecticides, their rapid spread that would necessitate repeated spraying, and the negative impact that mass spraying would have on beneficial insects and waterways, make this option undesirable at best.

The solution to the *T. peregrinus* infestation in South Africa clearly lies in biological control. This is the chosen route to deal with most forest pests because it offers a relatively safe and effective means to reduce insect populations. A biological control strategy would involve searching for natural enemies of *T. peregrinus* in its native range. Once these agents have been identified, experiments on the biology, specificity and efficacy of the most promising biological control agents would be required. Environmental impact assessment and supporting an application to release a biological control agent would then need to be obtained from the Department of Environmental Affairs

While developing a biological control option for *T. peregrinus* might sound like a long and arduous process, it is a goal that can certainly be achieved - and the process to achieve this goal has already begun. TPCP researchers have built up considerable knowledge and experience in working with *T. peregrinus*. For example, strong links have already been established with the small number of entomologists in Australia that work with this insect pest. Building on this expertise, and on the growing forest entomology capacity of the TPCP, the group has embarked on the important and urgent process to address the threat of *T. peregrinus* to South Africa's forest industry, using biological control. ❐

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