Breaking news: Biological control agent for *Thaumastocoris peregrinus* to be released in South Africa

The Tree Protection Co-operative Programme (TPCP) based at FABI has recently received permission from the Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Environmental Affairs (DEA) to release the parasitic wasp *Cleruchoides noackae* (Mymaridae), for the biological control of the Bronze Bug, *Thaumastocoris peregrinus*. This is an incredibly important milestone in terms of ensuring sustainable plantation forestry in South Africa and it marks the culmination of a long and often tedious process involving amazing commitment and effort on the parts of many people.

Cleruchoides noackae was first imported into the FABI Biocontrol Centre at the University of Pretoria in 2008. This minute parasitic wasp (less than 0.5mm in length) is extremely difficult to rear, in part because it is very delicate and thus difficult to handle. It was only after considerable efforts to develop new rearing techniques that studies on its biology and host specificity could commence. These studies, which needed to be carried out with meticulous detail, provided the first study of *C. noackae* biology (now published) and showed that *C. noackae* was host specific, and thus safe for release.

An application for permission to release *C. noackae* was submitted to DAFF by FABI on behalf of the forestry industry in January 2013. After in depth review it was concluded that *C. noackae* was safe to release in South Africa as a biological control agent.

The release strategy for *C. noackae* in South Africa must still be finalized. But, it will likely follow a similar classical biological control approach to that used with *Selitrichodes neseri*, the biological control agent for *Leptocybe invasa* developed and released by the TPCP in 2012. Thus, releases will most likely be made as broadly as possible and the released individuals will be expected to establish and spread in those areas.

At this stage it is impossible to know what impact *C. noackae* will have on *T. peregrinus* populations. But, *C. noackae* has been released as a biological control agent in Chile and Brazil, and preliminary results show that the insect has established well in these areas. Clearly post-release monitoring will be required to determine the success of the releases and the rate of establishment of *C. noackae* in South Africa.

Many people and organizations have contributed to the considerable effort that has lead to this point where *C. noackae* can now be released. However, special thanks are due to the members of the TPCP and particularly the TPCP Board, who have supported the work both financially and otherwise; the Department of Trade and Industry (DTI) through their THRIP initiative; the National Research Foundation and the University of Pretoria for financial support; the staff of DAFF, who dealt speedily and professionally with the application for release; Prof. Stefan Neser who, together with Ryan Nadel of the ICFR as part of his Ph.D. at FABI, assisted in importing the original *C. noackae* into South Africa, and has provided incredible guidance in the rearing and experimentation of *C. noackae* from 2008-2013; Ryan Nadel and Eston Mutitu who added substantially to the understanding of *C. noackae* during their Ph.D. studies; Dr Annie Noack (Australia) for providing invaluable advice on the rearing of *C. noackae* and who has sent numerous consignments of *C. noackae* to the FABI Biocontrol Centre for study, and last but not least, the technical staff of the FABI Biocontrol Centre, in particular Marlene Harney and Samantha Bush, together with Joseph Khadile, Tanya Joffe, and a number of NMMU students, whose great dedication and ingenuity has made this release possible.

A male *C. noackae*. This family of wasps (Mymaridae) are also known as 'fairyflies' because of their delicate wings *(photo: S. Bush)*.

A female *C. noackae* ovipositing into an egg of *T. peregrinus* *(photo: S. Bush)*.

Techniques used to rear and study the biology of *C. noackae.*

Marlene Harney, Eston Mutitu, Tanya Joffe and Anne Noack in discussion at the FABI Biocontrol Centre.

The Pest: *Thaumastocoris peregrinus*

Thaumastocoris peregrinus is a sap-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 2002, when it became a pest in the Sydney and Brisbane areas. This build-up of populations in large centres in Australia most likely contributed to its spread to South Africa.

Thaumastocoris peregrinus was first noticed in South Africa in 2003 in the Pretoria area. It was first reported in *Eucalyptus* plantations in 2005, and was soon present in all the main *Eucalyptus* growing areas. The insect infests numerous *Eucalyptus* species, hybrids and their clones. Severe infestations can lead to canopy thinning, branch die-back and stunted growth of the trees. Chemical control and host resistance are not viable, and biological control is currently considered the only tool to manage *T. peregrinus* populations.

Thaumastocoris peregrinus **eggs and adult.**

Damage caused by *T. peregrinus*.