# AN UPDATE ON THE STATUS AND MANAGEMENT OF THE *SIREX* WOODWASP IN SOUTH AFRICA

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## ABSTRACT

The woodwasp *Sirex noctilio* was first detected in South Africa in 1994. By 2009, it had spread to most of the pine-growing provinces in the country, and it continues to move northwards to the remaining pine areas and toward Zimbabwe. In the summer rainfall area of South Africa, *S. noctilio* has caused serious losses. The management approach for this pest has included monitoring, reducing stress on trees via silviculture, and introducing biological control agents.

The primary biological control agent introduced into South Africa has been the parasitic nematode *Deladenus* (= *Beddingia*) *siricidicola*. This nematode was reported to be successful in reducing the impact of *S. noctilio* in other Southern Hemisphere countries. However, parasitism results from the first 2 years of inoculations in the summer rainfall area of South Africa were very low (below 10 percent). Parasitism rates have increased in subsequent years, but this has been primarily due to the natural spread of the nematode. Parasitism obtained directly from inoculations (inoculation success) has remained low, implying a reduced ability to suppress new infestations of *S. noctilio*.

Progress has been made toward understanding the barriers to inoculation success in the summer rainfall areas of South Africa. Moisture content of the wood has been shown to be one of the factors limiting success, but other factors are also believed to be involved. These include a possible reduced survival of the nematode on the South African fungal symbiont of *S. noctilio*, *A. areolatum*, compared to the Australian strain of the nematode that is used to rear the nematodes. Another possible factor contributing to the poor biological control results that is being investigated is the competition of *A. areolatum* with sapstain fungi such as *Diplodia pinea* and *Ophiostoma ips*, which develop rapidly in trees more or less at the same time as *S. noctilio* is developing in the wood. In this regard, sapstain fungi could outcompete *A. areolatum* and thus reduce the food source and survival of the nematode.

Efforts are underway to collect new and potentially more effective strains of *D. siricidicola* in various parts of the world. These strains will be tested for their compatibility with the South African strain of *A. areolatum* and for their survival in wood of low moisture content. Molecular markers have been developed to distinguish between nematode strains. These markers have revealed that there is no diversity within the Kamona strain of the nematode introduced into the Southern Hemisphere.

The introduction of biological control agents, specifically *D. siricidicola*, into South Africa to control *S. noctilio* has clearly shown that local adaptations of control strategies can be required as a pest moves into new areas.