

# INVASIVES

Newsletter of the Asia-Pacific Forest Invasive Species Network (APFISN)

Vol.1



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The Asia-Pacific Forest Invasive Species Network (APFISN) has been established as a response to the immense costs and dangers posed by invasive species to the sustainable management of forests in the Asia-Pacific region. APFISN is a cooperative alliance of the 32 member countries of the Asia-Pacific Forestry Commission (APFC). The network focuses on inter-country cooperation that helps to detect, prevent, monitor, eradicate and/or control forest invasive species in the Asia-Pacific region. Specific objectives of the network are: 1) raise awareness of invasive species throughout the Asia-Pacific region; 2) define and develop organizational structures; 3) build capacity within member countries and 4) develop and share databases and information.

## FROM THE EDITOR'S DESK

**INVASIVES**, monthly newsletter of the Asia-Pacific Forest Invasive Species Network (APFISN), is intended to share information among countries in the Asia-Pacific region on forest invasive species (FIS) and the threats they pose in the region. It will include information on new threats, available methods of control, ideas on precautionary measures, and news items on workshops, seminars and publications on FIS. If you have any items of news value on FIS to share between national focal points of APFISN and more widely among foresters, agriculturists, quarantine personnel and policy makers, please pass it on to Dr. K.V. Sankaran, APFISN, Coordinator- [sankaran@kfri.org](mailto:sankaran@kfri.org). Your comments and suggestions for improvement of the newsletter are most welcome!

Remember, this is just the beginning!

Editor

## THREATS

- Sirex wood wasp (*Sirex noctilio*)
- *Piper aduncum*
- Erythrina gall wasp (*Quadrastichus erythrinae*)

## NEW PUBLICATIONS

- Eight nonnative plants in Western Oregon forests
- Repeatability and implementation of a forest vegetation indicator
- Sudden oak death and *Phytophthora ramorum*.

## RECENT BOOKS

- Invasive species in a changing world
- Invasive plants: ecological and agricultural aspects

## FORTHCOMING SEMINARS/SYMPOSIA/WORKSHOPS

- Urumqi symposium on invasive species, Xinjiang, China 15-18 August, 2006
- Conference-Workshop on invasive alien species in the Philippines and their impacts on biodiversity, Marikina City, July 26-28, 2006
- 15th Australian weeds conference, Adelaide 24-28 September 2006

## THREATS

### Sirex wood wasp (*Sirex noctilio*)

Sirex wood wasp (Eurasian wood wasp), a native of Europe and Asia, is a major pest in exotic pine plantations in the Southern Hemisphere. Much of the insect's pest status results from its association with a phytotoxic, wood rotting fungus *Amylostereum areolatum* which female wasps inject



Sirex wood wasp(adult)

into trees (along with a toxin) at the time of oviposition. The fungus and the mucus injected by the wasp weaken and kill host trees. The trunk of attacked pine trees (*Pinus radiata*) have characteristic resin beads after the initial attack, then the foliage progressively wilts, turns yellow and then brown. The larvae of the wasp are white with a small spine at the end of their abdomen; they bore into the wood, feed on the wood and the fungus for one or two years, grow up to 3 cm long, before pupating under the bark of the tree. After the tree dies, the trunk will show round exit holes which are 3 mm. across. The wasp outbreaks killed 80% of trees in affected forests in New Zealand, Australia, South America and South Africa.



Exit holes

Resin beads

Populations of the wasp exist in Europe, Southern Brazil, Uruguay, parts of Argentina, Australia, New Zealand and its occurrence has recently been reported (February 2005 in USA). Preferred host of the wasp is Pine (especially *Pinus radiata*). However, it can also attack spruce (*Picea*), fir (*Abies*), larch (*Larix*) and Douglas fir (*Pseudotsuga menziesii*). Stressed or otherwise weak trees (trees with mechanical damage) are very susceptible to the attack by the wasp. The wasp is a strong flier (can travel up to 100 miles) and can spread rapidly (5 to 15 miles per yr) which makes eradication difficult. The wasp is currently unknown in the Asia-Pacific region except for Australia and New Zealand. Strict quarantine regulations on import of non-manufactured wood, other wood products and solid wood packing material need to be observed to prevent the entry of the wasp to other pine-growing areas in the Asia-Pacific region. If you suspect this pest occurs in pine plantations/forests in your area, notify the concerned authorities immediately.

Several species of ichneumonids (eg., *Megarhyssa nortoni*) were successfully tried in New Zealand and Australia to control Sirex wood wasp. A parasitic nematode *Deladenus siricidicola* has also been found effective in controlling the wasp by infecting and sterilising male and female wasps. A combination of parasitoids and nematodes along with forest management should bring down Sirex wood wasp populations.

### ***Piper aduncum***

*Piper aduncum* (spiked pepper), a shrub (< 7 m tall) native to tropical America and the West Indies, is cultivated in many tropical regions of the world and has become invasive in Florida, Fiji and Papua New Guinea. In PNG, it forms large thickets in secondary forests from sea level up to 2100 m. The plant is shown to have an invasive advantage over other pioneer species because of its dominance in the seed bank, rapid growth rates and high rates of biomass accumulation. In addition, seeds of *P. aduncum* are dispersed by mammals and fruit-eating bird-like bulbuls.



*Piper aduncum*

Spiked pepper is also known to occur in Malaysia, Indonesia (where it was introduced in 1860), Solomon Islands in the Pacific, Christmas Islands in the Indian Ocean and the USA (Florida). It has recently been reported from Maui Island, Hawaii. *P. aduncum* is now treated as a common pantropical weed throughout the world. It has readily escaped from cultivation in many places where it is planted to become a dominant part of the landscape. In Fiji, it is a weed of disturbed rain forest and margins at low elevation most often along roadsides and in thickets and sometimes in secondary forest or on forested ridges; it is



rarely found in intact rain forests. The weed is known to dry out the soil and take up large amounts of nutrients.

Physical control of the weed involves hand pulling of small seedlings and plants so that the entire root system is removed. Of the chemical methods tried basal bark application of 20% Garlon4 or cut stump application of 50% Garlon3A are known to be effective. It is cautioned that spread of the weed is imminent in other parts of the Asia-Pacific region and adequate measures need be adopted urgently to prevent it.

### Erythrina gall wasp (*Quadrastichus erythrinae*)

The *Erythrina* gall wasp, believed to be African in origin, was first described in 2004. At that time it was known to occur in Singapore, Mauritius and Reunion Islands. Later, its occurrence was also reported in Taiwan, China, Philippines, India, Thailand, Hong Kong, American Samoa, Guam and larvae feed and develop they cause abnormal growth of plant tissue, inducing small nodules on the surfaces and uneven swelling and curling of leaf petioles and terminal stems. Defoliation, stunting, and even tree death follow. Currently, twenty four species in the genus *Erythrina* have been demonstrated as hosts.



Adult female



Galls on petioles & leaflets



Leaf galls

Short-term control options are limited. Experiments with pruning have not been successful, but application of systemic insecticides appears to be partly effective. The adult wasps are tiny (1-1.6 mm) and extremely abundant around heavily infested trees. They could be transported on many items including clothing or flowers and may spread via wind as well. If *Erythrina* gall wasps spread further it will be a great threat to all *Erythrina* species in the Asia-Pacific region and other parts of the globe.

### NEW PUBLICATIONS

Gray, A. 2005. Eight nonnative plants in Western Oregon forests: associations with environment and management. *Environmental Monitoring and Assessment*, 100: 109-127.

Fray, A.N., Azuma, D.L. 2005. Repeatability and implementation of a forest vegetation indicator. *Ecological Indicators*, 5:57-71.

Goheen, E. M., Hansen, E., Kanaskie, A., Osterbauer, N., Parke, J., Pscheidt, J., Chastagner, G. 2006. Sudden oak death and *Phytophthora ramorum*: a guide for forest managers, Christmas tree growers and forest tree nursery operators in Oregon and Washington. EM 8877. Corvallis, OR: Oregon State University Extension Service. Available on <http://extensions.oregonstate.edu/catalog/pdf/em/em8877.pdf>

## RECENT BOOKS

**Invasive species in a changing world:** Eds. Harold A. Mooney and Richard J. Hobbs, Published by Island Press, 2000. This book brings together leading scientists from around the world to examine the invasive species phenomenon and to consider the mutual interactions between global change and invasives that are likely to occur over the next century. Contributors focus on the proposition that global change will exacerbate the invasive species problem and set forth the idea that invasives are themselves a global change element that need be considered in global change scenarios.

**Invasive plants: ecological and agricultural aspects:** Ed. Inderjit, Published by Birkhauser, 2005. The aim of this book is to discuss fundamental questions of invasion ecology, such as why particular communities become more invasive than others, what the mechanism of exclusion of native species by invaders are, and whether invasion can be predicted.

## FORTHCOMING SEMINARS /SYMPOSIA/WORKSHOPS

**Urumqi Symposium on invasive species, Urumqi, Xinjiang, China, 15-18 August, 2006.** Objectives: Publicize invasive species survey results and introduce the status of invasive species in China; Explore mechanisms for long-term prevention and management of invasive species in China; Discuss and publicize the recommendations on 'Strategies for prevention and management of forestry invasive species in China'; Sign Sino-US agreement on invasive species information sharing and research. Contact: Dr. Yulu Xia, Centre for Integrated Pest Management, North Carolina State University, Tel : 91 953 187; E-mail : [Yulu\\_xia@ncsu.edu](mailto:Yulu_xia@ncsu.edu) ( for North America ) Dr. Sun Jianghua, Institute of Zoology, Chinese Academy of Sciences, Tel : 0861062576047, E-mail: [sunj@ioz.ac.cn](mailto:sunj@ioz.ac.cn)

**Conference-Workshop on invasive alien species in the Philippines and their impacts on biodiversity, Marikina City, Philippines. July 26-28, 2006.** The goal of the conference is to undertake a stocktaking of the status of the nature and extent of invasive alien species in the country, increased the level of awareness and concern on the impact of invasive species on the aquatic and terrestrial environments of the Philippines and formulate a draft national strategic framework and action plan on invasive alien species. Contact: Carlo C. Custodio, Chair, Protected Areas and Wildlife Bureau, Quezon Avenue, Diliman, Quezon City 1100, Philippines. E-mail: [custodiocarlo@yahoo.com](mailto:custodiocarlo@yahoo.com)

**15th Australian weeds conference, Adelaide Convention Centre, Adelaide, 24-28 September 2006.** The Conference theme is 'Managing Weeds in a Changing Climate'. Proposed sub-themes include: Political climate, Funding climate, Research Climate, Social Climate, Economic Climate, Environmental Climate and Climate change. Contact: [events@pelvin.com.au](mailto:events@pelvin.com.au)