

# INVASIVES

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

Vol. 2



August 2006

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

- Giant African snail (*Achatina fulica*)
- Asian ambrosia beetle (*Xylosandrus crassiusculus*)
- Asian longhorned beetle (*Anoplophora glabripennis*)

## NEW PUBLICATIONS

- Sudden oak death in California: What is the potential?
- Tree versus perturbed forest inventory plot locations for modeling: a simulation study

## RECENT BOOKS

- Invasive alien species: A toolkit of best prevention and management practices.

## FORTHCOMING SEMINARS/SYMPOSIA/WORKSHOPS

- XII International symposium on biological control of weeds, France, 22-27 April, 2007
- 9th International conference on the ecology and management of alien plant invasions, Perth, W.Australia, 17-21 September 2007.

## THREATS

### Giant African snail

The giant African snail, *Achatina fulica* (Achatinidae, Pulmonata, Gastropoda, Mollusca), is one of the most damaging snails in the world. It is known to eat at least 500 different types of plants including cassava, papaya, rubber, beans, peas, cucumber and melons. Believed to be originally from coastal East Africa (Kenya and Tanzania), *A. fulica* has established itself



Snail (adult)

throughout the Indo-Pacific basin, including the Hawaiian Islands. In the Asia-Pacific region, it is known to occur in India, Sri Lanka, Bangladesh, Malaysia, Taiwan, Vietnam, Indonesia, Timor, Thailand, Japan, Hong Kong, China, Papua New Guinea, Australia (Queensland), Vanuatu and American and Western Samoa. The spread of giant African snail is likely to be due to illegal importation by exotic animal dealers. The giant African snail, being non-host specific, is reported to cause economic damage to a wide variety of crop plants and plants of horticultural and medicinal importance. The snail may also carry a parasite that can infect people. It is recommended that countries monitor against the introduction of giant African snail. Discoveries of new snail incursions should be reported to the appropriate authorities .



African snail attack

The occurrence of this snail has recently been reported in Kerala state, India posing a big threat in villages. Local control methods include collection of snails and dumping them in a pit filled with sodium chloride (common salt). Kerosene treatment of snail eggs is also practiced. Chemical control methods of the snail are application of metaldehyde, methiocarb salt or combination of these chemicals as bait formulations or foliar sprays. Biocontrol agents like *Euglandia rosea* and *Platidydemus manokwari* are effective but use is discouraged as they are implicated in the decline of native snails.

### Asian ambrosia beetle ( *Xylosandrus crassiusculus* )

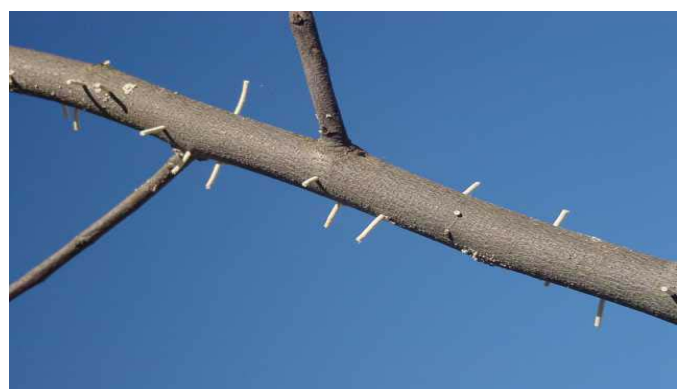
The native range of Asian ambrosia beetle is probably tropical and subtropical Asia though it is widely distributed elsewhere. It is a relatively new pest of woody ornamentals, fruit and nut trees in Arkansas in the USA causing significant damage in nurseries, landscapes and orchards. The most common hosts of this beetle are red maple, peach, plum, cherry, dogwood, sweet gum, Chinese elm, magnolia, fig, azalea, coffee, cacao, mango, papaya, rubber, camphor, mahogany, tea, teak etc.



Ambrosia adult



Ambrosia wood damage



Tooth pick- like strands on stem

Female beetles bore into the sapwood of stems and young trees. They can easily attack damaged, stressed or transplanted trees though healthy trees are also attacked. Visible symptoms include wilted foliage and strands of boring dust protruding from small holes on the stem that resemble tooth-pick like strands. These insects make galleries into the heartwood of the tree, which they inoculate with an ambrosia fungus (*Ambrosiella* spp.) which is used as their food source. In this process they may also introduce fungi such as *Fusarium* or create entry points for such pathogenic fungi. Eggs, larvae and pupae are found together in the tunnel system excavated by the female.

Attacks on living plants are usually near ground level on saplings or at bark wounds on larger trees. Like other ambrosia beetles, they feed on the fungi they introduce into

the tunnels and cultivate and not the wood and pith of their hosts. Death is most likely related to these pathogenic fungi that block xylem vessels. Young trees affected by the beetle often die, while more established ones may sometimes survive.

The beetle is currently found in India, Sri Lanka, China, Japan, Indonesia, Papua New Guinea, South Pacific, Hawaii and the Southeastern USA. Spread to other areas in the Asia-Pacific region is a strong possibility. Pyrethroids have been found to provide control of attacking adults if applied prior to closing of the galleries with frass. Once the beetles are in the tree and have frass packed in the entry holes they are isolated from outside. If infestations occur, affected plants should be removed and burned and trunks of remaining plants should be treated with an insecticide. Any obvious conditions causing stress to trees should be corrected.

### **Asian longhorned beetle (*Anoplophora glabripennis*)**

The Asian longhorned beetle (ALB) is native to Japan, Korea and Southern China. It belongs to the wood boring beetle family Cerambycidae. Adults are 1-1.5 inches in length with long antennae and are shiny black with small white markings on the body and antennae. After mating, adult females chew depressions into the bark of various hardwoods tree species in which they lay eggs. Once the eggs hatch, small white larvae bore their way through the bark into the tree, feeding on the sensitive vascular layer beneath. Larvae continue to feed deeper into the trees heart wood, forming tunnels or galleries in the trunk and branches. This damage weakens the integrity of the tree and will eventually kill it if the infestation is severe enough.



ALB adult



Dead tree due to ALB attack



ALB damage

A larva will mature over the course of a year and then pupate near the surface, under the bark. From the pupa, an adult beetle emerges chewing its way out of the tree forming characteristic round holes that are less than an inch in diameter. Many of these holes will appear on a heavily infested tree frequently accompanied by frass and sap oozing from the holes.

The main hosts of ALB are horse chestnut, maple species and many hardwoods such as elm, poplar, willow, citrus and birch. In the US, the beetle has been detected in several states. Efforts have been made to eradicate it in Chicago, New York and New Jersey. As a result, the pest is almost eradicated in Chicago and hopefully in a few years in New York. The occurrence of ALB has also been reported from Britain and Austria. The main pathway of introduction has been through shipments containing solid wood material. Shipments of nursery plants may also play a role in dispersal. Movement of infested firewood, containers and pallets may also help in dispersal. The beetles are capable of flying long distances. Currently the best management practice to control the ALB is to cut the whole tree and chip/or burn it. Systemic insecticides (like imidacloprid) injected in to the tree prevents further spread of ALB and does decrease population. Spread of ALB in the Asia-Pacific region is unknown. Strict quarantine regulations may help in preventing the spread of ALB to new areas.

## NEW PUBLICATIONS

Barett, T.M., Gatzolis, D., Fried, J.S., Waddell, K.L. 2006. Sudden oak death in California: What is the potential? *Journal of Forestry*, 103: 1-4.

Coulston, J.W., Riitters, K.H., McRoberts, R.E., Reams, G.A., Smith, W.D. 2006. Tree versus perturbed forest inventory plot locations for modeling: a simulation study. *Canadian Journal of Forestry Research*, 36: 801-807.

## RECENT BOOKS

**Invasive alien species: A toolkit of best prevention and management practices:** Eds. R. Wittenberg and Mathew J.W. Cock, Published by CABI Publishing, 2001. Human activities have contributed to the distribution of many plant, animal and microbial species to parts of the world where they are not native. This spread of alien species can have devastating consequences on native biodiversity. The Global Invasive Species Programme was established to address concerns with alien species. Its goal is to improve prevention and management of biological invasions, and this book represents a key outcome. Features of the book include case studies from around the globe with some emphasis on islands - a focus on biodiversity and advice on national management plans including risk analyses.

## FORTHCOMING SEMINARS /SYMPOSIA/WORKSHOPS

**XII International symposium on biological control of weeds.** Montpellier, France, 22-27 April, 2007. Proposed program topics: Strategic Ecology and Modeling; Evolutionary Theory and Applications; Cost-benefit/Risk Analysis; Regulations and Public Awareness; Biological Control Opportunities in Europe; Target and Agent Selection; Pre-release Specificity & Efficacy Testing; Post-release Evaluation/Monitoring; Retrospective Studies/Assessment of Predictions; Novel Approaches & Technologies; Release Practices & Strategies. For more information: [www.cilba.agropolis.fr/weeds2007.html](http://www.cilba.agropolis.fr/weeds2007.html); [weeds2007@ars-ebcl.org](mailto:weeds2007@ars-ebcl.org)

**9<sup>th</sup> International conference on the ecology and management of alien plant invasions,** 17-21 September 2007, Hyatt Regency Perth, 99 Adelaide Terrace, Perth, Western Australia. The conference will cover topics such as: ecological, biological and biogeographical studies on invasive plants, the management of plant invasions, the development of multidisciplinary activities focused on prevention of new incursions and management of existing infestations, appropriate legislation, public education and information and any other relevant aspects of plants that invade natural areas. Contact: Liz Bradley, Conference Manager, Congress West Pty Ltd., Suite 3/12 Thelma Street, West Perth, WA 6005, Australia. Tel: +61 8 9322 6906; Fax: +61 8 9322 1734; website: [www.congresswest.com.au/emapi9](http://www.congresswest.com.au/emapi9)