



# Information & knowledge support in global forest health

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# Overview

- Global information system
- Country pest overview papers
- Forest pest species profiles
- Invasive tree species database
- Breeding for pest resistance
- Dissemination of information: Networks, Publications, Web sites
- Translation and implementation of ISPMs



# Global information system



- Since 2003, FAO has compiled quantitative & qualitative information on insects, diseases & mammalian pests that affect forest health
- Data collated from FAO field project documents, technical responses to questionnaires, country reports & validation



# Global information system



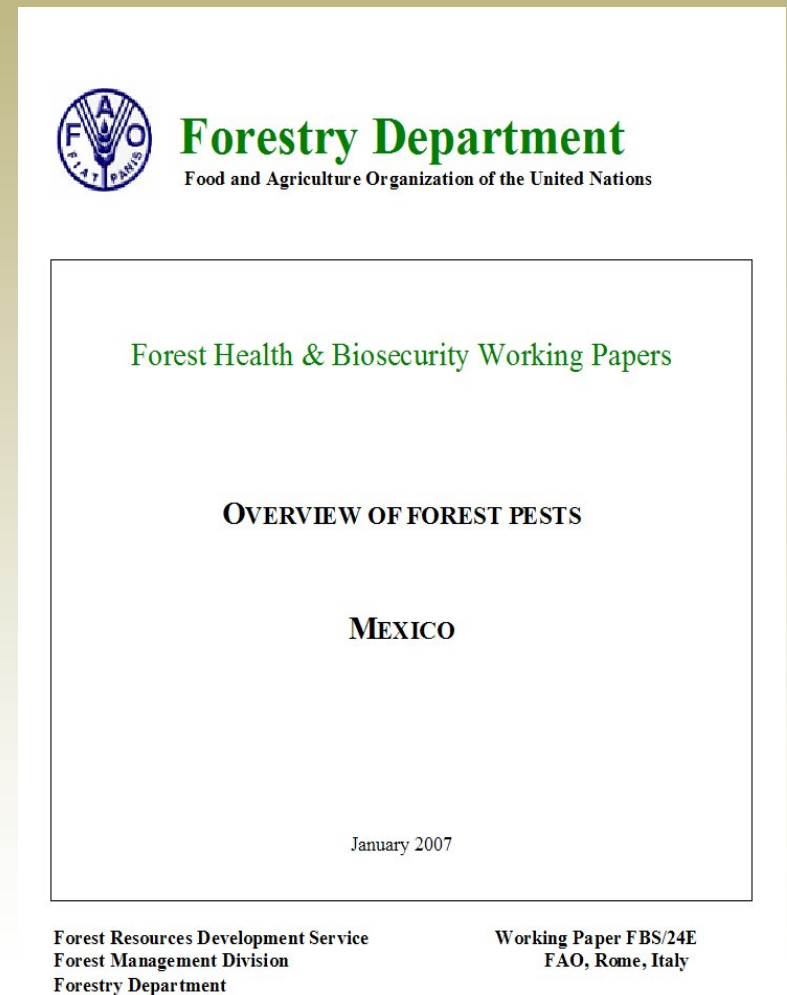
- To date, qualitative information on forest health issues has been collected for 64 countries, mostly developing countries & countries in transition
- Information system available at: [www.fao.org/forestry/25350/en/](http://www.fao.org/forestry/25350/en/)



# Country pest overview papers



- 25 countries - Africa, Asia & Pacific, Europe, Latin America & Caribbean, Near East
- Information from many sources – country experts, Internet, scientific literature





# Country pest overview papers



- Information on insect pests, diseases & other pests impacting naturally regenerated & planted forests





# Country pest overview papers



- Continuous process - FAO will continue to review forest pests in other countries
- Papers available at:  
[www.fao.org/forestry/38536/en/](http://www.fao.org/forestry/38536/en/)



# Forest pest species profiles



- Globally important transboundary pests impacting forests & forest sector
- 30 species profiled

## FOREST PEST SPECIES PROFILE



November 2007

### *Agilus planipennis* Fairmaire

Other scientific names: *Agilus ferrugineus* Obenberger, *Agilus maruofoli* Obenberger, *Agilus maruofoli ubui* Kurosawa

Order and Family: Coleoptera: Buprestidae

Common names: emerald ash borer, EAB

*Agilus planipennis*, commonly known as the emerald ash borer, is a metallic wood-boring beetle that is a highly destructive pest of ash trees (*Fraxinus* spp.). This pest is native to eastern Asia and has been accidentally introduced into North America, presumably through infested wood packaging materials from Asia, where it is a major threat to ash trees in forests, urban plantings and shelterbelts. It is responsible for the death and decline of millions of trees in Canada and the US.



Adult emerald ash borers (Photos: Bugwood.org - D. Cappaert, Michigan State University; Pennsylvania Department of Conservation and Natural Resources, Forestry Archive)

### DISTRIBUTION

**Native:** Democratic People's Republic of Korea, Japan, Mongolia, People's Republic of China, Republic of Korea, Russian Federation

### Introduced:

North America: Canada (2002), USA (2002)

### IDENTIFICATION

Adult beetles are metallic blue-green, slender, elongate, hairless and approximately 7.5-14 mm long and 3.1-3.4 mm wide (Kimoto and Duthie-Holt, 2006; McCullough and Katovich, 2004). The head is flat with a shield-shaped top and the kidney-shaped eyes are bronze or black. The prothorax, the segment behind the head which contains the first pair of legs, is slightly wider than the head and transversely rectangular, but is the same width as the base of the wing covers (Kimoto and Duthie-Holt, 2006; McCullough and Katovich, 2004). Males are smaller than females and are further distinguished by the presence of fine hairs on the ventral side of the thorax (McCullough and Katovich, 2004).

Mature larvae are white to cream-coloured, 26-32 mm long with broad flattened bodies (Kimoto and Duthie-Holt, 2006; McCullough and Katovich, 2004). The head is relatively small, brown and retracted inside the enlarged prothorax (Haack *et al.*, 2002). The abdomen is 10-segmented, some with bell-shaped posterior ends. The first eight segments have one pair of spiracles each and the last segment has one pair of brownish, pincer-like appendages.





# Forest pest species profiles



## Species examples

- *Leptocybe invasa*
- *Lymantria dispar*
- *Sirex noctilio*
- *Anoplophora glabrinervis*





# Forest pest species profiles



- Information on distribution, biology, symptoms & damage, dispersal & spread, control measures
- These profiles form a major section in an upcoming publication from FAO on global forest health to be published in 2008
- Profiles available at:  
[www.fao.org/forestry/43795/en/](http://www.fao.org/forestry/43795/en/)

# Invasive tree species database



- Provides summarized information about forest tree species that have been reported naturalized or invasive in at least one country or territory



- Data collated by CABI in 2003 & updated by US Forest Service, Pacific Northwest Research Station in 2008; work in progress



# Invasive tree species database



- Data from literature reviews, Web resources, correspondence with forestry professionals & invasive species specialists
- Database available at:  
[www.fao.org/forestry/24107/en/](http://www.fao.org/forestry/24107/en/)



# Breeding for pest resistance



Review to determine global status of research and applications on tree improvement and breeding for insect & disease resistance in the forest sector

FAO,  
BC Ministry of Forests, Canada  
Molecular Tree Breeding Services, USA





# Breeding for pest resistance



- 260 activities on breeding for insect & disease resistance in forest trees were recorded
- Many activities involved in identifying potential resistance in new or different host-pest disease systems
- Many new initiatives with transgenics, with some field testing of poplars in China



# Breeding for pest resistance



- Results so far not surprising: i.e. only major commercial forestry programmes have made impacts
- Few programmes have progressed to have an impact on forests & the forest sector
- Some programmes in Asia, Europe, New Zealand, North America are having impact
- Information available at:  
[www.fao.org/forestry/26445/en/](http://www.fao.org/forestry/26445/en/)



# Dissemination of information: Networks



## Forest Invasive Species Networks

- APFISN - Asia Pacific Forest Invasive Species Network
- FISNA – Forest Invasive Species Network for Africa
- NENFHIS - Near East Network for Forest Health and Invasive Species
- South Cone Countries, LAC (Sept 2008)





# Dissemination of information: Publications



- *Alien invasive species: impacts on forest and forestry. A review*
- More invasive related papers:  
[www.fao.org/forestry/31167/en](http://www.fao.org/forestry/31167/en)



## Forestry Department

Food and Agriculture Organization of the United Nations

Forest Health & Biosecurity Working Papers

*Alien invasive species: impacts on forests and forestry*

*A review*

by

Beverly A. Moore

November 2005

Forest Resources Development Service

Forest Resources Division

Forestry Department

Working Paper FBS/SE

FAO, Rome, Italy



# Dissemination of information: Web sites



Forest health Web site:  
[www.fao.org/forestry/pests](http://www.fao.org/forestry/pests)

Invasive alien species Web site:  
[www.fao.org/forestry/aliens/en/](http://www.fao.org/forestry/aliens/en/)



# Translation & implementation of ISPMs



- ISPMs = international phytosanitary standards on how to prevent the spread & introduction of pests of plants & plant products
- Complex legal documents which may be difficult to understand
- Need for their ‘translation’ into everyday applicable language



# Translation & implementation of ISPMs



FAO is initiating a project with IPPC & other players to translate those ISPMs related to forestry through a multi-stakeholder process & expert consultations

Followed by

Workshops to improve communication between NPPOs & the forest sector for implementation of standards

**Forestry guide to implementation of phytosanitary standards**



**Thank you**