



Forestry Department

Food and Agriculture Organization of the United Nations

Forest Health & Biosecurity Working Papers

OVERVIEW OF FOREST PESTS

ARGENTINA

January 2007
Updated March 2008

Forest Resources Development Service
Forest Management Division
Forestry Department

Working Paper FBS/9E
FAO, Rome, Italy

DISCLAIMER

The aim of this document is to give an overview of the forest pest¹ situation in Argentina. It is not intended to be a comprehensive review.

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¹ Pest: Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products (FAO, 2004).

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Background

This paper is one of a series of FAO documents on forest-related health and biosecurity issues. The purpose of these papers is to provide early information on on-going activities and programmes, and to stimulate discussion.

In an attempt to quantify the impacts of the many factors that affect the health and vitality of a forest, the Global Forest Resources Assessment 2005 (FRA 2005) asked countries to report on the area of forest affected by disturbances, including forest fires, insects, diseases and other disturbances such as weather-related damage. However, most countries were not able to provide reliable information because they do not systematically monitor these variables.

In order to obtain a more complete picture of forest health, FAO continues to work on several follow-up studies. A review of forest pests in both naturally regenerating forests and planted forests was carried out in 25 countries representing all regions of the world. This *Overview of forest pests* represents one paper resulting from this review. Countries in this present series include Argentina, Belize, Brazil, Chile, China, Cyprus, Colombia, Ghana, Honduras, India, Indonesia, Kenya, Kyrgyz Republic, Malawi, Mauritius, Mexico, Moldova, Mongolia, Morocco, South Africa, Sudan, Thailand, Romania, Russian Federation, Uruguay; this list will be continuously updated.

Comments and feedback are welcome. For further information or if you are interested in participating in this process and providing information on insect pests, diseases and mammals affecting forests and the forest sector in your country, please contact:

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All contributions will be fully acknowledged.

Acknowledgements

The information with regards to Argentina was reviewed by Paula Klasmer of Instituto Nacional de Tecnología Agropecuaria, Argentina; her efforts are acknowledged. The information was compiled by G. Maynard and B. Moore.

ARGENTINA

Introduction

Argentina has a wide variety of naturally regenerating forests ranging from tropical and subtropical forests in the northeastern portion of the country (Misiones Province), semi-arid naturally regenerating forests in the Chaco Region of northern and north-central Argentina, and temperate forests dominated by *Nothofagus* spp. and *Austrocedrus chilensis* along the eastern slopes of the Andes in the Patagonia Region in the south. Principal tree species include: *Nothofagus pumilio*; *Nothofagus dombeyi*; *Aspidosperma quebracho*; *Schinopsis quebracho-colorado*; *Zizyphus mistol*; *Nothofagus betuloides*; *Nothofagus alpina*; *Prosopis nigra*; *Bulnesia sarmientoi*; and *Chorisia insignis*. Argentina also has extensive areas of planted forests consisting of various species of *Pinus*, *Populus*, *Salix*, and other tree species. The area of planted forests is expanding (FAO, 1994; FAO, 2006).

In 2005, the country's forest cover was estimated at 33 million hectares or 12 percent of the country's land cover and other wooded lands comprised about 61 million hectares or 22 percent (FAO, 2006).

Forest pests

Naturally regenerating forests

Insects

Indigenous insects

Insects affecting large areas of native forests in Argentina are not common (FAO, 2004). There are some pest problems however, on *Austrocedrus chilensis*, an indigenous conifer. It has been determined that the cause is a damaging microlepidoptera whose larvae feed on the seeds; details however are not available. The regeneration of this forest tree species is limited because of the number of seeds damaged by this pest.

Introduced insects

No information was available on introduced insects affecting the naturally regenerating forests of Argentina.

Diseases

Diseases affecting large areas of native forest in Argentina are not common (FAO, 2004).

Indigenous diseases

No information was available on the status of indigenous diseases in the naturally regenerating forests of Argentina.

Introduced diseases

No information was available on the status of introduced diseases in the naturally regenerating forests of Argentina.

Other pests

Indigenous other pests

No information was available on the status of other indigenous pests (e.g. mites, nematodes, mammals, etc.) in the naturally regenerating forests of Argentina.

Introduced other pests

***Castor canadensis* Kuhl, 1820**

Other scientific names:

Rodentia: Castoridae

Common names: beaver; American beaver; Canadian beaver

Host type: broadleaf

Hosts: *Nothofagus pumilio*

Beavers are large rodents that feed on a variety of plants and significantly modify the environment they inhabit. They build dams that modify water flow in streams causing flooding and the creation of wetlands. Individuals can cause mortality to trees by felling. They are colonial animals and are relatively long-lived. They have been introduced into Tierra del Fuego in the extreme southern portion of Argentina. These animals have caused areas of *Nothofagus pumilio* forests to be flooded as a result of dam construction (FAO, 2004).

[http://www.animaldiversity.ummz.umich.edu/site/accounts/information/Castor canadensis.html](http://www.animaldiversity.ummz.umich.edu/site/accounts/information/Castor_canadensis.html)

<http://fwie.fw.vt.edu/TN/TN10004.htm>

<http://www.beaversww.org/beaver.html>

<http://www.aquatic.uoguelph.ca/mammals/freshwater/accounts/beaver.htm>

Diebacks and other conditions

A dieback of ñirre, *Nothofagus antarctica*, has been reported from the Patagonia region of southern Argentina. This condition is believed to be the result of fire exclusion, which allows *N. antarctica*, a short-lived species rarely attaining 120 years, to reach senescence, enabling episodes of crown dieback and tree mortality to occur (Veblen and Lorenz, 1988).

There is also a decline and mortality of the indigenous conifer, *Austrocedrus chilensis*; an economically and ecologically important tree species. Known locally as ‘mal del ciprés’, this condition has been observed since 1948. Symptoms include discolouration of the foliage, followed by foliage loss, resinosis, and root and butt rot. Foliar symptoms are most prevalent during the dry summer season. Despite a number of investigations, the causal factors responsible for this decline have not been identified (Havrylenko, Rosso and Fontanela, 1989; Rosso, Havrylenko and Fontanela, 1989).

Planted forests

Insects

Indigenous insects

***Hypsipyla grandella* (Zeller, 1848)**

Other scientific names:

Lepidoptera: Pyralidae

Common names: mahogany shoot borer

Host type: broadleaf

Hosts: Meliaceae; *Swietenia* spp.; *Cedrela* spp.

The mahogany shoot borer is the main pest species of *Swietenia* and *Cedrela* in the New World. The distribution of the mahogany shoot borer coincides with that of its principal host plant species mahogany and cedro and includes the US (southern Florida), most of the West Indies, Sinaloa, Mexico, Central America, and South America except Chile.

The larvae bore into new shoots and twigs of Meliaceae (mahogany family), in particular *Swietenia* spp., killing the first few centimetres as well as attacking seed and fruit capsules. They pupate either in the twigs, shoots or the soil. Damage is caused by the killing of the terminal shoot of the plant which then induces branching and the main stem becomes distorted. This species of moth is one of the main factors preventing the ready establishment of mahogany plantations.

[http://www.aciar.gov.au/web.nsf/att/JFRN-6BN983/\\$file/pr97chapter2.pdf](http://www.aciar.gov.au/web.nsf/att/JFRN-6BN983/$file/pr97chapter2.pdf)

<http://www.fcla.edu/FlaEnt/fe80p34.htm>

<http://edis.ifas.ufl.edu/IN613>

<http://www.mahoganyforthefuture.org/projectmeliceae/borer/borer.html>

http://www.creatures.ifas.ufl.edu/trees/moths/mahogany_borer-english.htm

***Megaplatypus mutatus* (Chapuis, 1865)**

Other scientific names: *Platypus sulcatus*; *Platypus plicatus*; *Platypus mutatus*

Coleoptera: Platypodidae

Common names: bark beetle; ambrosia beetle

Host type: broadleaf

Hosts: *Acer negundo*; *Erythrina crista-galli*; *Eucalyptus dunni*; *Fraxinus excelsior*; *Grevillea robusta*; *Quercus palustris*; *Quercus rubra*; *Ligustrum lucidum*; *Liquidambar styraciflua*; *Melia azedarach*; *Populus alba*; *Salix alba*; *Salix nigra*

Megaplatypus mutatus attacks a wide range of both indigenous and introduced planted tree species in Argentina. Damage is caused by the adults, which bore extensive gallery systems into living trees. The galleries not only degrade the quality of wood but cause structural weakness and wind-throw following severe storms (Alfaro, 2003). Hosts include *Acer negundo*, *Erythrina crista-galli*, *Eucalyptus dunni*, *Fraxinus excelsior*, *Grevillea robusta*, *Quercus palustris*, *Quercus rubra*, *Ligustrum lucidum*, *Liquidambar styraciflua*, *Melia azedarach*, *Populus alba*, *Salix alba* and *Salix nigra* (Giménez & Etiennot, 2003).

In the Bonaerense Delta, estimates indicate that up to 300 trees/ha have been damaged by *Megaplatypus mutatus*, equivalent to 30 percent of the trees in one plantation. In 1996 it was estimated that damage to plantations of *Populus deltoides* amounted to US\$1.9 million (Petray, 2003).

<http://www.fao.org/forestry/foris/webview/common/media.jsp?mediaId=7544&langId=1>
http://www.eppo.org/QUARANTINE/Alert_List/insects/PLTPMU.htm

***Sarsina violascens* Herrich-Schaeffer, 1856**

Other scientific names:

Lepidoptera: Lymantriidae

Common names: purple moth

Host type: broadleaf

Hosts: *Eucalyptus* spp.; *Psidium* spp.; *Mikania* spp.; *Osmanthus* spp.

Native to Argentina, *Sarsina violascens* is a polyphagous caterpillar that has demonstrated a capacity to thrive on new hosts such as introduced *Eucalyptus* species (Zanuncio, 1976; Berti Filho, 1983; Zanuncio *et al.*, 1992). *S. violascens* has caused localized defoliation (hundreds of hectares) in Brazil (Zanuncio and de Lima, 1975). The impact of defoliation on eucalypt plantations in Argentina is poorly understood. Although, defoliation can reduce growth rates and can be unsightly, the ability of insect defoliation to kill eucalypts is considered unlikely. More likely it would cause stress to the trees and make them susceptible to attack by secondary invaders.

Adults and newly hatched larvae are capable of dispersing hundreds of kilometers. Other methods of introduction to new areas include the transport of egg masses on materials and adults being attracted to lights and being carried on vehicles.

<http://spfnic.fs.fed.us/exfor/data/pestreports.cfm?pestidval=10&langdisplay=english>

Introduced insects

***Cinara acutirostris* Hille Ris Lambers**

Other scientific names:

Hemiptera: Aphididae

Common names:

Host type: conifer

Hosts: *Pinus patula*; *P. taeda*

Cinara acutirostris is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest has been recorded attacking *Pinus* spp., in particular *P. patula* and *P. taeda*.

***Cinara atlantica* (Wilson, 1919)**

Other scientific names: *Cinara carolina* Tissot, 1932

Hemiptera: Aphididae

Common names: giant conifer aphid; pine bark aphid

Host type: conifer

Hosts: *Pinus taeda*; *P. elliottii*

Cinara atlantica has been observed attacking *Pinus taeda* and *P. elliottii* in Argentina in Posadas (Province of Misiones), bordering upon Paraguay (Delfino and Binazzi, 2005). This insect sucks the sap from the phloem of branches and twigs affecting the form of the trees and reducing increments.

***Cinara cedri* Mimeur**

Other scientific names:

Hemiptera: Aphididae

Common names:

Host type: conifer

Hosts: *Cedrus deodora*

Cinara cedri is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks *Cedrus deodora*.

***Cinara costata* (Zetterstedt, 1828)**

Other scientific names:

Hemiptera: Aphididae

Common names:

Host type: conifer

Hosts: *Picea abies*

Cinara costata is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks *Picea* spp., in particular *P. abies*.

<http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=560;pstrChecklistMode=1>

***Cinara cupressi* Buckton 1881 (Lachnus)**

Other scientific names:

Hemiptera: Aphididae

Common names: cypress aphid

Host type: conifer

Hosts: *Cupressus lusitanica*; *Cupressus arizonica*; *X Cupressocyparis leylandii*

Cinara cupressi is a brownish soft-bodied insect classified as an aphid. It has been discovered around the world feeding on trees from various genera including *Cupressus*, *Juniperus*, *Thuja*, *Callitris*, *Widdringtonia*, *Chamaecyparis*, *Austrocedrus*, and the hybrid *X Cupressocyparis*. In Argentina, this pest has been reported on *Cupressus lusitanica*, *Cupressus arizonica* and *X Cupressocyparis leylandii* (Delfino and Binazzi, 2005).

C. cupressi sucks the sap from twigs causing yellowing to browning of the foliage on the affected twig. The overall effect on the tree ranges from partial damage to eventual death of the entire tree. This aphid has seriously damaged commercial and ornamental plantings of trees around the globe.

<http://www.issg.org/database/species/ecology.asp?fr=1&si=121&sts=>
<http://www.fao.org/docrep/u4200e/u4200e09.htm>
<http://spfnic.fs.fed.us/exfor/data/pestreports.cfm?pestidval=161&langdisplay=english>

<http://www.afaef.org/html/98-202.html>

<http://www.atpmn.org/html/98-202.html>

http://www.rhs.org.uk/advice/profiles0301/cypress_aphid.asp

***Cinara fresai* Blanchard**

Other scientific names:

Hemiptera: Aphididae

Common names: cypress aphid; juniper aphid

Host type: conifer

Hosts: Cupressaceae; *Cupressus macrocarpa*

Cinara fresai is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks species of Cupressaceae in particular *Cupressus macrocarpa*.

http://www.ento.csiro.au/aicn/name_s/b_1048.htm

[http://www.deh.gov.au/cgi-](http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=562;pstrChecklistMode=2)

[bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=562;pstrChecklistMode=2](http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=562;pstrChecklistMode=2)

***Cinara juniperi* (de Geer)**

Other scientific names:

Hemiptera: Aphididae

Common names: juniper aphid

Host type: conifer

Hosts: Cupressaceae; *Juniperus communis*

Cinara juniperi is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks species of Cupressaceae in particular *Juniperus communis*.

http://www.ento.csiro.au/aicn/system/c_1367.htm

[http://www.deh.gov.au/cgi-](http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=566;pstrChecklistMode=2)

[bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=566;pstrChecklistMode=2](http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=566;pstrChecklistMode=2)

***Cinara maghrebica* Mimeur, 1934**

Other scientific names:

Hemiptera: Aphididae

Common names:

Host type: conifer

Hosts: *Pinus* spp.

Cinara maghrebica is one of many aphid species causing economic damage to conifers in Argentina, in particular *Pinus* spp. (Delfino and Binazzi, 2002).

***Cinara maritima* (Dufour, 1833)**

Other scientific names:

Hemiptera: Aphididae

Common names:

Host type: conifer

Hosts: *Pinus* spp.; *P. contorta*; *P. elliotii*; *P. halepensis*; *P. pinaster*; *P. radiata*; *P. taeda*

Cinara maritima is one of many aphid species causing economic damage to conifers, *Pinus* spp. in particular, in Argentina (Delfino and Binazzi, 2002). This pest has also been recorded on other *Pinus* spp. in Brazil (*P. elliotii*, *P. densiflora*, *P. thumbergii*, *P. caribea bahamensis*) and Chile (*P. radiata*).

http://www.scielo.br/scielo.php?pid=S0085-56262004000200019&script=sci_arttext

***Cinara piceae* (Panzer)**

Other scientific names:

Hemiptera: Aphididae

Common names: greater black spruce aphid; spruce bark aphid; spruce stem aphid

Host type: conifer

Hosts: *Picea* spp.

Cinara piceae is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks *Picea* spp.

[http://www.7stanes.gov.uk/website/FCPicLib.nsf/Images?SearchView&Query=\(CINARA%20and%20PICEAE\)&SearchOrder=1&SearchMax=0&SearchWV=TRUE&SearchThesaurus=TRUE&Start=1&Count=24](http://www.7stanes.gov.uk/website/FCPicLib.nsf/Images?SearchView&Query=(CINARA%20and%20PICEAE)&SearchOrder=1&SearchMax=0&SearchWV=TRUE&SearchThesaurus=TRUE&Start=1&Count=24)

***Cinara pilicornis* (Hartig)**

Other scientific names:

Hemiptera: Aphididae

Common names: spruce shoot aphid

Host type: conifer

Hosts: *Picea abies*

Cinara pilicornis is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks *Picea abies*.

<http://www.insectimages.org/browse/subimages.cfm?SUB=11739>

http://www.ento.csiro.au/aicn/name_s/b_1050.htm

[http://www.deh.gov.au/cgi-](http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=568;pstrChecklistMode=2)

[bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=568;pstrChecklistMode=2](http://www.deh.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=APHIDOIDEA;pstrTaxa=568;pstrChecklistMode=2)

***Cinara pinivora* Wilson, 1919**

Other scientific names:

Hemiptera: Aphididae

Common names: giant conifer aphid

Host type: conifer

Hosts: *Pinus* spp.; *P. elliotii*; *P. taeda*

Cinara pinivora is a native species of North America that has entered and established in Argentina causing significant damage to *Pinus* spp., in particular *Pinus taeda* and *P. elliotii* (Delfino and Binazzi, 2002). These insects attack young plantations of *Pinus* spp affecting the form of the trees and reducing increments. It is a sap-sucking aphid with a

very short life cycle and is capable of multiplying rapidly. Some forms reproduce asexually at times and hence can quickly build up numbers. The winged forms are weak fliers, but are readily carried by the wind over considerable distances. As adults or juveniles, they do not survive off the host plant material for very long.

http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0085-56262003000300014
http://www.scielo.br/scielo.php?pid=S0085-56262004000200019&script=sci_arttext
http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0101-81752005000300011 (In Portuguese with English abstract)

***Cinara tujafilina* (del Guercio, 1909)**

Other scientific names:

Hemiptera: Aphididae

Common names: cypress pine aphid

Host type: conifer

Hosts: Cupressaceae; *Austocedrus chilensis*; *Thuja occidentalis*; *T. orientalis*

Cinara tujafilina is one of many aphid species causing economic damage to conifers in Argentina (Delfino and Binazzi, 2002). This pest attacks species of Cupressaceae in particular *Austocedrus chilensis*, *Thuja occidentalis* and *T. orientalis*.

http://www.ento.csiro.au/aicn/name_s/b_1051.htm

<http://www.ento.okstate.edu/ddd/insects/arborvitaeaphid.htm>

***Elatobium abietinum* (Walker, 1849)**

Other scientific names: *Liosomaphis abietina* (Walker); *Aphis abietina* Walker, 1849; *Myzaphis abietina* Van der Goot, 1913; *Neomyzaphis abietina* Theobald, 1926

Hemiptera: Aphididae

Common names: green spruce aphid; spruce aphid

Host type: conifer

Hosts: *Picea* spp.

Elatobium abietinum has been recorded in Argentina infesting *Picea* spp. (Delfino and Binazzi, 2002). The spruce aphid prefers old needles and does not usually attack current growth. Most aphids are found on the lower side of needles and are usually concentrated on the lower (shaded) crown, but they often affect the leaders and upper crown. The first signs of feeding in winter or spring are yellow patches on the needles; by late spring the needles turn yellow or brown and then drop with summer's heat. Severe attacks may completely defoliate stands and may result in tree mortality; partial defoliation may result in increment loss and dieback of branches. Needle discoloration and needle drop varies according to attack density and weather conditions.

<http://www.forestryimages.org/browse/subimages.cfm?SUB=301>

http://www.pfc.forestry.ca/diseases/hforest/Pests/sp_aphid_e.html

http://www.fs.fed.us/r1-r4/spf/fhp/field_guide/110spraph.htm

<http://warehouse.pfc.forestry.ca/pfc/2202.pdf>

http://www.forestry.ubc.ca/fetch21/FRST308/lab5/elatobium_abietinum/aphid.html

http://www.ento.csiro.au/aicn/name_s/b_1490.htm

<http://www.cabicompendium.org/NamesLists/FC/Full/LIOAAB.htm>

http://www.science.ulster.ac.uk/lnsrg/elatobium_abietinum.html

<http://www.introduced-species.co.uk/Species/insects/green%20spruce%20aphid.htm>
<http://tncweeds.ucdavis.edu/products/gallery/elaab1.html>

***Eulachnus rileyi* (Williams, 1911)**

Other scientific names: *Lachnus rileyi* Williams

Hemiptera: Aphididae

Common names: pine needle aphid

Host type: conifer

Hosts: *Pinus* spp.; *P. contorta*; *P. halepensis*; *P. taeda*

Eulachnus rileyi has been recorded in Argentina infesting *Pinus* spp., in particular *P. contorta*, *P. halepensis* and *Pinus taeda* (Delfino and Binazzi, 2002). Typically, this insect causes only minor damage where it has been introduced, however, it has the potential to cause serious damage. Heavy infestations cause needles to turn yellow and drop prematurely, resulting in growth reduction.

All life stages feed on the underside of pine needles. In temperate climates, both sexual and asexual forms exist. Adults are normally wingless, but winged forms are sometimes produced. Populations tend to increase during dry periods. These insects could be moved with scion material. Once established in a new location, they are subject to wind dispersal.

<http://www.ipgri.cgiar.org/publications/pdf/828.pdf>

<http://www.cabicompendium.org/NamesLists/FC/Full/EULARI.htm>

***Eulachnus tauricus* Bozhko, 1957**

Other scientific names:

Hemiptera: Aphididae

Common names: pine needle aphid

Host type: conifer

Hosts: *Pinus* spp.

Eulachnus tauricus has been recorded in Argentina infesting *Pinus* spp. (Delfino and Binazzi, 2002).

***Nematus desantisi* Smith**

Other scientific names: *Nematus oligospilus* Foerster, 1854

Hymenoptera: Tenthredinidae

Common names: sawfly; willow sawfly

Host type: broadleaf

Hosts: *Populus* spp.; *Salix* spp.

Nematus desantisi, native to Eurasia and North America, was discovered in the Province of Chubut during 1980/81 (de Santis, 1981). It spread rapidly, infesting an area of 3 000 km over a period of 9-10 years. In Argentina, this insect causes severe defoliation of planted forests of *Salix* and *Populus* spp. The latter is a commercially important plantation species in Patagonia. This insect is capable of undergoing 4-5 overlapping generations per year (Dapoto and Giganti, 1994). In 1997, an estimated 15 000 hectares

of *Salix* plantations were defoliated in the Delta del Parana. Severe defoliation has been shown to cause a 60 percent reduction in annual increment and some tree mortality (Petray, 2003).

http://www.hortnet.co.nz/publications/guides/willow_sawfly/wsawfly.htm
<http://www.rsnz.org/publish/nzjz/2000/23.pdf>

***Rhyacionia buoliana* (Denis & Schiffermüller, 1775)**

Other scientific names: *Evetria buoliana*; *Retinia buoliana*; *Tortrix buoliana*

Lepidoptera: Tortricidae

Common names: European pine shoot moth; pine shoot borer

Host type: conifer

Hosts: *Pinus* spp.

Believed to have entered Argentina around 1939, the European pine shoot moth does not directly kill plants however it may cause a significant reduction in the quality of timber produced (Klasmer *et al.*, 1998). It attacks commercial pine species including *Pinus radiata*, *P. ponderosa* and *P. contorta* var. *latifolia* (Klasmer *et al.*, 2003a). Eggs are laid on or near buds in spring and early summer. The larvae mine the base of the needles which causes tree deformations such as forking and bushing which can lead to considerable economic losses. Infestation rates as high as 80 percent have been recorded. There is apparently only one generation per year (Klasmer, 1997). Many parasitoids have been found in Patagonia Argentina, which are natural enemies for biological control programmes (Klasmer *et al.*, 2003a).

Adults of this species spread moderate distances naturally, however it is also spread, often longer distances, by the movement of infected nursery stock.

http://www.forestry.ubc.ca/fetch21/FRST308/lab4/rhyacionia_buoliana/europe.html
http://www.esbc.harbour.com/2003_Heeley.pdf
http://www.nrcan-rncan.gc.ca/cfs-scf/science/prodserv/pests/euro_pine_shootmoth_e.html
http://www.pfc.forestry.ca/diseases/nursery/pests/europeal_e.html
<http://www.entomology.umn.edu/cues/Web/130EuropeanPineShootMoth.pdf>
<http://www.padil.gov.au/viewPest.aspx?id=294>

***Sirex noctilio* Fabricius, 1793**

Other scientific names: *Sirex melanocerus* Thomson, 1871; *Paururus noctilio*

Hymenoptera: Siricidae

Common names: European wood wasp; sirex; sirex wood wasp; steel-blue horntail

Host type: conifer

Hosts: *Pinus radiata*; *P. taeda*; *P. pinaster*; *P. sylvestris*; *P. nigra*; *P. pinea*; *P. elliotii*; *P. echinata*; *P. palustris*; *P. patula*; *P. caribaea*; *P. kesiya*; *P. strobus*; *P. contorta* var. *latifolia*; *Pseudotsuga menziesii*; *Larix* spp.

Most likely spreading from an initial introduction in Uruguay, the European wood wasp first appeared in Argentina in 1985 and is now widespread (Espinosa, Lavenderos and Lobos, 1986). It particularly attacks *Pinus* spp. including *P. caribaea*, *P. echinata*, *P. elliotii*; *P. kesiya*, *P. nigra*, *P. palustris*, *P. patula*, *P. pinaster*, *P. pinea*, *P. radiata*, *P.*

strobis, *P. contorta* var. *latifolia*, *P. sylvestris* and *P. taeda*. However, it is also known to attack other conifers such as *Larix* spp. and *Pseudotsuga menziesii*. In 1993, an infestation was detected near San Carlos Bariloche in Rio Negro Province at the northern edge of Patagonia (Klasmer and Fritz, 1994). It was reported in Entre Rios, Corrientes, Misiones, Buenos Aires, Cordoba and Jujuy Provinces (Klasmer, Corley and Botto, 1997). A more recent report from Misiones Province in northeastern Argentina, where 53 percent of the country's pine plantations are established, indicates that an estimated 8.7 percent of the planted forests are infested by this insect (Petray, 2003).

Each generation takes between one and three years. Trees are killed by a combination of toxic mucus and a fungus (*Amylostereum areolatum*) which are inoculated into trees during egg laying (Klasmer, Corley and Botto, 1997).

<http://www.metla.fi/iufro/iufro95abs/d2pos86.htm>

http://www.forestrytas.com.au/forestrytas/pdf_files/forest_health_leaflets/insect_pests/pestinfosheet7sirexwasp.pdf

***Urocerus gigas* (Linnaeus)**

Other scientific names: *Ichneumon gigas* Linnaeus; *Sirex gigas* Linnaeus

Hymenoptera: Siricidae

Common names: yellow-horned horntail; banded horntail; giant wood wasp; grand sirex; greater horntail wasp; horntail; Siricid wood wasp

Host type: conifer

Hosts: *Pseudotsuga menziesii*; *Pinus* spp.

The yellow-horned horntail has a Holarctic distribution with several subspecies reported from Asia, Europe and North America. In Argentina, it infests *Pseudotsuga menziesii* and all pinus species planted for commercial purposes in the Andino-Patagonian region (Klasmer, 1997; 2002). In other parts of the world it infests many species of conifers including *Picea abies*, *Picea sitchensis*, *Abies alba*, *Pseudotsuga menziesii*, *Larix* and *Pinus sylvestris*.

In the 1980s, it was discovered in the Argentinean Provinces of Chubut, Rio Negro and Neuquén. It was discovered in Chile some time after 1970 and is probably distributed throughout the area of North American conifer plantations in Chile. The subspecies *U. gigas flavicornis* (Fabricius) is widely distributed across Canada and the western US and is not economically important. The ability of European and Asian subspecies to compete with the indigenous subspecies of *U. gigas* or other woodborers or their ability to cause serious damage is not known.

<http://spfnic.fs.fed.us/exfor/data/pestreports.cfm?pestidval=24&langdisplay=english>

<http://www.padil.gov.au/viewPest.aspx?id=306>

<http://www.forestpests.org/poland/greaterhorn.html>

<http://www.invasive.org/browse/subject.cfm?sub=20>

<http://www.forestpests.org/hungary/hymenopteraug.html>

Diseases

Indigenous diseases

No information was available on the status of indigenous diseases in the planted forests of Argentina.

Introduced diseases

No information was available on the status of introduced diseases in the planted forests of Argentina.

Other pests

Indigenous other pests

No information was available on the status of indigenous other pests (e.g. mites, nematodes, mammals, etc.) in the planted forests of Argentina.

Introduced other pests

No information was available on the status of introduced other pests (e.g. mites, nematodes, mammals, etc.) in the planted forests of Argentina.

Diebacks and other conditions

No records were available for diebacks and other conditions affecting Argentina's planted forests.

Capacity for forest health protection

Government level

Protection and management of Argentina's forests is shared by two departments in two separate ministries. Protected forests, reserves and national parks are managed by the Ministerio de Salud y Ambiente, Direccion de Bosques, Secretaria de Ambiente y Desarrollo Sustentable. Protection and management of production forests is the responsibility of the Ministerio de Economia y Produccion, Secretaria de Agricultura, Ganaderia, Pesca y Alimentos (SAGPyA), Direccion de Forestacion (FAO, 1994).

Monitoring and detection

A number of investigations have been conducted on damage and levels of natural enemies of several insects infesting planted forests in Argentina. In addition, studies have been conducted on the causes of the condition known as "mal del cipres" in naturally regenerating forests of *Austrocedrus chilensis*.

Data management

Some data are available on the economic impact of several insects affecting planted forests in Argentina such as *Nematus oligospilus*, *Sirex noctilio*, and *Platypus sulcatus* (Petray, 2003).

Pest management

Biological control strategies have been used against various forests pests such as *Rhyacionia buoliana* and *Sirex noctilio* in Patagonia (Klasmer *et al.*, 2003a, b; Botto *et al.*, 2004).

Private landowners

No data was available on the proportion of forest lands in public and private ownership or the capacity of private landowners to protect forests from damaging pests and diseases.

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^{OSN} = Other Scientific Name (other names, synonyms, other combinations, etc. that have been used for this species).

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