

Forest pests and invasive alien species



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Protection of the Forests



Threats to forests and forest products

Insects and diseases
endemic and invasive

Plants (woody invasive species)

Other disturbances

Other biotic agents, e.g. wildlife browsing, grazing, physical damage, nematodes

Abiotic disturbances, e.g. wind, snow, ice, frosts, floods, storms, blizzards,

drought, windthrow, earthquakes, floods, landslides, tsunamis, air pollution

Fire



pest collage



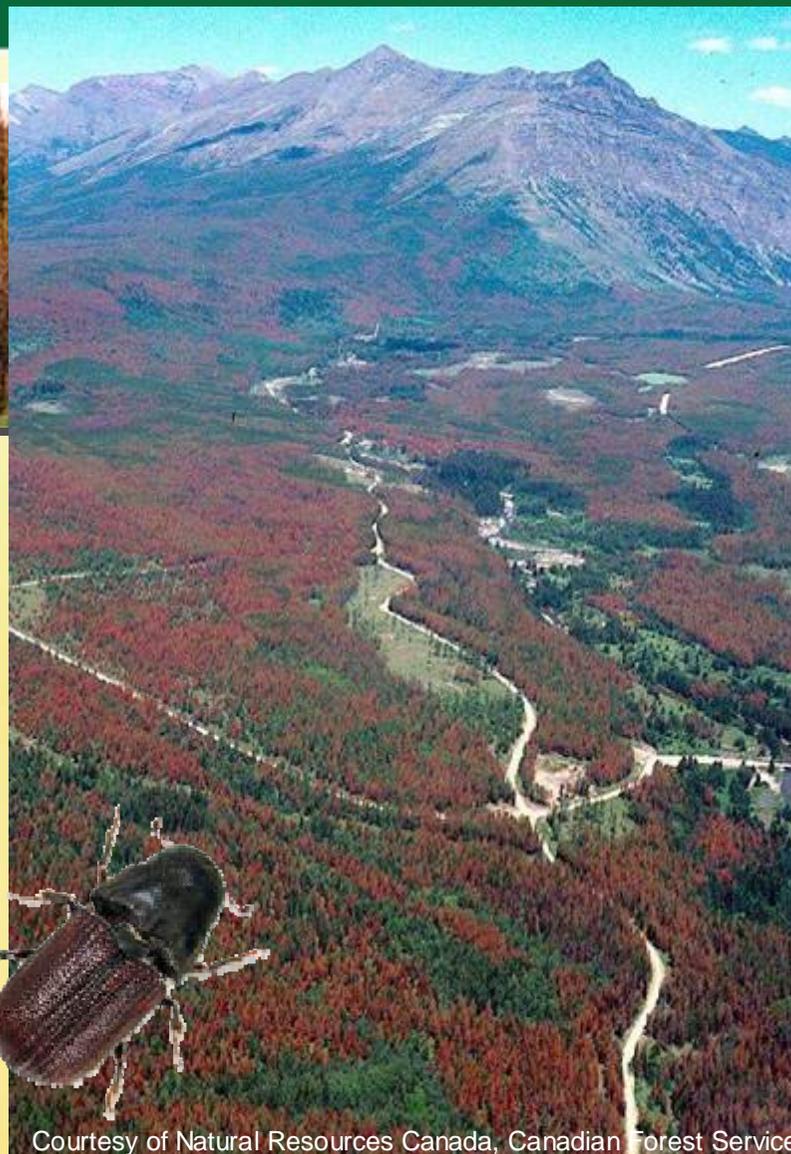
Threats to forests

Insect affected area:

At least 35 million
hectares
per year



**Substantial
environmental and
socio-economic losses**



Courtesy of Natural Resources Canada, Canadian Forest Service

Impact

Tree survival

Yield and quality of forest products



- **Cultural values of forests**
- **Wildlife habitat**
- **Species biodiversity**



Impact

Disrupt natural fire cycles
Deplete water



**Affect international trade
in forest products**

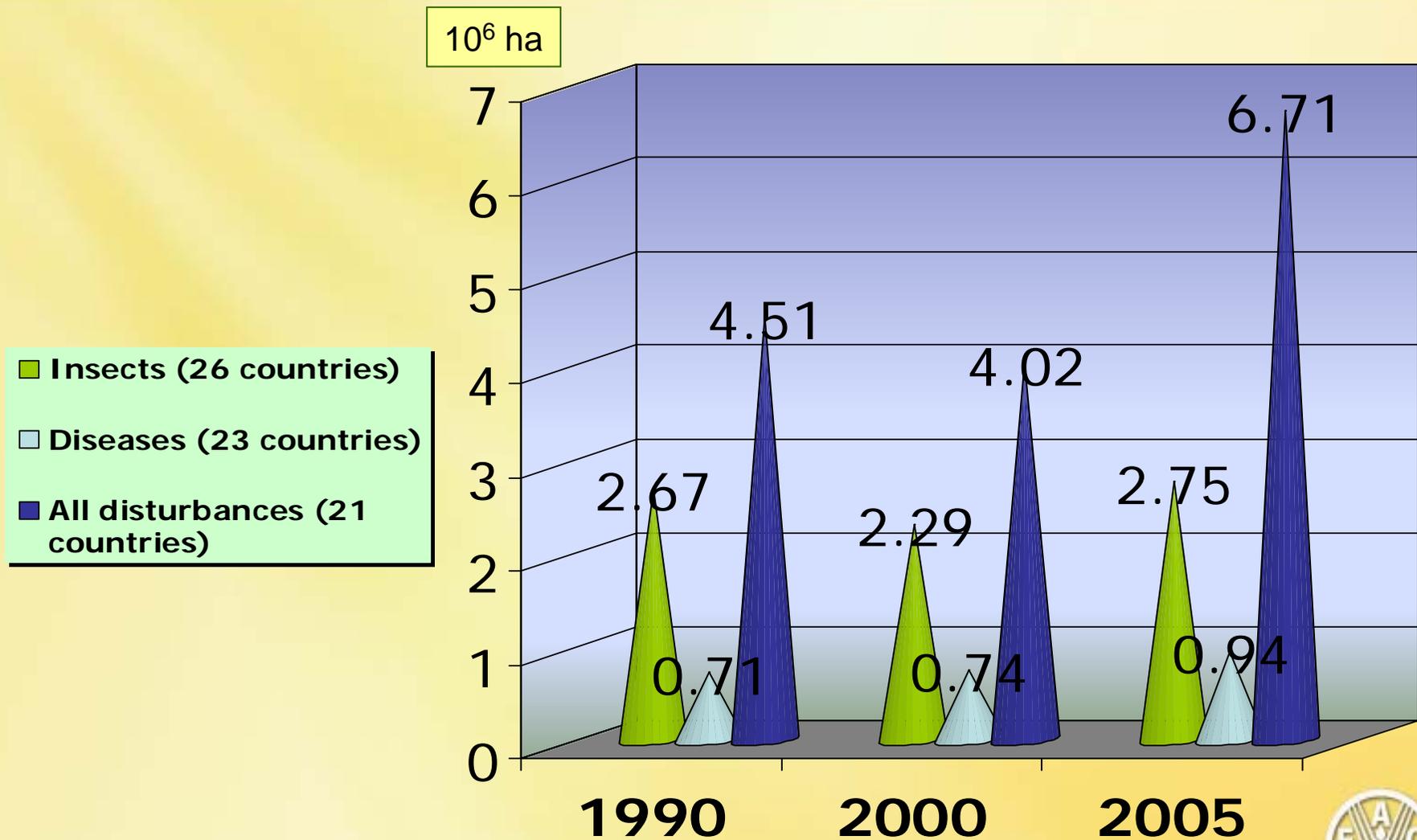


Impact livelihoods



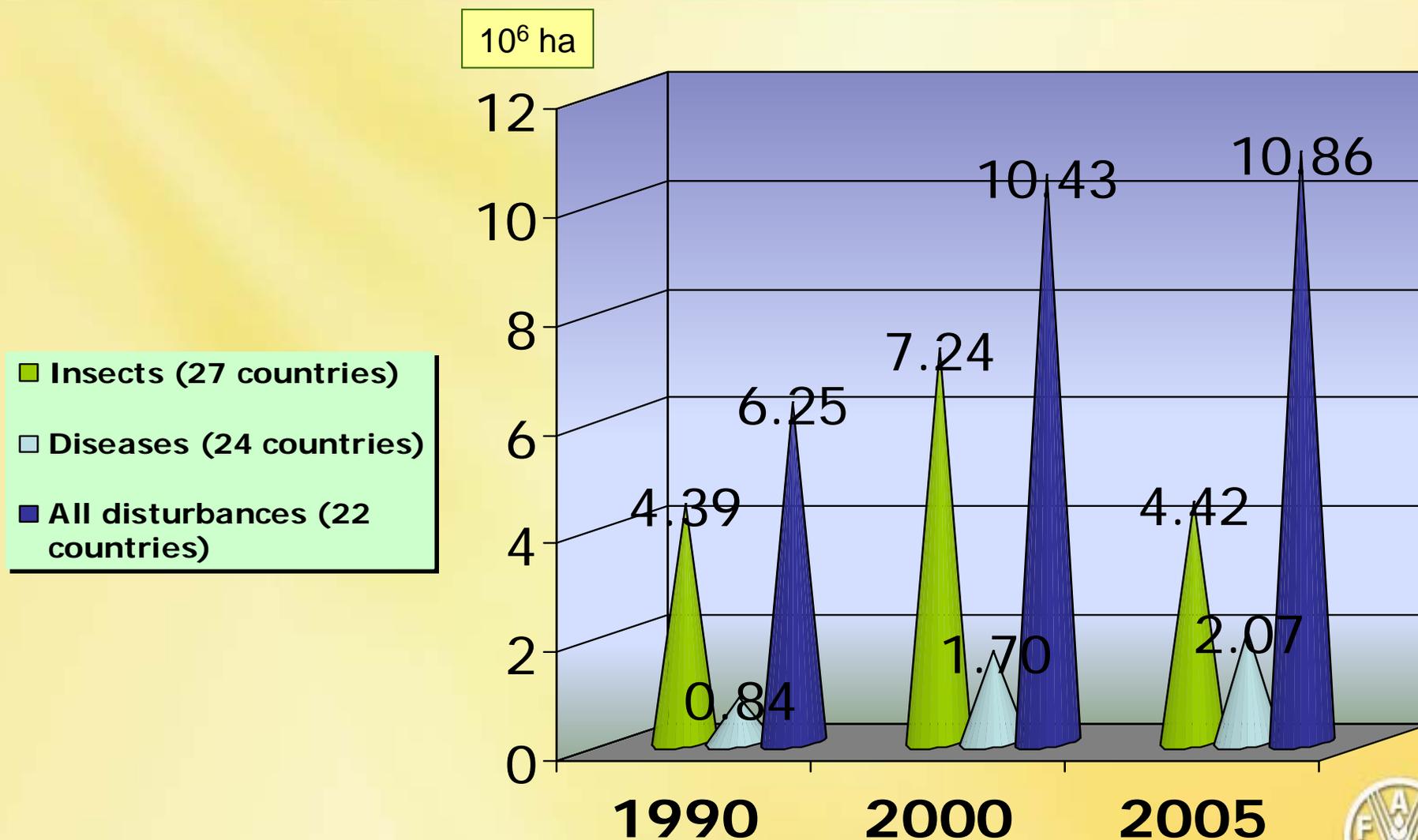
Europe

Trends in area of forest annually affected by insects, diseases and all disturbances (excl. fire)



Europe + Russia

Trends in area of forest annually affected by insects, diseases and all disturbances (excl. fire)



Abiotic disturbances- examples of extreme weather events

Major storms in **Netherlands** in 2007 felled 250000m³(0.4% standing volume)

Sweden; major storm of Jan 2005 resulted in severe wind throw in southern Sweden esp. in middle age and old spruce stands



Major insect outbreaks (5 major species occurring in more than two countries)

***Ips typographus* European Spruce bark beetle**

Austria, Czech Republic, Denmark, France, Germany, Hungary, Latvia, Lithuania, Netherlands, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Sweden, Switzerland

***Lymantria dispar* Gypsy Moth (European and Asian strains)**

Bulgaria, Hungary, Germany, Latvia, Lithuania, Moldova, Russian Federation, Serbia, Slovakia, Switzerland, Ukraine

***Tortrix viridana* European oak leaf roller**

Czech Republic, FYR Macedonia, Moldova, Netherlands, Poland, Slovakia, Romania, Ukraine

***Panolis flammea* Pine Beauty moth**

Belarus, Germany, Latvia, Lithuania, Poland, Ukraine, UK

***Lymantria monacha* Nun moth**

Belarus, Czech Republic, Germany, Latvia, Lithuania, Poland



Some examples of major disease outbreaks

***Heterobasidium annosum* Annosum root rot**

Denmark, Estonia, Finland, FYR Macedonia, Germany

***Chalara fraxinea* Ash dieback**

Germany, Latvia, Lithuania, Luxembourg, Norway

***Melampsora larici-popululina* Poplar leaf rust**

Belgium, Finland, France, Iceland

***Gremmeniella abietina* Scleroderris canker**

Finland, Norway, Sweden

***Phytophthora kernoviae* Sudden Oak Death**

UK



5 Main woody invasive species reported in Europe

Robinia pseudoacacia

Poland, Slovenia, Switzerland, Italy, Croatia

Acer negundo

Austria, France, Hungary, Poland, Spain

Prunus serotina

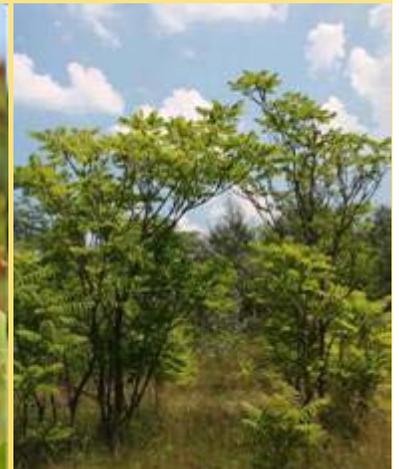
Belgium, France, Netherlands, Poland

Amorpha fruticosa

Bulgaria, Croatia, Hungary

Ailanthus altissima

Bulgaria, Italy, Spain



Potential, emerging or establishing pest problems in Europe

Pathogens

Chalara fraxinea – Ash dieback

Cryphonectria parasitica – Chestnut blight

Phytophthora kernoviae

Phytophthora pinifolia

Phytophthora ramorum – sudden oak death



New invasive pathogen

erica



A s
sho
inf
Japa
foliar

infected with

A stand of mixed conifers in North Devon showing extensive dieback of Japanese larch infected with *Phytophthora ramorum*.



Potential, emerging or establishing pest problems in Europe

Insects

Agrilus planipennis – Emerald Ash Borer (EAB)

Anoplophora chinensis – Citrus longhorned beetle

Anoplophora glabripennis – Asian longhorned beetle (ALB)

Dryocosmus kuriphilus – Oriental chestnut gall wasp

Leptocybe invasa – Blue gum chalcid

Megaplatypus mutatus – (Ambrosia beetle)



Emerging and establishing pest problems in Europe

Nematodes

Bursaphelenchus xylophilus- pine wilt nematode



Whats contributing to Europes problems?

- **Increased international trade and increase in number of pathways**
- **Climate change**



Thank You!

