

The threat of East Asian pathogens to Nordic Forests and how can we handle that challenge

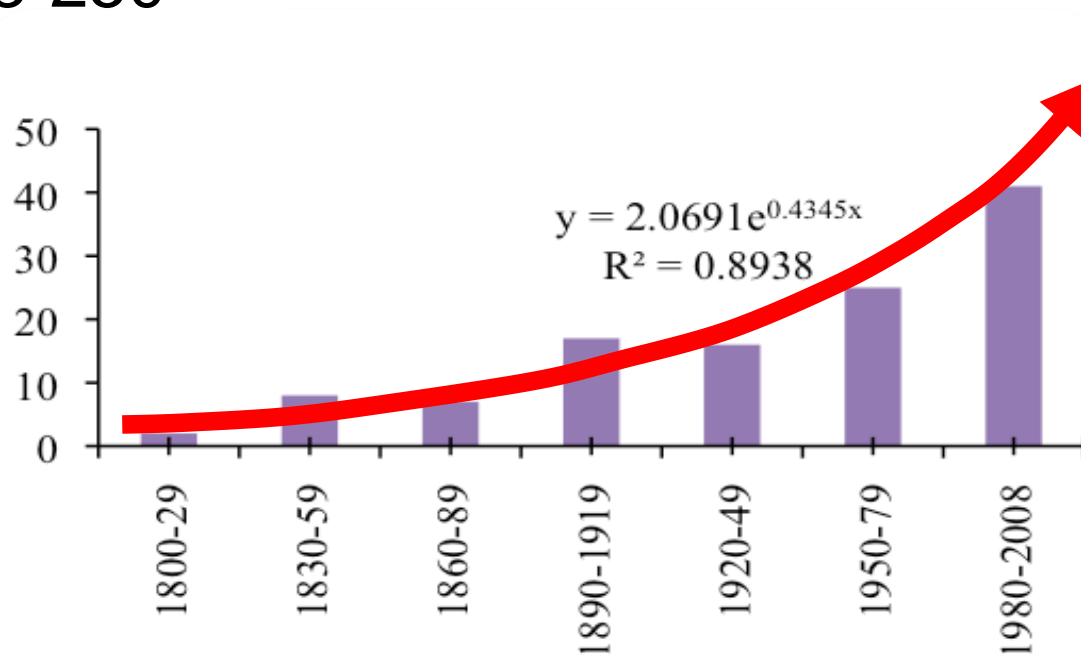
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Finland, forestry and forest industry

- Forest cover is the highest in Europe
 - about 72% of the land area
 - Exceptionally important for the economy
 - about 20% of export value
 - Based almost solely to Norway spruce and Scots pine
- a serious disease on these trees would result in an ecological and economic catastrophe on a large scale

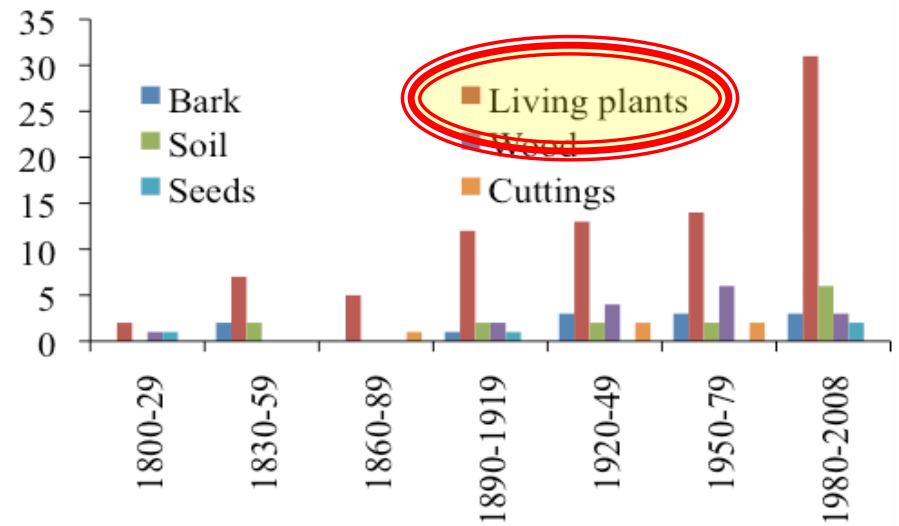
Exponential growth of alien pathogens

- The number of alien pathogens in European countries has grown exponentially during the last 200 years
 - Santini et al., New Phytologist (2013) 197, 238-250



Pathways (Santini et al., 2013)

- The most common pathway for alien pathogens has been the trade of living plants for 200 years
 - above 70% since 1980's
 - ornamental plants, forest tree seedlings, large urban tree seedlings, bonsai-plants etc...



Phytophthora

- According to the work of Thomas Jung
 - *Phytophthora* exists in 80% of German and Austrian nurseries
 - the most common species observed are associated with problems in forests
 - in central Europe planted trees commonly die in few years after the planting
 - *Phytophthora* spp. was found in 93% of young planted forests
 - business opportunity for the nursery
 - lowers motivation to solve the problem

Australia

- Five years after the Myrtle (Eucalyptus) rust was detected in Hawaii it appeared to Australia (Carnegie et al., 2010)
 - cut flower nursery in New South Wales
- Australia had a ready-made plan and it made an attempt to contain and eradicate the rust
- In December 2010, the rust was detected at a small number of nurseries in Brisbane, Queensland
 - shortly before a period of extremely wet weather
- Described as “an ecological holocaust”

02/2011

Queensland

12/2010

New South
Wales

04/2010

12/2011

The rust in Australia is important

- Myrtle rust spread to Australia, although
 - the continent is separated from the rest of the world by an Ocean
 - the plant health quarantine in Australia is more stringent than anywhere else in the world
 - the risk caused by the Myrtle rust was well known beforehand
 - eradication actions were planned beforehand and started after the rust was observed
- Even the best practices do not guarantee that the spread of pests and pathogens would stop

Montesclaros declaration

- As scientists studying diseases of forest trees, we recognize that the international trade of plant material is increasing the risks to forest health worldwide. The evidence for this view is based on the recent, unprecedented rise in numbers of alien pathogens and pests emerging in natural and planted forest ecosystems in all parts of the globe. **We thus propose a phasing out of all trade in plants and plant products determined to be of high risk to forested ecosystems but low overall economic benefit**

Recommendation in Finland

- Based on the ... new research information and the IPM guidelines the Finnish Forest Research Institute and MTT Agrifood Research Finland recommend that from the beginning of 2014, especially in forest regeneration areas but also in other areas (gardens and the built environment) **only seedlings from domestic production should be applied**
- Has caused some protests from seedling importers

Reality

- WTO will most probably strongly oppose the Montecarlos declaration
 - or any other means to restrict the global trade
- National recommendations may reduce the size of the problem
 - the effect will be based on individual decisions
 - national recommendations are not likely to solve the question of invasive alien pests and pathogens
 - **New non-restrictive solutions are needed!**

Few cost estimates from literature

- 8-215 million euros per year
 - Dutch elm disease in the small island of Gotland
- 165 million dollars per year
 - four high-profile invasive forest insects and diseases in Canada
- 2,1 billion dollars per year
 - losses and damages associated with forest plant pathogens in USA

Eradication is not cheap either

- 20th century *Ribes* eradication program in USA
 - costs were 1,2 billion dollars of 2012 value
- Control costs of alien plant pathogens in lawns, gardens and golf courses in USA
 - a total of two billion dollars per year
- Estimated costs of successful eradication of pine wood nematode in Finland
 - a total of 5-19 million euros per finding

Main problem

- Currently land owners and taxpayers foot the bill of damage caused by exotic plant pests
- Plant exporters and importers avoid penalty under the protective umbrella of free-trade
 - although they and their clients are ultimately responsible for the introduction of damage-causing organisms
- The true costs of int´l plant trade are not internalized in the pricing of the products, but **business is rather subsidized against the less risky local production**
- The int´l plant trade business has **no economic incentive - thus no interest - to solve the problem**

Identity problem

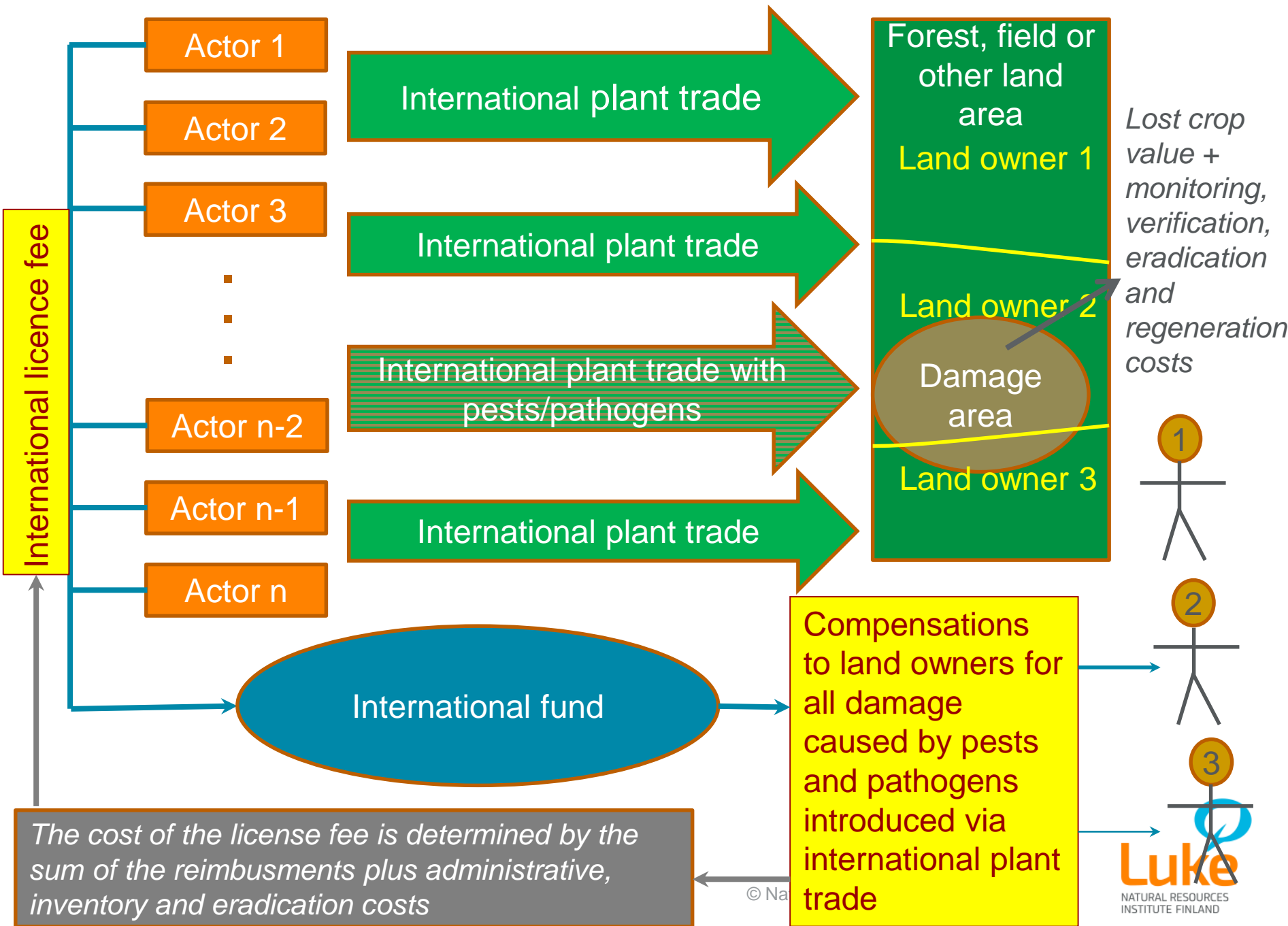
- An individual shipment or importer of plants or plant products can only rarely be identified with certainty as the source of a pest or pathogen
 - The bill on the damage cannot be directed to the trader who caused the problem
 - Not even to her insurance company

Cost problem

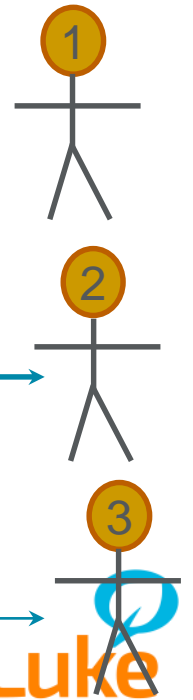
- Full costs of an ecological disaster could not be met by even the largest of firms currently operating in plant trade industry
 - If directed to an actor in international plant trade, it would only be driven to bankruptcy
 - Even insurance companies could have difficulties in paying the bill

International plant trade licence

- We suggest an international plant trade licence should be established
- Licence should be obligatory to all actors in the international plant trade
- The fee would be used to compensate for the losses
 - the price of the license should be determined to cover the costs
- We claim that such a licence would solve the practical problems identified during this presentation



Lost crop value + monitoring, verification, eradication and regeneration costs



Benefits of the licence

- The true costs would be included in the prices of the imported plants
 - international plant traders, and ultimately their clients, would pay for the costs caused by the business
 - shared responsibility would solve the identity and cost problems
 - business would be motivated to address and minimize the risks caused by plant material in trade
 - the trade with the least overall economic benefits and highest risks would be eliminated
- Implementation could be possible at any international level to stop the subsidization of risky behavior

Voluntary means to reduce the forest risks by alien pests and pathogens

- A working group nominated by the Ministry of Agriculture and Forestry
- Participants from research, authorities and business

Increasing knowledge and know-how

- Information package
 - newly written information and links to material available elsewhere in internet
 - knowledge on e.g.
 - risk plants and plant materials
 - pathways of pest and pathogen spread
 - origin of the seedlings (domestic vs. imported)
 - pest risk analyses
- Plant health card
 - set of questions covering relevant topics in risks associated with the plant trade

Increasing knowledge and skills

- Discussion forum
 - for the discussion on plant health risks for the the actors in the field
 - the most recent knowledge related to the international trade of plants and plant materials
- Target groups
 - actors listed by the NPPO (Evira)
 - consumers and the general public

Internet portal

- Support for information flow on the risks associated with the international trade of plants and plant products
- To be built by the collaboration of actors in the plant trade business
- The portal would include links
 - information package
 - plant health card
 - discussion forum

Communication

- Taking advantage on NPPO register on companies
- Possibility to inform authorities on risk behavior observed in the plant and plant material business
- Influencing consumers and citizens
 - affecting gardening programs in TV so, that they would not encourage people for risk behavior
 - wild life programs would be an efficient pathway to reach many target groups
 - brochures on plant health risks should be provided to people participating group trips to foreign garden fairs
- Use of communication professionals advantageous

Taking advantage on markets

- Avoiding risks should be turned in to a marketing benefit
 - certificates should be developed
- Locality of products should be used as an asset in marketing
 - whole market chain including growth substrates
- Plant health card would not work alone
 - usage could be accelerated by linking it to NPPO control visits
 - frequency of control visits could be reduced in companies using the plant health card system
- Forest risk control should have a special role in public procurements

Instructions

- Material related to forest health should be delivered annually to nurseries and marketplaces by the interest groups related to the business
 - taking advantage on the available material by the NPPO
 - direct links to the internet portal

Risk assessments

- Authorities have a responsibility on the official risk assessments and on the updated legislation
- In addition, there should be a possibility for anyone to order a risk assessment for different purposes
 - all kinds of actors could use risk assessments when making decisions on their business

Share of responsibilities

- Public actors have a responsibility to provide updated information to all actors in the field of plant trade
 - provide advice whenever necessary
- Interest groups will develop and update the voluntary means to reduce plant health risks on the forestry
 - they should agree on a real or virtual office, that takes care of the necessary actions

Funding

- The office to be established should be funded by private funding
 - main actors in the business due to a large number of variable size actors
 - public funding might be considered only for specific purposes

Thank you!