

What changes are necessary to reduce the introduction of harmful invasive species to forests?

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LETTER TO THE EDITOR

The biosecurity threat to the UK and global environment from international trade in plants

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<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3059.2008.01886.x/pdf>





Group of delegates and guests at the Chestnut Bark Disease Conference, Harrisburg, Penna.,
February 20-21, 1912.

Chairman of the Conference, Dr. R. A. Pearson:

“It has been suggested that we should do nothing to counteract the ravages of the chestnut tree disease, because we are not fully informed as to how to proceed. That is un-American. It is not the spirit of the Keystone State, nor the Empire State, nor the New England States, nor the many other great States that are represented here, to sit down and do nothing, when catastrophies are upon us. It has been suggested that we should wait patiently until the scientists have succeeded in working out these questions in all their minutiae; that thus we may be able to accomplish our results more quickly. But that is not the way that great questions are solved. If we had waited until the application of steam should be thoroughly understood, we would be still waiting for our great trains and steamboats, which are the marvel of the age. (Applause).”



From: The conference called by the governor of Pennsylvania to consider ways and means for preventing the spread of the chestnut tree bark disease. The Capitol, chamber of the House of representatives, Harrisburg, Pennsylvania, February 20 and 21, 1912. Stenographic report of proceedings of the conference, 253 pp. (<http://books.google.com/>)

Dr. W. A. Murrill, Assistant Director of the New York Botanical Garden, returned yesterday from the conference at Harrisburg, Penn., on the chestnut tree blight, which was called by Gov. Tener of Pennsylvania, and at which delegates from twenty-two States heard the report of the Pennsylvania Commission created by the Legislature of 1911 with an appropriation of \$275,000. Dr. Murrill went to the conference strongly opposed to the attempt that he knew would be made to get large appropriations from other States to fight the disease. He has not changed his mind. As the discoverer of the fungus which causes the blight, Dr. Murrill does not accept the theory of the Pennsylvania Commission that a way has been found to control the disease. He declared yesterday that the visiting delegates at the conference had been subjected to the "steam-roller method" by the Pennsylvania Commission, and that the programme which provides for action on lines approved by that commission was forced upon the conference. These plans are so uncertain and so sure to prove futile, in Dr. Murrill's opinion, that it would be folly for this State to appropriate a large sum for a campaign for the chestnut trees along the same lines.



Murrill working at The New York Botanical Garden
William Alphonso Murrill (1869-1957)





A Dynamic Invasive Species Research Vision: Opportunities and Priorities 2009–29

*Edited by
Mary Ellen Dix and Kerry Britton*

and ecosystems. A recent peer review panel recommended increased funding for two areas: (1) prevention and prediction and (2) early detection and rapid response. Therefore, quantitative risk analysis and pathway assessments will be key components of our research program. Our future strategy also recognizes the importance of maintaining research in two other areas: (1) control and management and (2) restoration and rehabilitation. We believe a holistic national strategy will

European Environment Agency



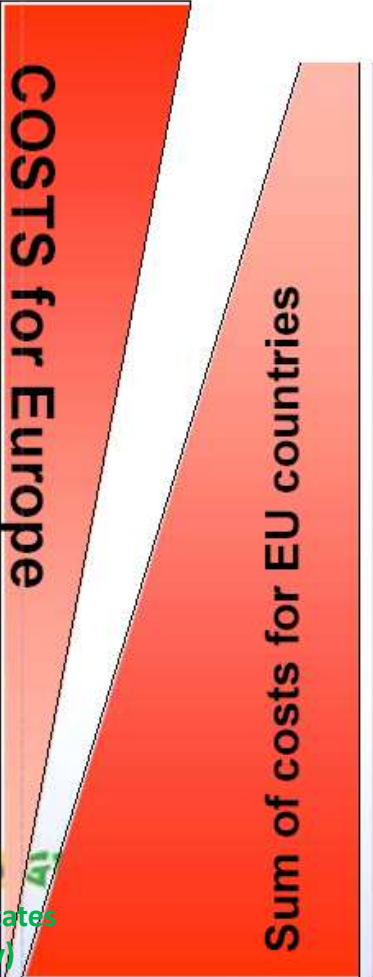
EEA Technical report | No 5/2010

Towards an early warning and information system for invasive alien species (IAS) threatening biodiversity in Europe



What approach?

ROLES	FRAMEWORK
EC biosecurity policy	<ul style="list-style-type: none"> Integration of competences on trade, health, biodiversity, etc. <p style="text-align: right;">EU up to EUR 10 Bln per year</p>
Eu agency, based on new/revised legal tool	<ul style="list-style-type: none"> EU agency, with strong political mandate EA coordinates detection, carries on PRA,... Mandatory enforcement by MS <p style="text-align: right;">EU = EUR 3–6 Mln per year</p>
Eu structure with solid mandate	<ul style="list-style-type: none"> EU observatory Permanent Information System Coordination Technical advice Recommendations MS enforce response <p style="text-align: right;">EU = EUR 1 500 000–2 000 000 per year</p>
Non Institutional European panel	<ul style="list-style-type: none"> Scientific panel (i.e. DIAISIE) EU temporary information system MS do detection, PRA, black lists, responses, ... <p style="text-align: right;">EUR 500 000–700 000 per year</p>
Do nothing	<ul style="list-style-type: none"> MS establish national frameworks EU supports/provide advice <p style="text-align: right;">EU = EUR 0, 27 Member States EUR 10 Mln (400k/country)</p>



Development of Plant Health policies from an international perspective

Ana Maria Peralta

Secretariat of the International Plant Protection Convention

Phytosanitary measures established according to the International Plant Protection Convention and its standards should be consistent with phytosanitary risk, technically justified, least trade restrictive, non-discriminatory and transparent.

To modernize Plant Health legislation, the most important characteristics should be to ensure a balance between international trade, agriculture, and the protection of natural resources and the environment.

http://ec.europa.eu/food/plant/strategy/docs/conf_280910_ana_peralta_summary.pdf

INTERNATIONAL PLANT PROTECTION CONVENTION (IPPC)

The concept of international plant protection began in 1881, when five countries signed an agreement to control the spread of grape phylloxera.

The next major step was the **International Convention for the Protection of Plants**, signed in Rome in 1929, followed in 1951 by the adoption of the **International Plant Protection Convention – the IPPC** – by the Food and Agriculture Organization of the United Nations.

IPPC was recognized by the **World Trade Organization** (by General Agreement on Tariffs and Trade - GATT) as a standard setting organization for the Agreement on the **Application of Sanitary and Phytosanitary Measures (the SPS Agreement)**.



IPPC members requested revision of the Convention in 1995 to reflect contemporary phytosanitary concepts and the role of the IPPC in relation to the Uruguay Round Agreements of the **World Trade Organization**, particularly the **SPS Agreement**.

Under the SPS Agreement, the IPPC provides **international standards for phytosanitary measures (ISPMs)** implemented by governments to protect their plant resources from harmful pests, while ensuring that these measures **are justified and are not used as unjustified barriers** to international trade.

New Revised Text of the IPPC came into force in 2005.



Identifying pathways of biological invasion: can commercial moss harbor potential stowaways?

JeriLynn E. Peck · Andrew R. Moldenke

Table 1 Number of invertebrate individuals per kilogram of moss found in commercially sold bags of Pacific Northwest moss

Order	FG	Invertebrate taxon	Dry (#/kg)	Fresh (#/kg)
OM	F	<i>Achipteria</i>	<1	8 ^a
OM	F	Anachipteria	0	26 ^a
OM	B	Brachychthonius	0	60
MTE	H	Bryobia	0	1 ^a
OM	F	Carabodes	0	1
OM	F	<i>Ceratoppia</i>	0	8
OM	F	<i>Ceratozetes</i>	<1	7 ^a
SPD	P	Clubiona	0	1
MTE	P	Bdellidae	0	7
OM	F	Epidamaeus	0	1
OM	D	Euphthiracarus	0	37 ^a
OM	P	Galumna	0	1
MTE	P	Gamasida	0	70 ^a
OM	D	Hermanniella	<1	2 ^a
OM	D	Hermannia	<1	1 ^a
SPT	F	Isotoma	0	15
OM	F	<i>Liacarus</i> spp. A	0	1
OM	F	<i>Liacarus</i> spp. B	0	7 ^a
CENT	P	Lithobidae	0	1
OM	F	Metrioppia	0	24
OM	D	Microtritia	0	6
SPD	P	Micryphantidae	0	1
OM	F	<i>Oppia</i>	0	4 ^a
OM	F	<i>Oppiella</i>	<1	213 ^a
OM	F	<i>Oribatella</i> spp. A	0	3
OM	F	<i>Oribatella</i> spp. B	0	1
OM	F	Orbatid immature	<1	146 ^a
OM	B	Pelops	0	1
OM	F	Peltenuella	0	02
OM	D	<i>Phthiracarus</i> spp. A	0	24 ^a
OM	D	<i>Phthiracarus</i> spp. B	0	17
MTE	F	Prostigmata	<1	377
OM	F	Pterogasterina immature	0	7
OM	B	<i>Rhinosuctobelba dicerosa</i>	0	2
OM	F	Schelorbates	<1	59
OM	B	Suctobelbella	0	7
MTE	F	Tydaeus	0	1,016
MTE	P	Uroobovela	0	6
MTE	P	Zercon	0	46

Table 1 continued

Order	FG	Invertebrate taxon	Dry (#/kg)	Fresh (#/kg)
OM	F	Zygoribatula	0	2

Only taxa with abundances ≥ 1 per kg of moss are shown

Orders and functional groups (FG) listed below: *CENT* Chilopoda, *MTE* Acari, *OM* Acari (Oribatida), *SPD* Aranea, *SPT* Collembola. Taxa were also found in the Homoptera, Hemiptera, Heteroptera, Coleoptera, Diptera, Hymenoptera, Diplopoda, and Pseudoscorpionida. *B* Bacterivore, *D* detritivore, *F* fungivore, *H* herbivore, *P* predator

^a Indicates species were most frequent and abundant in the fresh bags

The moss from New Zealand presents the pathway for many organisms. Why the trade is not prohibited? Because free trade should not be banned due to unjustified barriers to international trade. Unjustified?

(*Cameraria ohridella*)



ORIGINAL PAPER

Earthworm invasion into previously earthworm-free temperate and boreal forests

Lee E. Frelich · Cindy M. Hale · Stefan Scheu ·
Andrew R. Holdsworth · Liam Heneghan ·
Patrick J. Bohlen · Peter B. Reich

Biol Invasions
DOI 10.1007/s10530-011-9959-0

ORIGINAL PAPER

Ecosystem effects of non-native earthworms in Mid-Atlantic deciduous forests

Katalin Szlavecz · Melissa McCormick ·
Lijun Xia · Jaelyn Saunders · Taylan Morcol ·
Dennis Whigham · Timothy Filley · Csaba Csuzdi

Biol Invasions (2006) 8:1257–1273
DOI 10.1007/s10530-006-9020-x

ORIGINAL PAPER

Earthworm invasions of ecosystems devoid of earthworms: effects on soil microbes

M. A. McLean · S. Migge-Kleian · D. Parkinson

Ecoscience 15(4):536-544. 2008
doi:
<http://dx.doi.org/10.2980/15-4-3151>

Litter decomposition in earthworm-invaded northern hardwood forests: Role of invasion degree and litter chemistry

Andrew R. Holdsworth^{a,2},
Lee E. Frelich^b, Peter B.
Reich^b

Tomme Rosanne Young (2006):
National and Regional Legislation for Promotion
and Support to the Prevention, Control, and
Eradication of Invasive Species.

**The World Bank Environment Department,
Biodiversity series, Paper No.108**

<http://www.issg.org/pdf/publications/GISP/Resources/worldbank108.pdf>



Even if the scientists are able to firmly and finally decipher the key to the riddle of invasiveness, that information will only be useful if decision-makers can be aware of all potential introductions, and able to apply their scientific analysis in advance of that event.



(*Corythuca ciliata*)



The Convention on Biological Diversity (CBD) specifically requires its Contracting Parties to - **as far as possible and as appropriate... prevent the introduction of, [and] control or eradicate, those alien species which threaten ecosystems, habitats or species.** Conference of parties (COP) can add detailed explanations.



CBD COP 6 Decision VI/23

The Guiding Principles strongly call on parties to apply the ‘precautionary approach’ (in the form set forth as Principle 15 of the Rio Declaration) in all ‘efforts to identify and prevent unintentional introductions [and] decisions concerning intentional introductions,’ as well as ‘when considering eradication, containment and control measures in relation to alien species that have become established



In regard to the latter the principles note that 'lack of scientific certainty about the various implications of an invasion should not be used as a reason for postponing or failing to take appropriate eradication, containment and control measures.



Anticipated renovation of European and USA phytosanitary system and modernization of IPPC, could increase capability for detection and eradication of harmful organisms but it will not prevent their introduction. Detection and eradication will fail in many cases.



THE MONTESCLAROS DECLARATION

<http://www.iufro.org/science/divisions/division-7/70000/publications/montesclaros-declaration/>

Prepared by a group of more than 70 forest pathologists (representing 17 nations) that attended an international IUFRO meeting held at the Montesclaros Monastery in Cantabria, Spain during May 23th – 27th, 2011.



THE 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.



The only measure that can stop the transfer of alien invasive organisms among continents is total ban on the transport of live plants (and their parts, including flowers) and on the transfer of soil (plants with roots, root balls and associated soil). Plant products in trade (non living parts of plants) should be treated to kill all organisms in or on them.

Only disinfected seeds and sterile tissue cultures of plants could be transported among continents.



- Lists of harmful organisms should be abandoned because they are incomplete and do not contain unknown harmful organisms.
- SPS protocols do not contain unknown organisms.
- Pest Risk Analyses are not suitable basis for adequate measures since they are produced after assessing the damages from newly introduced organisms.



- World phytosanitary system has numerous deficiencies, which enable constant inflow of invasive alien organisms through trade, transport and tourism.
- **Phytosanitary system thus has to be changed. Basic agreements on free trade among World Trade organization members have to be changed and **precautionary principle** should be used as a new paradigm.**



In the IPPC system of scientific justification of phytosanitary measures the use of precautionary principle would justify barriers to international trade

Applying the principle means giving the benefit of the doubt to the environment and not to international trade.



To inform the society on possible consequences of non realization of proposed changes is at present the utmost important activity of all phytosanitary experts.



Thank you for your attention

