


Invasive Species, Agriculture and Trade Case Studies from the NAFTA Context

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Invasive Species

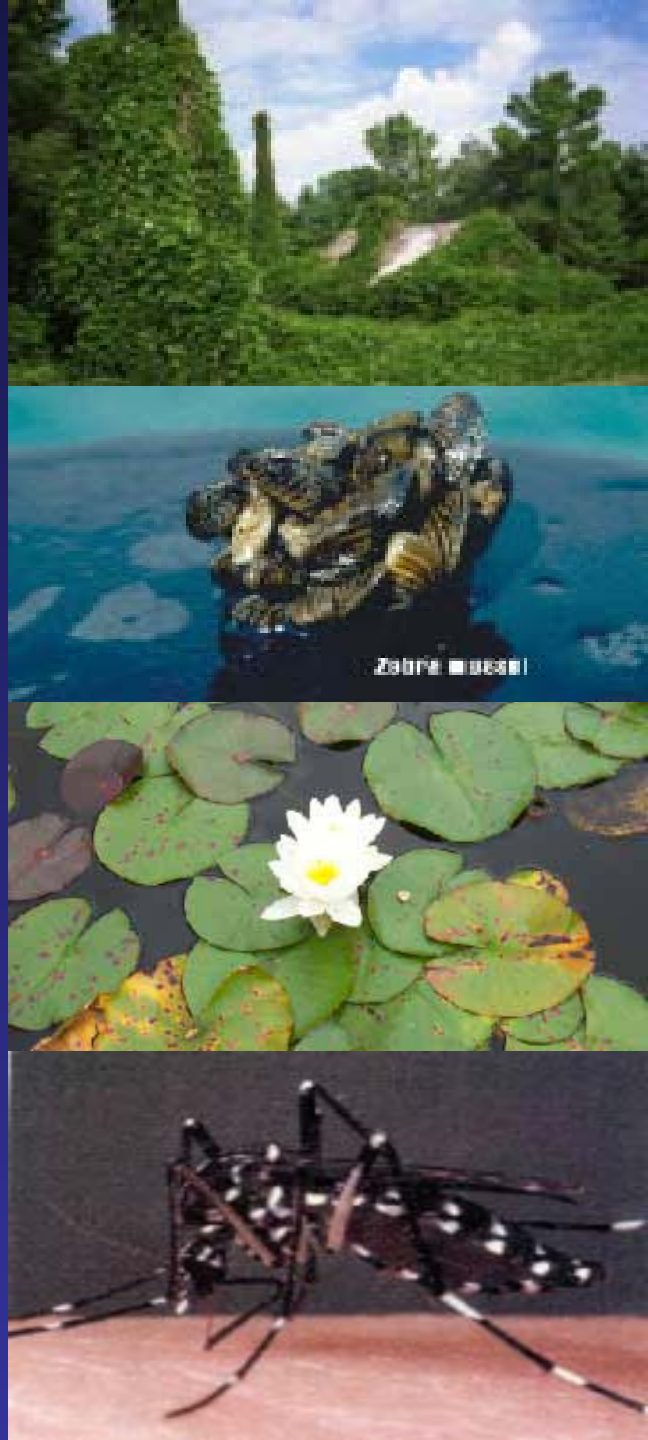
Definitions

- A species introduced deliberately or unintentionally outside its normal distribution, which threaten ecosystems, habitats or other species (CBD)

- A species that is 1) non-native (or alien) to the ecosystem under consideration **and** 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. (US Executive Order 13112)

Ecological Impacts

- **Genetic level** - decrease genetic diversity, loss of genes and gene complexes, hybridization with native species;
- **Species level** – prey on or displace native biota; transmit disease; reduce growth and survival rates; cause decline and extinction of species populations; disturb structure, stability and functions of communities; and
- **Ecosystem level** - disturb nutrient cycling; pollination; regeneration of soils; water flows; soil erosion; and fire regimes.



Agricultural Impacts

- **Crop Loss**
- **Rangeland Value Decline**
- **Water Resource Depletion**
- **Poultry & Livestock Diseases**
- **Genetic Contamination**
- **Impacts on Beneficial Species (e.g. pollinators)**

Economic Impacts

- Crop and stock losses
- Ecosystem losses
- Trade impacts
- Response costs
- Management & Eradication Costs

- Est. $123 billion/year in U.S. alone. Probably far greater.

Driving Forces

Trade and Transport in North America

- Regional trade flows totaling $3 trillion/year
  - $1.58 trillion in NAFTA merchandise imports in 2001
  - $1.7 trillion in US goods trade using SWPM
  - 694 million US plant imports from 863 genera

Trade and Transport in North America

- Most sophisticated and extensive transport infrastructure in the world
  - 7.5 million km of roads
  - 46,000 km of inland waterways
  - 390,000 km of rail lines
  - 18,473 airports
  - 580 ports and facilities
  - 12,000 km of land boundaries

Trade Characteristics

- 157 border crossings
  - 500 million border crossings/year
  - Up to 163 trucks/hour
  - 13 trains/day
- 580 ports
  - 33.3 million TEUs in container trade
- 18 of 30 busiest airports in the world

How much gets inspected?

1 to 2% of incoming shipments

CASE STUDY: GM Maize

Origin: USA

Pathway: Raw maize / end users

Found: 11 sites so far

Potential Impacts

To: Agriculture, Food Security

From: Genetic erosion/contamination within center of origin and diversity

Challenges

Absence of legislative oversight framework

Non-enforcement of GMO cultivation ban

Difficulty of controlling end user pathway

Unpredictability of impacts

CASE STUDY: Asian Longhorned Beetle

Origin: China, Japan, Korea

Pathway: SWPM

Found: New York, Ontario, Chicago, Mexico?

Impacts

To: Timber, Tourism, Nursery and Agriculture Industries from

From: Tree loss ($$billions), Soil erosion, crop damage

Challenges

Volume and variety of sources (>50% of all shipments from China; 250 commodities)

Containerized cargo limits inspection

Documentation gaps

CASE STUDY: Plum Pox

Origin: Europe, Americas, Middle East, South Asia

Pathway: Unknown—vectors include humans, aphids transported in nursery stock and stone fruit

Found: US and Canada, not Mexico

Impacts

To: Agriculture

From: crop loss, reduced crop yields, quarantines, orchard destruction, increased susceptibility to disease

Challenges

Multiple pathways, not clearly determined, including human transmission

Points of origin on most continents

Eradication must be complete

Institutional Framework

CFIA•PMRA•CFS•Environment Canada• FOC•Transport Canada• PPA•Seeds Act• HoAA•NBS•SAGARPA• CONASAG• SEMARNAT•CONABIO•LFSV•LFSA•LGE EPA•LGVS•NISC•APHIS•DOHS•FWS•NO AA•Corps of Engineers•PPA•NISA• NAISA•Lacey Act•WTO•SPS•IPPC• OIE•CBD•NAFTA• NAPPO•IABIN•CEC?

Obstacles to Prevention and Control

- Patchwork of legislation and institutions at federal, state and provincial levels;
- Lack of harmonized standards at the regional and international level
  - Ongoing work within NAPPO, IPPC, etc.
- Major gaps in pathways and species coverage;
  - Invasive potential of LMOs not yet adequately addressed; lack of meaningful controls;
- Lack of comparable data on species and pathways of concern
- Preference for least trade restrictive approach;
- Systemic problems: lack of resources, personnel.

Recommendations-Domestic Action

- Change perspective from increasing trade while dealing with invasives to addressing invasives while allowing trade.
- Adopt best practices in early detection, prevention and eradication.
- Require better documentation on source and country of origin in cargo manifests in key pathways.
- Prioritize inspection rates for cargo in known invasives pathways.
- Increase motivation of trade beneficiaries to reduce risks posed by trade.

Recommendations-Regional Action

- Recognize and respond to threat of intra-continental movements of invasives.
- Recognize shared interest in capacity-building in all three countries.
- Complete NA invasives strategy incorporating a pathways approach.
- Develop shared standards for high-risk pathways.
- Operationalize invasives informatics systems, including exotic species interception data.
- Harmonize reporting of aggregate/sectoral trade statistics relevant to invasives flows.

Recommendations-International Action

- Promote use of and tolerance for pathway approaches and other strong preventive measures within NAPPO and IPPC.
- Strengthen phytosanitary standards and measures for protection of centers of origin and diversity and other ecologically sensitive areas.
- Promote greater latitude for precautionary measures within the SPS Agreement.
- Review legal and institutional gap analysis underway within the CBD process, and encourage mechanisms to address shortcomings in the international legal and policy infrastructure relating to invasives.

QUESTIONS?