

Science for Environment Policy

Invasive-species import risk is higher from countries with poor regulation and political instability

The risk of alien species introduction via trade in plants is higher if the plants are from poorly regulated countries with high forest cover, calculates a recent study. For introductions via the vehicle and timber trades, the risk is higher if the exporting country is politically unstable. These findings could help border controls focus their surveillance efforts on imports from countries with risky socioeconomic profiles.

Most alien species are introduced by international trade, both intentionally and accidentally as contaminants on other products or 'stowaways' in vehicles and boats. Those that become invasive are one of the biggest causes of [biodiversity](#) loss and carry a high economic burden; in the EU, invasive alien species are estimated to cost at least €12 billion a year¹.

This study helps to predict which type of country is most likely to export alien species, based on its socioeconomic characteristics. The researchers gathered data on all recorded interceptions of exotic species by inspectors at border control or pre-border control (e.g. boats *en route* to port) in New Zealand between 2002 and 2011. Although the study is based on imports to New Zealand, its authors say that the results apply globally.

There were 47 328 species' interceptions altogether. The study focused on interceptions of vegetable material, timber items and vehicles. Vegetable material included flowers, fresh produce, herbal medicines, nursery plants, seeds and grain. As well as wood, timber included bamboo, cane and basket-ware. Vehicle products were car parts, tyres and new and used vehicles.

The socioeconomic characteristics of the exporting countries were then defined, in terms of governance and development, using 10 indicators from the [World Bank World Governance Indicators database](#). These included control of corruption, political stability, regulatory quality, GDP and forest area (an indicator of natural resource management).

The researchers analysed their data to determine which indicators were associated with species' introductions. Overall, a significantly higher rate of intercepted species were from countries with weak regulatory control, inferior 'rule of law' (with poor enforcement of rules and a high likelihood of crime and violence), political instability and less freedom from violence.

Indicators of introduction risk were different across the product groups. For vegetable matter, detection rates were higher if imports came from countries with poor regulatory quality and high forest cover. The link with forests can be explained by the high biodiversity found in [forests](#); these countries simply have more species that can become caught up in exports, say the researchers.

Introductions via trade in timber and vehicles were associated with political instability. The researchers say that phytosanitary (plant health) capacity is often lacking in countries with poor regulation and stability.

Continued on next page.

30 September 2016
Issue 472

[Subscribe](#) to free
weekly News Alert

Source: Brenton-Rule, E.C., Barbieri, R.F. & Lester, P.J. (2016). Corruption, development and governance indicators predict invasive species risk from trade. *Proceedings of the Royal Society B*, 283 (1832): 1–16. DOI: 10.1098/rspb.2016.0901.

Contact:
phil.lester@vuw.ac.nz

Read more about: [Biodiversity](#), [Risk assessment](#), [Sustainable development and policy assessment](#)

The contents and views included in Science for Environment Policy are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

To cite this article/service: "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

1. As cited in: European Union (2014), *Invasive Alien Species: A European response*. Luxembourg: Publications Office of the European Union. Available from: <http://ec.europa.eu/environment/nature/invasivealien/docs/ias-brochure-en-web.pdf>

Science for Environment Policy

Invasive-species import risk is higher from countries with poor regulation and political instability (*continued*)

30 September 2016
Issue 472

[Subscribe](#) to free
weekly News Alert

Source: Brenton-Rule, E.C., Barbieri, R.F., Lester, P.J. (2016). Corruption, development and governance indicators predict invasive species risk from trade. *Proceedings of the Royal Society B*, 283 (1832): 1–16. DOI: 10.1098/rspb.2016.0901.

Contact:
phil.lester@vuw.ac.nz

Read more about: :
[Biodiversity](#), [Risk assessment](#),
[Sustainable development and policy assessment](#)

The contents and views included in *Science for Environment Policy* are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

To cite this article/service: "[Science for Environment Policy](#)": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

Corruption was not associated with higher introduction rates for any of the products. The study's authors have two theories for why this might be: the first is that organisations in New Zealand importing goods from highly corrupt countries are implementing their own phytosanitary procedures without involving the exporting country's government; the second is that the figures are being skewed by countries with low corruption who tend to have high economic activity, and thus more trading activity, which leads to more introductions.

The results could be used to help border-control inspectors focus quarantine or biosecurity procedures on imports from countries considered high-risk according to their socioeconomic profile. The results also suggest that the rate of exotic species' introductions, and potential invasions, could be cut if importers select products from countries with strong political stability and regulatory quality, although the researchers comment that a government-enforced restriction may not be acceptable to consumers.

Government authorities should also be aware of how new free-trade agreements affect the risk of exotic species' introduction, the study's authors conclude, depending on governance and development in trading partners.

