How weedy are plants recently naturalized in New Zealand?

The problem

The current costs of weeds to New Zealand is $40m in preventative expenditure and $60m in lost production per year alone. The number of new species that potentially require control under the Biosecurity Act (1993) continues to increase. For example, 120 plant pests are listed in the 2002 Proposed Auckland Regional Pest Management Strategy.

Naturalization is a critical step towards a plant species becoming a weed, and about 14 species do so every year in New Zealand. Casual naturalizations are those that have not yet formed self-sustaining populations or persist in the wild, whereas full naturalizations form self-sustaining populations.

Data sources

Since 1988 there have been ~187 casual naturalizations and ~79 full naturalizations recorded among the dicotyledons, gymnosperms, and pteridophytes (all higher plants except grasses and their relatives). As a guide to their potential weediness in New Zealand we determined the number of overseas lists on which they appeared, from a Global Compendium of Weeds. This lists ~20 000 species from ~300 referenced sources covering 11 continental regions and 46 countries. Species naturalized in New Zealand come from most of these regions. The global list distinguishes merely "naturalized" species, and those listed as "weeds". For those naturalizations originating from cultivation, we determined the number of wholesale and retail nurseries outlets (n=200).

Towards the answers

Weediness of new naturalizations

Many species (36.2%) do not occur in other countries as either naturalized species or weeds. History can tell us little about their future in New Zealand unless we know their history of cultivation overseas.

The majority are also naturalized elsewhere (63.8%). A few (11.4%) are naturalized elsewhere and have not been reported as weeds.

Half (52.0%) of the new naturalizations are listed as weeds overseas.

Conclusions

Most newly naturalized plant species are from horticulture and 60% are distributed via the nursery trade.

Many newly naturalized species threaten New Zealand’s biodiversity and productive systems based on their history of weediness overseas.

The flow of new species into the environment will not be slowed unless nurseries no longer know their history of cultivation overseas.

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Horticultural species that have progressed from “newly naturalized” to “pest” are generally too widely distributed to completely eradicate.

Recommendation

Biosecurity legislation and action should place greater emphasis on the important role of horticulture in general, and nurseries in particular, in the naturalization of plant pests in New Zealand.

Public education on the role of horticulture in the naturalization of potential new plant pests should be increased.

References


Plant species reported as naturalized in New Zealand since 1988 appearing on more than 10 weed lists overseas.