

Why alien species can have catastrophic economic consequences



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A Virginia angler holds a northern snakehead. This fish has also been found in an urban pond in B.C. *GRIFFIN MOORES / AP*

The invasion of alien species should be treated as a natural disaster, says a Canadian researcher who will be among the headliners at a national conference on preventing the spread of invasive species.

Like natural disasters, species that enter a biological niche where they have never before existed can be difficult to control and predict and can have catastrophic consequences, says Anthony Ricciardi, a professor of environmental science at McGill University.

On the east coast of Canada, Japanese seaweed is wiping out native kelp. Dutch elm disease, known since 1945 in Canada, is spreading into Western Canada. And piranhas, native to South America, have been found in the Great Lakes. While they are not able to overwinter so far, climate change could change that.

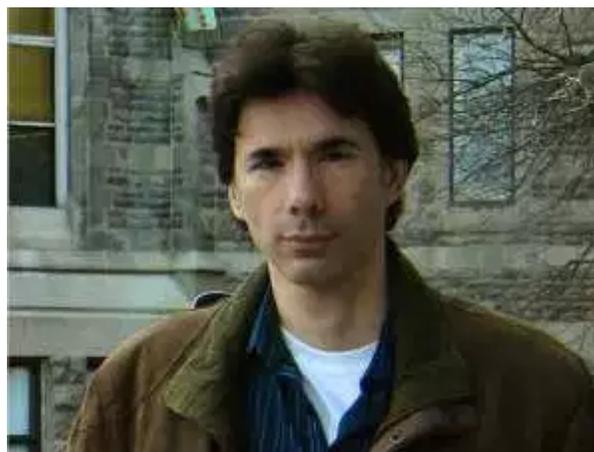
“Every time we think we have seen the worst, there’s something else,” says Ricciardi. “You could see it as biological pollution. It should be treated with the same concern as oil spills.”

The National Invasive Species Forum, which runs in Ottawa from Tuesday through Thursday, has attracted about 100 people, from scientists to government officials and representatives from the pet industry, says Gail Wallin, co-chair of the Canadian Council on Invasive Species.

Ricciardi argues that biological invasions are a matter of “biosecurity.” Invasions cost the fishery, forestry and agricultural industries billions of dollars every year. They can even result in the extinction of native plants and animals.

The cost to the economy of alien species exceeds that economic impact of natural disasters, says Ricciardi. “I think of it as a national security issue. But we don’t treat it that way.”

In 2004, the strategy for Canada said a preliminary review of the costs of invasive species pegged



them conservatively at \$13.3 million to \$34.5 million annually for only 16 species.

Alien species should be treated like oil spills, says Anthony Ricciardi, a professor of environmental science at McGill University. -

Meanwhile, there is an unprecedented pace of introduction of alien species because of global travel. The movement of plants and animals is a natural process, but it has been hijacked by humans, says Ricciardi.

“On any given day, ships are transporting several thousand species. Travellers carry plant spores and seeds on their shoes and don’t even know it. Some species are sold as pets.”

Ricciardi said he would like to see a shift from the focus on the “monster stories” of individual species. One of the greatest dangers is that some alien species create synergies with other aliens, with disastrous consequences. As more invaders are accumulating in ecosystems, it can be expected that they will be more disruptive, he says.

For example, the synergy of zebra mussels and quagga mussels in the Great Lakes along with another invader, a small bottom-dwelling fish called the round goby, as well as bacteria, have been linked to the deaths of fish-eating birds such as loons and mergansers. Invaders that have appeared to be innocuous for many years may suddenly become dangerous as the result of changing factors such as climate change, he says.

Ricciardi urges a precautionary approach, as Australia and New Zealand have done, and rapid federal response management. The principles that apply to disaster preparedness should also apply to invasion preparedness, he says.

“Invaders are like hidden taxes. They are invisible, but the cost doesn’t go away. The cost of prevention is minuscule compared to chronic costs.”

One of the things to be discussed at the conference is a federal database and a list of species to be shared among the provinces.

But ordinary people are part of the solution, says Wallin. Many invasive species are moved by people, from gardeners who buy ornamental plants to children who release their goldfish into waterways.

“When you give people the right tools, they will make the right decisions.”

Most unwanted

Here are a list of some of the top “species of interest” that have invaded Canada according to Gail Wallin and Barry Gibbs, co-chairs of the Canadian Council on Invasive Species.

Giant hogweed Introduced as an ornamental garden plant, this has escaped and taken over roadsides in many parts of Canada. It may cause skin burns if touched.



The emerald ash borer. *ASSOCIATED PRESS*

Knotweed: Widespread across Canada, its roots have caused damage to foundations, roads and bridges.

Knapweed: A purple-flowered plant imported into North America more than a century ago, this has since established itself in fields, forests and prairies, out-competing native species and reducing the amount of forage

available for wildlife and livestock.

Zebra mussels: Reported in waterways in Eastern Canada as far west as Manitoba, these bivalves change the freshwater ecology, stripping nutrients from the ecosystem and clogging up water intakes.

Emerald ash borer: This Asian native has killed millions of ash trees in Ontario. While they travel slowly on their own, they are dispersed by people moving firewood, logs and lumber.

Asian longhorn beetle: A forest pest introduced in the 1990s, this beetle has no natural North American enemies. It kills all broadleaf trees but prefers native maples.

Feral pigs: Also known as wild boars, these Eurasian natives have escaped from farms where they were raised as meat animals. Known to be aggressive, they also destroy cropland and natural habitat because they tear up the ground while looking for food. They are also prolific in the wild. It is believed there are more than a million feral pigs in Saskatchewan. They have also be sighted in Ontario, including rural areas east of Ottawa.



Wild boar, raised for meat, have escaped farms.
*DEREK RUTTAN / DEREK RUTTAN,
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Flowering rush: This pond plant, which produces a pink flower, was introduced as an aquatic ornamental. When it establishes itself on natural shorelines, it forms dense stands that interfere with recreation in the water, crowd out native plants and harm fish and wildlife.

Saltcedar: A native of Asia sold as an ornamental small tree or shrub for many decades. It produces a leaf litter that increases the salinity of the soil, discouraging native plant species.

European fire ant: Found across Canada, this species lives in colonies and is known for its painful bite. Colonies are hard to destroy once established.

Asian carp: There are several species of Asian carp that have been found in North America, including the St. Lawrence River. They multiply quickly and displace native fish species, presenting a danger to sport and commercial fisheries.

Northern snakehead: Also known as the “frankenfish,” this toothy predator has been found in several U.S. states. It was likely dumped into ponds, lakes and rivers from fish markets or pet shops. Native to Asia, it been dubbed the “walking fish” for its ability to travel on land for short distances by wiggling forward. It can survive out of water for up to four days.

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