Invasive non-native species cost UK economy an estimated £4bn a year, study reveals

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Floating pennywort on the River Wey, Weybridge, UK. Credit: Djami Djeddour CABI

CABI scientists have carried out a study which reveals invasive non-native species (INNS)—such as the aquatic water weeds floating pennywort and Japanese knotweed as well as signal crayfish—cost the UK economy an estimated £4bn a year.

However, when species only covered by the GB Non-native Species Strategy are considered—for instance with fungi excluded from the estimate—the total cost was estimated to be £1.9bn.

Researchers working from CABI's centers in Egham, UK, as well as Switzerland and Kenya, found a 135% increase in comparable costs since the last assessment was conducted in 2010. Annual estimated costs in 2021 were £3.02bn, £499m, £343m and £150m to England, Scotland, Wales and Northern Ireland respectively.

The cost to forestry increased eightfold, the cost to aquaculture and agriculture increased by 139.5% and 112.7%, respectively, and the cost of most of the other sectors increased roughly in line with inflation (47.6% for GB and 55.7% for Northern Ireland).

Agriculture is the industry affected the most with estimated costs for the UK put at £1.088bn followed by construction, development and infrastructure at £270m and tourism and recreation at £136m. The impact upon forestry is £123m.

The study, published in the journal *Biological Invasions*, updates the earlier assessment using the same methodology and the diversity of changes among sectors and species highlights the value of such a detailed approach.

There are currently around 2,000 INNS in the UK with 10 to 12 new species establishing themselves every year. The list includes well-known established species such as gray squirrel, killer shrimp, giant hogweed,

mink and parakeets, as well as recently arrived, but highly impactful species such as the sea squirt Didemnum vexillum and ash dieback.

The fungus Hymenoscyphus fraxineus, which causes ash dieback disease has become the costliest species in the past decade in the UK at an estimated £883.5m followed by followed by Japanese knotweed (£246.5m), rabbits (£169.7m), rats and mice (£84.4m), cockroaches (£69.8m) and deer (£62.9m).

As a group, fungi were the costliest to the UK, accounting for 52.9% of the total estimated costs, followed by mammals, plants and terrestrial arthropods (21.9%, 15.5% and 7.5% of the total, respectively).

Dr. Rene Eschen, lead author and Senior Scientist, Ecosystems Management, said, "Our research illustrates the usefulness of repeating economic cost assessments for INNS, as INNS are dynamic and their impacts vary."

"Repeat assessments like this one are important to maintain a focus on the impact of INNS, changes in impacts as a result of new or spreading species, as well as the identification of potential impacts of management or policies."

The researchers recommend continued investment in sustainable, long-term solutions for widespread damaging species, such as classical biological control, which, they say, has been shown worldwide to be a cost-effective, safe and environmentally sensitive management option when other methods prove ineffective or are no longer feasible.

Dr. Richard Shaw, co-author and Senior Regional Director, Europe and The Americas, said, "This assessment again shows the important costs of INNS to the UK economy. Few effects of INNS specific management efforts can be seen in these results. However, they highlight the need to

continue prevention and early detection, followed by eradication of the highest-risk species prior to establishment."

In February, the GB Invasive Non-native Species Strategy, which draws upon CABI's research, was published to provide a strategic framework within which the actions of government departments, their related bodies and key stakeholders can be better coordinated.

Defra Head of GB Non-Native Secretariat, Niall Moore, said, "Invasive Non-Native species pose a serious threat to our natural environment and this Government is taking action through the recently launched GB Invasive Non-Native Species strategy, to protect our native animals and plants from INNS."

"CABI's research reveals the significant financial impact of INNS. It is vital that we work together with researchers, scientists, and others, who are working to tackle INNS, to prevent their entry into and establishment in Great Britain and, when they do become established, to mitigate their negative impacts."

More information: Richard Shaw et al, An updated assessment of the direct costs of invasive non-native species to the United Kingdom, *Biological Invasions* (2023). DOI: 10.1007/s10530-023-03107-2 , link.springer.com/article/10.1 … 7/s10530-023-03107-2

Provided by CABI

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