Author Correction: Using species ranges and macroeconomic data to fill the gap in costs of biological invasions

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Check for updates

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Following publication of this article, we identified two errors in the data files used to generate results, for which we sincerely apologise. These are: (i) a typographical error in the human population predictor for the United Kingdom in three interpolated data entries—affecting two species, *Tuta absoluta* and *Pontederia crassipes*. This was originally missed due to the integrative nature of the outcomes (e.g., combining costs for a given country) and because cost distributions were expected to be skewed with a small number of highly impactful species–country combinations; and (ii) the interpolation of economic costs for species that are native to other areas within the same country (e.g., the signal crayfish *Pacifastacus leniusculus* in the United States), resulting in the removal of ~9% of the interpolated dataset. While our subnational predictions are technically accurate, since our analysis estimated costs at the country level mediated by the suitability of the species in the given country, this cost estimation would include the native ranges as well. As such, we chose a more conservative correction—excluding those portions of the range.

After addressing these issues, this resulted in the following updated results.

Although the general message of much increased global estimates following our approach remains unchanged, some details have changed. The corrected global cost estimate for invasive species across the 162-species subset decreased from US$2,215 billion to US$784.24 billion (see Table 1). This total now represents a 518% increase over reported costs in InvaCost, which, while smaller, remains substantial. Although the magnitude of both damage and management costs decreased, damage costs still account for the vast majority—94% of total costs—consistent with the previous version. Interestingly, while the number of interpolated species–country combinations increased by ~1,340% compared to the original InvaCost data, the corrected interpolated costs now rise by 419% (leading to costs increasing by 519%). This indicates that interpolations can be non-proportional and highlights the importance of context and of modelling socioeconomic differences between well-documented and under-reported regions.

Table 1 | Global, damage and management costs of invasive species

Costs	Results (US$ billion)
Global	784.24 (+518%)
Damage	740.91 (+529%)
Management	43.38 (+378%)

Costs are presented in US$ billion, with percentage increases relative to the InvaCost in parentheses.

Geographic cost distributions

The United Kingdom, previously the country with the highest recorded costs, now ranks fifth. The overall spatial patterns remained broadly consistent, with the United States, China and India now at the top in terms of total cost, which might be expected due to their high gross domestic product, human population and invasion histories. At the continental level, no changes in ranked costs were observed, with Europe, North America and Asia as the costliest continents. (See Fig. 2 in the corrected article; original figures are available in the Supplementary information accompanying this amendment.)

Taxonomic cost interpolations

Taxonomically, the only notable change from the original version is that plants are now ranked as the second most monetary costly group (previously it was highest), after mammals in damage costs. However, plants still exhibited a substantial percentage increase in costs, indicating that the strong underestimation in the original data remained consistent. No changes were observed in the taxonomic rankings for management expenditures. Consistent with the published version, plants, arthropods and now also fish exhibited above-average damage costs, whereas birds exceeded the global average in management expenditures. (See Fig. 3 in the corrected article; original figures are available in the Supplementary information.)

Monetary costs per unit area (km^2)

Spatially, the pattern remained the same as the original version, with the highest costs per km^2 concentrated in urban and coastal regions. The list of species with the highest economic cost per km^2 has changed, with the exception of *Sus Scrofa* (wild board), *Reynoutria japonica* (Japanese knotweed) and *Aedes aegypti* (yellow fever mosquito). Finally, the countries with the highest per-area economic costs remain mostly consistent, with Saint Kitts and Nevis, Liechtenstein, Micronesia, Andorra and Malta ranking among the costliest. (See Fig. 4 in the corrected article; original figures are available in the Supplementary information.)

In summary, some specific details have changed, but the overarching conclusions of our analysis remain robust. The updated results continue to underscore the severe and unevenly reported economic burden of invasive species worldwide, as well as the need for improved reporting, particularly in underrepresented regions and taxa.

Figures, text and Supplementary information have been updated in the HTML and PDF versions of the article. For comparison, the original article and a list of changes are available in the Supplementary information accompanying this amendment.

Note: this correction has been peer reviewed.

Additional information

Supplementary information The online version contains supplementary material available at https://doi.org/10.1038/s41559-025-02889-z.

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