

Non-native species likely to continue spreading in North America, Australia and Europe

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Naturalized species, which are not native but have established themselves in new locations, have the potential to spread even further to

suitable habitats in many parts of the world, reports a new study by Henry Häkkinen, Dave Hodgson and Regan Early at the University of Exeter, UK, published in the open access journal *PLOS Biology*.

Understanding and predicting where [introduced species](#) will spread is one of the key conservation and ecological challenges of the 21st century. However, we know little about what causes one species to spread rapidly, while another species remains in small, isolated populations for years.

In the study, Häkkinen's team predicted which of the world's terrestrial regions are most likely to be colonized by 833 naturalized plants, birds and mammals, and investigated which factors have sped up or slowed their spread thus far.

The researchers discovered there is huge potential for further spread of naturalized birds in North America, mammals in Eastern Europe and plants in North America, Eastern Europe and Australia. Furthermore, the history of a species' introduction, its ability to disperse and the location of suitable areas are more important predictors of how a species has spread than its preferred habitat or how it interacts with other local residents.

Nearly all species in the new paper have yet to expand into all the areas with a suitable climate, the researchers find, despite having had plenty of time to invade. However, some introduced species may not become problematic until after an initial lag period. Many of the species studied have a small impact on their environment, but these findings are still concerning. A region can experience "invasional meltdown" when multiple introduced species amplify their impact and ability to become established, potentially with devastating effects.

The authors add, "Species invasions can devastate biodiversity,

agriculture, and livelihoods, so it's worrying that so many naturalized [species](#) seem poised to spread further. But there is a glimmer of hope that invasions are much more limited than they could be—ecosystems may be holding off invaders better than we expected, and good management could help stem the spread."

More information: Häkkinen H, Hodgson D, Early R (2023) Global terrestrial invasions: Where naturalised birds, mammals, and plants might spread next and what affects this process, *PLoS Biology* (2023). DOI: [10.1371/journal.pbio.3002361](https://doi.org/10.1371/journal.pbio.3002361)

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