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Conference Abstract

People, plant invaders and protection: understanding the human and social dimensions of plant invasions in protected areas

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Abstract

Human influence is a key driver of plant invasions. Yet, invasion science has largely focused on ecological factors, often overlooking the human and social dimensions that shape the invasion process. The InvaSyn project aims to address this gap by identifying plant invasion syndromes that integrate these dimensions, ultimately improving our understanding of the context-dependent nature of biological invasions.

To contribute to this aim, we draw on the Protected Areas and Invasive Alien Species (PROTIAS) database, developed within the SynHab project (www.synhab.com), which compiles data on the presence of naturalised alien plant species across nearly 1,500 protected areas (PAs) in more than 50 countries, encompassing approximately 5,000 alien taxa. Using novel culturomics approaches, we aim to characterise people's interest

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in and awareness of non-native plant species listed in the PROTIAS database by analysing Google Health Trends and Wikipedia.

For this, we searched en.wikipedia articles associated with PROTIAS-listed PAs for content related to these non-native plant species. For each species, we quantified relative search volumes on Google Health Trends and pageviews on en.wikipedia. Furthermore, in each Wikipedia PA articles we examined the frequency of mentions, the context in which species appeared (e.g. introduction, impacts, management), and the level of engagement generated (e.g. the number of visits to species links). We then used these metrics to classify non-native species into groups with similar patterns of people's interest and awareness (e.g. high engagement but limited search volume) using multidimensional scaling (MDS). Species-level analyses were also conducted to relate these metrics to naturalisation success, defined as the number of PROTIAS-listed PAs and GloNAF (Global Naturalised Alien Flora) regions from which a species has been reported. We hypothesise that certain types of plant invasions in PAs are shaped by distinct combinations of social and ecological factors that group into identifiable clusters (e.g. a species that attracts high public attention due to its substantial impact but has limited naturalisation success). Additionally, we recorded the frequency of mentions of other major drivers of global environmental change (e.g. pollution, fire, direct exploitation of species) in the Wikipedia PA articles, to contextualise how people's interest in plant invasions compares with attention to other conservation-related threats. By integrating the PROTIAS database with culturomics, this study aims to generate insights on the perception of plant invasions in PAs that can help guide conservation efforts.

Keywords

Biological invasions; culturomics; human dimensions; protected areas; public interest

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Conflicts of interest

The authors have declared that no competing interests exist.