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Conference Abstract

Digital decision-support tools for invasive alien species prioritisation, management and reporting

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Abstract

The management of invasive alien species remains a complex challenge requiring the integration of ecological knowledge, spatial data, cultural values, and economic constraints across scales. Despite significant advances in data collection and predictive modelling, a persistent gap remains between these capabilities and their effective use in supporting prioritisation, coordinated responses, and decision-making.

In this context, digital and user-friendly decision-support tools can play a critical role in operationalising the integrated management of invasive alien species, translating heterogeneous data into decisions that are context-specific and actionable. Here, we

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present two complementary tools being developed within the OneSTOP and AlienSMART projects that aim to bridge science, policy, and practice.

The **Invaders Toolbox** is a prioritisation tool designed to support decision-making across different goals and contexts. Users select a management profile aligned with their objectives and input species-specific data for a defined study area, which is then assessed across six prioritisation facets. Facets are variable depending on management profile and can include ecological impact, species traits, detectability, and management feasibility. The tool returns a ranked species list based on the prioritisation main goal of the user.

The **AlienSMART platform** is a WebGIS-based system for IAS management and reporting currently being piloted in Portugal. It integrates occurrence data and predictive modelling at national scales to generate standardised reporting indicators, while remote sensing approaches enable detection and mapping of species distributions at regional and local levels. Together these outputs support the identification of priority intervention areas and harmonised, spatially explicit management planning.

These tools illustrate how integrated digital infrastructures can move the management of biological invasions toward context-specific, actionable, and reproducible responses, and point toward a broader agenda for interoperable tools across the European IAS management context.

Keywords

Invaders Toolbox, OneSTOP, AlienSMART, prioritisation, biological invasions

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Conflicts of interest

The authors have declared that no competing interests exist.