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Journal: Ecology

Manuscript type: Data Paper

SPCIS: Standardized Plant Community with Introduced Status database

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: [10.1002/ecy.3947](https://doi.org/10.1002/ecy.3947)

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Abstract: The movement of plant species across the globe exposes native communities to new species introductions. While introductions are pervasive, two aspects of variability underlie patterns and processes of biological invasions at macroecological scales. First, only a portion of introduced species become invaders capable of substantially impacting ecosystems. Second, species that do become invasive at one location may not be invasive in others; impacts depend on invader abundance and recipient species and conditions. Accounting for these phenomena is essential to accurately understand patterns of plant invasion and explain the idiosyncratic results reflected in the literature on biological invasions. The lack of community-level richness and abundance data spanning broad scales and environmental conditions has until now hindered our understanding of invasions at a macroecological scale. To address this limitation, we leveraged quantitative surveys of plant communities in the United States and integrated and harmonized nine datasets into the Standardized Plant Community with Introduced Status (SPCIS) database. The database contains 14,056 unique taxa identified within 83,391 sampling units, of which 52.6% have at least one introduced species. The SPCIS database includes comparable information of plant species occurrence, abundance and native status across the 50 U.S. states and Puerto Rico. SPCIS can be used to answer macro-scale questions about native plant communities and interactions with invasive plants. There are no copyright restrictions on the data, and we ask the users of this dataset to cite this paper, the respective paper(s) corresponding to the dataset sampling design (all references are provided in Data S1: Metadata S1: Class II-B-2), and the references described in Data S1: Metadata S1: Class III-B-4 as applicable to the dataset being utilized.

Key words/phrases: plant invasion; abundance metrics; diversity metrics; non-native species; alien species; exotic species; conterminous United States; Alaska; Hawaii; Puerto Rico; macroecology; biogeography.

Open Research: The complete data set is available as Supporting Information and data are also available in Figshare at <https://doi.org/10.6084/m9.figshare.19593373.v7>.

Handling Editor: William K. Michener