

2020

Plant Genome Size Influences Stress Tolerance of Invasive and Native Plants via Plasticity

Laura A. Meyerson

University of Rhode Island, lameyerson@uri.edu

Petr Pyšek

Magdalena Lučanová

Sarah Wigginton

University of Rhode Island, sarawigginton@uri.edu

Cao-Tri Tran

See next page for additional authors

Follow this and additional works at: https://digitalcommons.uri.edu/nrs_facpubs

Citation/Publisher Attribution

Meyerson, L. A., Pyšek, P., Lučanová, M., Wigginton, S., Tran, C.-T., and Cronin, J. T.. 2020. Plant genome size influences stress tolerance of invasive and native plants via plasticity. *Ecosphere* 11(5):e03145. [10.1002/ecs2.3145](https://doi.org/10.1002/ecs2.3145)

This Article is brought to you by the University of Rhode Island. It has been accepted for inclusion in Natural Resources Science Faculty Publications by an authorized administrator of DigitalCommons@URI. For more information, please contact digitalcommons-group@uri.edu. For permission to reuse copyrighted content, contact the author directly.

Plant Genome Size Influences Stress Tolerance of Invasive and Native Plants via Plasticity

Creative Commons License



This work is licensed under a [Creative Commons Attribution 3.0 License](https://creativecommons.org/licenses/by/3.0/).

Authors



Laura A. Meyerson, Petr Pyšek, Magdalena Lučanová, Sarah Wigginton, Cao-Tri Tran, and James T. Cronin



esa

ECOSPHERE

Plant genome size influences stress tolerance of invasive and native plants via plasticity

LAURA A. MEYERSON ^{1,†} PETR PYŠEK ^{2,3} MAGDALENA LUČANOVÁ^{4,5} SARA WIGGINTON,¹
CAO-TRI TRAN,⁶ AND JAMES T. CRONIN ⁶

¹*Department of Natural Resources Science, The University of Rhode Island, Kingston, Rhode Island 02881 USA*

²*Department of Invasion Ecology, Institute of Botany, Czech Academy of Sciences, CZ-252 43 Pruhonic, Czech Republic*

³*Department of Ecology, Faculty of Science, Charles University, Vinčná 7, CZ-128 44 Prague, Czech Republic*

⁴*Department of Evolutionary Biology of Plants, Institute of Botany, Czech Academy of Sciences, CZ-252 43 Pruhonic, Czech Republic*

⁵*Department of Botany, Faculty of Science, University of South Bohemia, CZ-370 05 České Budějovice, Czech Republic*

⁶*Department of Biological Sciences, Louisiana State University, Baton Rouge, Louisiana 70803 USA*

Citation: Meyerson, L. A., P. Pyšek, M. Lučanová, S. Wigginton, C.-T. Tran, and J. T. Cronin. 2020. Plant genome size influences stress tolerance of invasive and native plants via plasticity. *Ecosphere* 11(5):e03145. 10.1002/ecs2.3145

Abstract. Plant genome size influences the functional relationships between cellular and whole-plant physiology, but we know little about its importance to plant tolerance of environmental stressors and how it contributes to range limits and invasion success. We used native and invasive lineages of a wetland plant to provide the first experimental test of the Large Genome Constraint Hypothesis (LGCH)—that plants with large genomes are less tolerant of environmental stress and less plastic under stress gradients than