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

Laura A. Meyerson
Petr Pyšek
Magdalena Lučanová
Sarah Wigginton
Cao-Tri Tran

See next page for additional authors

Follow this and additional works at: https://digitalcommons.uri.edu/nrs_facpubs
Authors
Laura A. Meyerson, Petr Pyšek, Magdalena Lučanová, Sarah Wigginton, Cao-Tri Tran, and James T. Cronin
Plant genome size influences stress tolerance of invasive and native plants via plasticity

Laura A. Meyerson, 1,3† Petr Pyšek 2,3, Magdalena Lučanová, 4,5 Sara Wigginton, 1
Cao-Tri Tran, 6 and James T. Cronin 1

1Department of Natural Resources Science, The University of Rhode Island, Kingston, Rhode Island 02881 USA
2Department of Invasion Ecology, Institute of Botany, Czech Academy of Sciences, CZ-252 43 Příbram, Czech Republic
3Department of Ecology, Faculty of Science, Charles University, Vinohrady 7, CZ-128 44 Prague, Czech Republic
4Department of Evolutionary Biology of Plants, Institute of Botany, Czech Academy of Sciences, CZ-252 43 Příbram, Czech Republic
5Department of Botany, Faculty of Science, University of South Bohemia, CZ-370 05 České Budejovice, Czech Republic
6Department of Biological Sciences, Louisiana State University, Baton Rouge, Louisiana 70803 USA


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