

INVASIVE PLANT SCIENCE AND MANAGEMENT



Invasive Plant Science and Management

Published quarterly by the Weed Science Society of America

Antonio DiTommaso, *Editor*

The Weed Science Society of America (WSSA) publishes original research and scholarship in the form of peer-reviewed articles in three international journals. *Weed Science* is focused on understanding “why” phenomena occur in agricultural crops. As such, it focuses on fundamental research directly related to all aspects of weed science in agricultural systems. *Weed Technology* focuses on understanding “how” weeds are managed. As such, it is focused on more applied aspects concerning the management of weeds in agricultural systems. *Invasive Plant Science and Management* is a broad-based journal that focuses not only on fundamental and applied research on invasive plant biology, ecology, management, and restoration of invaded non-crop areas, but also on the many other aspects relevant to invasive species, including educational activities, policy issues, and case study reports.

Associate Editors (Assignment Year)

Jacob N. Barney, School of Plant and Environmental Sciences, Virginia Tech, Blacksburg, VA 24061 (2012)
Giuseppe Brundu, Department of Agricultural Sciences, University Degli Studi di Sassari, Sassari, Italy (2024)
Stephen F. Enloe, Center for Aquatic and Invasive Plants, University of Florida, Gainesville, FL 32653 (2010)
Catherine S. Jarnevich, US Geological Survey, Fort Collins, CO 80526 (2015)
Darren J. Kriticos, Cervantes Agritech, Canberra, ACT 2601, Australia (2010)
Elizabeth LaRue, Department of Biological Sciences, University of Texas, El Paso, TX 79968 (2022)
Kelly G. Lyons, Department of Biology, Trinity University, San Antonio, TX 78212 (2008)
Michala L. Phillips, US Geological Survey, Hawai'i National Park, HI, 96718 (2024)
Mark J. Renz, Department of Agronomy, University of Wisconsin, Madison, WI 53706 (2023)
Rob J. Richardson, Department of Crop Science, North Carolina State University, Raleigh, NC 27695 (2014)
Ryan Thum, Department of Plant Sciences & Plant Pathology, Montana State University, Bozeman, MT, 59717 (2024)
Ryan M. Wersal, Department of Biology, Minnesota State University, Mankato, MN 56001 (2014)
Sophie Westbrook, Department of Agronomy, Kansas State University, Manhattan, KS, 66506 (2024)

Biology of Invasive Plants Series Editors

David R. Clements, Trinity Western University, Langley, BC V2Y 1Y1, Canada (2020)
Darren J. Kriticos, Cervantes Agritech, Canberra, ACT 2601, Australia (2010)

Tracy Candelaria, *Managing Editor*

Officers of the Weed Science Society of America

<http://wssa.net/society/bod/>

Invasive Plant Science and Management (ISSN 1939-7291) is an official publication of the Weed Science Society of America, 12011 Tejon Street, Suite 700, Westminster, CO 80234 (720-977-7940). It is published quarterly, one volume per year, four issues per year beginning in March.

Membership includes receipt of *Weed Science*, *Weed Technology*, *Invasive Plant Science and Management*, and the online *WSSA Newsletter*. Dues should be sent to WSSA, 12011 Tejon Street, Suite 700, Westminster, CO 80234 no later than December 1 of each year. Membership in the society is on a calendar-year basis only.

New subscriptions and renewals begin with the first issue of the current volume. Please visit the *Invasive Plant Science and Management* subscription page at <https://www.cambridge.org/core/journals/invasive-plant-science-and-management/subscribe>; Email: subscriptions_newyork@cambridge.org in USA, journals@cambridge.org outside USA.

Invasive Plant Science and Management publishes four times a year in March, June, September, and December. Annual institutional electronic subscription rates: US \$422.00; UK £294.00.

Please use Editorial Manager to access manuscript submissions (<http://www.editorialmanager.com/ipsm>). Authors are asked to pay \$65 per page as a portion of the cost of publication, plus an additional processing charge of \$55 per manuscript if none of the authors are WSSA members. The Editor can make exceptions in advance when justified.

The Weed Science Society of America fully subscribes to the belief that progress in science depends upon the sharing of ideas, information, and materials among qualified investigators. Authors of papers published in *Invasive Plant Science and Management* are therefore encouraged, whenever practicable and when state and federal laws permit, to share genotypically unique, propagative materials they might possess with other workers in the area who request such materials for the purpose of scientific research.

Invasive Plant Science and Management published by the Weed Science Society of America.

Copyright 2025 by the Weed Science Society of America.

All rights reserved. Reproduction in part or whole prohibited.



INVASIVE PLANT SCIENCE AND MANAGEMENT

Table of Contents

Biology of Invasive Plants

- Biology of Invasive Plants 6. *Parthenium hysterophorus* L. Asad Shabbir, Ali A. Bajwa, Runping Mao, Sarah Kezar, Sangay Dorji and Steve W. Adkins. 129

Review

- Alternative study designs and nonparametric statistical methods for adaptive management studies of invasive plants James N. McNair, Daniel Frobish, Emma K. Rice and Ryan A. Thum 157

Research Articles

- Changing dominance of invasive common reed (*Phragmites australis*) and native plant colonization with variation in management, wildfires, and soils in a desert wetland Scott R. Abella, Shelley L. Porter, Kathleen A. Kline, Lindsay P. Chiquoine and Benjamin S. Jurand 172
- Invasive knotweed (*Polygonum* spp.) movement in a northern New Hampshire (USA) stream system Jessica E. Charpentier, John S. Gunn, Matthew L.H. Cheng, Sofia Licht, Jon H. McCoy, Jonathan C. Truscott and Nathan B. Furey. 182
- Informing eradication feasibility: ecological context and delimitation for boneseed (*Chrysanthemoides monilifera subsp. monilifera*) in Western Australia Kathryn L. Batchelor, John K. Scott and Bruce L. Webber. 193
- Responses of *Ventenata dubia* and other species seven years after herbicide applications to an improved pasture in Montana Jane M. Mangold, Lilly Sencenbaugh, Audrey J. Harvey, Matthew E. Rebis and Lisa J. Rew 208
- WeedScan, a weed reporting system for Australia using an image classification model for identification Alexander N. Schmidt-Lebuhn, Matt Bell, Carsten Eckelmann, Dane Evans, Andreas Glanznig, Rongxin Li, Andrew Mitchell, Tomas Mitchell-Storey, Michael Newton, Liam O'Duibhir, Richard Southerton, Emily Thomas and Hanwen Wu. 219
- Regulatory options for cultivars and hybrids of invasive plant species—the South African experience Duran Chetty, Arunava Datta, Sabrina Kumschick, John R.U. Wilson, Felix Nchu and Sjirk Geerts. 228