

Ecological Restoration

Volume 39 ▪ Number 3 | September 2021



Butterflies and Their Floral Resources: Dancing to Different Tunes

EDITORIAL

Deadwood, Take a Bow
Steven N. Handel

RESTORATION NOTES

Revegetation of Coastal Dunes: Which Species to Choose?
Juan García-de-Lomas, Laura Plaza, Ildefonso Martín, Laura Fernández, Yolanda Belmonte, Mari Carmen Maldonado, Noelia García, Eugenio Mallofret, Enrique Martínez and Carmen Rodríguez

A Floristic Quality Assessment Methodology for Citizen Science
John Virzi

Up Smith Creek without a Paddle: A Case Study on the Barriers to Stream Restoration Assessment
Jacob D.J. Peters, Sara N. Schoen and Morgan L. Rhodes

Observations of Nocturnal Upland Habitat Use by the *Rana Draytonii* (California Red-Legged Frog), and Implications for Restoration and Other Activities
Jeff A. Alvarez and Jeffery T. Wilcox

ARTICLES

Biochar Application and Soil Transfer in Tree Restoration: A Meta-Analysis and Field Experiment
Edith Juno and Inés Ibáñez

Responses of Flowering Plant and Butterfly Communities to Experimental Herbicide and Seeding Treatments for Native Grassland Restoration
Nicholas J. Lyon, David S. Stein, Diane M. Debinski, James R. Miller and Walter H. Schacht

Relationships between Overstory and Understory Components of Young Natural and Reconstructed Boreal Aspen Stands
Ruth Catherine Errington and Bradley D. Pinno

Tropical Forest Restoration in the Eastern Himalaya: Evaluating Early Survival and Growth of Native Tree Species
Noopur Borawake, Aparajita Datta and Rohit Naniwadekar



FSC Certification Logo here

EDITORIAL BOARD

Scott Abella

Natural Resource Conservation LLC,
Boulder City, USA.

Steven I Apfelbaum

Applied Ecological Services, Wisconsin, USA.

James Aronson

Center for Conservation and Sustainable
Development, Missouri Botanical Garden,
St. Louis MO, USA.

Myla Aronson

Department of Ecology, Evolution and
Natural Resources, Rutgers University NJ, USA.

Nicholas A. Barber

Department of Biology, San Diego State University
San Diego, California, USA.

Paulette Bierzychudek

Department of Biology, Lewis & Clark College,
Portland OR, USA.

Andrea Borkenhagen

Advisian, Calgary, Alberta, Canada.

Peter Bowler

Department of Ecology and Evolutionary
Biology, University of California, Irvine, USA.

Lindsay Campbell

USDA Forest Service Northern Research Station,
NY, USA.

Robin L. Chazdon

Department of Ecology and Evolutionary
Biology, University of Connecticut, USA.

Francisco A. Comín Sebastián

Pyrenean Institute of Ecology-CSIC, Spain.

Michele de Sá Dechoum

Department of Ecology and Zoology,
Federal University of Santa Catarina,
Florianópolis, Santa Catarina, Brazil.

David Drake

Department of Forest and Wildlife Ecology,
University of Wisconsin–Madison, USA.

Bram Gunther

New York City Urban Field Station, New York
City Department of Parks & Recreation, Bayside,
New York, USA.

James Hall

National Oceanic and Atmospheric Administration's
Northwest Fisheries Science Center Mukilteo
Research Station, Seattle WA, USA.

Francine Hughes

Department of Life Sciences,
Anglia Ruskin University, Cambridge, UK.

Basil Iannone

School of Forest Resources and Conservation,
University of Florida, Gainesville FL, USA.

Michelle Johnson

New York City Urban Field Station, USDA Forest
Service, Bayside, New York, USA.

Kristen Kaczynski

Department of Geological and Environmental
Sciences at California State University, Chico
CA, USA.

Kristy King

Natural Areas Restoration & Management
Forestry, Horticulture & Natural Resources,
New York City Department of Parks &
Recreation, Long Island City, New York, USA.

Márcia C.M. Marques

Department of Botany, Universidade Federal do
Paraná, Curitiba, Brazil.

David Moreno-Mateos

Harvard University Graduate School of Design
Cambridge, MA, USA.

Andrew Rayburn

Independent Consulting Ecologist, Davis CA, USA.

Carrie Reinhardt Adams

Environmental Horticulture Department,
University of Florida, Gainesville, USA.

David J. Robertson

Livermore, CO, USA

Morgan Robertson

Department of Geography, University of
Wisconsin–Madison, Madison, WI, USA

Ted Shear

Department of Forestry and Environmental
Resources, North Carolina State University,
Raleigh NC, USA.

Greg Spyreas

Illinois Natural History Survey, USA.

Katharine Suding

Department of Ecology & Evolutionary Biology,
University of Colorado Boulder CO, USA.

Alan Unwin

School of Environmental and Horticultural
Studies, Niagara College, Canada.

Ricardo Viani

Dept. de Biotecnologia e Produção Vegetal e
Animal,
Federal University of São Carlos, São Paulo State,
Brazil.

Kiri Joy Wallace

Environmental Research Institute,
University of Waikato, Hamilton, New Zealand.

Dennis Whigham

Smithsonian Environmental Research Center, USA.

Ken Yocom

Department of Landscape Architecture,
University of Washington, USA.

Kathryn Yurkonis

Department of Biology, University of North
Dakota, Grand Forks, North Dakota, USA.

Luis Zambrano González

Biology Institute, National Autonomous
University of Mexico (UNAM), Mexico.

JOURNAL STAFF

Editor: Steven N. Handel

Associate Editor: Tabby Fenn

Managing Editor: Paulina A. Arancibia

Abstracts Editor: Elena S. Tartaglia

Abstracts Contributors: Elena S. Tartaglia and
Paulina A. Arancibia

Rutgers, The State University of New Jersey
School of Environmental and Biological
Sciences: *Laura J. Lawson, Interim Executive
Dean*

Society for Ecological Restoration: *Jim Hallett,
Chair*



Printed on 30% recycled text paper.

Ecological Restoration is published quarterly by the University of Wisconsin Press. © by the Board of Regents of the University of Wisconsin System. No part of this publication may be reproduced without the written consent of the publisher, University of Wisconsin Press. Requests for permission to reprint an article or illustration should be made directly to UW Press, 728 State Street, Suite 443, Madison, WI 53706-1418, permissions@uwpress.wisc.edu, er.uwpress.org.

Contributions are welcome. Authors should upload their materials through *Ecological Restoration's* submission website, which can be found at er.uwpress.org. Submission guidelines can be found at uwpress.wisc.edu/journals/journals/er_submissions.html.

Authorization to reproduce material from this journal, beyond one copy for personal use or that permitted by Sections 107 and 108 of U.S. Copyright Law, is granted for a fee. For fee schedule and payment information, contact www.copyright.com; The Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, 978/750-8400, Fax: 978/750-4470.

Ecological Restoration is indexed in Elsevier BIOBASE, AGRICOLA, and in CSA's Ecology databases.

Ecological Restoration is affiliated with the Society for Ecological Restoration, 1017 O St. NW, Washington, DC 20001, 202/299-9518, ser.org. Members of the Society for Ecological Restoration receive *Ecological Restoration* at a discounted rate. Please visit the UW Press Web site at uwpress.wisc.edu/journals for more information.

Ecological Restoration was founded at the University of Wisconsin–Madison Arboretum.

Advertising: Call 608/263-0534 for current rates. Advertisements or references to products by brandname or trademark do not imply an endorsement by the editors or publishers of this journal.

Ecological Restoration (ISSN 1522-4740, E-ISSN 1543-4079) is published quarterly by the University of Wisconsin Press, 728 State Street, Suite 443, Madison, WI 53706-1418. Periodicals postage paid at Madison WI and at additional mailing offices.

Subscriptions: Individual (please pre-pay), \$85 print and electronic, \$73 electronic only; \$43 students; \$218 businesses and nongovernmental organizations; libraries and government agencies, \$322 print and electronic, \$296 electronic only. Non-U.S. subscribers please add \$40 for foreign shipping. All correspondence regarding subscriptions, advertising, and related matters should be sent to Journals Division, 728 State Street, Suite 443, Madison, WI 53706-1418, USA; uwpress.wisc.edu/journals. Members of the Society for Ecological Restoration receive *Ecological Restoration* at a discounted rate.

Please visit our Web site at uwpress.wisc.edu/journals for more information.

POSTMASTER: Send address changes to *Ecological Restoration*, 728 State Street, Suite 443, Madison, WI 53706-1418.

Submissions

We welcome submissions to *Ecological Restoration* from any part of the world. Submissions should relate to the restoration of plants, animals, ecological communities, or landscapes. We understand ecological restoration to be a multidisciplinary and diverse effort and welcome manuscripts considering ecological, and social aspects of restoration, as well as political, economic, legal, and regulatory issues, and other subjects related to ecological restoration. Relevant topics also include techniques and tools for planning, site preparation, species introduction, undesired species control, and monitoring. Manuscripts dealing with plant or animal community composition or general ecology must relate the work explicitly to ecological restoration practice and theory. Similarly, material dealing with reclamation or rehabilitation in a broader sense, or with restoration for economic purposes—economic forestry, range management, waste disposal—must be connected to ecological restoration.

Material may be submitted for the following categories (listed as they are encountered in the Journal):

1. Perspectives
2. Restoration Notes (shorter items, < 1500 words describing project updates, events, innovative technologies, preliminary or unusual findings, thought-provoking concepts, imaginative solutions, commentary, policy reports, etc.)
3. Research articles or reviews on ecological restoration theory, experiments, socio-ecological linkages, education, restoration history, practice
4. Case studies (full length articles describing a particular restoration project or location and lesson learned)
5. Book, journal, website, or movie reviews

Authors of full-length articles or reviews should submit their material online at er.msubmit.net. Manuscripts must be submitted with a cover letter stating that the material has not been previously published, and has not been submitted elsewhere and will not be until a final decision has been reached by the editor. Questions about the online submission site, or general inquiries may be emailed to ERjournal@sebs.rutgers.edu.

Review and Editing Process

Manuscripts are reviewed externally by experts in the field. The process requires approximately four to six months. Restoration Notes are reviewed and edited in-house unless additional expertise is required to evaluate the submission.

Style

Practitioners of ecological restoration are both a core audience and source of contributions to *ER*. Contributors should use a straightforward style free of unnecessary technical terms and jargon. We prefer the active voice (for example, “We measured three trees” instead of “Three trees were measured”). Please see our Submission Guidelines at er.uwpress.org for more information.

Tables, Photos, and Illustrations

Table and Figure captions should include useful and detailed information, and should be independent of the text. Figures will be reproduced in black and white in the print version of *Ecological Restoration* (usually requiring higher contrast) and can be reproduced in color in the online version. We use color photos on the front and back covers of the journal and welcome submissions of eye-catching, informative, high-quality photographs.

Page Charges

Payment of \$50 per page is requested from authors with research grant or other institutional funds available to underwrite publication costs. Invoices will be sent after composition of pages. Authors with no grant or institutional funds do not need to pay publication costs. Ability to pay page charges is not a condition for acceptance of a manuscript.

With this issue we welcome a new Editorial Board member to serve our readers. Representing a wide variety of disciplines within the restoration ecology world, board members contribute their skills to editorial judgments and to identifying interesting projects that we may feature in future issues. We thank them for their contributions to this journal and improvements to our environment.

Morgan Robertson

Morgan Robertson is a professor in the Department of Geography at the University of Wisconsin–Madison. He studies market-based environmental credit and mitigation policies in the U.S., U.K., and Australia. His areas of expertise include wetlands remediation, state wetlands permits, wetlands banking, water quality trading, adaptive management, habitat credit trading, U.S. federal wetlands regulations, the Clean Water Act, and biodiversity offsetting in the U.K. In the past, Professor Robertson worked for the U.S. Environmental Protection Agency (EPA) Office of Water at Headquarters in Washington, D.C. and co-authored the Wetland Compensation Rule of 2008 issued by the EPA and Corps of Engineers that created rules for wetlands banking. He also has written scientific briefs for U.S. Supreme Court cases and has served as a private consultant for various engineering firms.