



NEWS

from the CENTER FOR INVASIVE PLANT MANAGEMENT

October 2008

In This Issue

- National Management Plan Unveiled
- CIPM Partners with Missouri River Watershed Coalition
- Mapping and Inventory Presentations Available Online
- Assistant Director of Research Shares Plans for the Future
- Highlights from the Western Regional ANS Panel
- Featured Journal Papers
- CIPM Research Grants Program
- Review: *Ecology of Weeds and Invasive Plants* Textbook Is Still the Best
- EPPCs Expanding
- CIPM Store Specials!
- CIPM Resource Directory: New Additions

National Management Plan Unveiled

The National Invasive Species Council (NISC) adopted the new National Invasive Species Management Plan on August 1, 2008 in Washington, DC. The plan provides a five-year road map for federal efforts to prevent and control invasive species. [View/download plan](#)



Also in August, Secretary of Interior Dirk Kempthorne announced new members of the nonfederal Invasive Species Advisory Committee (ISAC), which meets biannually to advise NISC. Members of ISAC represent many organizations involved with invasive species, from the pet industry to coastal fishing to tribes and academia. ISAC members with a specific interest in invasive plants in the western U.S. include Tim Carlson (Tamarisk Coalition), Janet Clark (CIPM), Joe DiTomaso (University of California, Davis), Jennifer Vollmer (BASF), Damon Waitt (Ladybird Johnson Wildflower Center), and Bob Wiltshire (Center for Aquatic Nuisance Species). [View complete list of ISAC members](#)

CIPM Partners with Missouri River Watershed Coalition

In May 2008, the Center signed a contract to provide formal coordination for the Missouri River Watershed Coalition (MRWC), a six-state coalition that formed to develop management strategies and priorities for invasive plant species and water resources in the region.

Recognizing the critical need for protecting the water resources of the Missouri headwaters, the state weed coordinators from Colorado, Montana, Nebraska, North Dakota, South Dakota, and Wyoming are coordinating their efforts with Native American sovereign nations, weed districts, county weed boards, private landowners, and other county, state, federal agencies concerned with the spread of saltcedar (*Tamarix* spp.) and other invasive plants throughout watersheds that cross jurisdictional boundaries.

Key projects and products to be addressed by the Center were identified from an Action Plan outlined in the MRWC Management Plan. The members of the Coalition believe that achieving these broadly defined actions will (1) protect the water resources of the Missouri headwaters from saltcedar and (2) achieve the overall goals of stopping the spread of saltcedar and containing or eradicating current infestations.

The Center volunteered to serve as the initial project coordinator during the development of the Coalition (2005-2008). Under this formalized agreement initiated by the Montana Department of Agriculture's Noxious Weed Trust Fund, the

Center aims to integrate the activities of the members of the six Missouri headwaters states through both general coordination of the group and facilitating specific projects and products.

Two projects being spearheaded by the Center in 2008 are (1) development of a broad-scale Early Detection Rapid Response system as a priority management tool for the region, and (2) completion of a county-level map of saltcedar distribution for the six states.

The Center's partnership with the Coalition is a good example of how land-grant universities like Montana State can play a pivotal role in protecting one of our nation's most valuable water resources, the Missouri River headwaters. By taking a watershed approach to management and pooling limited state resources, the Coalition provides an ideal model for other states to use for regional coordination of invasive species.

Mapping and Inventory Presentations Available Online

Documenting where invasive plants do and do not occur within a geographical area is one of the major tasks undertaken by natural resource managers and Cooperative Weed Management Areas (CWMAs). But what will be done with the data once collected? Will it be used to prioritize management efforts? To predict new infestations? To increase awareness and generate funding? Will the data be shared with others? The answer to these questions determines the most appropriate documentation method.

Methods for mapping and inventory of invasive plants were introduced and discussed by four speakers at the National CWMA conference held last spring in Reno, Nevada:

- Mara Johnson (CIPM) gave an overview of inventory and survey methods.
- Mandy Tu (The Nature Conservancy) explained TNC's electronic Weeds Information System and the iMapInvasives program.
- Chris Evans (for the University of Georgia Bugwood Network) described the Early Detection and Distribution Mapping System (EDDMapS) and how it's being used by the Southeast Exotic Pest Plant Council.
- Alycia Crall (for the National Institute of Invasive Species Science) discussed data collection, management, and dissemination.

For further information on this topic, see *Inventory and Survey Methods for Nonindigenous Plant Species*, which features explanations of various methods written by expert practitioners.

Assistant Director for Research Shares Plans for the Future

In August, the Center welcomed Dr. Erik Lehnhoff to its staff team. Erik shares his plans and thoughts about his role at the Center.

Part of my role is to assure the scientific rigor of information that is disseminated through the Center. I also plan to incorporate primary research on the ecology and management of invasive plant species into the Center's mission. This will include both practical, applied research on weed management techniques as well as more theoretical research addressing the larger issues associated with biological invasions.



In the short term, research will likely focus on topics such as the reproduction ecology of saltcedar in Montana and surrounding states, spatial ecology of yellow toadflax, and studies on integrated management of these species. Long-term research will focus on issues such as the effects of climate change on invasive species, better understanding the ecological causes and consequences of plant invasions, and improving non-native plant management through streamlined survey and monitoring methods and prioritization techniques.

I will also be working to coordinate an Early Detection Rapid Response program for invasive plants with the Missouri River Watershed Coalition, a six-state group within the upper Missouri River basin that includes Colorado, Montana, Nebraska, North Dakota, South Dakota, and Wyoming.

Highlights from the Western Region Panel on ANS

Submitted by Eileen Ryce, WRP chair and Montana ANS Coordinator

The Western Regional Panel on Aquatic Nuisance Species (ANS) represents 19 Western states and is one of 5 regional panels of the National Aquatic Nuisance Species Task Force. The 2008 annual meeting was held in Fort Collins,

Colorado, and was well attended with about 50 participants. Membership of the panel is made up primarily of state and federal agency representatives; however, non-members actively involved in any aspect of ANS work in the west are encouraged to attend the meetings. The annual meeting primarily provides an opportunity for exchange of ideas and updates from across the west. In addition, the meeting typically includes a field trip, which gives the participants an opportunity to learn about ANS issues across the very varied and vast region. This year's field trip was to the Rocky Mountain National Park where the US Fish and Wildlife Service and the National Park Service gave tours of invasive fish removal projects.

The main theme of this year's meeting was "Control and Prevention". Updates were given on New Zealand Mudsnaill control in Hatcheries, Colorado efforts to control aquatic weeds and quagga mussels, quagga mussel control on the Lower Colorado, biological supply houses as a vector, watercraft inspections and decontamination as well as many other great talks from around the region. Other highlights from the meeting included a panel on State Legislation. During the panel, presentations were made by the states of Colorado, California and Montana.

Annually the Western Regional Panel awards \$30,000 in grant money to ANS projects in the West. This year the funds were awarded to three projects. The funded projects dealt with outreach to water trail users, a survey of car washes and their suitability to decontaminate watercraft, and a project looking at outreach targeted to users on permitted rivers. The three projects will have relevancy across the entire region. The Panel encourages project proposals from anyone within the region. Typically an RFP is sent out in July or August. Anyone who may be interested in submitting a proposal or who wants to receive the RFP should contact Eileen Ryce at eryce@mt.gov.

More information on the Western Regional Panel is at <http://www.fws.gov/answest/>. If you would like your name added to the Western Regional Panel distribution list please contact Eileen Ryce.

Featured Journal Papers

The following journal articles are highlighted as useful resources for land managers who want to expand their knowledge of current research and applications to invasive plant management. Abstracts of published papers can be viewed online for free, but typically full articles require a paid subscription.

The Invasive Species Assessment Protocol: A Tool for Creating Regional and National Lists of Invasive Nonnative Plants that Negatively Impact Biodiversity.

Randall JM, Morse LE, Benton N, Hiebert R, Lu S, Killeffer Terri. Invasive Plant Science and Management 1:36-49. 2008.

The authors have developed a protocol that ranks invasive species in terms of negative impacts to native biodiversity. This protocol may be useful to land managers who are charged with managing multiple invasive species.

Non-indigenous species management using a population prioritization framework.

Rew LJ, Lehnhoff EA, Maxwell BD. Canadian Journal of Plant Science 87(5):1029-1036. 2007.

The authors present a framework for the prioritization of non-indigenous species populations for management based on land management goals and evaluation of inventory/survey and monitoring data. The framework may be useful when managers have to prioritize which populations to manage because of budget and/or labor constraints.

Saving camels from straws: how propagule pressure-based prevention policies can reduce the risk of biological invasion.

Reaser JK, Meyerson LA, Von Holle B. Biological Invasions 10:1085-1098. 2008

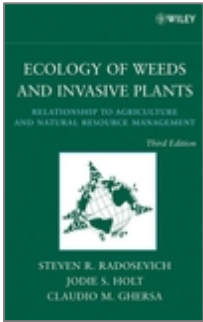
The authors discuss the importance of propagule pressure in determining the extent and impact of biological invasions, and they present a case for using propagule pressure based policies, instituted at the federal government level, to prevent new invasions.

CIPM Research Grants Program

Through our small-grants program, the Center has provided research funding for the collection and analysis of ecological data to better understand the prevention, introduction, spread, management, and ecology of invasive plants. Over six years, from 2001 to 2007, the grants program became increasingly competitive and attracted high-quality projects.

Researchers successfully used these grants as springboards for more intensive follow-up research and have been instrumental in securing long-term funding for several western invasive plant management projects. Our goal is to reinstate this highly successful and much-needed program in 2009.

Review: Ecology of Weeds and Invasive Plants Textbook Is Still the Best Available



A review by Marcel Rejmánek, Department of Evolution and Ecology, University of California, Davis, CA 95616.

Steven R. Radosevich, Jodie S. Holt and Claudio M. Ghersa. 2007. **Ecology of Weeds and Invasive Plants**, 3rd ed. ISBN 978-0-471-76779-4 (cloth, US\$75.00) xvii + 454 pp. Wiley-Interscience, Hoboken, New Jersey.

The third edition of this well-known textbook on weed ecology now has a longer title (“... and Invasive Plants”) and shorter text (454 instead of 589 pages). More importantly, this edition is more affordable for students (\$75.00 instead of \$175.00). While three excellent textbooks of weed ecology have appeared since the second (1997) edition (Liebman et al. 2001; Booth et al. 2003; Myers & Bazely 2003), this third edition is still very useful as a textbook and reference.

The text is divided into nine chapters: (1) Weeds and invasive plants, (2) Principles, (3) Invasibility of agricultural and natural ecosystems, (4) Evolution of weeds and invasive plants, (5) Weed demography and population dynamics, (6) Plant-plant associations, (7) Weed and invasive plant management approaches, (8) Herbicides, (9) Systems approaches for weed and invasive plant management. Over 1,400 references (an over 60% increase since the last edition) will serve as important sources of primary contributions and review publications.

Inevitably, as in many ecology textbooks, there are some mistakes in the text. The logistic equation was not developed by Lotka (1925) and Volterra (1926) (p. 54), but by Verhulst (1838). B_i terms in population transition matrices are not age-specific fecundities (p. 137 & 138), but age-specific fertilities (numbers of viable offspring produced per unit of time). This misconception can lead to incorrect construction of population models (e.g., Figure 2.9). Rejmánek (2000) discussed in detail this frequent mistake. In the first chapter (p. 3-11), the authors struggled quite a bit with terminology. However, the result is not completely satisfactory. After reading this chapter, my students remained unsure whether invasive plants are a subset of weeds or vice versa. When we read the first six lines on p. 4, we should not be surprised. Also, it looks like the authors believe that non-native agricultural weeds are not invasive plants. Terminological clarification in this area is highly desirable (Pyšek et al. 2004). Just a detail: the word *anthropomorphic* should be replaced by *anthropocentric* (p. 5-7). Surprisingly, rather limited space in the book on invasive plants is dedicated to plant dispersal (p. 142-149, 178-179). Now, however, this can be compensated for with supplementary reading from Cousens et al. (2008). Some important topics are clearly underrepresented (apomixis, vegetative propagation, aquatic plants, invasive vines, invasive Cactaceae). Some are not mentioned at all (Allee effects, residence time, species range modeling, climate change).

Despite these weaknesses, the strengths of this book are many. Growth analysis, design of competition experiments, and management implications are three of them. Over the last 22 years, I have been using progressively all three editions of this textbook in my classes on weed biology. Very likely, I will continue to do so. This is the best textbook of weed ecology currently available.

Literature Cited

- Booth, BD, Murphy, SD, & CJ. Swanson. *Weed ecology in natural and agricultural systems*. CABI Publishing, Wallingford, UK. 2003.
- Cousens, R, Dytham, C, & R Law. *Dispersal in plants. A population perspective*. Oxford University Press, Oxford. 2008.
- Liebman, M, Mohler, CD, & CP Staver. *Ecological management of agricultural weeds*. Cambridge University Press, Cambridge, UK. 2001.
- Myers, JH & DR Bazely. *Ecology and control of introduced plants*. Cambridge University Press, Cambridge, UK. 2003.
- Pyšek, P, Richardson, DM, Rejmánek, M, Webster G, Williamson M, & J. Kirschner. Alien plants in checklists and floras: towards better communication between taxonomists and ecologists. *Taxon* 53:131-143. 2005.
- Rejmánek, M. On the use and misuse of transition matrices in plant population biology. *Biol. Invasions* 2:315-317. 2000.

EPPCs Expanding

The National Association of Exotic Pest Plant Councils (NAEPPC) has welcomed two newly formed chapters in the past 18 months: the Pacific Northwest Invasive Plant Council and the Texas Invasive Plant and Pest Council. Additionally, a Northern Rockies EPPC is in the works.

EPPCs are nonprofit organizations that focus on invasive and exotic plants in natural areas and other wildlands. The chapters may have a statewide or regional scope, but all serve as forums to facilitate the exchange of information regarding the science and application of non-native plant management. The national association now comprises 19 chapters covering much of the United States.

NAEPPC is co-hosting the upcoming Natural Areas Conference, Oct. 14-17, in Nashville, Tennessee. The conference will include workshops on urban natural areas, forest health, cooperative weed management areas, mapping, plant identification, and effective partnerships.



CIPM Store Specials

Be one of the first 25 to respond and receive a 10% discount on a weed model bouquet! Send an email to weedcenter@montana.edu to request your coupon code.

CIPM Online

WEBSITE IMPROVEMENTS

In response to our Two-Minute Survey, we have made a few improvements to the website. You can now link directly to the Image Gallery page from the Weed I.D. and Biology page. There is also a new listing of image galleries that include photos of weeds in various life stages. We are still collecting responses, so click here to take the survey.

UPDATES TO THE RESOURCE DIRECTORY

Invasive Weed Impact Calculator provides easy-to-use website to help managers decide whether or not to use costly weed control measures to battle leafy spurge and spotted knapweed. Developed through MSU-Extension and USDA-ARS.

Invasive Plants: Changing the Landscape of America: Fact Book (Westbrooks 1998) from the Federal Interagency Committee for the Management of Noxious and Exotic Weeds was recently made available again online. Watch for the updated version.

Wildland Fire in Ecosystems: Fire and Nonnative Invasive Plants (RMRS-GTR-42-vol. 6. 368 page PDF file). The 16 chapters in this volume synthesize ecological and botanical principles regarding relationships between wildland fire and nonnative invasive plants, identify the nonnative invasive species currently of greatest concern in major bioregions of the United States, and describe emerging fire-invasive issues in each bioregion and throughout the nation.

Challenging Cheatgrass from Forest Service Rocky Mountain Research Station, April 2008.

CIPM Research Grant Summaries (2001-2007) - From CIPM's research grants program, this table of abstracts can be sorted on any column. Click on "Final Report" for methodology, discussion, results, and conclusions.