



NISC NEWSLETTER

U.S. Department of the Interior • Office of the Secretary (OS/NISC) • 1849 C Street, N.W. • Washington, DC 20240
 Phone: (202) 513-7243 • Fax: (202) 371-1751 • www.invasivespecies.gov

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Some Biofuel Crops Pose Potential Invasive Threats

Currently, there are serious concerns that many of the traits that make certain plant species like *Miscanthus x giganteus* potential feedstocks for second-generation biofuels (i.e., efficient C4 photosynthesis, efficient water and nutrient use, pest resistance, rapid spring growth, and the ability to sprout from rhizomes), also make them potentially invasive in certain areas.

The Global Invasive Species Programme (GISP) has a set of recommended actions for consideration by those developing biofuels and has identified a list of potentially invasive species that are being considered as biofuel feedstocks. <http://www.gisp.org/publications/reports/BiofuelsReport.pdf.pdf>.

In the News:

April 22, 2009: Certain biofuel crops are more likely than other plants to become invasive in tropical and subtropical ecosystems worldwide, scientists have found. A weed risk assessment (WRA) – which examines a plant's biology, geographic origin, known pest status and behavior – can be used to predict whether a species of biofuel crop will become invasive, enabling countries to avoid environmental and economic losses. Researchers with the University of Hawaii Pacific concluded that biofuel crops proposed for use in Hawaii are two to four

times more likely to establish wild populations or be invasive in tropical areas than a random sample of introduced plants. The study can be found online at <http://dx.plos.org/10.1371/journal.pone.0005261>

May 5, 2009: As part of the ongoing effort to increase the use of domestic renewable fuels, U.S. Secretary of Energy Steven Chu recently announced plans to provide \$786.5 million from the American Recovery and Reinvestment Act to accelerate advanced biofuels research and development and to provide additional funding for commercial-scale biorefinery demonstration projects. <http://www.energy.gov/news2009/7375.htm>

June 18, 2009: Biofuels could be used to replace jet fuel in less than five years, according to plane-maker Boeing. The industry predicts that if 100 percent of all jet fuel was replaced with biofuels, airline emissions would be cut by 80 percent. Recent tests were conducted using biofuels such as jatropha and algae. GISP has categorized *Jatropha curcas* as a high risk species because it has already demonstrated invasiveness on every continent except Europe and Antarctica (GISP, 2008). <http://www.reuters.com/article/companyNews/idUKLI80187720090618>



Miscanthus x giganteus
 photo credit: Becky Arundale

Special points of interest:

- WEB-BASED ISAC MEETING IS QUICKLY APPROACHING!
- NATIONAL SCIENCE FOUNDATION (NSF) SEEKS TO ENHANCE TAXONOMIC RESEARCH THROUGH PARTNERSHIPS FOR ENHANCING EXPERTISE IN TAXONOMY (PEET) PROGRAM.

NISC News

June 8, 2009: The U. S Department of the Interior (DOI), on behalf of the interdepartmental National Invasive Species Council (NISC) proposes to appoint new members to the **Invasive Species Advisory Committee (ISAC)**. The Secretary of the Interior, acting as administrative lead, is requesting nominations for qualified persons to serve as members of the ISAC. Nominations must be postmarked by July 23, 2009. Nominations should be sent to Dr. Christopher Dionigi, Acting Executive Director, National Invasive Species Council (OS/NISC), *Regular Mail*: 1849 C Street, NW, Washington, DC 20240. *Express Mail*: 1201 Eye Street, NW, 5th Floor, Washington, DC 20005. For further Information, contact Kelsey Brantley, Program Analyst and ISAC Coordinator, at (202) 513-7243, fax: (202) 371-1751 or by email at Kelsey_Brantley@ios.doi.gov. This information is also in the Federal Register/Vol, 74, No. 108/Monday, June 8, 2009/ Notices

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Legislative Update

May 13, 2009: President Obama has pledged \$475 million to the **Great Lakes Regional Collaboration Strategy** to restore, protect, and sustain the Great Lakes. If Congress approves the \$475 million, keeping out or removing invasive species will receive \$60.3 million, or 13 percent of the total. For the article, visit http://www.cleveland.com/open/index.ssf/2009/05/to_clean_up_great_lakes_barack.html

May 14, 2009 : House Science and Tech-

nology Committee held a full committee markup on H.R. 2407. This bill would establish a National Climate Service at the National Oceanic and Atmospheric Administration (NOAA).

June 4, 2009: House Natural Resources Subcommittee on National Parks, Forests and Public Lands and Subcommittee on Insular Affairs, Oceans and Wildlife held a Joint Committee oversight hearing on White-Nose Syndrome, an invasive zoonotic disease, to discuss the deaths of

bats in the northeast.

June 10, 2006: The 2010 Interior appropriations bill puts less money toward wild-fire suppression and more toward prevention than proposed by the White House. The subcommittee bill includes \$10.97 billion for the Interior Department, of which, \$3.55 billion would be allocated for wildland fire and \$611 million would specifically fund hazardous-fuels reduction. For details on the proposed appropriations bill, visit www.eenews.net.

State News

- ♦ States located along the leading edge of the **gypsy moth** populations, together with the USDA Forest Service, have been cooperatively implementing a project to stop the spread (STS) of the gypsy moth since Congress funded the strategy in 2000. North Carolina, Virginia, West Virginia, Ohio, Indiana, Illinois, Wisconsin and Minnesota participated during 2008. Integrating STS into USDA's strategy to manage the gypsy moth provides the following benefits:
 - Protects the urban and wild land hardwood forests in the south and upper mid-west through the use of gypsy moth specific tactics
 - Reduces spread of gypsy moth by more than 70%, prevents infestation of more than 80 million acres since 2000
 - Unifies the partners and promotes coordinated, region-wide action based on biological need.
 - Yields a benefit to cost ratio of more than 3:1 by delaying the onset of impacts that occur as gypsy moth invades new areas
 - Insures that actions are standardized across the multiple administrative and jurisdictional boundaries in the program
- ♦ The West Coast Governors' Agreement on Ocean Health called for a plan to eradicate spartina from the West Coast by 2018. The draft plan is complete and available for review at <http://www.westcoastoceans.gov/teams/#spartina>. The comment period ends on July 10, 2009.

Recent Publications

June 2009: "A Fading Field". Grant, Bob. The Scientist. <http://www.the-scientist.com/2009/06/1/32/1/>

The article discusses the plight of modern biology as more scientists are focusing on molecular techniques leaving the skills of precise morphological examination and field observation in the past. By some estimates, scientists have discovered and classified only 6% of the species on the planet. "Describing, naming, and preserving new taxonomic groups—specifically using the morphological skills that are traditionally central to the discipline's methodology—is just as important today, as researchers continue to uncover new genera and species in the unexplored corners of the globe."

The National Science Foundation (NSF) seeks to enhance and stimulate taxonomic research and help prepare future generations of experts through the Partnerships for Enhancing Expertise in Taxonomy (PEET) to support research projects targeted towards groups of poorly known organisms. Since its inception, PEET, a biennial program that awards 5-year grants of \$750,000 total to successful applicants, has helped train hundreds of graduate students and postdoctoral fellows in taxonomic science.

March 5, 2009: Changing Perceptions of Change: **The Role of Scientists in Tamarix and River Management**. By Juliet C. Stromberg, M. K. Chew, P. L. Nagler, and E P. Glenn in *Restoration Ecology* Vol. 17, No. 2, pp. 177-186. <http://www3.interscience.wiley.com/journal/122240688/abstract>

"Initially introduced to western United States to provide ecosystem services such as erosion control, Tamarisk by the mid-1900s had become vilified as a profligate waster of water. This large shrub continues, today, to be indicted for various presumed environmental and economic costs, and millions of dollars are expended on its eradication. In this review, we examine the role of scientists in driving changes in perceptions of Tamarisk from valuable import to vilified invader and (in some instances) back to a productive member of riparian plant communities."



Dense Tamarisk shrubs grow alongside an abundant water source. © John M. Randall

Invasive Species in the News

June 2, 2009: The first Emerald Ash Borer (EAB) beetle (*Agrilus planipennis*) was found in St. Paul, Minnesota on May 14, 2009. The Minnesota Department of Agriculture believes it is a cause for concern because EAB damage can go unnoticed for years. Often, the infestation has spread before it is even detected. Minnesota has an estimated 937 million ash trees. When the Dutch Elm Disease killed a number of trees in the 1980s, a majority of the elm trees were replaced with ash trees. www.presspubs.com/articles/2009/06/02vadnais_heights_press/news/c4a258b19a9229982251350.txt

June 2, 2009: Chinese Mitten Crab Update Live Chinese Mitten Crabs (*Eriocheir sinensis*) have been found in Chesapeake Bay (2005-2007), Delaware Bay (2007), Hudson River (2007-2009), and in New Jersey (2008-2009). To date, there have been forty-four mitten crabs confirmed in the eastern U.S.; however, it is unknown whether reproductive populations have been established. The most recent crabs were captured in New Jersey (Shrewsbury River) and New York. Invasive Chinese Mitten Crab populations interfere with operations at water facilities and damage soft sediment banks and coastal protection systems due to burrowing.

June 13, 2009

Asian Ladybeetles are increasingly affecting the North American and French wine industries. These beetles, introduced as a biological control agent for insect pests, are often found on grape bunches, and can interfere with the winemaking process. When disturbed, they release a yellow fluid containing chemicals such as alkylmethoxy pyrazines, which taint the wine leaving the consumer feeling as though the wine is of low quality. Fortunately, wine stored in cartons rather than bottles are believed to eliminate the alkyl-methoxy pyrazines by making contact with the inner aluminum layer of the carton and therefore separating from the wine.



Photo credit: USDA/ARS

June 18, 2009: Scientists have found two types of males of the invasive round goby fish spreading through the Great Lakes. In addition to males which guard the nest from predators and look after their offspring, there exists little males that resemble females and sneak into the nests of the larger males. Instead of courting females and protecting the young, some males parasitize the courtship - and in some cases the parenting duties - of other males. Both types of males produce sperm, although the little males produce more sperm than parental males; however, the parental males have bigger glands used to produce pheromones to attract females.

June 24, 2009: An eco-friendly bacteria, *Pseudomonas fluorescens*, that kills invasive mussels will be tested for the first time at the Decew Falls hydro plant in Canada. This is the first Canadian trial using the bacteria, as well as the first international trial on this scale. Previously, chlorine has been used to control mussel populations, but it also harms fish, plants and other aquatic life. In small scale tests using *P. fluorescens*, no untargeted organisms were harmed by the bacteria.

<http://www.stcatharinesstandard.ca/ArticleDisplay.aspx?e=1627276>

June 25, 2009: Researchers at the University of California, San Diego School of Medicine may have uncovered a mechanism of contraception for female lampreys. Characterization of the estrogen binding site on the estrogen receptor suggests that the lamprey estrogens contain a 15-alpha-hydroxyl group not found in other types of vertebrate estrogen. The amino acid, methionine, interacts with the 15-alpha-hydroxy group in a unique manner, such that it may interfere with the estrogen action and act as a contraceptive. This would provide a method to control their numbers. The article can be found at <http://www.sciencedaily.com/releases/2009/06/090625074411.htm>



A bat infected with White Nose Syndrome. Photo credit: Ryan von Linden/New York

White Nose Syndrome (WNS), caused by a fungal *Geomyces* species, was recognized in bats in upstate New York in 2006. To date, WNS has spread to numerous caves in eight states and has killed over 500,000 bats. The rapid decline in bat populations has various implications including an increase in number of plant pests due to reduced mortality and increased threats to already threatened and endangered bat species. The fungus, found on the muzzles, ears, wings, and tails of affected bats, causes erratic behavior especially during hibernation. Bats are often aroused early in hibernation causing the depletion of fat stores leading to starvation. On June 4, 2009, the House of Representative held a hearing on bats deaths from WNS. The Senate is expected to conduct a similar hearing in the coming weeks.



Divers use the Supersucker to remove invasive algae. © Eric Co/TNC

The "Supersucker" - Marine researchers in Hawaii have a new weapon in the battle against alien algae: an underwater vacuum that suctions hand picked invasive algae off the reef. The invention, aptly dubbed the "Supersucker", can remove up to 800 pounds of algae in an hour. The algae is suctioned through a large hose to a large porous table on a boat where it is sorted from any inadvertently collected native species. The algae is then packaged and taken to local farms where it serves as an excellent fertilizer. www.nature.org/wherewework/northamerica/states/hawaii/projectprofiles/art22268.html



July 12-15, 2009: Aquatic Plant Management Society Conference and Student Paper Contest: The Aquatic Plant Management Society (APMS) is soliciting student papers for the upcoming 49th Annual Meeting being held at the Hyatt Regency in Milwaukee, WI. Please log on to <http://www.apms.org/2009/papers.htm> to learn more.

August 11-12, 2009: The Mid-Atlantic Exotic Pest Plant Council (MA-EPPC) Conference will be held at the University of Pittsburgh at Johnstown, PA. The topic for the conference is "Complicating Factors in Invasive Plant Management". A detailed schedule and registration forms can be accessed at <http://www.ma-eppc.org/>

August 24-27, 2009: A special session on spartina biology, ecology, impacts and management will be offered at the 6th International **Marine Bioinvasions Conference** in Portland, OR. Contact Mark D. Sytsma (sytsmam@pdx.edu) for more information. www.clr.pdx.edu/mbic

September 8-10, 2009: The Western Regional Panel on Aquatic Nuisance Species will be held in Seattle, WA. The focus for this conference will be early detection and rapid response efforts. For complete information, go to <http://www.fws.gov/answest/>.

September 8-12, 2009: The 7th European Vertebrate Pest Management Conference (7EVPMP) will be held in Lyon, France. The European Vertebrate Pest Management Conference is a biennial meeting aiming at gathering people from different backgrounds interested in the issues of vertebrate pest management. <http://7evpmc.vet-lyon.fr/>

September 15-18, 2009: 36th Annual Natural Areas Conference- Vancouver, WA will be the site of the conference, hosted by the Washington State Department of Natural Resources and the Natural Areas Association. For more information visit the website at <http://www.naturalarea.org/09Conference/index.htm>

September 21-22, 2009 National Environmental Health Association Biology and Control of Insects and Rodents Workshop will be held at the Arrowwood Resort & Conference Center, 1405 Highway 71, Okoboji, IA. To register Deadline to register is September 4, 2009. For more information contact Susan Jerles at sjerles@neha.org.

September 21-24, 2009: The 17th Annual North American Weed Management Association Conference and Trade Show will be held in Kearney, NE. For more information, contact Kristi Paul at kosswweed@gpcom.net or visit www.NAWMA.org.

October 5-8, 2009: 10th Biennial Conference for Research on the Colorado Plateau - A collaboration of USGS-Southwest Biological Science Center and the Society for Conservation Biology, North America Section. The speaker is Paul Ehrlich and the conference is being held in Flagstaff, AZ. Go to the conference website for more details at: http://sbsc.wr.usgs.gov/cprs/news_info/meetings/biennial/2009/index.asp

October 28-30, 2009: North American Lake Management Society (NALMS) is holding its Annual Symposium in Hartford, CT and is hosted by the New England affiliate of NALMS. Abstracts for presentations and brief bios can be sent directly to Amy.Smagula@des.nh.gov. http://www.nalms.org/resources_nalms_annual_sym.html

Conferences and Meetings



For a complete listing of meetings visit www.invasivespeciesinfo.gov/news/calendar.php



Water Hyacinth (*Eichhornia crassipes*) Likely introduced from South America as an ornamental, this hydrophilic plant is found in the southern U.S. By quickly forming new plantlets, a population can dominate and obstruct a body of water in a short period of time. Although it has potential uses for sewage treatment and biofuel production, it is one of the most invasive weeds in the world.



Light Brown Apple Moth (*Epiphyas postvittana*) This native pest of Australia has been found in New Zealand, Ireland and the United Kingdom. In 2007, the pest was detected in California where it is known to cause damage to cypress, redwood and oak trees as well as a wide range of fruits and vegetables. The complete list of hosts contains over 1,000 plant species. Photo credit: California Farm Bureau Federation.

Upcoming ISAC (FACA-compliant) Meeting

NISC Staff began work to schedule a Federal Advisory Committee Act (FACA)-compliant web-based meeting of NISC's nonfederal advisory committee (ISAC). This meeting is being scheduled to discuss recommendations specific to biomass crop production. The time and date of this meeting have not been set, but it is anticipated for July 2009.