

I feel like I'm nothing without wildlife. They are the stars. I feel awkward without them. ~ Bindi Irwin

The Invaders

Newsletter of
The Wildlife Society
Invasive Species
Working Group



Vol. 3 Issue 1: March 2014

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TWS 2013 Conference

The 2013 Wildlife Society in Milwaukee was a successful one for the ISWG. The working group hosted a symposium focusing on the indirect effects of invasive species. After the symposium ISWG members met to discuss elections and

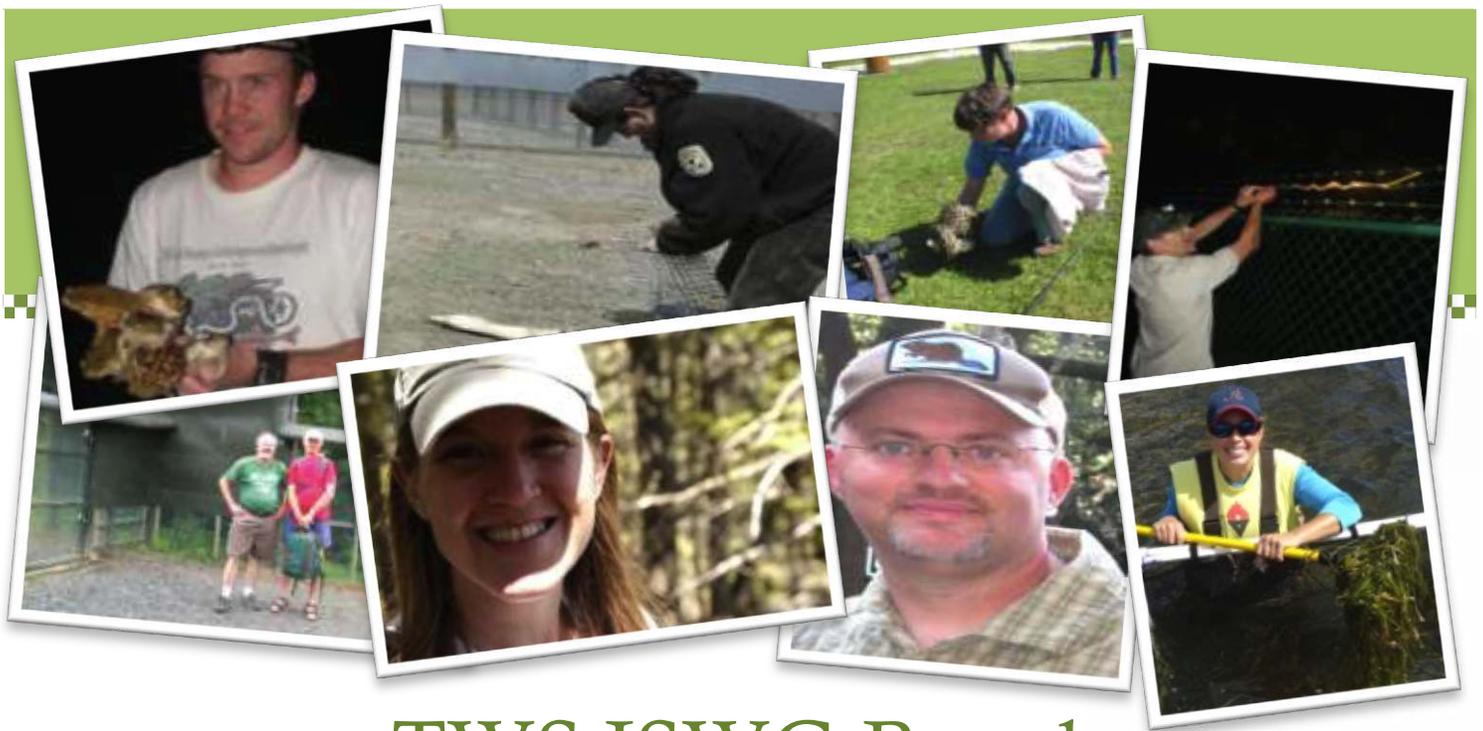


welcome new members. Organizers of this event were Caleb R. Hickman, University of Wisconsin, Erin P. Myers, USDA-NRCS, Gary W. Witmer, USDA-APHIS, and Mark Pfost, USFWS.

TWS ISWG is now on Twitter!

Check out the TWS ISWG new twitter feed @Invasive_TWS. We post invasive species news, connect scientists, and inform the general public about invasive species issues.





TWS ISWG Board

A mix of old and new move the ISWG forward

Thank you to everyone who volunteered to run in this election. We appreciate your dedication and hope to keep you involved. Also thank you to Karen Viste-Sparkman and Mark Pfof for their tenure as ISWG

Secretary/Treasurer and Chair, especially their dedication to revitalizing the ISWG. Thank you to the board members that have stepped down: Michael Lusk, Cheryl Lohr, and Robert Schmidt. We will miss your

input and support. New board members include Andrea Litt, Cheryl Millett, R. Brand Phillips, and Nicole Wood. Caleb Hickman was voted in as President Elect and Jennifer Bowers-Chapman as the new Secretary/Treasurer.

National Invasive Species Awareness Week

February 23-28, 2014

Help inform the public about invasive species issues and win a free one-year TWS & ISWG membership

The ISWG is once again sponsoring a contest for the best NISAW event. ISWG will pay for a one-year membership to TWS and ISWG for one working group member who is involved with the best NISAW event. We

are looking for outreach efforts that involve many people and target specific invasive species.

Please provide a brief summary of your event that includes where it was, how many people attended, what

was the target species and how many plants (or acres treated) or animals were removed. Send summary to Nicole Wood by March 30th, and a winner will be announced with activity highlights by April 15th.



An Inside Look at TWS 2014

By Mark Pfost



Although hosting our symposium (great job Caleb!) was our working group's main focus in Milwaukee, there was other working group business as well. Two workshops involving working groups and/or sub-units were held during the first two days. Saturday I attended the day-long Conservation Affairs & Subunit Leadership Workshop conducted by TWS staffers—primarily Terra Rentz and Katie Edwards. We discussed officer responsibilities, reporting requirements (e.g., tax filing), and the role of working groups within the parent organization. Katie or Terra are



only email away, so current officers—if you have questions on how to do anything related to working group administration, contact them.

One of the discussions centered around the perception (probably a real one) that Council does not rely on working group expertise. We talked of instances in which Council needed a statement or white paper on a particular subject but did not bother to contact the appropriate working group(s) for help. A second, but related, issue was that working groups weren't effective in communicating their needs to Council.

A third aspect of the workshop involved advocacy. Is it our role, and if so, how should we go about it? One of the topics: always strive for complete accuracy and don't ever burn bridges when talking to legislators or their aides.

The next day I attended the "All Working Group Meeting" which was organized by Kris Boyd (Young Professionals WG). As an early supporter of Kris's concept, I ended up helping facilitate the meeting. In October TWS had 25 working groups (perhaps more by now). Officers from 15 of those WGs attended and it didn't take us long to tag this as the Working Group Working Group. I expect the WGWG will become a fixture at future conferences.

Each participant briefed the

rest of us on their WG's organization, problems, and successes. Although most WGs have a structure similar to ours, not all do. For example, chair-elect for the Biometrics WG is automatically the newsletter editor and each board member has assigned duties.

A common thread among WGs was the difficulty in finding people to run for office or to get their membership engaged in WG activities. The Human Dimensions WG had one officer handling it all! Fortunately, we have not had *that* problem lately.



Urban Wildlife is flush with cash—an annual budget of 30K! They can fund travel. Wildlife Damage Control WG is also flush. They sponsor their own conferences and offer ten \$500 scholarships to student members—many of which go unfilled.

Another subject revealed a fair amount of frustration,

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Successful Symposium!

Indirect Effects of Invasive Species on Wildlife

By Caleb Hickman

Our working group hosted a popular symposium at the 2013 TWS meeting in Milwaukee, Wisconsin. The half-day symposium titled “Indirect Effects of Invasive Species” was well attended by spectators. Ten speakers shared their interest in the indirect effects of invasive species on wildlife by bringing a variety of examples from all over the United States. Presentations included novel ideas and studies with implications for management of invaders and affected wildlife. From these presentations, we were able to describe just how invasive species affects native wildlife beyond the traditionally focused management of simple interactions.

What are indirect effects of invasive species?

Indirect effects include several species and/or processes where one species, like an invader, alters interactions between other species. Therefore, our symposium focused on the indirect effects of invasive species through complex interactions with other species, habitats, and ecosystems. Invasive species can transform habitats they invade, change fire regimes,

cause altered movement and refuge behaviors and disrupt important interactions like competition or predation. Invaders can cause changes to the biotic or abiotic environment that cascade through an ecosystem to have far-reaching impacts on species removed from direct contact. Invasive species may even facilitate disease transmission.

Several of our speakers discussed how important it is to include indirect effects for the future of invasive species



management. We suspect every wildlife manager and biologist

Symposium, continued page 6

INVASIVE IN SHORT

Peer-Reviewed Articles from TWS ISWG Members



Invasive Shrub Causes Risk-Prone Behavior

Hickman, C. R., and J. I. Watling. 2014. Leachates from an invasive shrub causes risk-prone behavior in larval amphibian. *Behavioral Ecology* 25 (2): 300-305.

Invasive plants influence the quality of habitats they invade by transforming the physical structure of forests and changing the chemical composition of aquatic environments. Prey may accept higher predation risk as they manage lower quality environments caused by invasive plants. Leachates from invasive Amur honeysuckle cause American toad tadpoles to swim to the surface, which may alter typical antipredator freezing behaviors and expose tadpoles to detection by predators. We use a factorial laboratory experiment to condition individual tadpoles to leaf leachates made from honeysuckle, native trees, or a water control followed by exposure to experimental arenas with one of 3 chemical cues (2 predator species or control water). Toad tadpoles increased their latency to move (freezing) and had a lower total movement to predator cues. In contrast, latency to move was faster in response to honeysuckle leachates, but leaf leachates had no influence on total movement activity. Tadpoles did not change surfacing frequency to predator cues but increased surfacing to honeysuckle leachate. The combined effect of predator cue and leachate treatment had no influence on behaviors. Although honeysuckle leachate is stressful to toad tadpoles, increased surfacing does not preclude the exhibition of typical antipredator behaviors (decreased movement). However, honeysuckle induced a risk-prone response of increased surfacing, even in the presence of predator cues. As tadpoles endure physiological costs from honeysuckle, they may suffer elevated exposure to detection by predators. Our work provides insight into how invasive plants may have indirect effects on native communities by altering animal behaviors.

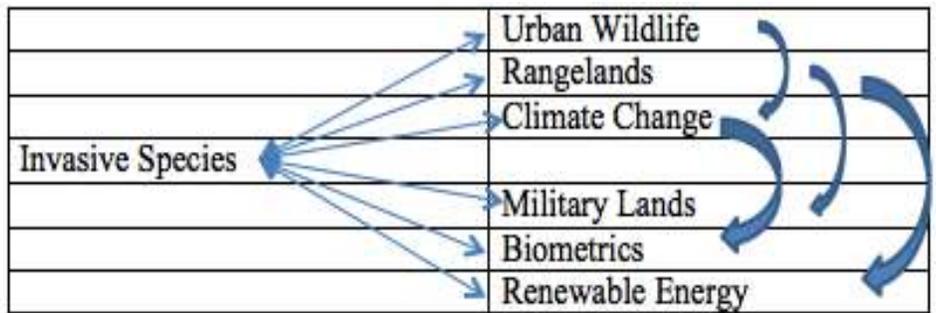
Inside Look, continued from page 3

because people could not attend both their own symposium and that of a related symposium sponsored by another WG, due to scheduling conflicts. Although it's impossible to accommodate everyone's wish list for which talks they'd like to attend, many thought that WGs should be consulted during conference planning. In some ways this tied into the previous day's discussion in which many thought that WGs were not



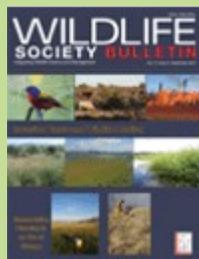
valued by Council.

Finally we discussed how WGs could benefit from working together. We listed all groups in attendance in two columns and drew lines between those for which we could articulate a mutualistic relationship. While each WG connected to several others, the consensus was that the ISWG could be logically connected to every other WG. The figure represents a very "clean" version of our results.



INVASIVE IN SHORT

Peer-Reviewed Articles from TWS ISWG Members



Intermountain West Invasions

Litt, A. R., and D. E. Pearson. 2013. Invasive plants and wildlife in the Intermountain West. Invited contribution, special issue of *The Wildlife Society Bulletin* 37:517-526.

Non-native plant invasions can change communities and ecosystems by altering the structure and composition of native vegetation. Changes in native plant communities caused by non-native plants can influence native wildlife species in diverse ways, but the outcomes and underlying mechanisms are poorly understood. Here, we review and synthesize current information for the Intermountain West of the United States, to develop a general mechanistic understanding of how invasions by non-native plants affect wildlife, and we identify important information gaps. In this region, most species of recognized conservation and management concern are non-native forbs (e.g., leafy spurge [*Euphorbia esula*], spotted knapweed [*Centaurea stoebe*]), although non-native grasses (e.g., cheatgrass [*Bromus tectorum*], medusahead [*Taeniatherum caput-medusae*]) also have greatly altered vegetation communities. These invasions by non-native plants affect native fauna through both trophic and non-trophic (habitat) pathways and via both direct and indirect effects. The degree to which these invasions affect wildlife depends largely on the degree to which non-native plants alter form and function of native vegetation communities. Reciprocally, native animals can influence distribution and abundance of non-native plants by facilitating or inhibiting invasions through herbivory, seed predation, seed dispersal, soil disturbance, and pollination. Current understanding of interactions between non-native plants and wildlife is limited because few invasions have been studied in sufficient detail to quantify population-level effects on wildlife reliably or to identify underlying mechanisms causing the observed effects. Although management of non-native plants has increased in this region, we understand even less about whether control measures can mitigate the adverse effects of non-native plants on organisms that occupy higher trophic levels. © 2013 The Wildlife Society.

Symposium, continued from page 4

will have some tie to these organisms, especially if they have indirect effects. Because invaders are an ever-present and pervasive problem all over the nation, all management plans could

benefit from including indirect effects of invasive species. Therefore, we feel indirect effects of invasive species should be deemed important to wildlife biology at large. In particular, we hope our

symposium inspired TWS members to implement concepts of indirect effects in research and management by exposure to the dynamic ways invasive species indirectly affect wildlife.

New Tools in Fight Against Burmese Pythons

By Gary Witmer

Invasive Burmese pythons have made a home in Florida competing with and feeding on native wildlife. Experts agree that new tools and techniques are crucial to monitoring and controlling the spread of this elusive snake. The USDA's National Wildlife Research Center is doing its part to provide these much needed tools. Earlier this year, USDA was issued a patent for a live snake trap that utilizes two trip pans for the capture of larger, heavier snakes, such as the invasive Burmese python. The design was the brain-child of NWRC wildlife biologist John Humphrey.

"Though the trap is based on a standard live trap design, it is the first trap to require two trip pans to be depressed at the same time in order to close the trap door. The pans are spaced such that non-target animals are unlikely to trigger the trap," notes Humphrey. "This trap was developed with the invasive Burmese python in mind. It capitalizes on their larger length and weight." He also noted that the traps were tested with two 5'+ native water moccasin snakes. Neither tripped the door-closing mechanism which is an important feature for this python trap. The researchers are now working with captive pythons at NWRC's Florida field station to evaluate how best to use the trap with lures or as refugia.

In addition to developing the new trap, NWRC researchers are also investigating new ways to monitor the spread of pythons in Florida. "Burmese pythons are semi-aquatic and can be very hard to detect given their elusive nature and cryptic coloration," states NWRC geneticist Dr. Toni Piaggio. "We've developed a new detection method that uses environmental DNA, thereby eliminating the need for direct observations or handling of snakes."

The use of environmental DNA (eDNA) is a fairly new technique. Because animals shed DNA into the environment from their skin, saliva or other cells, the presence of these genetic fragments can often be detected. In this case, NWRC researchers developed a method to detect python eDNA at low concentrations in water. Results showed python eDNA was detectable for up to 96 hours in water. This method presents a promising new tool for monitoring the presence-absence and current distribution of Burmese pythons in Florida. *USDA Press Release via Gary Witmer.*



The Invaders Article Submission

Want to share your invasive species work, training, conferences, or other contribution with our TWS ISWG members? Contact the newsletter editor, Nicole Wood, to submit articles, short write-ups to announce conferences and training, or get your voice heard about your experiences with invasive species. We are also looking for informational articles related to invasive species. The ISWG appreciates your input and wants to make this working group a useful tool for everyone dealing with invasive species.

Send articles to twsiswg@yahoo.com

Thank you for helping us to grow!



Get connected with TWS ISWG



twsiswg@yahoo.com



TWS Invasive Species Working Group



@Invasive_TWS



TWS ISWG Website
<http://wildlife.org/invasive/>

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- Nicole Wood