



Western Society of Weed Science

Newsletter

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Summer 2016

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**President's Report** by Kirk Howatt

Greetings colleagues. The summer seems to be passing quickly but not without activity. The Resistance Listening Workshops announced at the annual meeting have been tackled by three outstanding groups. These workshops will be facilitated by an outside moderator to summarize practitioner responses for the 2017 Weed Resistance Summit in Washington, D.C. The results from these workshops could provide valuable insight to perception of

resistance and remediation activities, possibly indicating education and outreach projects for our society.

Many items have filled the docket in Washington, D.C. I encourage you to read the report from Lee Van Wychen as the comment period for some issues has been extended. Your voice could help shape EPA decision on several key issues. One issue that dominated the last Science Policy Committee conference call was the alleged use of dicamba in dicamba-resistant soybean. There is not legal grounds for such application yet; however, the off-target damage caused by supposed applications could cause reexamination of this registration, even in the face of less volatile formulations.

The search committee for our next Business Manager reviewed five groups that submitted to the WSSA call for proposals and another three applications from a separate WSWS solicitation. The search committee suggested and the WSWS board decided to pursue contract with Interactive Management Incorporated, Westminster, CO. This group also was selected by other weed science societies. We are currently reviewing the contract for final details. We are grateful for many competent years of service from Phil Banks and the group at Marathon Ag Consulting and appreciate his help with this search and negotiation.

Our Summer Board Meeting was held August 3-4 in Spokane, Washington. That's right, Spokane, because back in March the Coeur d'Alene Resort was already booked solid. Officer and Committee reports can be viewed from the WSWS web site (www.wsweedscience.org/summer-meeting-reports/). Fiscal health remains excellent, but new ideas for revenue generating products are welcome. Your Board members are a great group of dedicated individuals. We discussed several items brought forward by the membership and welcome your thoughts and questions as we move forward this year.

After the meeting adjourned, a few of us traveled to the Coeur d'Alene Resort to see the facilities. This is a beautiful area to have our meeting with excellent space for our joint meeting with the Western Aquatic Plant Management Society. Plans for the March meeting are well under way with members of both groups able to attend any of the presentations. Monty Anderson and the Program Committee have several interesting ideas for our meeting framework. Look to the Call for Papers to take your place in the program.

Another way to get in the program is through symposia submission. Symposia may be submitted for the 2018 meeting in Orange County, California, or the 2019 meeting in Denver, Colorado. Also consider nominating a deserving individual for Fellow, Honorary Member, or Outstanding Weed Scientist/Achievement Awards. We have many deserving individuals in the society, but they must be nominated to receive recognition. I look forward to seeing you in Coeur d'Alene.

Call for Papers and Posters - Monte Anderson, Program Chair

The 2017 WSWS 70th Annual Meeting will be held March 13-16 in Coeur d'Alene, Idaho, at the Coeur d'Alene Resort. This has been an excellent venue for this meeting and the resort looks even better than our positive experience in 2001. Although it won't be as warm as most of our meeting locations, the setting among the snowcapped mountains and beautiful lake will make up for it. Early regular registration will be \$250 and student registration will be \$125. Meeting registration will begin October 1, 2016, with information found on the society web page, www.wsweedscience.org/.

New for 2017 will be having a joint meeting with the Western Aquatic Plant Management Society (WAPMS). This came about by past board planning and in particular Scott Nissen, who is the current president of the WAPMS. Our goal is to see how we can work with other organizations in a time where declining membership seems to be the norm among societies. Amy Ferriter, program chair for WAPMS, and I are coordinating the program and planning to integrate the meeting as much as possible. WAPMS will have a separate meeting room for their presentations on Tuesday and Wednesday but all are invited to attend sessions of both organizations. Something new for the WAPMS will be having a student paper and poster competition, which we plan to incorporate into our contest. We will have a joint reception on Monday evening between the two organizations. Posters, exhibitors, and common meeting breaks will be held in the same room to encourage cross attendance.

All attendees are invited and encouraged to participate by presenting at least one paper or poster, and multiple submissions are welcome. WSWS will continue to have papers and posters divided into five projects: Agronomic Crops, Horticultural Crops, Weeds of Range and Natural Areas, Basic Biology and Ecology, and Teaching and Technology Transfer.

Oral paper presentations are scheduled every 15 minutes in concurrent sessions. Maintaining a timely schedule in all concurrent sessions is important for those who need to move between sessions. Therefore, presentations of 12 to 13 minutes are suggested so there is time for a few questions before introducing the next author.

The posters for the 2017 meeting will be using our own easels and display boards that have been in storage since the 2015 meeting in Portland. Thus, larger posters may be utilized than the smaller 42 X 42 inches required in last year's meeting where we rented displays. Poster presentation affords the author more personal interaction with the audience and often leads to more in-depth discussions with individuals. Poster authors will be available during poster sessions on Tuesday or Wednesday morning to expand on their research.

Title and abstract submission will open October 1, 2016. Deadline for title submission will be December 1, 2016, but abstracts may be entered/uploaded/revised until late February, 2017. The WSWS title and abstract submission will be conducted through WSSA Abstracts as in recent years once you have registered for the meeting, <http://wssaabstracts.com/>. Information also will be available on the WSWS web site. Graduate and undergraduate students are strongly encouraged to enter the student paper and/or poster contests. This is accomplished with one pull-down selection on the title submission screen.

As a special note when entering titles of papers and posters, please follow the guidelines for submissions, in particular are proper capitalization and the use of periods. Standardizing author and organizational names will help make a smoother program. Your cooperation on this is appreciated!

Plan to attend the Coeur d'Alene meeting to hear about the latest research, recommendations, and findings among a wide range of topics of both terrestrial and aquatic weeds. Symposia under consideration will look to the future of climate change and risk communication in a changing world. As always, think about potential symposia topics for future meetings as well. The next meeting location will be Garden Grove, California and topics pertinent to the local area are important for meeting attendance.

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Coeur d'Alene Attractions – Scott Cook, Local Arrangements

The Coeur d'Alene area has a lot to offer in the late winter months. If you like winter sports like skiing or snowboarding there are a ton of resorts within an hour or two. There are also several things to do at the Resort that include several cruises around the very scenic Lake Coeur d'Alene. If you would like to go for a nice walk there is the Centennial trail. It is about 60 miles and stretches from 15 miles east of Coeur d'Alene to Spokane. It follows the Spokane River most of the way.

The average high for Coeur d'Alene in March is about 45°F while the low can be about 30°F. There is still the strong possibility that there will be snow on the ground and even the stray snow shower can happen. So that extra layer could be a good thing.

So for those skiers and boarders, here are a few of the better resorts:

Lookout Pass (<https://skilookout.com/>). Over the last few years Lookout Pass has been very popular and has had the best snow. Lookout is about 60 miles east on I-90.

Silver Mountain (<http://www.silvermt.com/>). Silver Mountain is about 40 miles east on I-90 with an awesome gondola ride that is about 20 minutes to the top of the mountain. Silver also has an indoor waterpark that would be a great family stop for a long weekend. Not to mention fun for all ages.

Schweitzer Mountain (<http://www.schweitzer.com/>). Schweitzer Mountain Resort is 60 miles north on Highway 95 near Sand Point and Lake Pend Oreille. Schweitzer has had some pretty good snow the last few years. There are plenty of other fun things for you to do as well at all of these resorts.

For the ladies, the Resort offers a full spa for you to relax and enjoy some pampering. This could be for anyone, us guys could always use some R and R too!

The Resort also offers plenty of different cruises around the Lake. You can go looking for some eagles or just a scenic ride looking at a bunch of historic places around the lake. It is too bad that we aren't having the meeting around Christmas time because the Resort offers a huge light show and also a visit to Santa's North Pole.

As for dining options there are several options within walking distance and in the Resort. Within the Resort there is Dockside that has a huge salad bar, 18 feet long! Beverly's features 5-star cuisines that is on the 7th floor for a spectacular view. The Bonsai Bistro features wok-seared food along with sushi. Tito's Italian Grill is located a few blocks from the Resort. Tito's features a Mediterranean-infused menu that is delicious. Cedar's Floating Restaurant is located a couple of miles to the west. Cedar's has a great menu of fresh fish and locally sourced Choice Beef. 3rd Street Cantina is located just a few blocks to the east featuring some of the best Mexican food in Coeur d'Alene. There are also a few bistros located a mile or two to the north along with several specialty restaurants.



Student Liaison Report - by Breanne Tidemann

Caio and I, your student liaisons, attended the summer board meeting at the start of August. Unfortunately, we didn't get to experience Coeur D'Alene in the summer time as the meeting venue was all booked up, so the board met in Spokane. That board meeting is an excellent networking opportunity for the student liaisons, as well as a great opportunity to get a handle on how the society runs. With the upcoming meeting in mind, it is time for students to start preparing applications for the **WSWS Elena Sanchez Outstanding Student Scholarship Program**. Three students will receive \$1000 each to attend the upcoming meeting in Coeur D'Alene. I know the field season is busy, but it is certainly worth the time to submit an application. Keep in mind, this award is for graduate AND/OR undergraduate students, so advisors, please discuss this opportunity with your students. The application can be found at http://www.wsweedscience.org/wp-content/uploads/2017-WSWS_Student_Scholarship_Operating_Guide.pdf and the deadline for submission is **October 1, 2016**.

Student feedback on the survey sent out after the Albuquerque meeting was much appreciated. It has opened some areas of discussion with the board. As a result, please watch your emails for further discussions/surveys on specific topics that resulted from the initial one! And if you forgot to respond or fill out those surveys... don't worry, I'll remind you. Your comments and suggestions are valuable for improving future meetings and events and helping you to get the most you can out of these meetings. We have identified a number of student concerns from that survey and are doing our best to address them, in conjunction with different committees and the board.

For students looking to be more involved in the society, we will need help this fall soliciting donations for the student silent auction. If you are interested in helping gather donations please get in touch and we can talk about the process. You may also want to consider running for the student liaison chair elect position at the upcoming meeting. Further details on the position and how to apply will be coming out over email in the months leading-up to the meeting. Please keep your eye out for that as well. Follow us on Twitter ([@WSWSstudents](#)) or like us on Facebook for updates, announcements, and general weed science media. Feel free to make a post on the student page with suggestions, questions, or information other students may find useful.

If you have any questions, you can contact Breanne Tidemann (blaturnu@ualberta.ca) or Caio Brunharo (cabrunharo@usdavis.edu).

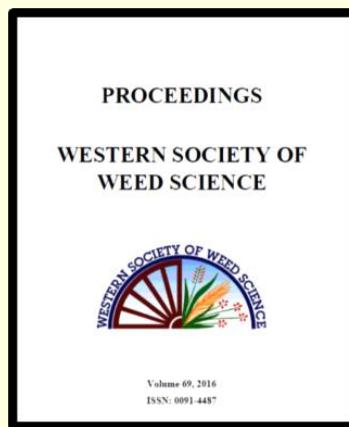
Breanne Tidemann, Student Section Chair

Caio Brunharo, Student Section Chair Elect

Proceedings from Albuquerque's Annual Meeting

Proceedings Editor, Bill McCloskey, has posted the Proceedings from the 2016 Albuquerque, New Mexico 69th annual meeting of the Western Society of Weed Science to the WSWS website. You can view or download the Proceedings by following this link:

http://www.wsweedscience.org/wp-content/uploads/WSWS_2016_Proceedings_FINAL.pdf



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Publications
WSWS ONLINE EDUCATION
<http://passel.unl.edu/pages/index2col.php?category=weedsience#>
WSSA Journals Website Online
www.WSSAJournals.org

CALENDAR OF EVENTS

North American Invasive Species Management Association Annual Conference
September 26-29, 2016
Salt Lake City, Utah
www.naisma.org

70th Annual Meeting of the Canadian Weed Science Society
November 22-24, 2016
Moncton, New Brunswick, Canada
www.weedscience.ca

Weed Science Society of America Annual Meeting
February 6-9, 2017
Tuscan, Arizona
www.wssa.net

Western Society of Weed Science Annual Meeting
March 13-16, 2017
Coeur d'Alene, Idaho
www.wsweedscience.org

Western Invasive Weed Short Course
April 17-20, 2017
Loveland, Colorado
www.mountainwestpest.com/ShortCourse.html

2nd Global Herbicide Resistance Challenge
May 14-18, 2017
Denver, Colorado
www.ghrc2017.org

26th Asian Pacific Weed Science Society Conference 'Weed Science for People, Agriculture, and Nature'
September 19-22, 2017
Kyoto, Japan
www.c-linkage.co.jp/apwss2017/

Online course: Herbicide Physiology (PSPP 546) • Aug. 29-Dec. 16, 2016

- Explore the fundamental physiology, biochemistry, and molecular biology of herbicides and their effects on plants
 - Study the physiological mechanisms of herbicide resistance
 - Examine the processes by which herbicides are discovered/developed for commercial release.
 - Investigate typical herbicide non-performance scenarios and practice troubleshooting field complaint situations.
- 3 graduate credits • See Web for pre-requisites, tuition and admission guidelines

Instructors include: William Dyer, Plant Sciences & Plant Pathology, Montana State University; Tracy Sterling, Land Resources & Environmental Sciences, MSU; and Sarah Ward, Soil & Crop Sciences, Colorado State University.



Herbicide Mode of Action

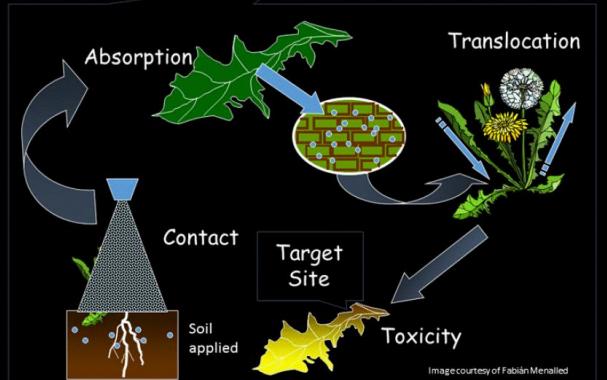


Image courtesy of Fabián Menalled

(406) 994-6683 • distance@montana.edu
Learn more or register online at <http://bit.ly/PSPP546>

A Note from the Business Office by Phil Banks

We will be opening registration for the 2017 annual meeting in Coeur d'Alene, Idaho around October 1, 2016 and I will send out a note to everyone when that happens. The Coeur d'Alene Resort is located approximately 35 miles east of the Spokane Airport. The Resort has a shuttle service that is available for transportation at a reasonable cost. The Resort has been totally renovated since our last meeting there and the lake is just as beautiful. We will be meeting jointly with the Western Aquatic Plant Management Association.

As many of you know, WSWS will not reprint our Weeds of the West book when the current inventory is sold out. We currently have a good supply of books available through the WSWS office and books can be purchased through our website (<http://www.wsweedscience.org/store/>) or by filling out the order form in this Newsletter. Discounts are available for orders of 10 or more books. Contact me for information on discounts.

If you need to contact the office, please give us a call at (575) 649-7157 or e-mail at wsbs@marathonag.com.

Phil Banks, WSWS Business Manager/Treasurer

2017 CALL FOR NOMINATIONS: DISTINGUISHED ACHIEVEMENT AWARDS

Everyone knows of some skilled and outstanding weed scientists in the western region who have contributed a great deal over the years and deserve our recognition and appreciation. One way to recognize such persons is to nominate them for a WSWS award. Please take the time and nominate an individual for one of awards listed below.

CRITERIA USED FOR EVALUATING NOMINATIONS: Awards are based on merit and impact on weed science and weed management practices. Applicants MUST BE a member of WSWS. Professional achievements and their impacts are the principal criteria for receiving these awards. There is no requirement that an award be given in any or every category. Past winners are not eligible again in the same category. An award may be given each year in both the private and public sectors for Outstanding Weed Scientist and Outstanding Weed Scientist – Early Career. Only one award may be given each year for Weed Manager and Professional Staff. Within the guidelines for each category, there is flexibility to fit the nominee.

I. OUTSTANDING WEED SCIENTIST

This award recognizes outstanding achievements in weed science from individuals in both the public and private sectors. Principle criteria for this award includes innovative or unique approaches that result in learning, ability to clearly communicate ideas, motivation of the intended audience, demonstrate excellence and creativity in research accomplishments, applying results to solve problems in weed science, the impact on weed management practices and principals of weed science, and recognition of accomplishments by peers and intended audiences.

II. OUTSTANDING WEED SCIENTIST – EARLY CAREER

This award is to be given to members in the private and public sectors with no more than 10 years of service after completion of their terminal degree. This award recognizes outstanding achievements in weed science early in the individual career with the same criteria as the outstanding weed scientist above.

III. WEED MANAGER

This award recognizes outstanding and sustained contributions in support of weed science activities. This award is intended for those paid by taxpayers and that are working in the public sector, such as employees of state departments of agriculture, weed boards, public land managers, and vegetation management personnel. The nominee must have been involved in the WSWS and weed science for at least five years at the time of nomination.

IV. PROFESSIONAL STAFF

This award recognizes outstanding and sustained contributions in support of weed science activities. Nominees will be restricted to individuals that work under the direction of university, federal, or industry scientists. These individuals may have titles such as researcher, research associate, technician, support scientist, or specialist. The nominee must have been involved in the WSWS and weed science research, extension, or resident education for at least five years at the time of nomination.

NOMINATION DEADLINE: Nominations must be received by **December 1, 2016**.

NOMINATOR'S RESPONSIBILITY: The nominator will submit a nomination document following the "Instructions for Nomination" guideline. The nominator is responsible for obtaining three letters of support and including them with the nomination package. Unsuccessful nominations will remain active for three years; however, an updated nomination packet of holdover candidates is encouraged.

The nomination package, including the supporting letters, should be sent, by email, to the chair of the Awards Committee by **December 1, 2016**:

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WASHINGTON REPORT

August 9, 2016

Lee Van Wychen

National and Regional Weed Science Societies Comment on EPA's Proposed Herbicide Resistance Management Plan

The Weed Science Society of America (WSSA), Aquatic Plant Management Society (APMS), Northeastern Weed Science Society (NEWSS), North Central Weed Science Society (NCWSS), Southern Weed Science Society (SWSS), and Western Society of Weed Science (WSWS) submitted comments on EPA's proposed herbicide resistance management plan, which was first proposed as part of the dicamba-tolerant cotton and soybean registrations. EPA's proposal presents a significant change in how resistance is monitored, mitigated and communicated to weed management stakeholders. One of our concerns was that this proposal was included as part of the proposed dicamba registration and not as a separate Pesticide Registration (PR) Notice by itself. However, just as the dicamba registration comment period was closing, EPA did issue a separate PR Notice for the Resistance Management Plan (see next story below).

While the National and Regional Weed Science Societies complimented EPA on these proactive resistance management measures, we provided many suggestions and recommendations on how to improve the plan. It will be important for EPA to communicate to the weed management community what their expectations are for the plan, how much it will cost to implement, and how success (and failure) be measured. In addition, we consider the plan a first iteration that will need adaptation and evolution with our experience with it. The comments are at: <http://wssa.net/wp-content/uploads/Weed-Science-Societies-Comments-on-EPA-11-element-Resistance-Mgmt-Plan.pdf>

EPA's Issues Draft Guidance on Managing Pesticide Resistance

On June 2, EPA made available for comment two draft Pesticide Registration Notices (PR Notices) that are aimed at combating pesticide resistance. The first PR Notice (PR Notice 2016-X) is titled "[Draft Guidance for Pesticide Registrants on Pesticide Resistance Management Labeling](#)" and the second PR Notice (PR Notice 2016-XX) is titled "[Draft Guidance for Herbicide Resistance Management Labeling, Education, Training, and Stewardship](#)."

Draft [PR Notice 2016-X](#) applies to all conventional agricultural pesticides (*i.e.*, herbicides, fungicides, bactericides, insecticides, and acaricides). The updates focus on pesticides labels and are aimed at improving information about how pesticide users can minimize and manage pest resistance. Updates fall into the following three categories: (1) additional guidance to registrants and a recommended format for resistance-management statements or information to place on labels; (2) references to external technical resources for guidance on resistance management; and (3) instructions on how to submit changes to existing labels in order to enhance resistance-management language.

Draft [PR Notice 2016-XX](#), which only applies to herbicides, communicates EPA's current thinking and approach to address herbicide-resistant weeds by providing guidance on labeling, education, training, and stewardship for herbicides undergoing registration review or new registrations.

To view and provide comments on these draft PR Notices, please visit [EPA-HQ-OPP-2016-0242](#) for PRN 2016-X and [EPA-HQ-OPP-2016-0226](#) for PRN 2016-XX. **The comment period for each closes on Sept. 1, 2016.**

Weed Science Societies Opposed to EPA's Proposed Tank Mix Prohibitions

The National and Regional Weed Science Societies also commented on the tank mix prohibitions proposed by EPA for two new herbicide registrations: 1) dicamba-tolerant cotton and soybean; and 2) halauxifen-methyl. The comment period for both those registrations closed at the end of May. EPA is considering whether they will continue to propose tank mix prohibitions on all new registrations and re-registrations going forward due to uncertainty about potential tank mix synergism effects on non-target organisms. The National and Regional Weed Science Societies are

opposed to the proposed tank mix prohibitions because the benefits of tank mixing outweigh any "uncertainty" about potential tank mix synergism effects on non-target organisms.

EPA recognizes the benefits from tank mixes and states:

*"The practice of tank mixing can result in **significant economic benefits to the grower** by allowing control of a wider variety of pests in a single application without incurring the expense of sequential applications. Additionally, by reducing the number of visits to the agricultural field, the grower is also **reducing fossil fuel use** and emissions from large agricultural equipment, **as well as the potential exposure to pesticides** that can result from multiple visits to the same area being treated. It is also widely accepted that the practice of **mixing products with different modes of action is essential to the management of weed resistance**. Because weed resistance is known to have a very costly impact to overall crop yields, which in turn negatively impacts growers' harvests and the price of commodities to the consumer, tools that aid in the prevention of resistance are considered to be a very important benefit to agriculture".*

Yet, despite these recognized benefits, EPA has proposed tank mix prohibitions for both dicamba and halauxifen-methyl because of "uncertainty" about "potential" tank mix synergism effects on non-target organisms.

In addition, EPA's proposed tank mix prohibitions are a divergence from the **2013 National Academy of Sciences (NAS) report: "Assessing Risks to Endangered and Threatened Species from Pesticides"**. The NAS report is the gold standard for how EPA and the Fish and Wildlife Service are supposed to make endangered species assessments. The NAS report recognizes that "*The toxicity of a chemical mixture probably will not be known, and it is not feasible to measure the toxicity of all pesticide formulations, tank mixtures, and environmental mixtures. Therefore, combined effects must be predicted on the basis of models that reflect known principles of the combined toxic action of chemicals*". The 2013 NAS report emphasizes that the complexity of assessing the risk posed by chemical mixture (i.e. tank mixing herbicides) "**should not paralyze the process**".

The National and Regional Weed Science Societies comments are at: <http://wssa.net/wp-content/uploads/Weed-Science-Societies-comments-on-dicamba.pdf> and <http://wssa.net/wp-content/uploads/Weed-Science-Societies-comments-on-Halauxifen-methyl.pdf>

Final Approval Expected for Three New BLM Vegetation Treatments

The Bureau of Land Management (BLM) is expected to issue a Record of Decision in September for final approval of a Programmatic Environmental Impact Statement (PEIS) that examined the use of three new herbicides for vegetation treatments in 17 Western states. The herbicides evaluated in the PEIS are aminopyralid (Milestone), fluroxypyr (Vista), and rimsulfuron (Matrix). The full PEIS for these vegetation treatments are at: <http://blm.gov/3vkD>. The comment period on BLM's approval of the new vegetation treatments closed May 7, 2016.

Supreme Court Says Landowners Can Challenge Feds in CWA Permit Determinations

On May 30, the Supreme Court ruled unanimously against the government in a case deciding when landowners can challenge certain decisions about water permits in court. The case, *Army Corps of Engineers v. Hawkes Co. Inc.*, centers on a North Dakota peat mining company that wants to challenge a government determination that its mining plans would require costly Clean Water Act permits.

The broader issue in the case was whether the Army Corps of Engineers' "jurisdictional determinations" about whether permits are required represents "final agency actions" that can be challenged in court. Property rights advocates and industry contend that landowners should be able to contest those decisions in court; the government disagrees.

Chief Justice John Roberts wrote the court's opinion, finding that a jurisdictional determination approved by the corps is indeed a "final agency action" that is subject to judicial review. The justices seemed skeptical of the government's position when they heard oral arguments in the case in March.

It's the latest wetlands case the Obama administration has lost in recent years. In 2012, the high court ruled 9-0 against the government in another important case where property owners sought to challenge EPA enforcement actions in court. [Click here](#) to read the Supreme Court opinion.

"NPDES Fix" Bill Passes House, But Stripped Out of Zika Response Conference Agreement

On May 24, the House passed H.R. 897, the Zika Vector Control Act (formerly the Reducing Regulatory Burdens Act-a.k.a. the "NPDES Fix" bill) **by a vote of 258-156**. This is the 3rd time in five years the House has passed this bill. This version of H.R. 897 contains the same language as the original legislation, but included a 2 year sunset provision that we oppose. The Zika Vector Control Act (H.R. 897) was rolled into H.R. 2577, which also includes the Military Construction and Veterans Affairs Appropriations Bill as well as the Zika Response Funding bills.

The National and Regional Weed Societies joined over 100 other organizations to urge House and Senate Conferees to support the inclusion of H.R. 897 in the final conference agreement for H.R. 2577 and to remove the sunset provision. The good news is that part of the NPDES fix language made it into the House – Senate Conference Agreement that includes a \$1.1 billion Zika virus response package and the fiscal 2017 Military Construction-VA appropriations bill. The bad news is that there is only a waiver from NPDES permits for mosquito control, not aquatic weeds. Plus the waiver is only for 180 days, and then sunsets. The House did pass the conference agreement (H.R. 2577), but then it blew up in the Senate, plus the president promised to veto it. In other words, it's back to the drawing board.

FY 2017 Ag Appropriations

The House and Senate Agriculture Appropriations Subcommittees released their proposed budgets for FY 2017. In both budgets, many of the USDA agencies that receive funding for weed research and management were proposed to receive modest increases compared to FY 2016. Agencies with proposed increases include: APHIS, ARS, NIFA, and NRCS. Within NIFA, the AFRI Competitive Grants program, both the House and Senate recommended an increase of \$25 million over the FY 2016 appropriation of \$350 million. However, most of the other NIFA line items relevant to weed science were held constant to the FY 2016 levels. This included Hatch Act, McIntire-Stennis, Smith Lever b & c, IR-4, SARE, and Crop Protection and Pest Management.

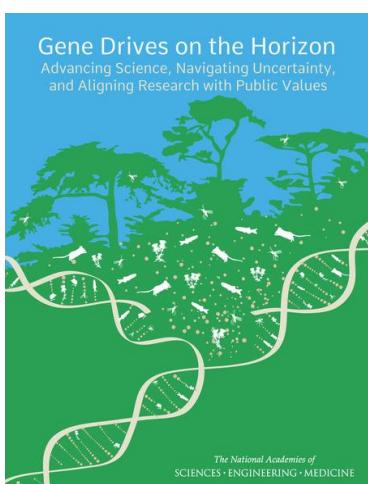
	FY 2014	FY 2015	FY 2016	FY 2017 House	FY 2017 Senate
USDA AGENCY	----- \$ millions -----				
ARS	1,122.4	1,132.6	1,143.8	1,151.8	1,177.9
ERS	78.0	85.3	85.3	86.0	86.7
NASS	161.2	172.4	168.4	168.4	169.6
NIFA	1,277.1	1,289.5	1,326.4	1,341.1	1,363.7
APHIS	821.7	871.3	894.4	930.9	939.2
NRCS	812.9	846.4	850.8	855.2	864.4
NIFA Programs					
Research and Education Activities	772.5	786.8	819.6	832.8	851.4
-Hatch Act (Experiment Stations)	243.7	243.7	243.7	243.7	243.7
-Cooperative Forestry Research	33.9	33.9	33.9	33.9	33.9
-AFRI Grants Program	316.4	325.0	350.0	375.0	375.0
-Sustainable Ag Res. & Education	22.6	22.6	24.6	24.6	27.0
-IR-4 Program	11.9	11.9	11.9	11.9	11.9
Extension Activities	469.1	471.6	475.8	477.3	476.2
-Smith-Lever Act, Section (b) & (c)	300.0	300.0	300.0	300.0	300.0
Integrated Activities					
-Crop Protection & Pest Mang't	17.1	17.2	17.2	17.2	20.0

There are also various instructions and recommendations included in both the House and Senate Ag Appropriations bills related to weed science and pest management in general. Here are some examples:

- 1) **Office of Pest Management Policy.**—The Committee commends the Office of Pest Management Policy for its work providing the Department, federal agencies, producers, and other interested stakeholders scientifically sound analysis of pest management issues important to agriculture, especially methyl bromide transition, **pesticide resistance management**, and the development of antimicrobials to combat citrus greening. The Committee encourages the Under Secretary to better utilize this office and directs ARS to continue to support its vital work.
- 2) **Invasive Species.**—The Committee recognizes the threats posed by invasive plant species and the need to protect, restore, and enhance native plants, including those that are endangered or threatened. The Committee encourages ARS, the Natural Resources Conservation Service (NRCS), and NIFA to support the research, education, and conservation of native plants.
- 3) **Cheat Grass Eradication.**—The Committee encourages NRCS to continue to assist farmers and ranchers to eradicate, control, and reduce the fuel loads associated with cheat grass and to collaborate with ARS, as appropriate, on research related to cheat grass.
- 4) **Herbicide Resistance.**—The Committee reminds NRCS of the challenges many producers are facing due to the spread of herbicide-resistant weeds and encourages it to ensure agency staff, partners, and producers are aware of conservation practice standards, conservation activity plans to address herbicide-resistant weeds, and financial assistance available through conservation programs to assist producers in their efforts to control these weeds.
- 5) **Sage Steppe Restoration Science.**—The Committee includes an increase of \$1,000,000 for ARS to advance sagebrush habitat restoration science in the Northern Great Basin including cooperative research, testing and deploying precision restoration methods to restore habitat Impacted by significant disturbance such as wildfire and invasive species.
- 6) **Pollinator Health and Monarch Recovery.**—The Committee reiterates its concern for the need to address threats posed to pollinator health, and urges the Department to continue to support the Fish and Wildlife Service's Monarch Conservation Strategy. The Committee directs NRCS to leverage resources, relationships and partnerships, including with non-governmental organizations that are perceived positively by the private land and agriculture communities and that possess experience working directly with agricultural producers and other conservation partners. The Committee recommends the Department continue to support monarch conversation on private lands in fiscal year 2017 and expects to see a multi-year recovery effort undertaken, focusing on the deployment of conservation practices.

NAS Gene Drive Report Urges Caution

On June 9, the National Academies of Sciences, Engineering and Medicine issued a report titled: [**Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values \(2016\)**](#).



The report notes that the technology offers great promise for agriculture, conservation, and public health, but it stresses that the current regulatory system, which includes institutional review boards and environmental impact assessments, is not adequate to address the potentially great risks. It calls for a greater involvement of the public in the early stages of the technology's development and approval for use.

To examine the questions surrounding gene drive research, the report explored seven plausible gene drive case studies that offer practical scenarios on which to base the report's analysis and recommendations. Two of those case studies involved weeds, *Centaurea maculosa* and *Amaranthus palmeri*, both of which I include below.

CASE STUDY 5: *Centaurea maculosa* - Plausibility of a Gene Drive Solution

Spotted knapweed is obligately outcrossing (Harrod and Taylor, 1995), meaning that there is little or no self-fertilization and that gene drives would be able to spread throughout knapweed populations. Another factor that makes it potentially suitable for a gene drive is that the basis for its ability to outcompete native plants is thought to come from the production of a compound called catechin (Thelen et al., 2005), which it exudes from its roots. Catechin inhibits the germination and growth of native plant species, thereby conferring a competitive advantage to spotted knapweed (Bais et al., 2003). **NOTE: The work on catechin from *Centaurea maculosa* has been largely discredited**, due to most of the results not being reproducible. See: <http://retractionwatch.com/2015/09/02/nsf-investigation-of-high-profile-plant-retractions-ends-in-two-debarments/> Most of the papers in support of the catechin work have been retracted, although the paper in *Science* has only errata type corrections. But, the paper on which it was based is retracted. Papers by others have been published in which their findings could not be repeated.

There are two possible gene-drive approaches to help limit the spread of spotted knapweed, which could potentially be employed together. The first option is to engineer a suppression gene drive by targeting sex-specific genes, thereby biasing gender ratios and facilitating a population crash. The second is to modify the population by targeting the catechin biosynthetic pathway, which in theory would negatively affect the knapweed's ability to compete against endemic plants, although this effect is still debated (Perry et al., 2005). In either case, the rate of spread of either of these gene drives is expected to be slow, because spotted knapweed is a perennial plant that lives for approximately nine years (Zouhar, 2001). In addition, the success of a suppression drive is likely to depend critically on the fertility advantages of sex-modified plants compared to hermaphrodites and also on features such as pollen availability and spatial structure (Hodgins et al., 2008).

CASE STUDY 6: *Amaranthus palmeri* - Plausibility of a Gene Drive Solution

Palmer amaranth is a likely candidate for gene-drive technology, for five reasons. First, it is an annual plant, so it has yearly sexual reproduction and a rapid generation time. Second, Palmer amaranth and some other members of the genus are dioecious [male and female flowers occur on separate plants (Steckel, 2007)], which ensures the outcrossing necessary to spread gene drives. Third, it does not have an extensive seed bank; studies suggest that most seeds do not persist in the soil, so that there is unlikely to be a seed repository that is immune to the gene drive. Fourth, an *Amaranthus* species has been transformed genetically (Pal et al., 2013), suggesting that it will be technologically feasible to insert gene drives into Palmer amaranth. Finally, Palmer amaranth is wind-pollinated, implying that the eradication of species will, at the very least, not harm insect pollinators.

In theory, Palmer amaranth could be subjected to two types of gene drive. In the first, a modification drive would target the genes that confer resistance to glyphosate and reestablish the population's susceptibility to glyphosate herbicides. The potential targets of this gene drive are known, because the glyphosate herbicide acts by interrupting the function of 5-enolpyruvylshikimate-3-phosphate synthase. In Palmer amaranth, this synthase gene has been duplicated extensively, leading to enzyme overexpression and glyphosate resistance (Gaines et al., 2010). Thus, a candidate gene drive would need to target multiple 5-enolpyruvylshikimate-3-phosphate synthase copies that are scattered throughout the genome. If the gene drive succeeded and susceptibility became fixed, glyphosate could then be used again as a tool to limit Palmer amaranth populations. A second approach would be to build a suppression drive. Although the target and content of such a drive is not yet clear, the fact that there are separate male and female plants implies that there are sex-specific genes that are suitable targets for biasing the sex ratio. Under this approach, the goal would be skew sex ratios until the entire population (or species) collapses.

Senate GMO Food Labeling Compromise Bill Becomes Law

On June 23, Sen. Pat Roberts (R-KS) and Sen. Debbie Stabenow (D-MI), chair and ranking member of the Senate Ag Committee, unveiled a new bipartisan proposal to protect the use of agriculture biotechnology and to ensure

consumers have access to the information they want. [Click here](#) to read the legislative text. Key provisions of the bipartisan proposal include:

- **Pre-emption:** immediately prohibits states or other entities from mandating labels of food or seed that is genetically engineered.
- **National Uniform Standard:** the U.S. Department of Agriculture establishes through rulemaking a uniform national disclosure standard for human food that is or may be bioengineered.
- **Disclosure:** requires mandatory disclosure with several options, including text on package, a symbol, or a link to a website (QR code or similar technology); small food manufacturers will be allowed to use websites or telephone numbers to satisfy disclosure requirements; very small manufacturers and restaurants are exempted.
- **Meat:** foods where meat, poultry, and egg products are the main ingredient are exempted. The legislation prohibits the Secretary of Agriculture from considering any food product derived from an animal to be bioengineered solely because the animal may have eaten bioengineered feed.

After a couple of procedural votes in the Senate, the Senate passed the compromise GMO labeling bill 63-30 on July 7. House Ag Committee Chairman, Michael Conaway (R-TX), was silent on the Senate bill for several days, but eventually issued the following statement: "*After spending the past week and a half studying the legislation and meeting with agricultural producers, along with a variety of other stakeholders, I have come to the conclusion that the Senate bill is riddled with ambiguity and affords the Secretary a concerning level of discretion. I have sought written assurances from USDA on the more problematic provisions, and I appreciate the efforts of the Department to provide some level of clarity. While I will never fully support federally mandating the disclosure of information that has absolutely nothing to do with nutrition, health, or safety, it is my expectation that this legislation will be considered on the House floor next week, and it is my intention to support this bill.*"

Following that statement, the House did indeed pass the Senate version of the bill on July 14 by a vote of 306-117 and the president signed it into law on July 29. Now it will be up to USDA and the FDA to work out the details and guidelines through the federal rule making process over the next two years. Many of those provisions will likely be decided in the federal courts as some anti-GMO groups have already said they will sue USDA when they issue the rules.

\$286 Million- Cost to Bring a New Crop Protection Product to Market

CropLife America (CLA) recently helped the market research firm, Phillips McDougall, develop a study that shows the overall cost to discover and advance a new crop protection product averages \$286 million – up 21% over the previous 5 years. (Link to CLA statement with imbedded report available here:

<http://www.croplifeamerica.org/cost-of-crop-protection-innovation-increases-to-286-million-per-product/>. The biggest driver in that cost increase appears to be regulatory compliance. That statistic demonstrates why it is so important to be sure that US regulatory requirements are assessments of real science and safety advancements, not simply reactions to non-scientific political ideologies.

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Global Herbicide Resistance Challenge 2017 - Call for Papers/Posters



The 2nd Global Herbicide Resistance Challenge (GHRC) is being held May 14-18, 2017 in Denver, Colorado, USA. We hope you and your colleagues will participate in this event. It is a great opportunity to interact with other scientists and professionals in research, education, government, and industry for four days of oral paper and poster presentations and networking on key herbicide resistance issues spanning the spectrum from genomics to management.

We are soliciting papers and posters relevant to any aspect of herbicide resistance, including but not limited to:

- Herbicide Resistance in Crop Weeds
- Herbicide Resistance in Non-Crop Weeds (i.e., Rangeland, Forestry, Rights-of-Way, Aquatic, Turf)
- Herbicide Resistance Education
- Herbicide Resistance Regulatory Issues

Poster presentations will play a key role in the success of GHRC 2017. Much time will be dedicated for viewing posters so that attendees can interact and use this opportunity to share details of their work, success stories and lessons learned.

Abstracts must be in English and are limited to 300 words. Abstracts will be reviewed by the GHRC Scientific Committee and will be assigned to oral paper or poster presentation sessions.

Abstracts must be submitted electronically on the attached GHRC 2017 submission form. The form will be available [at www.ghrc2017.org/papers-posters.html](http://www.ghrc2017.org/papers-posters.html).

All presenters must register (co-authors on your abstract do not need to register unless they plan to participate in the meeting). Presenters may register for the entire meeting or only for the day of their presentation.

Abstract submission ends on October 1, 2016.

Please check www.ghrc2017.org/papers-posters.html for updates. The conference overview can be found at www.ghrc2017.org.

GHRC Organizing Committee
Global Herbicide Resistance Challenge 2017
www.GHRC2017.org

WESTERN INVASIVE WEED



April 17-20, 2017
Loveland, Colorado



The 7th Annual Western Invasive Weed Short Course will be held at Sylvan Dale Guest Ranch in Loveland, Colorado. The WIWSC is an intensive study of current technologies and best management practices associated with noxious and invasive weeds in the western United States. The course includes classroom lecture, hands-on demonstration, field plots, live weed and herbicide symptomology specimens, facilitated discussion, small group projects, educational games, and time for individual interaction with instructors.



What previous participants have said:

- "Outside plant ID with a botanist who knows what they are looking at is AWESOME training for plant community managers."
- "Great campus, food, and instructors. Good learning environment."
- "Very fun training. The trainers were entertaining and got the information to us in a fun way."
- "Great training and location."
- "Environment is awesome for the course."
- "Great trainers and very knowledgeable staff. Enjoyed the interactive session the most."

The registration fee (\$825.00 by January 31, 2017; \$925.00 on February 1, 2017) includes the educational program and daily refreshment breaks. Three lunches and three dinners are also included in the registration. Lodging at either Sylvan Dale Guest Ranch or La Quinta Inn & Suites is not included in the registration fee.



For more information:

www.mountainwestpest.com/ShortCourse.html

To register for the course, contact:

Sandra McDonald

970-266-9573

Sandra@MountainWestPEST.com

REQUEST FOR WSWs FELLOW AND HONORARY MEMBER NOMINATIONS

BY

Dr. Kassim Al-Khatib, Committee Chair

Now is your chance to nominate deserving colleagues as a WSWs Fellow or Honorary Member!

WSWS FELLOW

WSWS Guidelines for Nominating Fellows

Fellows of the society are members who have given meritorious service to the Western Society of Weed Science.

The nominator must contact the member to be nominated and request them to prepare a concise [2-3 page] resume.

- a. The nominee must be involved in the process. The most pertinent information about the nominee can only be obtained from the nominee.
- b. The nominee's resume should be based on the WSWs guidelines approved by the Board of Directors (see below).
- c. Information from the resume will be used by the nominator in writing the letter of nomination.
- d. The nominator also is responsible for soliciting two letters of support for the nominee. The letters should be sent to the nominator and included in the nomination package sent to the committee.
- e. The nomination package should include the nominee's vita, the nominator's letter of nomination, and two support letters.

SERVICE TO WSWs – Please address the following points in the resume:

1. **Officer:** President; Vice-President; Secretary, Research Section Chair; Education & Regulatory Section Chair; Editor; Other.
2. **Committees:** Standing; Special; Ad Hoc.
3. **Presentations and Publications:** WSWs – Papers, Proceedings, Research Progress
4. **Service to other Weed Science Societies:** Weed Science Society of America; State Organizations.
5. **Academic Weed Science Endeavors:** Teacher; Graduate Students; Refereed Publications; Extension Publications, Books; Popular Publications; Academic Weed Science Pursuits; Other.
6. **Industry Weed Science Endeavors:** Sales and Marketing; Research and Development; Regional Manager; Product Manager.
7. **Other Meritorious Weed Science Service**

WSWS HONORARY MEMBER

WSWS Guidelines for Nominating Honorary Members

Honorary members are selected from individuals whose activities have been largely from outside the Western Society of Weed Science, but who have significantly contributed to the field of weed science.

- The nominator must contact the person to be nominated and request them to prepare a vita.
- The nominator will then prepare a letter summarizing the nominee's contribution to the area of weed science with emphasis on how the interests of the WSWs have been served by this non-member.
- Include the vita with the letter of nomination to provide all pertinent information to the Committee.

**NOMINATIONS FOR FELLOW AND HONORARY MEMBER PACKAGES ARE DUE BY DECEMBER 1, 2016
TO:**

Electronic submission preferred.

Dr. Kassim Al-Khatib

(503) 752-8350

kalkhatib@ucdavis.edu

Publications Available From the Western Society of Weed Science

(All prices include shipping and handling; bulk orders may be discounted, see below)

<input type="checkbox"/> Weeds of the West.....	\$34.00
<input type="checkbox"/> Aquatic and Riparian Weeds of the West.....	\$45.00
<input type="checkbox"/> Weeds of California and Other Western States.....	\$85.00
<input type="checkbox"/> Weed Control in Natural Areas in the Western United States	\$40.00
<input type="checkbox"/> Interactive Encyclopedia of North American Weeds DVD.....	\$50.00

Total _____

All publications can be ordered online at www.wsweedscience.org (click on WEED BOOKS)

To order by mail and pay by check, send this completed form with payment to:

WSWS Business Manager, 205 W. Boutz Rd, Bldg 4, Ste 5, Las Cruces, NM 88005.

Contact the Business Manager (Phil Banks) at (575) 649-7157 for bulk order prices.

Shipping Information:

Name: _____

Address: _____ City: _____

State: _____ Zip Code: _____ Telephone: _____

e-mail: _____

WSWS Objectives

- ❖ To foster and encourage education and research in weed science.
- ❖ To foster cooperation among state, federal and private agencies in matters of weed science.
- ❖ To aid and support commercial, private and public agencies in the solution of weed problems.
- ❖ To support legislation governing weed control programs and weed research and education programs.
- ❖ To support the Weed Science Society of America and foster state and regional organizations and agencies interested in weed control.



Western Society of Weed Science
205 W. Boutz, Bldg. 4, Ste. 5
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