



Western Society of Weed Science Newsletter

12110 N Pecos Street, Ste. 220, Westminster, CO 80234

(303) 327-8016

info@wsweedsociety.org

SUMMER 2022

IN THIS ISSUE:

President's Report

Student Liaison Report

Student Papers and Poster
Contest Announcement

2023 Call for Papers & Posters

Boise Meeting Update

2023 Call for Symposia

Elena Sanchez Memorial WSW
Outstanding Student Scholarship

Request for Fellows and
Honorary Member Nominations

Call for Distinguished
Achievement Awards

Invasive Species Pollinator
Health Research Unit Personnel
Updates

Call for 2023 Research Progress
Reports

Washington Report

Rita Beard Endowment
Foundation Student Scholarship

Publication Order Form

MSU Herbicide Physiology
On-line Course

Membership Renewal Form

Sidebar highlights:

- [Contact Us](#)
- [Officers & Executive
Committees](#)
- [Publications](#)
- [Calendar of Events](#)



President's Report – by Joel Felix

Thank you for the honor and privilege bestowed on me to serve as your 2022/2023 President. It is not lost on me how great it is being entrusted with the responsibilities to represent the society in that capacity. I continue to count myself lucky to be a member of this society and greatly

humbled to serve as your President. The leadership responsibilities have provided me with the most rewarding experiences personally and professionally in my career. The willingness of society members to serve in various capacities is something I admire and all of us should be proud of that.

The society financial position is strong and we continue to enjoy the services of the Financial Advisor, Stan Cooper of RBC, and guided by the capable skills of the WSWS Treasurer, Phil Banks. Investment adjustments and the society financial standing report was presented by the Treasurer during the summer board meeting.

In 2022, two Board of Directors meetings have been conducted so far; the post annual meeting in Newport Beach, California (March 10, 2022) and the summer board meeting in Boise, Idaho (August 4-5, 2022). The summer board meeting was held with board members attending either in person at the 2023 meeting site in Boise or virtually via Zoom. The meeting attendees deliberated society business and the interaction went as planned. Part of the meeting was spent discussing the 2023 joint meeting with the Western Aquatic Plant Management Society (WAPMS) and touring the facilities at the Boise Centre (see President-Elect/Program Chair report for details). I particularly want to thank our Immediate-Past-President, Sandra McDonald, who joined the meeting virtually from Madagascar! By the time the meeting was adjourned on August 4 in Boise, it was about 1:30AM August 5, 2022 in Madagascar and Sandra stayed on for the duration of the meeting! This goes to show the dedication with which those entrusted with WSWS leadership take their responsibilities.

Plans for the WSWS 2023 joint meeting with WAPMS are underway in the capable hands of WSWS President-Elect/Program Chair, Curtis Rainbolt, and other

CONTINUED ON PAGE 2

WSWS Annual Meeting February 27- March 2, 2023 Boise, Idaho

President's Report – CONTINUED FROM PAGE 1

members of the Program Committee. I look forward to participating fully in their meetings leading to the meeting in 2023.

Importantly, we encourage members to submit proposals for symposia during the 2023 meeting. If you have ideas for a symposium or interested in organizing one, please contact the WSWs Education and Regulatory Chair, Jane Mangold (jane.mangold@montana.edu). Additionally, ideas for Section Discussion topics could be forwarded to the WSWs Research Section Chair, Harlene Hatterman-Valenti (h.hatterman.valenti@ndsu.edu) who will coordinate and forward your idea to the respective Project Section Chair. We continue to encourage members to submit nominations for awards to the Awards Committee Chair, Tim Prather (tprather@uidaho.edu). There are many deserving members that you could nominate for the awards.

All WSWs Ad Hoc Committees are continuing their tasks. As it was mentioned during the 2022 business meeting in Newport Beach, the society website is being revamped in order to keep up with current developments in technology including handheld gadgets. The committee led by Lynn Ingegneri (lynn.ingegneri@aims.net), Sandra McDonald, Eric Gustafson, and David Krueger (our webmaster and editor) are busy at work updating the website. The Diversity and Inclusion (D&I) Ad Hoc committee led by Elizabeth Mosqueda (elizabeth.mosqueda@scccd.edu) began the process of modifying the WSWs Operating Guide to make the language more inclusive. The committee formulated the WSWs Inclusive Language Guide that was presented at the summer board meeting. It is anticipated that the D&I Ad Hoc Committee will have a draft of the revamped operating guide for the board of director's review by the end of November 2022. The Invasive Species Ad hoc Committee co-chaired by D. Chad Cummings (chad.cummings@ag.tamu.edu) and Brian Meador (bameador@uwyo.edu) are currently in discussion for various opportunities. The committee worked closely with Matt Baur (mebaur@ucanr.edu) and Greg Dahl (GKDDahl@landolakes.com) our CAST representative to submit a CAST proposal to develop a publication to address invasive species and wildfires. The History Ad Hoc Committee chaired by Vanelle Peterson (other members –Phil Banks, Rod Lym, and Don Morishita) concluded their task and submitted the final report that is currently on the WSWs website.

The 2022 meeting Proceedings will soon be uploaded on the WSWs website. I take this opportunity to express our heartfelt and gratitude to Carl Libbey for the excellent work compiling and formatting the Proceedings over the years. Thanks to all WSWs members for actively taking part in society activities and I look forward to seeing most of you at the 2023 WSWs annual meeting in Boise, Idaho, February 27 to March 2, 2023.

Joel Felix, WSWs President

Contact Us

Newsletter Editor

Carl Libbey

wswnewslettereditor@gmail.com

WSWS Officers and Executive Committees

President

Joel Felix

Oregon State University

joel.felix@oregonstate.edu

Awards, Site Selection

President-Elect

Curtis Rainbolt

BASF Corporation

curtis.rainbolt@basf.com

**Program, Poster, Publications,
Student Paper Judging, Local
Arrangements**

Immediate Past President

Sandra McDonald

Mountain West Pest

sandra@mountainwestPEST.com

**Fellows & Honorary Members,
Sustaining Members,
Nominations**

Secretary

Joe Vassios

UPL NA, INC.

joseph.vassios@uniphos.com

Necrology

Treasurer

Phil Banks

Marathon Agricultural &

Environmental Consulting Inc.

marathonag@zianet.com

Finance

WSSA Representative

Alan Helm

Gowan Inc

AHelm@gowanco.com

Legislative

CAST Representative

Gregory Dahl
Winfield United
gkdahl@landolakes.com

**Member-At-Large -
Public Sector**

Sonia Rios
UC Cooperative Extension Riverside
& San Diego Counties
sirios@ucanr.edu

**Member-At-Large -
Private Sector**

Clarke Alder
Amalgamated Sugar
calder@amalsugar.com
Herbicide Resistant Plants

Research Section Chair

Harlene Hatterman-Valenti
North Dakota State University
h.hatterman.valenti@ndsu.edu

Research Section Chair-Elect

Marcelo Moretti
Oregon State University
marcelo.moretti@oregonstate.edu

**Education & Regulatory
Section Chair**

Jane Mangold
Montana State University
jane.mangold@montana.edu
Public Relations

**Education & Regulatory
Section Chair-Elect**

Misha Manuchehri
Oklahoma State University
misha.manuchehri@okstate.edu

Student Liaison Report – Grace Flusche Ogden

Hello WSWs Students,

I hope all of you had a productive, safe summer! The WSWs Board of Directors met on August 4th and 5th to discuss details of the annual meeting in Boise, ID. It is shaping up to be another great meeting. Keep an eye out for the student scholarship opportunities- the WSWs Elena Sanchez Outstanding Student Scholarship Award and the Rita Beard Endowment Fund both offer students funding for travel to the annual meetings. Both of these scholarships are great assets to our students! This is also a reminder that both of these scholarships benefit from the silent auction the WSWs students hold at the annual meeting- it's never too early to think of an item to submit to the silent auction. There was some great conversation about bringing in exciting silent auction prizes for the 2023 annual meeting, so I'd encourage everyone to consider if they have ideas for a silent auction prize and let me know how I can assist in making them happen.

If you have any suggestions for the future of WSWs from the perspective of students, please share them with me or Aaron Becerra-Alvarez. If you have a volunteering, engaging spirit WSWs has many committees that students can serve on. You can find more information on **committees here**. This is a great way to get involved in the society and network, plus the cost is generally a small amount of time!

The fall semester is quickly approaching, and I wish you all the best in your coursework and research.

Best regards,

Grace Flusche Ogden, Student Chair
gflusche@okstate.edu

Aaron Becerra-Alvarez, Student Chair (elect)
abecerraalvarez@ucdavis.edu

Student Paper and Poster Contest Announcement

Students planning to attend the 2023 WSWs Annual Meeting please consider participating in the Student Paper/Poster Contest. Participating in this event is a great way to share your research with the society, as well as an opportunity to receive valuable feedback to hone presentation skills and content. Top placing students in each division will be recognized at the WSWs business meeting, as well as receive a plaque and cash prize. Further details regarding the student contest eligibility, rules, and scoring procedures will be available in the fall newsletter.

-Clint Beiermann, Chair

Call for Papers and Posters

Curtis Rainbolt President-Elect/Program Chair

The 2023 joint Western Society of Weed Science (WSWS) and Western Aquatic Plant Management Society (WAPMS) meeting will take place February 27 through March 2 in Boise, Idaho at the Boise Centre and Grove Hotel.

Title and abstract submission opens October 1, 2022. Deadline for title submission is **December 1, 2022**, but abstracts may be entered and revised any time through mid February 2023. Please follow the guidelines when entering oral paper and poster titles. In particular, please use proper capitalization and use of periods as outlined on the title and abstract submission site: [WSSA Abstracts](#). Standardizing author and organizational names will help make a smoother program. Your cooperation on this is appreciated!

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 oral papers and posters divided into five projects: Weeds of Agronomic Crops, Basic Biology and Ecology, Weeds of Horticultural Crops, Teaching and Technology, and Weeds of Range, Forestry, and Natural Areas. 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.

WSWS oral paper presentations will be scheduled every 15 minutes in concurrent sessions. Maintaining a timely schedule is important for those who need to move between sessions. Therefore, presentations of 12 to 13 minutes are recommended to allow time for questions and transition to the next presenter. WAPMS oral paper presentations will be scheduled every 20 minutes. WSWS Poster size should not exceed 45-inches by 45-inches.

Annual Meeting Update

I am excited to invite you to the 2023 joint Western Society of Weed Science (WSWS) and Western Aquatic Plant Management Society (WAPMS) meeting in downtown Boise, Idaho. The meeting will commence with the WSWS/WAPMS members welcome reception at 6 pm on Monday, February 27 and conclude around noon on Thursday, March 2, 2023.

Meeting events will be held in the Boise Centre, and lodging will be at the Grove Hotel. The Boise Centre is a very short walk outside and around the corner from the Grove Hotel. The board of directors recently toured the facility during our summer meeting. The Boise Centre will provide lots of space and easy transition between sessions and events. In addition downtown Boise has a lot to offer. There are over 100 restaurants and breweries within a six block area, and the Boise Greenbelt, a 25-mile walking and biking path that follows the Boise River through the city, is just 4 blocks away.

Please plan on bringing your students to the meeting and encourage them to take the opportunity to participate in student oral presentation and/or poster contests as well as "Student Night Out" to visit with members from academic and industry settings.

On behalf of the 2023 Program and Local Arrangements Committees, we look forward to seeing all of you in Boise for what promises to be an excellent venue and an engaging meeting on the latest research, recommendations, and findings among a wide range of weed science topics.

Curtis Rainbolt President-Elect/Program Chair

Business Manager

Eric Gustafson

IMI

12110 Pecos St, Suite 220

Westminster, CO 80234

info@wsweedscience.org

Constitution & Operating Procedures

Representative

D. Chad Cummings

Texas A&M AgriLife Ext. Agent

chad.cummings@ag.tamu.edu

Webmaster & Web Editor

David Krueger

Apex WebStudio LLC

david@apexwebstudio.com

Student Liaison

Grace Ogden

Oklahoma State University

gflusche@okstate.edu

Student Liaison Chair-elect

Aaron Becerra-Alvarez

University of California, Davis

abecerraalvarez@ucdavis.edu

Executive Director of Science Policy

Lee Van Wychen

National and Regional Weed

Science Societies

5720 Glenmullen Place

Alexandria, VA 22303

(202) 746-4686

Lee.VanWychen@WSSA.net

Publications

WSWS ONLINE

EDUCATION

WSSA Journals Website
Online

CALENDAR OF EVENTS

**Canadian Weed Science
Society and Canadian
Society of Agronomy Joint
Annual Meeting**
Nov. 13 - 19, 2022
Halifax, Nova Scotia
www.weedscience.ca
www.agronomycanada.com

**North Central Weed
Science Society Annual
Meeting**
Dec. 5 – 8, 2022
St. Louis, Missouri
www.ncwss.org

**Southern Weed Science
Society Annual Meeting**
Jan. 23 - 26, 2023
Baton Rouge, Louisiana
www.swss.ws

**Weed Science Society of
America
and
Northeastern Weed
Science Society Joint
Annual Meeting**
Jan. 30 – Feb. 2, 2023
Arlington, Virginia
www.wssa.net
www.newss.org

**Western Society of Weed
Science and Western
Aquatic Plant Management
Society Joint Annual
Meeting**
Feb. 27 – Mar. 2, 2023
Boise, Idaho
www.wsweedscience.org
www.wapms.org

**Aquatic Plant Management
Society Annual Meeting**
Jul. 24 - 27, 2023
Indianapolis, Indiana
www.apms.org

2023 Call for Symposia

Jane Mangold, Education and Regulatory Chair

Members of the WSWs are invited to submit proposals for symposia at the 76th Annual Meeting to be held at The Grove Hotel/Boise Centre in Boise, Idaho from February 27 through March 2, 2023. The WSWs program committee will evaluate proposals based on justification and objectives, target audience, agenda, and budget. Submission of symposia of interest to WSWs or of interest to the local area is encouraged.

To submit a symposium proposal, please use the linked WSWs SYMPOSIUM PROPOSAL FORM. Proposals can be e-mailed directly to Jane Mangold at jane.mangold@montana.edu. Symposium proposals are due **Friday, September 30th** and will be evaluated by the Board of Directors for finalization in early October.

The program committee together with the WSWs Board of Directors may approve full or half-day symposia. An allowable budget of up to \$2000 can support travel and lodging expenses for invited nonmember speakers (honoraria will not be paid), symposia materials, or refreshments. Although funds have been budgeted for the symposia, the goal is to spend the least amount necessary to obtain excellent symposia speakers.

Abstracts of symposium presentations will be included in the proceedings. Symposium organizers are responsible for ensuring submission of titles and abstracts. We look forward to your symposia proposals. If you have any questions, please contact Jane Mangold (jane.mangold@montana.edu).

[Symposium Proposal Form_2023.docx](#)

Elena Sanchez Memorial WSWs Outstanding Student Scholarship Program

The Western Society of Weed Science is pleased to offer the WSWs Outstanding Student Scholarship to promote greater student participation at the WSWs annual meeting and encourage new weed science research and future weed science careers. Scholarships will be awarded to three outstanding undergraduate and/or graduate WSWs student members who will attend and present at the WSWs annual meeting.

A total of \$3,000 (three \$1,000 scholarships) will be awarded to outstanding undergraduate and/or graduate WSWs student members currently conducting research relevant to weed science. The scholarship money may be used to defray research costs, as a stipend, and for travel to the WSWs annual meeting. To ensure scholarship money can be used for travel to the annual meeting, selections will be made, and participants notified of the committee's decision by January 9, 2023.

Go to: [Elena Sanchez Western Society of Weed Science Outstanding Student Scholarship](#) for information and details on qualifications and how to apply. The deadline for applications is December 9, 2022. Applicants will be informed by January 8, 2023. If you have questions, contact Tim Prather, WSWs Awards Chair (timprather@uidaho.edu).

REQUEST FOR WSWS FELLOW AND HONORARY MEMBER NOMINATIONS

Dr. Edward Peachey, 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, 2022**

Send To:

Electronic submission preferred.

Edward Peachey

(541) 740-6712

ed.peachey@oregonstate.edu

2023 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 9, 2022**.

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 9, 2022**:

Timothy S. Prather
Department of Plant Sciences
University of Idaho
875 Perimeter Drive MS 2333
Moscow, ID 83844-2333
tprather@uidaho.edu

Exciting Personnel and Weed Biocontrol Updates from the Invasive Species and Pollinator Health (ISPH) Research Unit

The Invasive Species and Pollinator Health (ISPH) research unit is one of several USDA research laboratories that study exotic plant biology and develop tools for their control. The ISPH laboratory has a total of nine scientists, six of which conduct research on weeds. The laboratory is spread between two locations: two scientists working in Davis, California that focus primarily on aquatic weed biology and control and four scientists in Albany, California that study aspects of weed biological control. Both locations have unique facilities that allow scientists to accomplish their research objectives. The Davis lab is equipped with several arrays of variably sized tanks that can be used to study the influence of water temperature, salinity gradient, hydroperiod and herbicide levels on plant growth or survival. The Albany lab has a containment facility that allow for scientists to import exotic organisms and study their biology, host range and impact under controlled conditions to determine if they are suitable as biological control agents. Recent personnel changes and research advancements from the ISPH team include:

Two new scientists join the USDA's Invasive Species and Pollinator Health research team in Albany

Dr. Rebecca Mueller is a microbiologist that studies the bacteria associated with the roots of exotic weeds. Dr. Mueller joined the ISPH team in 2021 following a PhD at University of Oregon and postdoctoral stints at both Los Alamos National Laboratory and Montana State University. Her new research program investigates naturally occurring pathogenic or competitive bacteria that may limit exotic annual grass recruitment and survival. Dr. Mueller is particularly interested in using cheatgrass and medusahead as model systems to determine how weeds alter the soil environment and how biological control microbes interact with the resident microbial community (microbiome). A better understanding of these interactions could ultimately increase the spatial range and efficacy of microbial biological controls in invaded ecosystems.

Dr. Brian Rector has a distinguished career in weed biological control and recently joined the ISPH Albany lab in August 2022 from the USDA's nearby Great Basin Rangeland research unit in Reno Nevada. Dr. Rector has spent much of his career developing biological control of annual grasses like cheatgrass and medusahead, as described in the Winter 2021 issue of the WSWS Newsletter. His research in Albany will continue to focus on annual grasses, with an opportunity to test the safety of candidate biological control agents in Albany's containment facility. Additionally, Dr. Rector will continue work on some target weeds previously studied by Dr. Link Smith (retired) and Dr. Rector is also developing new monitoring tools for biological control agents.

New biological control agents established against arundo and Cape-ivy.

Dr. Patrick Moran began releasing a shoot tip-galling wasp, *Tetramesa romana*, widely against the giant grass known as arundo along rivers and creeks in northern California in 2017 and has now verified establishment at two sites in the Central Valley. The wasp has dispersed at least 4 miles from one of the release sites. Dr. Moran in 2016 began releasing a shoot-tip galling fly, *Parafreutreta regalis* for biocontrol of Cape-ivy, which invades riparian, forest and scrub habitats along the California coast. The fly is now established at six sites. Scientists continue to monitor the impacts of these insects on their target weeds to determine what role they may play in integrated weed management.

Retiring ISPH scientist Dr. Lincoln Smith introduces a new biological control agent to California to help reduce populations of yellow starthistle.

After undergoing extensive testing and obtaining regulatory approval, the rosette weevil (*Ceratapion basicorne*), was imported from Greece and multiplied in a laboratory colony at the ISPH laboratory in Albany, CA. More information on this weevil is available in the Winter 2020 issue of the WSWWS Newsletter. It has now been released at three sites in California (in Solano, Monterey and El Dorado counties, Figure 1), and Dr. Smith along with other scientists and land managers are monitoring how well it multiplies and spreads. This is the first new biological control agent released against yellow starthistle in almost 20 years. Weevils were released in the early spring, to allow time for females to lay eggs inside rosette leaves. Larvae hatch from these eggs and tunnel through leaves and into the taproot to feed and pupate. Adults emerge in late spring and summer, feed on leaves, and then look for places to hide until the following spring. It is hoped that the weevil, which develops inside the root of the immature rosette stage of the plant, will complement the previously released insect biological control agents, all of which attack the flower and seed heads, and reduce yellow starthistle over wide areas.



Figure 1: Dr. Lincoln Smith releases the yellow starthistle rosette weevil at a field site in California in March 2022.

Successful Dalmatian toadflax control in southern California.



Figure 2: Dalmatian toadflax at a site in southern California before (2008) and after (2020) release of the stem-boring weevil.

Biological control of Dalmatian toadflax with the stem-boring weevil *Mecinus janthiniformis* has been successful in many areas of the West but has not been widely implemented in California because the weevil can damage native tall snapdragon (*Antirrhinum virga*), found only in the coastal mountains of northern California. However, the weevil has spread on its own into northeastern California. Adult weevils feed on leaves and females lay eggs inside young stems in early spring. Larvae tunnel inside stems and pupate and overwinter there. Damage reduces flowering and seed production. In 2007, the California Department of Food and Agriculture (CDFA) permitted the use of this biological control agent in Los Angeles, Kern and Ventura Counties in southern California. CDFA released over 1000 weevils on lands managed by the Hungry Valley State Vehicle Recreation Area. By 2012, 100% of Dalmatian toadflax shoots were infested and weevils has dispersed over a quarter mile. But in May 2013 a wildfire wiped out the weevil population, and the weed rapidly recovered. In 2014, Dr. Lincoln Smith and Dr. Patrick Moran released over 1000 weevils. By 2017 100% of stems were again infested, with densities as high as 30 or 40 weevils per stem, well above the threshold of five

per stem needed for impact, and they had dispersed to non-release monitoring areas as before the fire. By 2019, Dalmatian toadflax cover had declined from 41% to less than 1%, a 99% decrease (Fig. 2) (summarized and Fig. 2 taken from an article in the Winter 2021/2022 issue of the California Invasive Plant Council *Dispatches* Newsletter and from Smith et al. 2021. *Biological Control* 163, 104663).

For more information on the research unit's current weed projects contact Dr. Paul Pratt.

CALL FOR 2023 RESEARCH PROGRESS REPORTS

The WSWs Research Progress Report is published to make significant new weed science research in the West available with the least possible delay. Early dissemination of weed research data is an important aid in formulating recommendations and in planning research. We encourage members of WSWs to submit pertinent new research data for publication in the Research Progress Report.

All reports must be submitted in a “camera ready” condition. The report must be prepared according to the specific directions outlined below. Reports that do not strictly adhere to the requirements will be returned to the author. The report will be rejected if there is not time to make the necessary changes.

Each contributor must:

1. Follow instructions carefully and completely.
2. Obtain two additional reviews of each report and have each reviewer *print their name* at the bottom of the index outline. The two reviewers can be anyone other than the senior author of the report. The two reviews are a requirement for publication.
3. Send the report(s) via e-mail with an index outline for each report. A blank index outline form is on **page 12**. Remember, the report will be printed as received.
4. Adhere strictly to the submission **deadline of January 10, 2023**. **Send an electronic copy** as a Microsoft Word file (doc or xdoc) or as an Acrobat file (pdf) attached via e-mail to trauch@uidaho.edu. **After submission, a reply will be sent upon receipt of a report. No reply means no report was received.**

Questions? Please contact: Traci Rauch
(208) 885-9709
trauch@uidaho.edu

GUIDELINES FOR RESEARCH PROGRESS REPORTS

WSWS will not retype or make typographical corrections on papers submitted for the WSWs Research Progress Report. It is the responsibility of the author to submit each report in a ready for publication condition following these guidelines:

FORMAT: Paper must be white 8.5 by 11 inch. Margins must be one inch on all sides. Please use **full justification** (this means both right and left margins are aligned). Type all text using **10 pt (Times New Roman)** font. All text should be single spaced. Either English or metric units are acceptable. However, do not mix English and metric units (Some exceptions may apply – e.g., CEC is expressed best in metric units as meq/100g). Do not type page numbers. Reports will be printed as received.

TITLE: Begin title at the left margin. Capitalize only the first letter of the first word. Underline the entire title. End the title with a period.

AUTHORS: Begin the authors name (first, middle initial, last) following the title of the paper. End list of authors with a period. Briefly list the author’s affiliation and mailing address in parentheses - e.g. (Weed Research Laboratory, Colorado State University, Fort Collins, CO 80523)

BODY OF TEXT: The report should clearly present the objectives of the research, methods, and results. Double space or indent between paragraphs.

Abbreviations: Use abbreviations as shown in the Scientific Style and Format: The *CBE Manual for Authors, Editors, and Publishers* and as commonly used in *Weed Science* or *Weed Technology*. Abbreviations for weeds can be used in the tables. **Do not abbreviate the word inch.** Do not place a period after the abbreviation unless its omission could cause confusion. Abbreviations not shown in the *CBE Manual (including Bayer codes)* should be introduced in parentheses immediately after their first use in the text or footnoted if used in a table.

Numbers: Use Arabic numerals for numbers with two or more digits and for measurements of time, weight, and degrees, except when the number is the first word of a sentence. Spell out numbers less than 10 or when they are the first word of a sentence, except when they constitute a series in which one number has two or more digits. Write 10 by 20 rather than 10 x 20 and 1 to 5 rather than 1-5 except in tables where space is limited. Use decimals instead of fractions (0.5, not ½). Place zero at left of decimal (0.5, not .5).

Plant names: Weeds can be appropriately identified in the text by using the WSSA-accepted common names [*Weed Science*, 32 (Supplement 2): 1984 with *Weed Science* 36:850-851, 1988; Composite List of Weeds, available from WSSA; or WSSA.net].

Chemical names: Herbicides can be properly identified by the WSSA-accepted common name (appears in the back of *Weed Science* Vol. 54 issue No. 6). Other herbicides may be identified by giving the code number followed by the chemical name in parentheses. Do not use trade names in the title of the paper. If the trade name of a chemical (herbicide or adjuvant) appears in the paper, the author must supply a suitable justification statement for using the trade name; this statement is to be given on the index outline.

Herbicide rates: Express rates as active ingredient (ai) or acid equivalent (ae) (whichever applies), not as formulated material. When necessary, it is appropriate to mention a specific formulation, such as the specific ester or salt utilized in the research.

TABLES AND FIGURES: Use **10 pt (Times New Roman)** font. If space is limiting, font size may be reduced to as low as 8 pt. Single-space all tables. **Table width should be the size of the paper with margins one inch on all sides.** Tables may be landscape or portrait. Type the word “Table” with an uppercase “T” at the top of the table and follow it with a period. Do not use a table number unless the report has more than one table. Please note the following in the example table at the end of the guidelines: a) the unit designation for each column is below the line; b) only the first letter in each column heading and treatment is capitalized; c) a zero precedes each decimal (0.5, not .5); d) herbicide common names are written out when possible and necessary herbicide abbreviations are spelled out in a footnote; and e) use + to indicate herbicide tank mixtures and / to indicate herbicide premixtures. Use superscript numbers (^{1,2,3}, etc.) to indicate footnotes for tables. Begin the word “Figure”, **below the Figure**, with a capital “F” and follow it with a period. Do not number the figure unless the paper has more than one figure. Figures that will reproduce well are acceptable.

INDEX OUTLINE: To enhance the publishing procedure, an index outline for each paper must be prepared by the author and submitted to the editors. The outline will include: Title of paper, author(s), Project, list of crops, list of weeds, list of herbicides, keywords, and reviewers’ names. Choose the appropriate Project for your report. Projects are: 1. Weeds of Range and Natural Areas; 2. Weeds of Horticultural Crops; 3. Weeds of Agronomic Crops; 4. Teaching and Technology Transfer; and 5. Basic Biology and Ecology. Authors must identify **weeds and crops by common and scientific binomial name and authority on the index outline.** Chemicals (herbicide and adjuvant) must be listed by common name **and trade name** or code number. Papers submitted without a **current** index outline will be returned. Attach the completed electronic index outline to the e-mail.

REJECTED REPORTS: Any report submitted that does not conform to the guidelines will not be published. Editors may, at their discretion, work with the author to correct the report if time permits.

INDEX OUTLINE FOR WSWs RESEARCH PROGRESS REPORTS
Complete one for each report.

1. TITLE:

2. AUTHOR'S NAMES:

3. CORRESPONDING AUTHOR:

Email

Phone number

Address

4. PROJECT (see choices under **INDEX OUTLINE**):

5. CROP(S) INVESTIGATED (List alphabetically by common name. **Include scientific binomial name plus authority**):

6. WEED(S) INVESTIGATED [List alphabetically by WSSA-approved common name. **Include scientific binomial name plus authority**. Many weeds can be found in COMPOSITE LIST OF WEEDS, 2017 update at WSSA.net]:

7. HERBICIDES AND **ADJUVANTS** INVESTIGATED (List alphabetically by common name or code number AND include **trade name**):

8. KEYWORDS (examples biocontrol, direct-seed, herbicide resistant). Do not include words listed above in crop, weed, herbicide or adjuvant:

REVIEWS BY TWO PERSONS IN ADDITION TO SENIOR AUTHOR: I have reviewed the attached report and find the content to be appropriate and presented in the proper style for publications in the WSWs Research Progress Report.

Name _____

Name _____

Title _____

Title _____

Affiliation _____

Affiliation _____

EXAMPLE: RESEARCH PROGRESS REPORT

Weed control in imidazolinone-resistant winter wheat with imazamox. Traci A. Rauch and Joan Campbell. (Plant Science Division, University of Idaho, Moscow, ID 83844-2339) A study was established in 'Fidel' imidazolinone-resistant winter wheat to examine weed control in 2001 and herbicide soil persistence in 2002 with imazamox. Wheat was seeded on October 3, 2000. Plots were 16 by 32 ft arranged in a randomized complete block design with four replications. All herbicide treatments were applied using a CO₂ pressurized backpack sprayer calibrated to deliver 10 gpa at 30 psi and 3 mph (Table 1). Wheat injury and weed control were evaluated visually on June 7, 2001. Wheat seed was harvested with a small plot combine on August 7, 2001. In spring 2002, each plot will be planted to spring barley and yellow mustard to evaluate soil persistence of imazamox.

Table 1. Application and soil data.

Location	Moscow, Idaho	
Application date	November 2, 2000	April 24, 2001
Wheat growth stage	1 leaf	3 to 5 tiller
Volunteer barley growth stage	2 leaf	2 to 3 tiller
Air temperature (F)	50	50
Relative humidity (%)	73	86
Wind (mph, direction)	2, E	4, E
Cloud cover (%)	30	10
Soil temperature at 2 in (F)	44	40
pH	4.7	
OM (%)	2.8	
Texture	loam	

No treatment visibly injured wheat on June 7, 2001 (data not shown). All treatments controlled volunteer barley 98% or better (Table 2). Wheat grain yield (89 to 99 bu/A) was better with all treatments compared to the untreated check. Test weight (56 to 60 lb/bu) did not differ among treatments or from the untreated check.

Table 2. Weed control, wheat yield and test weight with imazamox near Moscow, Idaho in 2001.

Treatment ¹	Rate lb ai/A	Application timing	Volunteer barley control %	Wheat	
				Yield bu/A	Test weight lb/bu
Imazamox	0.04	fall	99	96	60
Imazamox	0.08	fall	98	95	60
Imazamox	0.04	spring	99	99	59
Imazamox	0.08	spring	99	99	56
Imazamox + MCPA amine	0.04 + 0.25 ²	spring	99	95	59
Imazamox + thifensulfuron/tribenuron	0.016	spring	98	97	59
Untreated check			--	89	59
LSD (0.05)			NS	5	NS
Density (plants/ft ²)			1		

¹All treatments were applied with 90% nonionic surfactant (R-11) at 0.25 % v/v and 32% urea ammonium nitrate (URAN) at 1qt/A.

²MCPA amine rate is expressed as lb ae/A.

(EXAMPLE)

INDEX OUTLINE FOR WSWs RESEARCH PROGRESS REPORTS
Complete one for each report.

1. TITLE: Weed control in imidazolinone-resistant winter wheat with imazamox

2. AUTHOR'S NAMES: Traci Rauch and Joan Campbell

3. CORRESPONDING AUTHOR:

Email trauch@uidaho.edu
Phone number (208) 885-9709
Address University of Idaho
 PSES Dept.
 PO Box 442339
 Moscow, ID 28244-2339

4. PROJECT (see choices under **INDEX OUTLINE**): 3. Agronomic Crops

5. CROP(S) INVESTIGATED (List alphabetically by common name. **Include scientific binomial name plus authority**):

wheat, winter (*Triticum aestivum* L.)

6. WEED(S) INVESTIGATED [List alphabetically by WSSA-approved common name. **Include scientific binomial name plus authority**. Many weeds can be found in COMPOSITE LIST OF WEEDS, updated 2017 on WSSA.net]:

barley, volunteer (*Hordeum vulgare* L.)

7. HERBICIDES AND **ADJUVANTS** INVESTIGATED (List alphabetically by common name or code number AND include **trade name**):

imazamox (Beyond)
MCPA (MCPA 4 Amine)
non-ionic surfactant (R-11)

thifensulfuron (Harmony Extra XP)
tribenuron (Harmony Extra XP)
urea ammonium nitrate (URAN)

8. KEYWORDS (examples biocontrol, direct-seed, herbicide resistant). Do not include words listed above in crop, weed, herbicide or adjuvant:

persistence
plantback

REVIEWS BY TWO PERSONS IN ADDITION TO SENIOR AUTHOR: I have reviewed the attached report and find the content to be appropriate and presented in the proper style for publications in the WSWs Research Progress Report.

Name _____

Name _____

Title _____

Title _____

Affiliation _____

Affiliation _____

WASHINGTON REPORT

August 8, 2022

Lee Van Wychen

2022 Science Policy Fellow: Taylor Randell

The Weed Science Policy Fellowship program is a unique opportunity for graduate students to assist me in my role as Executive Director of Science Policy for WSSA while gaining experience dealing with a broad array of weed science policy issues. Our first of two Science Policy Fellows for 2022 is Taylor Randell at the University of Georgia.



Taylor is a third year Ph.D. student at the University of Georgia studying under the direction of Dr. Stanley Culpepper. Her dissertation research is focused primarily on weed management in cotton and vegetable production systems, along with quantifying PPO-resistance in Georgia Palmer amaranth. Prior to her Ph.D. work, she received a B.S. in Agriculture from Abraham Baldwin Agricultural College and an M.S. in Crop and Soil Science from the University of Georgia. Growing up on a family farm in Florida, Taylor understands the difficulties farmers face, especially with growing crops in complex production systems. She is passionate about learning more about science policy in order to help farmers navigate these challenges, while remaining economically and environmentally sustainable. Taylor is grateful for the ability to participate in the WSSA Science Policy Fellowship this year, and for the exposure and opportunities it provides.

FY 2023 Ag Research Budget Status

On June 23, the House Appropriations Committee approved its FY 2023 agriculture spending bill, H.R. 8239. The legislation includes \$27.2 billion in discretionary funding for USDA, FDA and related programs. Of this total, \$3.6 billion would be targeted to agricultural research programs. The Agricultural Research Service (ARS) would receive \$1.8 billion (+3 percent), and the National Institute of Food and Agriculture (NIFA) would get \$1.8 billion (+9 percent) in the House's bill. The Senate will begin marking up their fiscal 2023 bills after the July Fourth recess.

The six National and Regional Weed Science Societies have joined many other scientific societies and organizations in supporting the USDA AFRI Competitive Grants Program at its authorized level of \$700 million in FY 2023. Read the AFRI Coalition Letter:

<https://wssa.net/wp-content/uploads/FY23-AFRI-Coalition-Letter-final.pdf>

Likewise, the six National and Regional Weed Science Societies joined 50 other stakeholder organizations in urging House and Senate Appropriators to provide at least \$1.9 billion for salaries and expenses at USDA-ARS in FY 2023. Included in this joint request is \$112 million for the National Bio and Agro-Defense Facility (NBAF) and \$15 million for the new Big Data Initiative at ARS. Read the ARS support letter: <https://wssa.net/wp-content/uploads/FY23-ARS-support-letter.pdf>

Senate Confirms USDA REE Under Secretary Chavonda Jacobs-Young



On June 7, the Senate confirmed Dr. Chavonda Jacobs-Young to serve as Under Secretary for Research, Education, and Economics at USDA. Jacobs-Young was previously the administrator of the Agriculture Research Service, first appointed in February 2014.

Jacobs-Young is a native of Augusta, GA and earned a B.S. in paper science and engineering in 1989 from NC State. She also earned her M.S. in wood and paper science in 1992 and her Ph.D in paper science from NC State.

After completion of her Ph.D, she worked as an Assistant Professor of Paper Science and Engineering at the University of Washington from 1995 until 2002 when she joined USDA. She also worked as a senior policy analyst for agriculture in the White House Office of Science and Technology Policy.

Toombs Appointed Acting USDA-NIFA Director



Dionne Toombs has been appointed to serve as Acting Director of USDA NIFA following the departure of Carrie Castille. With over a decade of USDA service, Dr. Toombs has significantly contributed to USDA's agricultural research, education, and Extension services while serving in various leadership roles. Most recently, she was Director of the Office of the Chief Scientist (OCS). She served as the head of the Division of Nutrition at NIFA and as the National Program Leader (NPL) for the Agriculture Food and Research Initiative. Prior to serving as NPL, Dr.

Toombs was a Program Specialist for Food Science and Nutrition at the former USDA Cooperative State Research Education and Extension Service, now NIFA.

New Head of USDA-APHIS PPQ



Dr. Mark Davidson was appointed Deputy Administrator for APHIS Plant Protection and Quarantine (PPQ) in May 2022. APHIS PPQ's primary role is to safeguard U.S. agriculture and natural resources against the entry, establishment, and spread of economically and environmentally significant pests and diseases and facilitates the safe global trade of agricultural products.

Before joining APHIS in 1998, Davidson spent two years with USDA's Food Safety and Inspection Service. Then, after joining APHIS, he spent 19 years with Veterinary Services (VS) in various positions in the field, their regional office in Fort Collins, CO, and in Riverdale, MD. Davidson has a D.V.M. and master's degree in veterinary pathology from Auburn University and a B.S. in agriculture from Western Kentucky University.

Monarch Numbers Increase

The numbers are in and they are much greater – 2.84 hectares – than predicted. Experts were predicting as few as 0.8 hectares of monarchs overwintering due to the anticipated impact of the drought in much of the Upper Midwest last summer, the extreme temperatures in July and August in that region, and the later than average migration

Read more from Chip Taylor, Monarch Watch Blog: [**MONARCH WATCH**](#)

IR-4 Project Announces Winners of the 2022 SOAR Award

The SOAR Award honors external partners who exemplify the areas of Service, Outreach, Altruism, and Research (SOAR), while supporting specialty crop growers and the mission of the IR-4 Project. This year's winners have made significant impacts to their individual research areas and the specialty crop industry as a whole.

Dr. Stanley Culpepper – Professor and Extension Weed Scientist, University of Georgia

Dr. Stanley Culpepper with the University of Georgia was selected as a recipient of the SOAR Award for his commitment to the future of agriculture in the state of Georgia and throughout the country.

- **Service:** Dr. Culpepper goes beyond his research and extension duties to engage in policy actions on the state and national level that have led to the approval of needed pest management tools for specialty crop growers;
- **Outreach:** Dr. Culpepper has shown consistent dedication to educating the agricultural community about the work of the IR-4 Project;
- **Altruism:** Dr. Culpepper grew up on a farm and has a deep understanding of the challenges specialty crop growers and family farms face. He uses this unique perspective to fuel his passion for the future of agriculture; and
- **Research:** Dr. Culpepper's countless research trials and data reports, along with his willingness to conduct trials for IR-4, have generated necessary data for numerous label expansions.



Ann George – Director Emeritus, Hop Growers of America

Ann George with Hop Growers of America was selected as a recipient of the SOAR Award for her service to the domestic hop industry and her commitment to meeting the needs of specialty crop growers.

- **Service:** George is a founding member of the IR-4 Commodity Liaison Committee (CLC) and is known for her stellar work ethic and overall knowledge of the specialty crop industry;
- **Outreach** In addition to her work on the CLC, George has also served on the board of the Washington State Commission on Pesticide Regulation since its inception in 1995;
- **Altruism:** George is a respected source of information among her peers and is always willing to lend a hand and answer questions, volunteer her time and serve as a mentor; and
- **Research:** George manages the U.S. Hops Industry Plant Protection Committee and works with growers, commodity groups, brewers, and more to identify funds for needed research.



Dr. Joseph Neal – Professor of Weed Science and Extension Specialist, NC State University

Dr. Joseph Neal with NC State University was selected as a recipient of the SOAR Award for his commitment to solving pest management problems for ornamental and landscape growers.

- **Service:** Dr. Neal has been an active participant in IR-4's environmental horticulture and biopesticide programs for more than 25 years, working closely with various stakeholders and government entities to advance the needs of specialty crop growers;
- **Outreach:** Dr. Neal consistently educates commodity groups and clientele about the mission of the IR-4 Project;
- **Altruism:** Dr. Neal is committed to the welfare of others, both professionally and personally, through measures such as mentoring extension agents and specialists; and
- **Research:** Dr. Neal has worked on several research projects of regional and national importance that contributed data to most herbicides currently labeled for use on nursery and landscape plantings.



Dr. Edward Peachey – Associate Professor, Oregon State University

Dr. Ed Peachey with Oregon State University was selected as a recipient of the SOAR Award for his service to specialty crop growers in the state of Oregon and the Pacific Northwest.

- **Service:** Dr. Peachey actively voices the needs of Oregon farmers through his role as the state liaison for IR-4;
- **Outreach:** Dr. Peachey has built a reputation among growers as a reliable and knowledgeable source for identifying pest management problems and investigating solutions;
- **Altruism:** Dr. Peachey is dedicated to solving pest management problems and has taken on any tasks necessary to make a significant number of product registrations a reality; and
- **Research:** Dr. Peachey has an extensive research record, including undertaking approximately 80 weed science and entomology IR-4 studies that have directly contributed to new or expanded labels.



Weed Science Societies Support BLM's Intent to Approve Eight Herbicides

The presidents of the National and Regional Weed Science Societies submitted a joint letter to the Bureau of Land Management (BLM) supporting their notice of intent to prepare a Programmatic Environmental Impact Statement (PEIS) for approval and use of aminocyclopyrachlor; clethodim; fluazifop-p-butyl; flumioxazin; imazamox; indaziflam; oryzalin; and trifluralin on public lands. Read the letter of support: https://wssa.net/wp-content/uploads/Support-for-BLM-NOI-to-Prepare-PEIS-8-Herbicides_May-3-2022.pdf

Do You Suffer From "Plant Blindness"?

Can you recall any of the plants you saw today? As weed scientists, hopefully yes! But there is a shortage of botanists and other experts with knowledge of plant ID. To read more, please see "Botanists are disappearing – just when the world needs them most" by Annika Geijer-Simpson: <https://theconversation.com/botanists-are-disappearing-just-when-the-world-needs-them-most-186849>

Say Sooeey to Palmer Pigweed

WSSA's first Excellence in Journalism award winner, Pam Smith, with DTN Progressive Farmer, wrote an excellent article on how to identify Palmer amaranth, agriculture's most troublesome weed, from some of its other *Amaranthus* cousins.

<https://www.dtnpf.com/agriculture/web/ag/crops/article/2022/08/01/time-sort-aggressive-palmer-amaranth>

2023 Farm Bill

We have worked with the NAISMA legislative committee to advance four invasive species policies for the 2023 Farm Bill. See: https://naisma.org/wp-content/uploads/2022/03/2022NISAW_positionpaper_FarmBill.pdf

Our top recommendation is to update the definition of plant pest to include all noxious weeds, not just parasitic plants. Currently, under 7 USC 104 Section 7702: the term "**plant pest**" means any living stage of any of the following that can directly or indirectly injure, cause damage to, or cause disease in any plant or plant product:

- | | |
|--|---|
| (A) A protozoan. | (F) A virus or viroid. |
| (B) A nonhuman animal. | (G) An infectious agent or other pathogen. |
| (C) A parasitic plant noxious weed . | (H) Any article similar to or allied with any |
| (D) A bacterium. | of the articles specified in the preceding |
| (E) A fungus. | subparagraphs. |

NISAW: February 20-26, 2023

National Invasive Species Awareness Week (NISAW) will be digital again next year according to NAISMA. If you have topics or issues of concern, or would like to help plan next year's NISAW, please let me know. Lee.VanWychen@wssa.net

Lee Van Wychen, Ph.D.
Executive Director of Science Policy
National and Regional Weed Science Societies
Lee.VanWychen@wssa.net
(202) 746-4686

Rita Beard Foundation Scholarship

The Western Society of Weed Science's Rita Beard Endowment Foundation Scholarship supports students and early career invasive species managers with educational opportunities by providing registration and travel funds to a professional meeting including the Western Society of Weed Science, North American Invasive Species Management Association, Western Aquatic Plant Management Society, or the Society of Range Management meetings. Go to: <https://wsweedscience.org/student-resources/> for information and details on qualifications and how to apply. The deadline for applications is December 9, 2022. Applicants will be informed by January 9, 2023. If you have questions, contact Tim Prather, WSWS Awards chair (timprather@uidaho.edu).

Publications Available from the WSWS

The following books or DVDs can be purchased from the WSWS:

Aquatic and Riparian Weeds of the West
Weeds of California and Other Western States
Interactive Encyclopedia of North American Weeds DVD
Weed Bingo

All publications can be ordered online at <https://wsweedscience.org/store/#!form/Store>. Contact the Business Manager (Eric Gustafson) at (303) 327-8016 for bulk order prices.

Online course: Herbicide Physiology (PSPP 546) • Aug. 24–Dec. 15, 2022

- Explore the fundamental physiology, biochemistry, and molecular biology of herbicides and their effects on plants.
- Understand how herbicide resistance evolves and its physiological mechanisms, and
- Learn about practical herbicide resistance management strategies.

3 graduate credits • See web for pre-requisites, tuition and admission guidelines.

Instructors include:

William Dyer (lead)
Plant Sciences & Plant Pathology, Montana State University

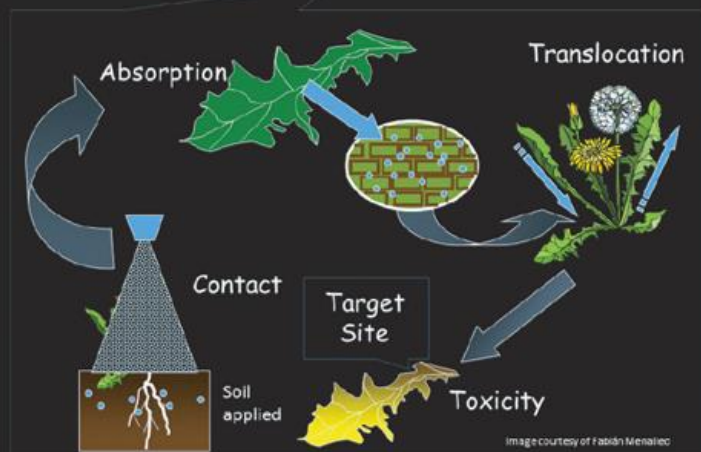
Erin Burns
Crop & Soil Sciences, Michigan State University

Dean Riechers
Agronomy, University of Illinois

Tracy Sterling
Land Resources & Environmental Sciences, Montana State University

Sarah Ward
Soil & Crop Sciences, Colorado State University

Herbicide Mode of Action



2022 Membership Renewal Form

To pay by credit card, please go to www.wsweedscience.org and login to your account

IF YOU DID NOT ATTEND THE ANNUAL MEETING BUT WANT TO REMAIN A MEMBER, FILL IN THE INFORMATION BELOW AND SEND \$30.00 FOR DUES TO THE ADDRESS PROVIDED.

Last name	First name	Affiliation	
Mailing address	City	State	Zip code
Phone # w/area code	e-mail address		

Classification: Student ___ University ___ Federal Agency ___ State Agency ___
Private Industry (manufacturing and sales) ___ Private Industry (consulting) ___
Unemployed ___ Retired ___ other (specify) _____

Send to: WSWS/IMI,
12110 Pecos St., Ste 220,
Westminster, CO 80234

Questions? info@wsweedscience.org or (303) 327-8016

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
12110 Pecos St., Ste. 220
Westminster, CO 80234

