



Western Society of Weed Science Newsletter

12110 N Pecos Street, Ste. 220, Westminster, CO 80234
(303) 327-8016
info@wsweedscience.org

FALL 2019

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President's Report - by Pat Clay

In the Fall 2018 WSWs Newsletter, Andrew waxed poetically about snow fall in Laramie and crisp autumn air. Well, fall is coming to Fresno as well, and the air is not quite crisp, some leaves might be starting to change, and snowfall is pretty much out of the question.

However, while fall is different across the great expanse of the West, change is happening. It is also happening across the private and public sector landscape. Our industry is changing with company mergers and reorganization and I am sure that many of you are seeing similar change at the Federal, State, and local levels of the public sector. What's my point? While there is change and uncertainty around us, WSWs remains a solid foundation for the advancement of Weed Science. I hope all of you looking forward to the joint WSWs/WSSA Annual Meeting as much as I am - something that is steady in the midst of change. Corey Ransom and Bill Curran (Program Chairs) have been putting in a lot of work to bring both organizations together for a successful annual meeting. Please register, submit papers and posters, and book your rooms (at the conference hotel please) as I am sure you find great value in the meeting content as well as the stellar location.

Not a lot has changed with Lee Van Wychen, it is a blast to observe the energy that he puts into his work on behalf of WSSA and WSWs (and other regional societies). I wanted to highlight his efforts surrounding the public comment periods for the Glyphosate Interim Registration Review and on Pesticide Synergy. In case you missed it, Lee was also instrumental in bringing Weed Bingo to reality. "Weed Bingo is a fun game that blends a bit of science with interesting and unusual facts about some of the world's most common and troublesome weeds". Buy yours today for \$14.95 + \$5.00 Shipping and Handling at [WSWS Bookstore](#). Sorry for the commercial, but it does benefit WSSA and the regional societies!

Change and elections! No, I am not going to go political on you, but WSWs does have a slate of new officers up for your vote. Please follow the link that you received in a recent email or go to the Members-Only section of the web-site, log in, and vote. Jane Mangold and the nomination committee have put together a great slate of potential officers for you to consider. If you don't know them already, biographies are provided to give you some background information on each candidate. Candidates are: President Elect, **Greg Dahl**

CONTINUED ON PAGE 2

WSSA/WSWS Joint Meeting March 2-5, 2020 Maui, Hawaii

President's Report – CONTINUED FROM PAGE 1

(WinField United) and **Sandra McDonald** (Mountain West PEST); Research Section Chair-Elect, **Dr. Judit Barroso** (Oregon State University) and **Dr. Derek Sebastian** (Bayer CropScience); Education and Regulatory Section Chair-Elect, **Dr Nevin Lawrence** (University of Nebraska-Lincoln) and **Dr. Carl Coburn** (Bayer CropScience); and Secretary, **Dr. John Madsen** (University of California-Davis) and **Dr. Joe Vassios** (United Phosphorus, Inc.).

Each year, we send out a call for nominations for various awards. Please think about deserving individuals that you have worked with in the society and consider nominating them for an award – Fellows, Honorary Members, Outstanding Weed Scientists and Distinguished Service Awards. I have talked a lot about change in this newsletter but consider nominating someone for an award that has contributed greatly to Weed Science and has helped keep WSWs rock solid.

2020 Annual Meeting Update

Welcome to the 2020 joint Weed Science Society of America (WSSA) and Western Society of Weed Science (WSWS) Annual Meeting at the Hyatt Regency Maui Resort and Spa. This venue is set upon 40 oceanfront acres on Maui's Ka'anapali Beach offering many activities including great beaches and numerous water sports, spa/fitness center, access to oceanfront golf, stargazing, and much more. Pre-conference events will include whale watching and a tour of Haleakala National Park.

At this year's meeting, we are encouraging a more resort casual dress code; tropical/Hawaiian attire would be great! Most committee meetings will take place on Monday, March 2 in the morning or afternoon with some scattered on other days during the week. Check with your committee chairs for the exact time and location. The General Session and WSSA/WSWS Awards Ceremony will begin Monday at 4:00 PM in the Monarchy Ballroom. Our General Session will begin with a welcome and opening remarks from Dr. Sam Gon, senior scientist and cultural advisor for the Nature Conservancy of Hawaii. Dr. Gon is a native of Hawaii and has 40 years of experience in numerous conservation and land management projects. We are excited to have Dr. Gon join our meeting. Presidents Larry Steckel (WSSA) and Pat Clay (WSWS) will collaborate on the presidential address to the membership. The Awards Ceremony will include presentations of the WSSA and WSWS Annual Awards. Be sure to attend this session to help recognize all the awardees. Following the Awards Ceremony, WSSA/WSWS will host an awards reception beginning around 6:00 p.m. All registered attendees are welcome and encouraged to attend. Please be sure spouses and friends that accompany you have registered so that they may attend this fun event.

As in the past, we will begin Tuesday morning with the Poster Session and will again have multiple breakout sessions throughout the week with presentations addressing invasive plants in natural areas to the genetics of herbicide resistance to the latest herbicide technology. We think we have something for everyone. Also, join us for the 3rd WSSA Women in Weed Science Networking Event tentatively targeted for Tuesday at noon. In 2019, a network of mentors and

Contact Us

Newsletter Editor

Carl Libbey

225 S. 10th ST

Mount Vernon, WA 98274

(360) 336-5286

wswsnewslettereditor@gmail.com

WSWS Officers and Executive Committees

President

Pat Clay

Valent

7498 N. Remington Ave

Suite 102

Fresno, CA 93711

Pat.Clay@valent.com

Awards, Site Selection

President-Elect

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

Immediate Past President

Andrew Kniss

University of Wyoming

1000 University Ave

Laramie, WY 82071

akniss@uwyo.edu

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

Secretary

D. Chad Cummings

Dow AgroSciences

382 W FM 1753

Bonham, TX 75418

dccummings@dow.com

Necrology

WSSA Representative

Marty Schraer

Syngenta Crop Protection

152 E Cassidy Drive

Meridian, ID 83646

marty.schraer@syngenta.com

Legislative

CAST Representative**Brian Jenks**

North Dakota State University
5400 Hwy 83 S.
Minot, ND 58701
brian.jenks@ndsu.edu

**Member-At-Large
Public Sector****Lynn Sosnoskie**

University of California - Davis
Dept. of Plant Sciences
Davis, CA 95616
lynn.sosnoskie@gmail.com
Finance

**Member-At-Large
Private Sector****Ryan Rapp**

Bayer CropScience
40660 252nd St
Mitchell, SD 57301
ryan.rapp@bayer.com
Herbicide Resistant Plants

Research Section Chair**Brian Mealor**

University of Wyoming
3401 Coffeen Ave
Sheridan, WY 82801
bamealor@uwyo.edu

Research Section Chair-Elect**Mithila Jugulam**

Kansas State University
Dept. of Agronomy
2004 Throckmorton
Manhattan, KS 66506
mithila@ksu.edu

Education Section Chair**Joel Felix**

Oregon State University
595 Onion Ave
Ontario, OR 97914
joel.felix@oregonstate.edu

**Education
Public Relations****Education Section Chair-Elect****Todd Neel**

USDA Forest Service
26 Fort Missoula Rd
Missoula, MT 59806
toddaneel@fs.fed.us

mentees was created, and we look forward to a time of connection, reflection, and support at the 2020 annual meeting. All female attendees at the conference are welcome to attend the event, just sign up when you register so we have a seat for you!

We are again conducting MS and PhD student poster and oral presentation contests. However, a new oral competition event is being offered in 2020 to both WSSA and WSWS students. This will be a Three-Minute Thesis Research Communication Competition (3MT™) developed by the University of Queensland, Australia (<https://threeminutethesis.uq.edu.au/>). It provides students with the opportunity to profile their research and enhance communication skills. A separate document will be available describing this activity in more detail including how students will be judged and the rules for the competition. A joint WSSA/WSWS student luncheon will take place on Wednesday where the students will conduct business and have a facilitated session focused on some issues that students face in graduate school. And finally, the student awards ceremony will take place late Wednesday afternoon followed by an organized "Students Night Out", so there should be plenty of opportunities for our students to contribute in the 2020 meeting.

Tuesday through Thursday, we are going to host five symposia related to important and impactful subjects that need attention in Weed Science. These include: 1) Genomics of Weedy and Invasive Species - 2025 and Beyond, 2) The Ecological and Biodiversity Impact of Invasive Grass Species and Their Management, 3) 2020 Vision for Hawaiian Invasive Plant Management, 4) The Role of Intelligent Machines in Weed Management, and 5) Toxicology and Weed Science. The WSSA and WSWS will both host separate business meetings early Thursday morning. We hope that all members will attend their respective meeting to participate in the decision-making process on societal issues and board activities. Most professional activities will end by noon on Thursday but check the schedule once it is announced as a few things such as WSSA Board of Directors and a committee meeting or two may run into Thursday afternoon.

Special thanks to our Local Arrangements Chair, Dr. James Leary. Although he relocated to Florida from Hawaii last year, he has been very helpful with developing the program. In addition, thanks to Josh Atwood with the Hawaii Invasive Species Council in helping to identify our Keynote speaker. We would also like to thank Drs. Marty Schraer and Darrin Dodds for their help in organizing the student contests. Thanks also to Drs. Larry Steckel, Anita Dille, Scott Senseman, Pat Clay, and Andrew Kniss for their help and guidance in preparing the program. We had a tremendous group of loyal and committed folks who submitted great symposia ideas this year, some of which we could not accommodate but hope to have back in 2021 in San Antonio. We thank all our Section Chairs for helping to organize the program and our WSSA/WSWS meeting manager and executive secretary, Eric Gustafson, for his commitment to ensure a successful meeting. We are excited about the great participation and the many opportunities to exchange scientific information on weed science research, education and extension. We look forward to a productive and rewarding meeting.

Bill Curran WSSA Program Chair and President-Elect

Corey Ransom WSWS Program Chair and President-Elect

Student Liaison Report — Lucas Bobadilla

Greetings Students,

I would like to thank everyone who applied for the Elena Sanchez Memorial Outstanding Student Scholarship. We had a total of 12 applications this year, which was twice as much when compared with last year's applications! However, we can always increase this number, so make sure to apply to it if you didn't. Also, please Principal Investigators continue to encourage your students to apply as well. Applicants should expect a response from the awards committee by the end of October.

Funding for this scholarship is supported by our student silent auction. Each year our goal is to raise \$3,000 to fund the scholarship program fully. I will soon be sending out requests for donations for our upcoming student silent auction. Please contact Mirella or me if you know of any possible groups that would want to donate items to our silent auction. This year, we are also using a crowdfunding website to collect monetary donations(<http://tiny.cc/2uopez>). Please share with others this link in case you know someone or some company that would like to give a monetary donation. If you prefer to use another method for monetary donations, please contact Mirella or me.

I will again take this opportunity to promote student involvement in the society. If you plan to be involved in the WSWs for the next two years, I would strongly recommend running for the student liaison position. The first year is focused on learning the role by assisting the chair. The second year is spent as chair, with the primary responsibility as representing the concerns of student members to the WSWs board. Serving in this position has been an enjoyable experience and has helped me to learn even more about the society. I will be sending out a call for nominations for the student liaison position before the annual meeting.

There are other ways to be involved. Consider serving as the student representative to the judging committee. This is a one-year commitment, and the purpose is to bring the student's perspectives before the judging committee. Students also have the opportunity to sit in on any committee of interest. Don't forget to follow us on Facebook (www.facebook.com/WSWSStudentSection) and Twitter (@WSWSstudents)! I will be sending out more information on important deadlines as our annual meeting approaches.

I hope everybody is doing ok with their research and I am looking forward to seeing everybody in Maui next year!

Best regards,

Lucas K. Bobadilla, Student Liaison Chair
Lucask3@illinois.edu

Mirella F. Ortiz, Student Liaison Chair Elect
mirella@rams.colostate.edu

Business Manager-Treasurer

Eric Gustafson

IMI

12110 Pecos St, Suite 220

Westminster, CO 80234

info@wsweedscience.org

Constitution & Operating Procedures Representative

Tim Miller

Washington State University

16650 SR 536

Mt. Vernon, WA 98273

twmiller@wsu.edu

Webmaster & Web Editor

David Krueger

Apex WebStudio LLC

PO Box 91235

Raleigh, NC 27675

david@apexwebstudio.com

Student Liaison

Lucas Bobadilla

Oregon State University

3227 NW Orchard Ave

Corvallis, OR 97330

lucas.kopecy-

bobadilla@oregonstate.edu

Student Liaison Chair-elect

Mirella Ortiz

Colorado State University

1179 Campus Delivery

Fort Collins, CO 80523

mirella@colostate.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

<http://passel.unl.edu/pages/index2col.php?category=weedscience#>

WSSA Journals Website Online

www.wssa.net/publications/

CALENDAR OF EVENTS

Canadian Weed Science Society Annual Meeting

Nov. 18-21, 2019

Kelowna, British Columbia
www.weedscience.ca

North Central Weed Science Society Meeting

Dec. 10-13, 2019

Columbus, Ohio
www.ncwss.org

Northeastern Weed Science Society Annual Meeting

Jan. 6-9, 2020

Philadelphia, Pennsylvania
www.newss.org

Southern Weed Science Society Annual Meeting

Jan. 26 -30, 2020

Biloxi, Mississippi
www.swss.org

Weed Science Society of America and the Western Society of Weed Science Joint Annual Meeting

Mar. 2- 5, 2020

Maui, Hawaii
www.wssa.net
www.wsweedscience.org

The 8th International Weed Science Congress "Weed Science In a Climate of Change"

June 21- 26, 2020

Bangkok, Thailand
www.iwsc2020.com

Aquatic Plant Management Society Annual Meeting

July 19-22, 2020

San Antonio, Texas
www.apms.org

CALL FOR PAPERS

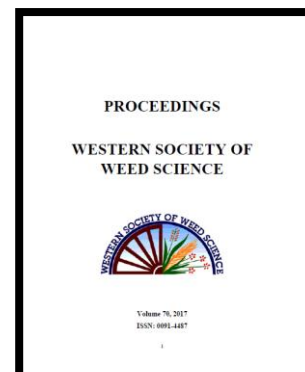
2020 Joint WSSA/WSWS MEETING

Annual Meeting of the WSSA/WSWS
Maui, Hawaii • March 2-5, 2020

You are invited to submit titles and abstracts for papers and posters to be presented at the WSSA/ WSWS Joint Meeting in Maui, Hawaii March 2-5, 2020 - Monday to Thursday. Information and instructions for submitting papers and posters can be found via the WSSA and the WSWS websites: [2020 Call for Papers](#).

2017 Proceedings

Proceedings Editor, Bill McCloskey, has posted the Proceedings from the 2017 Coeur d'Alene, Idaho 70th annual meeting of the Western Society of Weed Science to the WSWS website. You can view or download the Proceedings by following this link: [WSWS 2017 Proceedings](#)



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 [WSWS Bookstore](#). Contact the Business Manager (Eric Gustafson) at (303) 327-8016 for bulk order prices.

Developing Biological Control Options for Flowering Rush

Jennifer Andreas, Washington State University Extension
Patrick Häfliger, CABI – Switzerland
Carol Ellison, CABI – United Kingdom
Hariat Hinz, CABI – Switzerland

Flowering rush, *Butomus umbellatus* L., is an aggressive invasive plant that rapidly colonizes freshwater aquatic systems. It is becoming an increasing concern in many North American states and provinces and is poised to become a substantial problem in several major waterways, despite ongoing eradication efforts. With both emergent and submersed growth forms, flowering rush can create dense stands and dominate from the shoreline to depths of 20 feet. Through rhizome fragments and rhizome buds, it can quickly disperse and colonize new areas with the assistance of water movement. Flowering rush is considered an ecosystem engineer for its ability to alter habitats by sediment accretion. It affects irrigation and dam power management and recreational activities such as swimming, fishing and boating. Preliminary data suggests that native aquatic plant communities, and the fish and wildlife that depend on them, are also impacted. Specifically, flowering rush appears to provide excellent habitat for invasive northern pike which predate on native salmonid species.



Flowering rush in bloom at a pond in western Washington.

In 2016, a coordinated effort to manage flowering rush began in the Columbia Basin with the formation of the Columbia Basin Cooperative Weed Management Area (CBCWMA). The CBCWMA was designed to bring together partners from throughout the basin to develop an integrated weed management plan for controlling flowering rush, thereby increasing the likelihood of success in managing for healthy habitats. A management plan that outlines these efforts was published in summer 2019 and is available at <http://columbiabasinwma.org/flowering-rush-management-plan/>.

Flowering rush is extremely difficult to control once established and, with its ability to rapidly disperse, new sites are being found every year. Although appropriate chemical and mechanical control methods continue to be explored, they have thus far been relatively ineffective, creating concerns that the populations will continue to expand and spread without restriction. In looking for possible alternative control methods, the Flowering Rush Biocontrol Consortium (FRBC) was formed and a biocontrol research and development program was initiated in 2013. The FRBC consists of many state and provincial partners that have pooled resources to fund CABI Switzerland and United Kingdom (UK) to conduct field surveys, host-specificity tests, and impact studies of potential biocontrol agents.

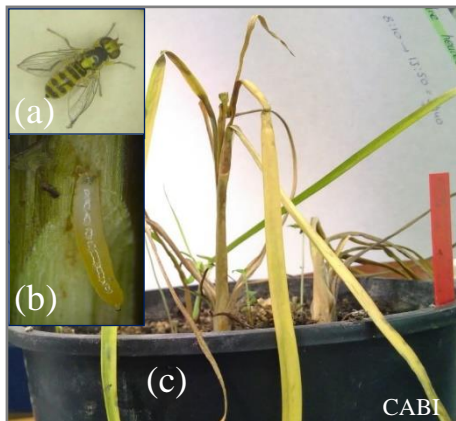
Flowering rush is an excellent candidate for biocontrol because it is the sole genus and species within the family Butomaceae. This increases the probability of finding a host-specific biocontrol agent, and likely reduces the number of test plant species required for host-specificity testing. CABI Switzerland has surveyed populations of flowering rush in the Czech Republic, France, Georgia, Germany, Hungary, Kazakhstan, the Netherlands, Poland, Serbia, Slovakia, Switzerland and the UK. Three potential

biocontrol agents have been identified, including a rhizome- and leaf-mining weevil (*Bagous nodulosus*), a stem/leaf-mining fly (*Phytoliriomyza ornata*), and a white smut (*Doassansia niesslii*).

Bagous nodulosus adults feed on leaf material, spending much of their time underwater. The larvae mine the leaves and rhizomes and in 2017, it was discovered they can exit plants and swim to infest surrounding flowering rush material. Sequential no-choice oviposition tests (i.e. exposing female weevils to nontarget test plant species to determine if they will consider it suitable for egg-laying) were conducted in 2014-2018 on 45 test plant species to ensure non-target species are not at risk. With only one incidence of an egg being laid on a European species, *Baldellia ranunculoides*, it appears that the beetle is highly host-specific. Given the mobility of the larval stage, no-choice larval establishment tests were conducted in 2018 and 2019 to assess acceptance of nontarget species. Limited larval feeding was only observed on two species so far; *Hydrocharis morsus-ranae* (native to Europe) and *Limnobium laevigatum* (native to South America). Host-specificity tests are expected to be completed in 2020. In addition, studies are underway to assess the weevil's impact on flowering rush.



Bagous nodulosus resting underwater on flowering rush.



Flowering rush plants attacked by the stem-mining agromyzid fly, *Phytoliriomyza ornata*, wilted within three weeks after exposure to a single female for three days. Preliminary host-specificity tests began in 2019. Thus far, no nontarget species were accepted, however testing will continue over the next several years to confirm.

Phytoliriomyza ornata adult (a), larva (b), and damage to flowering rush (c).

Finally, the white smut fungal pathogen, *Doassansia niesslii*, is highly host-specific and very damaging to flowering rush, including submergent plants. Additional surveys in the natural range of flowering rush will be required to find a white smut on the flowering rush genotype most common in North America. Continued research on this potential biocontrol agent will take place in coming years.

Results of the overseas work to explore biological control for flowering rush look very promising. A petition for field release of the first biocontrol agent, *Bagous nodulosus*, is expected to be submitted soon. If you are interested in receiving information about the project, contact jandreas@wsu.edu to join our listserv.



Doassansia niesslii tissue damage.

STUDENT PAPER AND POSTER CONTEST INFORMATION

Carl Coburn – Chair

The Student Paper and Poster Contest at the Western Society of Weed Science Annual Meeting provides an excellent opportunity for students to improve presentation skills and increase visibility within the society. For each division of the contest, the top students are recognized with a plaque and a cash award to honor their achievement.

- Undergraduate students may enter one poster **OR** one paper in the contest. For **ALL** undergraduate students participating in the contest, please notify me at carl.coburn@bayer.com with your choice of contest.
- If students entering the contest do not wish to be judged (i.e. considered for awards), but would still like to receive feedback on their presentations, please notify me at carl.coburn@bayer.com ahead of the annual meeting.
- Contest rules and scoring criteria can be found at <https://www.wsweedscience.org/> on the “Student Resources” page.

Judges Invitation

As the chair of the 2020 Student Paper and Poster Contest, I am soliciting non-student volunteers to participate as judges for this competition. Everyone who has been involved with the student contest will attest that volunteer judges are the foundation for a successful contest. Your willingness to judge provides great value to the students and the society. Your time and input help to insure we provide students every opportunity to excel as weed scientists. If you are interested in volunteering, please contact me by email or phone: carl.coburn@bayer.com or (513-257-4120). I look forward to hearing from **YOU!**

Attention to Advisors and Students

The WSWS Student Paper and Poster Contest committee will be enforcing the below policies. The committee is focused on making the contest a fair and enjoyable experience for all students;

- **Information presented in the WSWS Student Paper and Poster Contest must be original and unique.** If a topic has been used by the author in another presentation at a different weed science society meeting, additional data must be included to constitute a unique presentation.
- Students attending institutions in states that are not WSWS members may enter and receive evaluation but will not be considered for awards.
- All students entering the contest are required to submit an abstract not to exceed 250 words (word count in Microsoft Word). All abstracts exceeding 250 words will be docked points accordingly.

STUDENT CONTEST INFORMATION

ELIGIBILITY

1. Any student who is a WSSA/WSWS member and has registered to attend the current annual meeting is eligible to compete in the poster or oral presentation contest. WSSA will not be

hosting a 15-minute oral presentation contest in 2020 but will offer a new activity (see below). WSWs will still offer their students the opportunity to participate in a 15-minute oral presentation contest. WSWs students may present in the WSWs oral contest or the Three Minute Thesis Research Communication Competition contest but not both.

2. A new event is being offered to both WSSA and WSWs students at the 2020 meeting. This will be a Three-Minute Thesis Research Communication Competition (3MT™) developed by the University of Queensland, Australia (<https://threeminutethesis.uq.edu.au/>). It provides students with the opportunity to profile their research and enhance communication skills. A separate document will be available describing this activity in more detail including how students will be judged and the rules for the competition.

3. Students are eligible for participation in the Student Poster Contest and Three-Minute Thesis Competition multiple times during a M.S. program and a Ph.D. program; however, a student cannot participate in both the oral presentation contest and poster presentation contest during the same annual meeting.

4. A student can only win 1st place in the poster or oral presentation contest once per degree program. Once a student places 1st in a given contest (i.e. oral, three-minute thesis, or poster presentation contest), they are no longer eligible to compete in said contest during the course of their current degree program. A student may win 1st place in the poster presentation contest and 1st place in the oral presentation contest while in a M.S. or Ph.D. program; however, a student may not enter both contests at the same annual meeting. A student may win 1st place in the poster or oral presentation contest in the M.S. degree program and then compete and win 1st place for an oral or poster presentation while in a Ph.D. degree program.

RULES AND PROCEDURES

1. Notice of the contests will be included with the Call for Papers.

2. A contestant may enter the poster or oral presentation contest multiple years per degree program. Persons who have graduated from a degree program (M.S. or Ph.D.) and are actively pursuing an additional degree may only enter the contest for that degree program during the first annual meeting following graduation.

3. Contestants will indicate in the title submission that they wish to enter either the poster or oral presentation contest. Title and contest declaration must be turned in by the deadline that title submissions are due. If a contestant does not turn in a title and contest declaration by the time that title submissions are due, they will be ineligible for the contest unless the Student Program Chairperson declares the student eligible based on student's situation. ABSTRACTS FOR CONTEST PRESENTATIONS must be submitted electronically by February 17th, 2020. This allows time for the committee to prepare copies or e-mail abstracts to the appropriate judges prior to the contest.

4. Evaluation forms and rules will be posted to the WSSA and WSWs websites. If further clarification by students or advisors is needed, please contact met at carl.coburn@bayer.com.

| Paper Contest* | Points | Criteria |
|---|---------------|---|
| Abstract: | 10 | Length: 5pt ≤ 250 words; 0pt > 250 words Appropriate content, format and grammar |
| Introduction: | 10 | Concise background to topic Clear objectives and hypothesis |
| Methods: | 15 | Correct and clear experimental design Clear treatments and measurements Correct statistical analysis |
| Results: | 10 | Clear and clean demonstration of data Methods support data collected |
| Discussion: | 15 | Clear interpretations based on data Concise conclusions based on data Future research recommendations |
| Visual aids: | 15 | Easily readable and uncluttered Balance of tables, figures, pictures Proper grammar, spelling and units |
| Oration: | 20 | Speaker confident and enthusiastic Effective gestures, mannerisms and voice Eye contact and appropriate behavior Speaker answers questions confidently |
| Time: | 5 | Allowed 2-4 min for questions |
| Total | 100 | |
| *Previous first place winners in the paper contest are ineligible for the paper contest but may enter the poster contest. | | |

| Poster Contest* | Points | Criteria |
|--|---------------|---|
| Abstract | 10 | Length: 5pt ≤ 250 words; 0pt > 250 words Appropriate content and format |
| Mechanics | 5 | Proper grammar, spelling and units |
| Overall Content | 15 | Appearance and creativity in design Effective layout and logical flow Balance of tables, figures, pictures |
| Appearance | 10 | Uncluttered and easily read text size Tables and figures clear and concise |
| Introduction | 10 | Uncluttered and easily read text size Tables and figures clear and concise |
| Development | 15 | Correct and clear experimental design Clear treatments and measurements Quality of research and discussion |
| Results | 20 | Correct statistical analysis Methods support data collected Clear interpretations based on data Future research recommendations / implications |
| Oration | 10 | Eye contact, voice and behavior Speaker answers questions confidently |
| Physical | 5 | Interaction, enthusiasm and confidence |
| Total | 100 | |
| *Previous first place winners in the poster contest are ineligible for the poster contest but may enter the paper contest. | | |

10th Annual Western Invasive Weed Short Course



The 10th Annual Western Invasive Weed Short Course will be held April 13-16, 2020 at the Sylvan Dale Guest Ranch in Loveland, Colorado.

Registration (\$825.00 by February 28, 2020; \$925.00 on March 1, 2020) includes educational program and daily refreshment breaks. Three lunches and three dinners are also included in the registration. Visit http://www.mountainwestpest.com/Past_Courses.php to learn more.

The continued partnership with the Sylvan Dale Guest Ranch allows us to provide some unique training opportunities. One of the truly unique features of the Short Course is the ability to have a long-term restoration plot. Sylvan Dale has worked with us to establish a fenced site where we have been able to demonstrate weed management combined with native grass establishment. A twilight weed walk on the first night is a great way to see the ranch and start learning some weeds.



The WIWSC is an intensive study of current technologies and best management practices associated with noxious and invasive weeds in the western United States. Participants gain up-to-date knowledge specific to invasive weed management with interactive sessions. The 2020 WIWSC will conclude sessions on:

- Weed look alikes
- Live weeds
- Herbicide symptomology specimens
- Other topics to be identified by the participants
- Time for individual interaction with instructors

Our target participants are local, state, federal government, and other land managers throughout the western region desiring a better understanding of weed management. WIWSC is designed to benefit both those new to invasive plant management and experienced professionals seeking a comprehensive update in western invasive weeds and their management.

The WIWSC instructors are members of the Western Society of Weed Science.

Please contact Sandra McDonald, Course Coordinator, for additional information at 970-266-9573 or Sandra@MountainWestPest.com.



CALL FOR 2020 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.

The Research Progress Report is produced on a very tight schedule. In order to expedite publication, 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. An index outline form will be available on the website. Remember, the report will be printed as received.
4. Adhere strictly to the submission **deadline of January 7, 2020**. **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, Weed Science 32 (Supplement 2): Revised 1989 or 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 | 0.04 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. Weeds of 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, Weed Science 32 (Supplement 2): Revised 1989 or at 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) | thifensulfuron (Harmony Extra XP) |
| MCPA (MCPA 4 Amine) | tribenuron (Harmony Extra XP) |
| non-ionic surfactant (R-11) | 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 _____





IWSC 2020

The 8th International Weed Science Congress
"Weed Science In a Climate of Change"







Date : 21 - 26 June 2020
Venue : Bangkok Marriott Marquis Queen's Park



Contact Information

Email: info@IWSC2020.com
www.iwsc2020.com



ACTIVITIES

- Pre-Congress Symposia
- Weed Photo Contest
- Oral and Poster Presentations
- Congress Excursions

IWSC2020 Weed Photo Contest

REPRODUCTIVE STRUCTURES

VEGETATIVE PLANT / STRUCTURES

WEEDS IN THE LANDSCAPE

AWARDS

The winner prize is \$500
The 1st runner-up prizes is \$200
The 2nd runner-up prizes is \$100

The overall winner will be selected from the three categories winners and receive an additional award of US\$ 200.

MAIN TOPICS

Herbicide Resistance

Climate Aspects of Weed Science

Economic and Social Aspects of Weed Management

Physiology of Plants and Herbicide Interaction

Weed 'Omics'

Weed Biology and Ecology

Non-Chemical Weed Control

Invasive and Parasitic Plant Species

Weed Issues in Asia

Modelling

Integrated Weed Management

Application Technology

New Technology for Weed Management

Bioherbicides (including joint IWSS/IBG Session)

OUR SPONSORS

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KEY DATE (IWSC 2020)

| ACTIVITIES | DATE |
|-------------------------------|------------------|
| Registration | Now Open |
| Early Bird Registration Close | 15 November 2019 |
| Abstract Submission | Now Open |
| Abstract Submission Close | 15 November 2019 |
| Weed Photo Contest | Now Open |
| Weed Photo Contest Close | 15 December 2019 |

REQUEST FOR WSWF FELLOW AND HONORARY MEMBER NOMINATIONS

Dr. Jill Schroeder, Committee Chair

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

WSWF FELLOW

WSWF 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 WSWF 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 WSWF – 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:** WSWF – 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**

WSWF HONORARY MEMBER

WSWF 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 WSWF 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, 2019**

Send To:

Electronic submission preferred.

Jill Schroeder

(575) 649-9441

jschroel@gmail.com

2020 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, 2019**.

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, 2019**:

Lesley Beckworth
Teton County Weed & Pest District
7575 S Highway 89
Jackson, WY 83001
Lbeckworth@tcweed.org

2019 Membership Renewal Form for the Western Society of Weed Science

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 GIVEN.

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