



# Western Society of Weed Science Newsletter

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FALL 2023

## IN THIS ISSUE:

President's Report  
Student Liaison Report  
Denver Meeting Update  
Local Arrangements Committee Report  
Elena Sanchez Outstanding Student Scholarship Winners  
Rita Beard Endowment Foundation Student Scholarship  
WSSA National Weed Contest WSWS Winners  
Student Paper and Poster Contest Information  
Challenges & Opportunities for Biological Control of Yellow Starthistle  
Washington Report  
Membership Renewal Form  
Publication Available

## Sidebar highlights:

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



## President's Report - Curtis Rainbolt

As harvest and field research seasons wind down for many crops, fall signals the beginning of meeting season to me. The Western Society of Weed Science annual meeting is one of the best meetings of the year, and I am looking forward to the 2024 version in Denver, Colorado.

Student participation in the annual meeting is one of the strengths of WSWS. I am pleased to announce the Awards Committee received applications from seven well qualified students for the Elena Sanchez Memorial Scholarship. I want to congratulate the 2024 scholarship recipients: Jennifer Valdez Herrera at California State University, Tong Zhen at University of California, and Victor Ribero at Oregon State University.

I would also like to recognize and thank the students that represented the Western Society of Weed Science in the WSSA National Weed Science Contest. Please see the article below for more details.

Another strength of WSWS is the opportunity to exchange ideas. Consider sharing your research by contributing a paper or poster. The Call for Papers and title submissions are now available on the WSWS website. The deadline for title submission is December 1, 2023.

Please nominate one of your many excellent colleagues for an award. December 1 is the deadline for WSWS Fellow or Honorary Member Award nomination. Nominations for the Distinguished Achievement Awards: Outstanding Weed Scientist, Outstanding Weed Scientist-Early Career, Outstanding Weed Manager, and Outstanding Professional Staff are due December 16.

Voting is now open to elect WSWS officers (President - Elect, Research Section Chair - Elect, Education and Regulatory Chair - Elect, and Secretary). The nomination committee has put together a slate of great candidates for the positions. Please login to the Members-Only section of the WSWS website and vote.

Please do not hesitate to contact me, Tim Prather, Eric Gustafson, or any other member of the WSWS Board of Directors or WSWS Committee Chairs if you have questions related to the 2024 WSWS meeting in Denver, CO.

I hope to see you there!

**WSWS Annual Meeting March 4 – 7, 2024, Denver, Colorado**

# Student Liaison Report – Aaron Becerra-Alvarez

Fall has come around once again! For many of us it is time to jump back into the coursework of our studies. It's also time to compile your data after the summer field work. Whatever it is you are staying busy with, remember to enjoy it and get the most out of your student experiences. We are looking forward to seeing and hearing about everyone's research next year at the annual meeting.

Thank you to the students who volunteered to serve on the WSWs committees that had openings earlier this year. These are great opportunities to get involved in the society and learn about what the society does to foster the field of weed science. If interested in future opportunities, stay on the lookout for future openings of student representation on committees.

Many of you may be aware that the silent auction at the annual meetings is in support of the student scholarships. Therefore, its success benefits the student body of the WSWs. As we near the annual meeting, I ask if anyone has ideas for items to please reach out to us or work with us to make it happen. We greatly appreciate the members who continuously donate items every year and who continuously participate in the silent auction.

During the annual meeting in March, the students will vote for a new Student Liaison Chair-elect. If you are a student that may be interested, please keep it in mind. We will ask students who want to self-nominate themselves before the annual meeting to reach out to Aaron Becerra-Alvarez (contact below), so we can have your names ready during the student luncheon. If you'd like to nominate a peer before the meeting, also reach out to Aaron and we will contact them about accepting the nomination. However, we will also take self- and peer-nominations during the luncheon at the time of the meeting. The position is a two-year term, where in the first year you participate and learn from the Student Liaison Chair, while the following year you take on the main role. You will be able to interact with board members and participate in organizing the WSWs events. If you have any questions or want to learn more about the duties of a Student Liaison, please reach out to us, we are happy to answer any questions.

Once again, if you are on that X platform (formerly Twitter) give us a follow and/or tag us (@WSWSstudents) on your post that are related to your research, extension events, or other activities that may be of interest to the WSWs students. Share the account among any new students in your school. We have diverse cropping systems and natural systems in the West that many of us work in and it would be great to showcase all.

Please feel free to reach out to us if you have any ideas or questions.

Thanks!

Aaron Becerra-Alvarez, Student Chair  
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# Annual Meeting Update

Tim Prather President-Elect/Program Chair

The Western Society of Weed Science is welcoming title submissions for the 2024 meeting in Denver. The online title submission process opened on October 23, 2023 and closes December 1, 2023. Abstracts are due February 15, 2024.

See the Call for Papers and Posters on our website at [WSWS Website](#) for instructions and details on projects. Please note that there are a few changes to projects that arose from discussion at the summer board meeting. Save yourself a little money and register before December 1st and hotel reservations can be made using links from our [WSWS Website](#).

Our general session is shaping up and I will report back on it in the next newsletter once the general session is complete. We will have two symposia detailed below. It is not too late to nominate a colleague for an award. I know that there are several nominations in process so perhaps with help from some of you, we could recognize a full set of awardees. Elena Sanchez student scholarships are now closed but the Rita Beard award process has been extended. See details in this newsletter about the Rita Beard scholarship submission deadline.

I look forward to a good meeting and I am packing additional clothes in case we have another bomb cyclone. See you in Denver.

The program committee is organising two symposia to be held during the annual meeting.

**Palmer Amaranth in the West.** Parts of Colorado and Western Nebraska have been struggling with herbicide-resistant Palmer amaranth for several years, with significant impacts to minor and specialty crop industries. In 2023 Palmer amaranth was identified for the first time in the Intermountain West and Pacific Northwest. The next few years will be critical in managing herbicide-resistant Palmer amaranth in novel and established areas of the western US. This symposium will feature speakers from the sugarbeet, dry bean, and seed industries who will present the current impacts of Palmer amaranth in their industries, as well as what future impacts are anticipated in the near term. The latest research on managing Palmer in dry bean, sugarbeet, potato, and alfalfa, along with the current state of herbicide-resistant Palmer amaranth biotypes in the west, will also be discussed.

Organizers: Nevin Lawrence and Albert Adjesiwor

**ESA, how we got to this point and what are the potential implications.** Recent litigation has pressured on the Environmental Protection Agency (EPA) to increase enforcement of the Endangered Species Act (ESA). This has the potential to for major reduction in legal pesticide uses. Currently the EPA is working with all disciplines (entomology, pathology, weed science, etc.) to develop mitigation strategies to prevent the possible worst-case scenario (vacation of most pesticide labels). Mapping strategies are also being developed to locate at-risk species and habitat. Successful development of both mitigation and mapping strategies that will protect both vulnerable species, their habitat, and maintain safe and legal uses of pesticides is crucial for both agriculture and the environment.

Organizer: Alan Helm

# Local Arrangements Report – Eric P. Westra

The local arrangement committee would like to welcome all to the 2024 Western Society of Weed Science (WSWS) meeting in downtown Denver, Colorado on March 4<sup>th</sup> through March 7<sup>th</sup>, 2024.

## **MEETING LOCATION AND LODGING:**

The WSWS venue is the Grand Hyatt in downtown Denver, located at 1750 Welton Street, Denver, CO 80202 and can be contacted at (303) 295-1234 or [Grand Hyatt Denver](#). The WSWS annual meeting website has links to hotel reservations. The Grand Hyatt is in the heart of it all, just steps from the best things to do in Denver. The 16th Street Mall - where a 12-block pedestrian walkway houses the best in shopping, and dining. The Grand Hyatt is minutes from Coors Field (home of the Colorado Rockies) and the Ball Arena (home of the Denver Nuggets and Colorado Avalanche). Denver is also an easy trip to world class skiing!

## **TRANSPORTATION:**

**Plan to fly to Denver International Airport.** Domestic arrivals are located in the center of the main terminal on Level 5. International arrivals are located at the north end of the main terminal. Baggage claim is also located on Level 5. The A Line train departs from Level 1 of the airport's Transit Center, under the Westin Denver International Airport. To get to Denver Airport A Line Station, follow signs to the "Transit Center" and proceed to the south end of the main terminal on Level 5. Exit the terminal through the sliding glass doors and take the escalator located in the center of the plaza down to Level 1.

**Travel to Downtown Denver.** To get to Downtown Denver you can take the RTD **A Line Train** from the airport to Union Station. Then you can make your way to the Grand Hyatt using the Free Mall Shuttle, walking, taxi or other ride share service. Shuttle services are also available from the airport, as are taxis and ride share services. Tickets for the A Line may be purchased at the ticket vending machines located on the train platform using cash or credit cards. The A Line is 23 miles from the airport to downtown's Denver Union Station and takes 37 minutes. There are six stops and Union Station is the final stop. The airport fare is \$10.50 per day from any of the stations along the A Line and includes unlimited rides on the A Line as well as the entire RTD Light Rail system during a single business day. Visit the RTD website to learn more <http://www.rtd-denver.com/a-line.shtml>.

The Grand Hyatt Denver is located about one mile from Union Station. From the train at Union Station you can walk across Wewatta Street to the bus stop located at 16<sup>th</sup> St Mall & Wewatta St. You will ride the bus and get off at 17<sup>th</sup> St & California St which is 0.1 mile from Grand Hyatt located off 17<sup>th</sup> St and Welton St. There is currently ongoing construction on 16<sup>th</sup> St and bus routes may vary based on construction duration and time of day. Both Apple and Google maps will show up-to-date train and bus routes if transit option is selected for map directions. To learn more or get a map please visit <http://rtd-denver.com/FREEMallRide.shtml>. The Free Mall Shuttle operates from 4:59 am on weekdays, 5:30 am on Saturdays and 6:30 am on Sundays. Service continues throughout the day and ends at 1:00 am.

See you all in March!

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## **Publications**

**WSWS ONLINE**

**EDUCATION**

**WSSA Journals Website  
Online**

## CALENDAR OF EVENTS

Canadian Weed Science  
Society Annual Meeting  
Nov. 19 - 23, 2023  
Winnipeg, Manitoba  
[www.weedscience.ca](http://www.weedscience.ca)

North Central Weed  
Science Society Annual  
Meeting  
Dec. 11 – 14, 2023  
Minneapolis, Minnesota  
[www.ncwss.org](http://www.ncwss.org)

Northeastern Weed  
Science Society Annual  
Meeting  
Jan. 8 - 11, 2024  
Boston, Massachusetts  
[www.newss.org](http://www.newss.org)

Weed Science Society of  
America  
and  
Southern Weed Science  
Society Joint Annual  
Meeting  
Jan. 22 – 25, 2024  
San Antonio, Texas  
[www.wssa.net](http://www.wssa.net)  
[www.swss.ws](http://www.swss.ws)

Western Society of Weed  
Science Annual Meeting  
Mar. 4 – 7, 2024  
Denver, Colorado  
[www.wsweedscience.org](http://www.wsweedscience.org)

Aquatic Plant Management  
Society Annual Meeting  
Jul. 14 - 18, 2024  
St. Petersburg, Florida  
[www.apms.org](http://www.apms.org)

# Elena Sanchez Memorial WSWs Outstanding Student Scholarship Program Announces Award Winners

We had many exceptionally well qualified applicants for the Elena Sanchez Memorial WSWs Outstanding Student Scholarship Program. The winners are:

- Jennifer Valdez: Jennifer is a MS student in Plant Science at California State University, Fresno. She is a first-generation student from a low-income family that migrated from Mexico to the United States to achieve the American Dream. As an aspiring weed scientist, Jennifer is passionate about creating sustainable weed management programs that will provide security, sustainability, accessibility, and availability to our food systems.
- Victor Ribeiro: Victor is a Ph.D. student in Crop Science at Oregon State University under Drs. Carol Mallory-Smith and Judit Barroso. His research is focused on herbicide resistance in downy brome (*Bromus tectorum L.*) in wheat production systems in Eastern Oregon. Victor's interests range from applied research, where he is interested in understanding growers' practices and factors affecting their decisions, to basic research including weed biology and ecology and, molecular mechanisms of herbicide resistance in weeds.
- Tong Zhen: Tong is a Ph.D. student at the University of California, Davis, specializing in integrated weed management for orchards and vineyards. He is keenly interested in leveraging new technologies to assist growers in combating weeds effectively in the field.

Congratulations to these students. Further information about this scholarship can be found at the [Elena Sanchez Western Society of Weed Science Outstanding Student Scholarship](#) or contact Harry Quicke, WSWs Awards Chair ([harry.quicke@envu.com](mailto:harry.quicke@envu.com)) if you have questions.

## 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 has been extended to **November 27, 2023**. Applicants will be informed by December 9, 2023. If you have questions, contact Jane Mangold, Vice President, Rita Beard Fund Trustees ([jane.mangold@montana.edu](mailto:jane.mangold@montana.edu)).

# Students Sharpen Skills in Weed Science Contests

Weed science students put their knowledge to the test in the 2023 Weed Science Society of America National Weed Science Contest held earlier this summer at Bayer’s research farm in Union City, Tennessee. The weed science skills students exhibited during this contest included:

- Weed identification.
- Sprayer calibration.
- Herbicide symptom identification.
- Weed control issues faced by farmers and other weed management practitioners.

Students also participated in regional weed science contests this year sponsored by the Northeastern Weed Science Society, North Central Weed Science Society, Southern Weed Science Society, and Western Society of Weed Science. In all contests, 153 graduate students and 64 undergraduate students on 54 teams from 27 universities gleaned many hours of training under the guidance of university weed scientists.

Western Society of Weed Science winners are:

## **Graduate Student Winners, Team**

**First Place:** University of Nebraska.

Team members include Vipin Kumar, Mandeep Singh and Thiago Vitti.

**Second Place:** Kansas State University.

Team members include Alec Adam, Issac Barnhart, and Sarah Frye.

**Third Place:** Kansas State University.

Team members include Ethan Denson, Sachin Dhandu, and Rishabh Singh.

## **Graduate Student Winners, Individual**

**First Place:** Vipin Kumar, University of Nebraska.

**Second Place:** Sarah Frye, Kansas State University.

**Third Place:** Mandeep Singh, Kansas State University.

## **Graduate Student, Weed Identification**

Sarah Frye, Kansas State University.

## **Graduate Student Team, Sprayer Calibration**

University of Nebraska. Team members include Vipin Kumar, Mandeep Singh and Thiago Vitti.

## **Graduate Student, Written Problems**

Isaac Barnhart, Kansas State University.

## **Graduate Student, Problem Solving**

Sarah Frye, Kansas State University.

## **Graduate Student, Unknown Herbicide**

Thiago Vitti, University of Nebraska.

## **Undergraduate Student Winners, Team**

**First Place:** Kansas State University.

Team members include Patrick Belk, Ashlynn Hartman, Tess Kern, and Abby Livingston.

**Second Place:** University of Nebraska.

Team members include Alina Gava, Danilo Krabbenborg, and Aleksandra Pantic.

**Third Place:** University of Nebraska.

Team members include Bruno Henrique Correa, Marta Nabaggala, and Thales Rodrigues da Silva.

## **Undergraduate Student Winners, Individual**

**First Place:** Ashlynn Hartman, Kansas State University.

**Second Place:** Alina Gava, University of Nebraska.

**Third Place:** Aleksandra Pantic, University of Nebraska.

## **Undergraduate Student, Weed Identification**

Ashlynn Hartman, Kansas State University.

## **Undergraduate Student Team, Sprayer Calibration**

University of Nebraska. Team members include Alina Gava, Danilo Krabbenborg, and Aleksandra Pantic.

## **Undergraduate Student, Written Problems**

Ashlynn Hartman, Kansas State University

## **Undergraduate Student, Problem Solving**

Thales Rodrigues da Silva, University of Nebraska.

## **Undergraduate Student, Unknown Herbicide**

Tess Kern, Kansas State University.



First Place Undergraduate Team  
Kansas State University  
Team member:  
Ashlynn Hartman, Tess Kern,  
Abby Livingston, and Patrick Belk

Second Place Graduate Team  
Kansas State University  
Team members:  
Issac Barnhart, Sarah Frye, and  
Alec Adam



Kansas State University  
2023 National Weed Science  
Contest Team



# Student Paper and Poster Contest Information

Alix Whitener, Chair

**Committee Members:** Clint Beiermann (Past Chair), Jake Courkamp, and Tong Zhen (Student Representative).

The WSWS Student Paper and Poster Contest provides an excellent opportunity for students to improve their presentation skills and increase visibility within the society. Winners of each division also receive a plaque and cash award to honor their achievement.

- All graduate students are encouraged to enter one paper and/or one poster in the contest.
- Undergraduate students may enter in the poster contest and will be judged in a separate section. All undergraduate students who intend to participate must notify the committee chair.
- If students entering the contest do not wish to be judged (i.e. considered for awards) but would like to receive feedback on their presentations, please notify the committee chair.
- Contest rules and scoring criteria can be found on the [Student Resources](#) page.

## Invitation to Serve as a Judge

Our committee seeks non-student volunteers to participate as judges for the paper and poster competition. Volunteer judges are critical to the function and success of the student contest! Serving as a judge is an opportunity to invest in new and upcoming scientists in our society. Constructive feedback from judges provides students an opportunity to improve their presentation skills and excel in their professional career.

*If you are interested in volunteering, please email the committee chair.* Your help is greatly appreciated; thank you to those who have served as judges in the past, and thank you for considering becoming a judge at the 2024 meeting!

## 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.
- Oral and poster presentations entered for competition by the same person should be substantively different from each other (for example, not just changing the title or simply adding more data to the poster). There should be no overlap between the data presented in the poster and oral format by the author (if entered in a competition).
- Students attending institutions in states that are not WSWS members may participate in the student contest and are eligible 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.

Current scoring criteria for the paper and poster contest will be available [here](#). For detailed procedures of the student contest please refer to the Student Paper Judging Committee section of the Operating Procedures Guide, which can be found on the [WSWS website](#).

### New Changes to Scoring Rubric

Earlier this summer, the Student Paper and Poster Committee was contacted by the ad hoc Diversity, Equity, and Inclusion Committee with proposed changes to the oration section of the Judging Rubric. The Committee has agreed to make the following amendments to the rubric, which will be reflected on the Student’s Tab of the WSWS Website.

Paper Contest*	Points	Criteria
Abstract	10	Format, grammar, and content
Introductions	10	Rationale, hypothesis, and objectives
Methods	<del>20</del> 15	Experimental design, treatments, measurements, and statistical analysis
Results and Discussion	25	Results, interpretation, conclusions, future directions, and implications
Visual Aids	<del>20</del> 15	Easily read; uncluttered; in focus; balance to text, tables, figures, and photographs
Oration	<del>10</del> 20	<del>Voice, confidence, enthusiasm, enunciations, and response to questions</del> How well the speaker is heard and understood, and responds to questions
Time	5	Allowed 2 to 4 minutes for questions (all-or nothing points)
Total	100	
*Previous first place winners in the paper contest are ineligible for the paper contest, but may enter the poster contest.		

Please contact the committee chair if there are additional questions.

Alix Whitener, Student Paper and Poster Judging Committee Chair  
email: [alix.whitener@fmc.com](mailto:alix.whitener@fmc.com)

## Challenges and Opportunities for Biological Control of Yellow Starthistle

By Kristi Gladem, Colorado Department of Agriculture, Palisade Insectary

Yellow starthistle (*Centaurea solstitialis*) is a highly invasive winter annual originating from the Mediterranean basin. Since introduction to the new world by Spanish conquistadors in the 1700s, and subsequent introduction to California via Chile in the 1800s, yellow starthistle has spread to 41 states and is most problematic in the Western Pacific region. In California, yellow starthistle is estimated to have invaded over 15 million acres.

Seeds will germinate in late winter rainy seasons and create rosettes which quickly send down vigorous taproots. These roots may reach over three feet deep by late spring, allowing the plants to outcompete native plants with shallower roots during dry summer months. This extensive root behavior has also been shown to lower the surface soil moisture in grasslands of Oregon and Washington causing even more ecological effects. The plants may be anywhere from 6 inches tall in drier sites to over 6 feet tall in wetter sites and can produce anywhere from 14 million to 100 million seeds per acre. Large spines are produced on each flower head in a star shape deterring grazing by animals and causing injuries as well. YST is toxic to horses and may cause the fatal “chewing disease”, equine nigropallidal encephalomalacia, when consumed in large enough quantities.

Due to the immense negative ecological and economic damage caused by YST as well as the intense nature of invasion, YST has been a target for biological control since the 1960s. As of 2019, there were six purposefully introduced biological controls for YST and one accidentally introduced agent (See Figure 1).

<b>Biological Control</b>	<b>Common Name</b>	<b>First Released</b>	<b>Effects</b>
<i>Urophora sirunaseva</i>	Yellow starthistle gall fly	1984	Attacks 1-23% of flowerheads
<i>Bangasternus orientalis</i>	Yellow starthistle bud weevil	1985	Attacks 0-4% of flowerheads. Widely distributed through California.
<i>Chaetorellia australis</i>	Yellow starthistle peacock fly	1988	Rarely found in the field with little to no impact
<i>Eustenopus australis</i>	Yellow starthistle hairy weevil	1990	Has been found to attack 20-80% of flowerheads and is widely established in California
<i>Larinus curtus</i>	Yellow starthistle flower weevil	1992	Attacks 0-1% of flowerheads
<i>Chaetorellia succinea</i>	Yellow starthistle false peacock fly	1991 (Unapproved accidental release)	Attacks 2-28% of flowerheads and is widely established in California. This is the most common biological control found but is not permitted to be distributed.

Six of the seven agents established and are all seedhead feeders whose main mode of action is to reduce the seed pressure from YST. While they have had some impact, estimates of seed reduction around 50%, over 80% seed destruction is approximated to be needed for population level effects that would decrease YST.

For YST, targeting a different aspect of the plant's lifecycle besides just seeds may provide a higher level of landscape control. A secondary attack of the plants in either the vegetation or roots may increase the reduction of seeding caused by the already established agents and also reduce the competitive ability of YST in comparison to the native vegetation. For these reasons, *Ceratapion basicorne* (Ceba), a root feeding weevil, (Figure 2) has been a possible candidate for control of YST since the 1980s. Initially found to be able to feed and reproduce in low quantities on safflower, Ceba was not considered a biological control candidate until the early 2000s when Dr. Lincoln Smith at USDA-ARS conducted in-field host choice testing, showing there was very little risk to safflower. In 2019, Ceba was approved for release within the US which necessitated the establishment of a US lab colony.

**Figure 2. Adult *Ceratapion basicorne*, photo by K. Gladem**



While this is a promising new agent, there are several challenges to rearing, releasing and establishing this biological control. Ceba is a univoltine weevil, meaning they only produce one generation per year resulting in a very long time between generations and a much slower increase in population over time. Ceba also completes their lifecycle from egg to larvae to pupae and finally to adult all inside of the plant tissue. This means individual YST plants must be grown for every adult Ceba to be produced and the plants must be maintained in good health while being under attack of the developing insects, a tricky balance

**Figure 3 Growing Yellow starthistle for infestation by Ceba larvae, photo by K. Gladem**



indeed (Figure 3). The space and time required to produce Ceba is large and long, but the weevils themselves are incredibly tiny, only 2mm! This makes finding and identifying the adults in the lab quite difficult and out in the field nearly impossible. Typically in the field, whole YST plant samples are taken and either the roots are stored to allow emergence of developing insects from within or the roots may be dissected which gives a good ID but also destroys the sample. Either way, it is labor and time intensive to sample for Ceba in the field making it difficult to assess establishment. It's still a mystery where the adult weevils go both during the dry summer months after YST has senesced and also during winter while they're native range is covered in snow. This makes it even

more difficult to assess their presence in the field by narrowing the observation time of developing weevils to early spring to early summer.

In 2021, USDA-ARS Albany provided reproductive females to the Colorado Department of Agriculture Palisade Insectary. From 5 reproductive females, over 90 progeny were reared and the Palisade Insectary was designated the main North American rearing facility. As of 2023, the colony is just around 400 individuals. There is still lots of laboratory testing to do to figure out the lifecycle and seasonal requirements of these cryptic insects but large scale releases are planned for the future.

While the challenges are daunting, the possibility of better Yellow starthistle control on a landscape scale using these tiny but mighty insects is worth the time and dedication to rear them.

# WASHINGTON REPORT

October 26, 2023

Lee Van Wychen

## Weed Science Societies Provide Comments to Improve EPA's "Herbicide Strategy" for Endangered Species Mitigations

**Executive Summary-** The Weed Science Societies suggest nine additional ways to mitigate the impact of herbicides on listed species due to spray drift, which includes decreased buffers for ultra-coarse droplets, additional types of vegetation to intercept spray droplets and grower education.

We also suggest six additional ways to mitigate herbicide runoff and erosion, which also includes grower education, more specific terminology for agricultural vs specialty crops as well as assigning more compensatory mitigation points for fields with subsurface drainage or cover crop practices.

Most importantly, the Weed Science Societies want to stress that grower education will be the most effective way to implement EPA's Herbicide Strategy. We recommend a minimum of a 3-5 year phase-in period for the herbicide strategy ESA mitigation practices, which corresponds to the 3-5 year interval that pesticide applicators must be recertified.

The Weed Science Societies also present the results of a survey of weed scientists from across the country that looked at the 13 crop scenarios for pesticide runoff and erosion mitigation points that the EPA provided, plus 2 additional crop scenarios. Alarmingly, only 2 of the 15 crop production scenarios, or 13%, could obtain the nine runoff/erosion mitigation points considered necessary to maintain existing weed control practices.

We provide additional information on conservation specialists and programs in different states as well as a rationale for why EPA should create a database of the mitigation points needed by crop, pesticide use limitation area (PULA), and herbicide. We also provide suggestions to enhance "Bulletins Live Two!" as well as a list of topics in dire need of research funding so we can best help protect T&E species and their critical habitat.

Finally, we have provided a list of suggested education and training activities to successfully launch the ESA mitigation practices for pesticides.

The Weed Science Societies comments and suggestions to improve **EPA's draft herbicide strategy** for endangered species are at: [https://wssa.net/wp-content/uploads/Weed-Science-Society-comments-on-EPA-Herbicide-Strategy\\_Final.pdf](https://wssa.net/wp-content/uploads/Weed-Science-Society-comments-on-EPA-Herbicide-Strategy_Final.pdf)

This was truly a national and regional effort! I'd like to especially acknowledge the members of WSSA's Endangered Species Act Committee for their tireless work on these issues:

**Bill Chism**, Chair, WSSA ESA Committee  
**Stanley Culpepper**, University of Georgia  
**Taylor Randell-Singleton**, University of Georgia

**Mark VanGessel**, University of Delaware  
**Sarah Lancaster**, Kansas State University  
**Aaron Hager**, University of Illinois

**Brad Hanson**, University of California - Davis  
**Cameron Douglass**, USDA Office of Pest Management Policy

**Lee Van Wychen**, Executive Director of Science Policy, WSSA

**Leah Duzy**, Compliance Services International

**Emily Unglesbee**, Getting Rid of Weeds (GROW)

**Sarah Chu**, Graduate Student Representative, Texas A&M

**Daewon Koo**, Graduate Student Representative, Virginia Tech

### **FIFRA SAP Meets Again on EPA's Use of 11 Atrazine Microcosm/Mesocosm Studies**

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (SAP) provides independent scientific advice to the EPA on health and safety issues related to pesticides. There are seven permanent positions on the SAP, which is augmented by additional experts who assist in reviews. The FIFRA SAP conducted on August 22-24, 2023 was titled:

**“Examination of Microcosm/Mesocosm Studies for Evaluating the Effects of Atrazine on Aquatic Plant Communities”.**

Four of the nine ad hoc members selected for this SAP included the following WSSA and/or APMS members: 1) Aaron Hagar, University of Illinois; 2) Jay Ferrell, University of Florida; 3) John Madsen, retired USDA-ARS, and 4) Kurt Getsinger, US Army Corps of Engineers. They provided excellent review of the 11 atrazine studies in questions.

There is an excellent [white paper](#) by EPA that presents EPA's reevaluation of 11 atrazine microcosm and mesocosm studies identified by the 2012 FIFRA SAP as warranting further review. These studies are part of EPA's Ecological Risk Assessment of atrazine and are specifically used in assessing the effects to aquatic plant

communities. The use of cosm studies in the ecological assessment of atrazine has a long, 20-year history involving multiple SAPs and EPA reviews.

At issue is EPA's use of a 3.4 ppb concentration-equivalent level of concern (CE-LOC) that EPA issued in an interim atrazine registration decision last year. The CE-LOC for atrazine was previously 15 ppb. After EPA issued the 3.4 ppb CE-LOC last year, many stakeholder groups, including WSSA, asked the EPA to conduct this independent FIFRA SAP because they felt the science was not justified to have a CE-LOC that low. The CE-LOC is the atrazine concentration level that triggers required monitoring and/or mitigation to protect aquatic plant communities.

The atrazine SAP is currently deliberating and writing their final recommendations for EPA. Based on the SAP's discussions, most of the 11 atrazine studies did suffer from various flaws and should not be used to calculate a CE-LOC for atrazine. This would likely lead EPA to establishing a higher CE-LOC, thus leading to less atrazine restrictions for corn, sorghum and sugarcane growers and other atrazine users. More info at:

<https://www.regulations.gov/search?filter=EPA-HQ-OPP-2023-0154>

The full Washington Report can be found in the [WSSA Science Policy Section](#).

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- 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/#!for m/Store>. Contact the Business Manager (Eric Gustafson) at (303) 327-8016 for bulk order prices.

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- ❖ 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.