



*Note From the President:*



As 2023 comes to a close and we enter into the holiday season, there is no better time to reflect on the year. If you are like me, the years continue to go by faster and it seems like just yesterday we were all in Baton Rouge or surviving the dog days of summer. We not only survived summer, but I expect that we all had a very rewarding year both professionally and personally. As we prepare to do it all again in 2024, I would encourage all of us to take the time to reflect on our accomplishments and especially on the people around us that were part of our success. What a great time to reach out to colleagues, co-workers, mentors, friends and family and just say “Thank You”. It’s also an opportune time for to reflect on the privilege to work in the greatest profession with the greatest people and while addressing one of the greatest challenges – providing a safe and abundant food supply for all. I encourage you to take time to express gratitude for all of the blessings of 2023.

As I think about the new year, I couldn’t be more excited about kicking off 2024 with the SWSS/WSSA Joint Meeting on the San Antonio Riverwalk on January 21st-25th. It’s only fitting that the meeting is in San Antonio for as you know “everything is bigger in Texas”! We will kick off the meeting on Sunday, January 21st with the Top Golf Graduate Student Mixer at 6:00 pm. This special event is designed to allow students to engage with each other in a unique and fun setting while also getting the chance to interact with industry and university colleagues. In 2024, expect the event to be bigger than ever as our WSSA friends join in the fun. Another student focused event is the famous Graduate Student Quiz Bowl/Mixer hosted by Dr. Peter Dotray on Tuesday, January 23rd. Be ready to test your Weed Science knowledge in a loosely competitive environment all while having some great fun. I am certain that one of the highlights of the meeting will be the keynote address during the general session by Wyman Meinzer, the “Official State Photographer of Texas”. Get ready to experience Texas ranch life through his experiences and photographs as he shares on the “Evolution of a Photographer and Author”. In addition to a great meeting with posters, oral presentations, student contests and symposia, you will also have time to enjoy San Antonio with tours of the Botanical Gardens, Natural Bridge Caverns as well at tequila tasting at the Iron Cactus. The SWSS/WSSA Joint Meeting will be one to remember, so please plan on attending and sharing the invite with your colleagues.



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I want to extend a special thanks to Dr. Todd Baughman, SWSS President-Elect and Program Chair for the 2024 SWSS/WSSA Joint Meeting. Todd along with Greg Dahl, WSSA President-Elect and Program Chair has worked tirelessly to organize a meeting that is relevant to the issues that face Weed Science but also one that engages all of the SWSS and WSSA membership. Todd and Greg have been working for months in planning and have put in long hours to make the meeting a success, so please take the opportunity to thank them. I also want to thank Luke Etheridge and Gary Schwarzlose for all of their hard work as the chair local arrangements. These are the guys that make it happen, so please express your appreciation when you see them.

As I reflect on my time in the SWSS, I go back to my first annual meeting in 1987 in Orlando, FL and think about the positive impact that this organization and has had on me over the past 37 years. From friendships to my professional development along with the latest research in Weed Science, the SWSS has been instrumental in my career. As SWSS President, it is exciting to have an inside view of all of the moving parts and especially the passion and dedication of so many members and their willingness to give back. Thank you to all who make the Southern Weed Science Society what it is today and for your vision for the future. See you in San Antonio!

Eric Castner  
2023 SWSS President

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## *2024 WSSA/SWSS Joint Annual Meeting Reminders*

### **Reminders:**

Join us **January, 22-25, 2024 at the Hyatt Regency San Antonio Riverwalk in San Antonio, Texas**. Registration for the WSSA/SWSS Joint Annual Meeting is open. You can register from the WSSA website: <https://wssa.net/current-annual-meeting/>.

**The hotel room block closes December 22nd, 2023.** Please make your reservations prior to this date by following this link: <https://www.hyatt.com/en-US/group-booking/SATRS/G-WEDS>.

**All abstracts are due January 9th, 2024,** and can be submitted here: <http://weedscimeetingabstracts.com>.

For more information regarding the 2024 WSSA/SWSS Joint Annual Meeting, please visit the WSSA website (<https://www.wssa.net>) or read through the highlights in the annual meeting brochure located here: <https://wssa.memberclicks.net/assets/docs/WSSASWSS%20Annual%20Meeting%20Brochure%202024.pdf>.

Additionally, please make time to attend and listen to this year's keynote speaker, **Mr. Wyman Meinzer**, at the General Session starting at 4:00 PM on Monday, January 22nd, 2024.

Born in 1950, Wyman was raised on the 27,000 acre League Ranch as a cowboy and consummate outdoorsman, in Knox County of the Texas rolling plains.

Meinzer graduated from Texas Tech in 1974 with a Bachelor of Science degree in Wildlife Management. He was voted "Outstanding Alumnus" in 1987 by the Department of Range and Wildlife Management at Texas Tech University "in recognition for his contribution to wildlife management through writing and photography". He also received the "Distinguished Alumnus," award in 1995 from the School of Agricultural Sciences and Natural Resources in "recognition for professional achievement and contribution to society." In August of 1999, Meinzer was honored to give the graduation commencement address at his alma mater. He was asked to become an Adjunct Instructor in the College of Mass Communications in 2000, teaching for a period of 12 years. During tenure as instructor of senior and graduate level students, he was selected "Mass Commu-



nications Teacher of the Year,” in 2005. From 2000-2002 Wyman served on the “Range, Wildlife and Fisheries Management,” advisory board at Tech. In 2009 he received the “Distinguished Alumnus Award,” from Texas Tech Alumni Association in recognition of outstanding achievement and dedicated service.

Post graduation Wyman spent five years as a professional predator hunter on the big ranches of the rolling plains, living out of a half dugout on the Pitchfork Ranch. During this period he worked to perfect his photographic skills and now, after 40 years as a professional photographer, Wyman has photographed and/or collaborated on 27 large format books, and his images having appeared on more than 250 magazine covers throughout America. His images have appeared in Smithsonian, National Geographic Books, Natural History, Ebony, Time, Newsweek, U.S. News and World Report, Audubon, Sports Afield, Field and Stream, Outdoor life, Texas Parks and Wildlife, Texas Highways, Korea GEO, German GEO, Das Tier, Airone, Horzu, BBC Wildlife, and a host others.

His writing endeavors have also appeared in dozens of magazines including “The Smithsonian,” magazine, “Outdoor Photo-

grapher Magazine,” “Sports Afield,” Texas Parks and Wildlife,” magazine, “Texas Highways,” Texas Wildlife Association,” magazine, “Petersen’s Hunting,” magazine, “Korea Geo,” “Field and Stream,” and many others.

Honors include: “Official State Photographer of Texas,” by the 75th Texas State Legislature, the “John Ben Sheppard Jr. Award,” from the Texas State Historical Foundation for contributing to the preservation of Texas History through writing and photography, 1997 “National Literary Award,” for the book, “Texas Lost: Vanishing Heritage,” (with author Andrew Sansom), the “San Antonio Conservation Award,” for the natural history book, “Roadrunner,” Wyman’s first book endeavor, the 2000 “Charley McTee Outdoor Media Award,” from the Texas Wildlife Association, the 2003 “Star of Texas Award,” from the Gillespie County Historical Society with author John Graves for their collaborative work, “Texas Hill Country,” and in 2011 the “Texas Heroes Hall of Honor,” from the Frontier Times Museum in Bandera, Texas, and “The A.C. Green Literary Award,” presented to a distinguished Texas author for lifetime achievement. Meinzer has been selected to receive the 2018 “Harvey Weil Living Legacy Conservation Award” for his art inspiring others to engage in conservation. The Harvey Weil Foundation has given this award only three times previously. Field & Stream named Wyman one of America’s Outdoor Legends in the February/March 2018 issue of the magazine. Also, Meinzer’s work hangs in perpetuity at the George W. Bush Presidential Library on the SMU campus, and in the Ross Perot Museum.

Meinzer is a self-taught photographer and historian who lives in Benjamin with his wife, Sylinda. Along with his photography, Meinzer loves hunting with rifles, pistols and bow, as well as flying and wood work.

David Baxter, former editor of Texas Parks & Wildlife Magazine, described Meinzer best when he called him a man with the eye of a nineteenth-century impressionist painter and the soul of a buffalo hunter.





# TOPGOLF

# YOU'RE INVITED

TO OUR

# GRADUATE STUDENT MIXER

SUNDAY, JANUARY 21, 2024 | 6-9PM

Register [HERE](https://graduatestudentmixer.rsvpify.com) or scan QR Code  
<https://graduatestudentmixer.rsvpify.com>



## *Call for Judges - 2024 Joint WSSA/SWSS Student Contest*

### **Give the gift of Judging**

Currently, there are 45 volunteers for the 90 needed judges for the 2024 joint WSSA/SWSS student contests. Please give thought to volunteering to serve the societies in this capacity.

The Graduate Student Contest is an integral part of the 2024 joint meeting of the WSSA and SWSS. Please consider serving the WSSA/SWSS as an oral or poster competition judge and contributing to the development of young weed scientists.



The opportunity to serve as a volunteer contest judge is open to all registered WSSA or SWSS members. This includes government, university, private industry, and student members.

Please **respond by January 1, 2024** with your ability to serve the WSSA/SWSS to Marty Schraer: [marty.schraer@syngenta.com](mailto:marty.schraer@syngenta.com).

**In responding as volunteer contest judge:**

Indicate your preference for 15-minute oral, SST, or poster contest judging assignment. “No preference” is also an acceptable indication. You’re welcome to judge in multiple contests if your schedule permits. Multiple assignments will be made only as need dictates.

Additionally, when responding indicate whether or not you may have a particular conflict of interest. (i.e. advised student presenting in SST, my office mate is presenting in the PhD poster contest).

Thank you in advance for your willingness to participate and aid our society in this crucial component of the annual meeting.

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## *Incoming SWSS Board Members*

**Endowment Foundation  
Board**



Lawson Priess

**Member at Large  
(Academia)**



David Russell

**Endowment Foundation  
Board**



Connor Webster

**Member at Large  
(Industry)**



Matthew Wiggins

**Vice President**



Shawn Askew

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## Updates Corner

### Silent Auction Items Needed!

Donations are needed for the SWSS Endowment Silent Auction during the 2024 SWSS / WSSA Meeting.

Previous items have included: ice chests, paintings, Yeti merchandise, historical weed science items, golf balls, etc. If you have something you would like to donate to the 2024 SWSS Endowment Silent Auction, please contact me.

The proceeds from this Silent Auction are used to support your SWSS Endowment Fund.

Greg MacDonald, [pineacre@ufl.edu](mailto:pineacre@ufl.edu)  
President, SWSS Endowment Committee

### SWSS Membership Reminder!

If you are unable to attend the joint annual meeting this year, remember you can still renew your SWSS membership!

Make sure to go through the meeting registration process, and select SWSS membership only. It should be a one-time fee of \$75 for your annual membership for 2024.



Thank you for your continued support of our organization!



@SouthWeedSciSoc

For other society information,  
visit our website:

<http://www.swss.ws/>.

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## Washington Report

### WASHINGTON REPORT

December 1, 2023

Lee Van Wychen

### Annu Kumari: 2023 – 2024 Weed Science Policy Fellow



Annu is a third-year Ph.D. student at Auburn University, pursuing her doctorate degree with Dr. Andrew Price and co-advised by Dr. Steve Li. Annu's dissertation project is focused on integrating herbicides and cover crops in southeastern production systems to control troublesome weeds. While trained as a weed scientist, Annu is developing skills in cross-functional disciplines as she has a minor in Statistics and Plant Pathology. She received a B.S. in Agriculture, majoring in Agronomy, from CCS Haryana Agricultural University, India. Annu grew up on a small family farm in southern Haryana and engaged in integrated farming practices. She had keenly observed the struggle of small producers to grow a successful crop. Also, while being on a farm, she learned the importance of integrated pest management practices to deliver economically viable yield parameters in a sustainable manner. Her enthusiasm for pest management directed her to pursue her education



in the agricultural field with a major in weed science. Annu aims to improve her research and communication abilities to make a meaningful impact in weed science, ultimately working towards sustainable agriculture to tackle the food demands of the growing population. The Science Policy Fellowship gave her a great opportunity to gain substantial leadership experience in public policy and advocacy on a wide array of weed science policy issues. Recently, Annu had a great opportunity to interact with U.S. representatives from Alabama to discuss the importance of research funding, funding for the U.S. Department of Agriculture, the Endangered Species Act, and other science policy topics. Annu is grateful to the WSSA and Science Policy Committee for providing her with this great learning opportunity.

### **Cynthia Sias: 2023 – 2024 Weed Science Policy Fellow**



Cynthia is a third year Ph.D. student at Virginia Tech studying under the direction of Dr. Michael Flessner. Her dissertation research is focused primarily on using cover crops for weed management in soybeans and corn production systems. Prior to her Ph.D. work, she received a B.S. in Agriculture from Cornell University and an M.S. in Agronomy from Texas A&M University. Cynthia is passionate about educating the public about agriculture, and helping farmers overcome challenges year to year. She is grateful for the opportunity to learn how decisions are made in our government, and to understand how that directly impacts farmers. Cynthia is eager to apply what she has learned during this time with the Science Policy Fellowship in hopes of creating more opportunities for farmers to be heard and be a part of the decisions being made.

### **WSSA Comments on EPA's Vulnerable Species Pilot**

On June 22, EPA released its Draft Vulnerable Species Pilot (VSP) white paper where they: 1) identified 27 federally threatened and endangered (T&E) species that are vulnerable to pesticides; 2) identified and proposed mitigations to minimize or avoid pesticide exposure; and 3) described an approach to implement the mitigation in future pesticide decisions. The EPA considers these T&E species have a medium or high overall vulnerability to pesticides. Many thanks to Bill Chism, WSSA Endangered Species committee chair, for his extensive work on [WSSA's comments for the vulnerable species pilot project](#).

### **EPA's initial set of priority T&E species includes:**

- Group of plant species in Lake Wales Ridge area of Florida (including [Avon park harebells](#) (*Crotalaria avonensis*), [Garrett's mint](#) (*Dicerandra christmanii*), [wireweed](#) (*Polygonella basiramea*), [scrub blazingstar](#) (*Liatris ohlingerae*), [short-leaved rosemary](#) (*Conradina brevifolia*), [scrub mint](#) (*Dicerandra frutescens*), [Florida ziziphus](#) (*Ziziphus celata*), and several other species that occur in this area)
- [Leedy's roseroot](#) (*Rhodiola integrifolia* ssp. *leedyi*)
- [Mead's milkweed](#) (*Asclepias meadii*)
- [Okeechobee gourd](#) (*Cucurbita okeechobeensis* ssp. *okeechobeensis*)
- [Palmate-bracted bird's beak](#) (*Cordylanthus palmatus*)
- [White bluffs bladderpod](#) (*Physaria douglasii* ssp. *tuplashensis*)
- [Madison cave isopod](#) (*Antrolana lira*)
- [Ouachita rock pocketbook](#) (*Arkansia wheeleri*)
- [Rayed bean](#) (*Villosa fabalis*; freshwater mussel)
- [Scaleshell mussel](#) (*Leptodea leptodon*)
- [Winged mapleleaf](#) (*Quadrula fragosa*)
- [Riverside fairy shrimp](#) (*Streptocephalus woottoni*) and [San diego fairy shrimp](#) (*Branchinecta sandiegonensis*)
- [American burying beetle](#) (*Nicrophorus americanus*)
- [Poweshiek skipperling](#) (*Oarisma poweshiek*)
- [Rusty patched bumble bee](#) (*Bombus affinis*)
- [Taylor's checkerspot](#) (*Euphydryas editha taylori*)
- [Ozark cavefish](#) (*Amblyopsis rosae*)
- [Attwater's prairie chicken](#) (*Tympanuchus cupido attwateri*)

- [Buena vista lake ornate shrew](#) (*Sorex ornatus relictus*)
- [Wyoming toad](#) (*Bufo hemiophrys baxteri*)

In 2022, Enlist was initially banned in 11 Arkansas counties because of the American Burying Beetle. A similar “prevention” tactic will be tested next year in Washington and Oregon, but **with a major difference**. In Arkansas, **no critical habitat** had been designated, but it will be in Oregon and Washington for **Taylor’s Checkerspot butterfly**. EPA has determined that the appropriate mitigation measure for Taylor’s Checkerspot butterfly is to **prohibit all broadcast and aerial spraying of pesticides** in the areas where the butterfly is found. These will be referred to as “Pesticide Use Limitation Areas” or **PULA’s**. This will essentially create large areas of Oregon and Washington where pesticides cannot be sprayed. The plan is slated to go into effect next year. Without any changes, it will have a massive impact on pest management in places like Oregon's Willamette Valley.

### **EPA Publishes Update on its Vulnerable Species Pilot (VSP)**

On November 21, EPA published an update on their VSP based on the 10,000 plus comments (200 unique comments) they received during the 45-day comment period. The following summarizes EPA’s current thinking on revisions to the VSP framework:

- Narrow the areas within the endangered species range map to only include locations that are important to conserving a species.
- Clarify the scope of the VSP for non-agricultural uses;
- Clarify potential exemptions to the proposed mitigation and whether additional exemptions are needed;
- Revise some of the proposed mitigation and include additional mitigation options specific to non-agricultural uses and specialty crops;
- Revisit how EPA selected the pilot vulnerable species; and
- Develop a consistent approach to reduce pesticide exposure to listed species from spray drift and run-off.

EPA continues to consider the public comments, meet with stakeholders, and collaborate with the U.S. Fish and Wildlife Service, USDA, and state agencies. By fall 2024, EPA intends to provide additional updates on the VSP. The full update, along with additional details regarding the VSP project and mitigation proposals, are available in the public docket [EPA-HQ-OPP-2023-0327](#)

### **Science Policy Fellows Report on Two Endangered Species**

As part of WSSA’s comments on the proposed vulnerable species project (VSP), I asked each of WSSA’s Science Policy Fellows to research one of the 27 pilot species to be included in our comments. Below are their reports.

#### **American Burying Beetle – By Annu Kumari**

Many hypotheses about the decline of the American Burying Beetle, *Nicrophorus americanus*, include deforestation, agricultural intensification, pesticides, loss of prairies, artificial lighting, increased competition from vertebrate scavengers, and population declines of carrion species (Sikes and Raithel, 2002). Most assumptions were related to the reduced availability of appropriately sized carcasses required for *N. americanus* reproduction. In addition, the decline in American burying beetle populations can be attributed to various other potential factors, for example, the presence of diseases, pathogens, and parasites, the disappearance of critical mammalian predators (allowing other scavengers to flourish), and the extinction of the passenger pigeon, which served as an optimal carrion source. Moreover, other contributing factors are light pollution, pesticide usage, runoff, erosion, and spray drift.

#### **Pesticides Management Comments:**

Previous research concerning the role of pesticides in the decline of *N. americanus* primarily focused on DDT. However, it is considered an unlikely cause since its usage did not align geographically with the declines observed in *N. americanus* populations (Sikes and Raithel 2002 and Kozol et al. 1988). Additionally, the increased use of DDT (and other pesticides) is not a likely explanation because of inconsistent disappearances of American Burying Beetle in areas without pesticide spraying and the lack of disappearance of other *Nicrophorus spp.* in heavily sprayed areas (Sikes and Raithel 2002).

It seems unlikely to attribute the fall in the population of the American burying beetle to pesticides. Moreover,



DDT or other organochlorine pesticides could not have been the cause of the majority of extirpations because most of them occurred more than 25 years before these chemicals were widely used on our landscape, according to the timing and pattern of the decline, especially in the North-east region (US Fish and Wildlife Service 1991). Additional and further research is needed to examine the effects of particular pesticides on the survival and reproductive abilities of *N. americanus*.

Instead of implementing a direct ban on pesticide use, it is necessary to conduct further research to identify the specific group of herbicides and insecticides that cause the most significant risk to *N. americanus*. This approach is important as it allows for the management of troublesome and resistant weed species, such as pigweeds, while also considering the protection of the beetle.

In the northern region, *N. americanus* was found in wetter areas while avoiding agricultural and urban areas. On the other hand, in the southern range, *N. americanus* was associated with sandy soils, hayfields, grasslands, and native forests but actively avoiding human population centers and agricultural areas (Leasure and Hoback, 2017). However, the EPA story map of American burying beetles includes numerous metropolitan cities. Hence, it is advisable to implement geographically specific measures and recommendations of pesticides to effectively manage the American burying beetle.

It is necessary to avoid spraying pesticides within all or part of the range and/or critical habitat of a species and avoid spraying during its peak activity period. A major factor is to consider in the avoidance area and minimization area if the application is within proximity of the species' habitat.

Measures to reduce pesticide exposure to the species' habitats include implementing equipment and practices that minimize spray drift, such as utilizing nozzles that produce larger droplets or reducing the amount of small droplets and using swath offsets. Moreover, creating no-spray buffers and improving warning label language to prevent drift onto species ranges are part of the pilot plan. A reduction in application rate by less than 25% is suggested to help mitigate pesticide exposure.

Runoff more easily occurs when soils are saturated or when large precipitation events occur. In case of high rainfall actions or wet soils it can lead to offsite transport of on-field pesticides. For this reason, avoiding pesticide applications when runoff is expected will reduce the likelihood of offsite pesticide transport. Furthermore, it is crucial to avoid pesticide application when there is a 50% chance of rain to prevent runoff and potential harm to the beetles and their habitat.

#### **Other measures:**

Maintain proper habitat in mature forests, upland shrubland, and prairies. Reproduction can be enhanced by providing suitable carrion during the peak breeding period and protecting it from other scavengers.

Some researchers also suggest that the now-extinct passenger pigeon, which once appeared in staggering numbers, might have been a significant food source for this species of burying beetle. Source:

<https://mdc.mo.gov/discover-nature/field-guide/american-burying-beetle>

Captive Breeding and Reintroduction: Create and maintain captive breeding populations as a safeguard against the risk of extinction. Reintroduction programs should be implemented to release beetles into suitable habitats where they have disappeared or declined.

The carrion population, the primary food source for American burying beetles, decreased due to changes in the congenial flora and fauna brought on by urbanization-favoring activities like deforestation. Therefore, we can conclude that reintroducing species based on genetic research and restoring a favorable environment may help to solve this issue.

#### **References**

- Jurzenski JD (2012) Factors affecting the distribution and survival of endangered American burying beetles, *Nicrophorus americanus* Olivier. Dissertation, University of Nebraska
- Kozol AJ, Scott MP, Traniello JFA (1988) The American burying beetle, *Nicrophorus americanus*: studies on the natural history of a declining species. *Psyche* 95:167–176
- Leasure, D. R., & Hoback, W. W. (2017). Distribution and habitat of endangered American burying beetle in

northern and southern regions. Journal of Insect Conservation, 21, 75-86.  
Sikes DS, Raithel CJ (2002) A review of hypotheses of the decline of the endangered American burying beetle (Silphidae: *Nicrophorus americanus* Olivier). J Insect Conserv 6:103–113  
US Fish and Wildlife Service. 1991. American burying beetle (*Nicrophorus americanus*) recovery plan. Newton Corner, MA

### **Mead's Milkweed: By Cynthia Sias**

The decline of Mead's milkweed, *Asclepias meadii*, populations in grasslands and prairies in the Midwest has led to its categorization as a federally threatened species by the U.S. Fish and Wildlife Service (FWS) under the Endangered Species Act. Reasons behind the decline in its populations are often attributed to factors such as: 1) habitat loss due to residential and commercial development, 2) habitat fragmentation as a result of land development, and 3) agricultural practices such as hay mowing that takes place in June and July which prevents the completion of the plant's life cycle (FWS, 2013).

Although these three main factors attributed to the decline of Mead's milkweed populations are not incorrect, the biological and reproductive cycles of the plant are also reason for its slow growth and population expansion. Slow reproductive rates as well as low percentage of seed producing plants contribute to the decline in populations of Mead's milkweed (FWS, 2013). For these reasons, multiple considerations must be applied when developing practical management plans to successfully preserve Mead's milkweed populations.

### **Pesticide Management Comments**

Below are the main strategies submitted by USEPA, Office of Pesticide Programs on June of 2023 to propose mitigation plans for the decline of Mead's milkweed as part of the Vulnerable Species Pilot Project.

#### **Avoidance**

Based on the information available from the Vulnerable Species Pilot Project: Proposed Mitigations, Implementation Plan, and Possible Expansion draft public document, it is stated that as for avoidance strategies for Mead's milkweed preservation, "Pesticide applications are prohibited on grasslands and prairies unless the applicator coordinates with the local FWS Ecological Services field offices to determine appropriate measures to ensure the proposed application is likely to have no more than minor effects on the species..."  
Based on these actions, grasslands and prairies in states such as Kansas, Missouri, Iowa, and Illinois would have to decrease or eliminate use of pesticides for conservation purposes. These actions are not economically considerate for the farmers and ranchers of the area. Instead of proposing cessation of pesticide use, it is important to consider the life cycle of the weed and establish relocation programs to areas of undisturbed land. It is documented that **seedling growth rates can take up to 15 years** to reach flowering stage (FWS, 2013). It is not feasible to expect land to remain unmanaged for 15 years from an economic perspective.

#### **Spray drift and Erosion minimization**

Agricultural research has expanded options to minimize spray drift of volatile compounds (Alheidary, 2020). Between less volatile chemistries, and application technologies, there are options for producers to minimize drift. Previous research indicates that the use of buffers, for example, is an appropriate measure to reduce risk to Mead's milkweed populations by reducing herbicide drift (Schmolke et. al., 2018). Additionally, wind breaks such as tree lines are also options for spray drift minimization (EPA, 2023). These physical buffers would allow for appropriate management of agricultural land by allowing the continuation of pesticide use while still protecting Mead's milkweed in the 34 counties it exists in (FWS, 2013).  
Education and access to these tools is the next step that needs to be implemented to reduce instances of herbicide volatility affecting Mead's milkweed populations. Extension offices are typically one of the main resources for farmers and ranchers when it comes to education. Therefore, federal support for USDA's Cooperative Extension System is of importance for land stewardship.

#### **Other comments:**

Removal of Mead's milkweed via herbicide contact is not always the case. Some herbicides are selective in that their mode of action will not affect broadleaf plants. Additionally, if Mead's milkweed is a grown and well-established plant, drift from an herbicide application may cause symptomology on the plant, but often will not be enough to kill the plant. These reduced levels of herbicide via drift often are an issue in row

crop agriculture and can affect yield, but often are not substantial amounts enough to kill a mature established weed.

Agricultural practices are not ranked amongst the top factors reducing Mead's milkweed populations. Residential and commercial development of land are the two top factors decreasing Mead's milkweed population. The main form of reproduction of Mead's milkweed is through rhizomes (FWS, 2013). The 15-year establishment period describes the time for the milkweed to set seed, and up to 30 years to reach reproductive maturity. Seed is often not successful at establishing, and therefore the reproduction period does not always have to be looked at in 30-year increments. Furthermore, perennial species that reproduce through rhizomes can often be perpetuated through tillage as the rhizomes are chopped up and are spread in the process.

## References

- U.S. Fish & Wildlife Service (2013). Mead's Milkweed (*Asclepias meadii*). (November 28, 2013). <https://www.fws.gov/species/meads-milkweed-asclepias-meadii>
- Alheidary, M. H. (2020). An attempt to reduce spray drift in wind tunnel experimental using substitution nozzles on the boom. *Agricultural Engineering International: cigr journal*, 22(3), article 3.
- Schmolke, A., Roy, C., Brain, R., & Forbes, V. (2018). Adapting population models for application in pesticide risk assessment: A case study with Mead's milkweed. *Environmental Toxicology and Chemistry*, 37(8), 2235–2245. <https://doi.org/10.1002/etc.4172>
- U.S. Environmental Protection Agency (2023). EPA's Vulnerable Species - Mead's Milkweed. ArcGIS StoryMaps. June 22, 2023. <https://storymaps.arcgis.com/stories/d44961427e6d4f7aa877eafc273a8271>

## **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 threatened and endangered 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 Wyche**, 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.

### **EPA Pesticide Label Reform is Finally Happening**

On November 15, EPA released a white paper titled “[Benefits of the Adoption of Structured Content and Digital Pesticide Labels](#)” and is requesting feedback on its plan to adopt digital pesticide labels that will make labeling information clearer, more consistent, and more accessible to users.

EPA's plan for digital labels covers the creation of both a structured label—which would provide a framework for consistently placing and ordering label information—and a digital label, which would organize the label information as electronic data. Currently, the pesticide product label registration process is mostly manual, with EPA staff reading through long, detailed label submissions to pull out specific information, like application rate, to enter into the EPA's [Pesticide Product and Label System](#). This has led to time-consuming reviews and high cost to registrants and regulators. Further, the increasing complexity of pesticide labels and lack of standardized label format and language can create challenges for pesticide users and the public seeking information about which products to use and how to use them.

Moving from traditional labels to digital labels and providing a database of accepted label language would make submitting label content simpler and more consistent for all pesticide registrants and would improve the Agency's ability to review and access submissions efficiently.

EPA is requesting public comment on all aspects of structured digital labels, including:

- anticipated benefits
- risks and challenges
- key information fields (such as pesticide use site, formulation, and maximum application rate), and
- potential phases of adoption.

The [whitepaper](#) will be open for comment until **March 14, 2024** on docket [EPA-HQ-OPP-2023-0562](#).

### **EPA Releases Final Report from FIFRA SAP Regarding the Use of 11 Controversial Atrazine Cosm 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. 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**”. Many thanks to Aaron Hager, Jay Ferrell, John Madsen and Kurt Getsinger for their service and data review for this SAP.

To protect aquatic plant communities from the effects of atrazine, EPA developed an aquatic plant community-based concentration-equivalent level of concern (CE-LOC). The CE-LOC is determined using a combination of single-species aquatic plant toxicity studies and microcosm/mesocosm (cosm) studies. The cosm studies included in the CE-LOC calculation can be defined as complex experiments used to examine aquatic plant communities under semi-controlled conditions that simulate natural environments. Endpoints for these cosm studies were defined as single determinations of the response of one or more components of the aquatic plant community (e.g., phytoplankton, periphyton, macrophytes) for a defined individual atrazine test concentration as it relates to the controls in the study.

From 2002 to 2016, EPA considered over 70 cosm studies. However, a FIFRA SAP conducted in 2012 identi-

fied 11 of those studies as warranting further review because of concerns about study design or performance flaws, as well as EPA's interpretation of the results.

EPA received additional public comments about the 11 controversial atrazine cosm studies in its 2022 Proposed Revisions to the Atrazine Interim Registration Review Decision where they used a CE-LOC of 3.4 ppb. The CE-LOC for atrazine was previously 15 ppb. When the atrazine CE-LOC is exceeded, it triggers additional monitoring and/or mitigation to protect aquatic plant communities.

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 on the use of the 11 controversial atrazine cosm studies in calculating the CE-LOC.

To EPA's credit, they published an excellent [white paper](#) earlier this year that presents EPA's reevaluation of the 11 controversial atrazine cosm studies. The [white paper](#) also provides an overview of atrazine, its history as it relates to the cosm studies, and the "Charge Questions" (pg 16) for the 2023 FIFRA SAP that met in August.

[On November 16, the FIFRA SAP final report on the use of the 11 atrazine cosm studies](#) was released. Based on the SAP's discussions, most of the 11 atrazine cosm studies in question did suffer from various flaws and should not be used to calculate a CE-LOC for atrazine. There are nearly 50 other cosm studies that meet EPA's criteria for inclusion in its cosm database. If EPA follows the 2023 FIFRA SAP's recommendations, they would be using the best available science to calculate the CE-LOC for atrazine, which would likely mean a higher atrazine CE-LOC.

### **Glyphosate Warning Label in CA Unconstitutional**

Nov 7 (Reuters) - A federal appeals court upheld an injunction barring California from requiring businesses to warn consumers that glyphosate, the active ingredient in Roundup weedkiller, causes cancer.

In a 2-1 decision, the 9th U.S. Circuit Court of Appeals said it was unconstitutional for California to require Bayer AG's Monsanto unit, which makes Roundup, and some agricultural producers to provide the warning under a state law known as Proposition 65.

The court said the warning conveyed the "at best, disputed" message that glyphosate is unsafe, and that requiring objectors to convey a "controversial, fiercely contested message that they fundamentally disagree with" violated the First Amendment.

### **Annual Cost of Invasive Species Put at Half-A-Trillion Dollars**

Invasive species cause more than \$423 billion per year in damage to agriculture, fisheries, water supplies, and other ecosystem-dependent benefits worldwide, according to the summary of a [comprehensive review by dozens of scientists, released Sep. 4, 2023](#). The monetary losses, adjusted for inflation, have quadrupled every decade since 1970, the study's baseline, the summary says. The report is the first on the topic from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, which has 143 member nations. The estimated financial loss is "a huge, huge underestimate," Helen Roy of the UK Centre for Ecology & Hydrology, who co-chaired the group that wrote the report, said in a media briefing; many costs such as weeding invasive plants have not been quantified, she said. More than 3500 species are known to have become invasive after people moved them, intentionally or unintentionally, to new locations where they have crowded out native plants and animals, some of which supported local economies. The number of invasive species is rising faster than ever because increases in global trade and travel help spread them, the summary says. But only 17% of countries have laws or regulations to prevent or manage invasions of these species.

## Weed Science at the National Roadside Vegetation Management Association (NRVMA)



*Left to right: Lee Van Wychen, Executive Director of Science Policy, WSSA; Taylor Randell Singleton, Assistant Professor, University of Georgia; and John Byrd, President, National Roadside Vegetation Management Association (NRVMA) and Professor, Mississippi State University. They gave presentations at NRVMA's annual meeting in Knoxville, TN on September 12-14, 2023 on a number of topics including EPA's proposed mitigation strategies for complying with the Endangered Species Act and a thorough discussion of the Invasive Plant Elimination Program authorized in the 2021 Infrastructure law.*

### **Federal Agency Funding Opportunities**

**By Steve Young, Jim Kells and Vijay Nandula**

Federal departments and agencies with expertise in weed and invasive plant science were brought together at a symposium held during the Weed Science Society of America 63<sup>rd</sup> Annual Meeting. Individuals from Animal and Plant Health Inspection Service (APHIS), Agricultural Research Service (ARS), National Institute of Food and Agriculture (NIFA), Office of Pest Management Policy (OPMP), Natural Resources Conservation Service (NRCS), US Forest Service (USFS), Bureau of Land Management (BLM), US Geological Survey (USGS), National Park Service (NPS), Department of Defense (DOD), Army Corps of Engineers (ACOE), National Aeronautics and Space Administration (NASA), and National Science Foundation (NSF) shared current research and management efforts and participated in a discussion focused on the identification of funding opportunities and other issues pertaining to research gaps and management needs among this society's membership.



Table 1. Funding opportunities for select federal agencies that focus on weeds and invasive plants.

Agency	Program	Notes
ARS	<a href="#">Areawide Pest Management Program</a>	This is an internally funded program at
APHIS	<a href="#">Plant Protection Act Section 7721</a>	Search website
DOD	<a href="#">Strategic Environmental Research and De-</a>	Link to funding
	<a href="#">Environmental Security Technology Certifi-</a>	Link to funding
EPA	<a href="#">EPA Grants</a>	Search for weeds and/or invasive plants
NASA	<a href="#">Applied Sciences Program – Agriculture,</a>	Browse practitioner resources, including
NIFA	<a href="#">Agriculture and Food Research Initiative</a>	Several programs, including inter-
	<a href="#">Crop Protection and Pest Management</a>	Link to RFA
	<a href="#">Methyl Bromide Transition</a>	Link to RFA
	<a href="#">IR-4</a>	Link to RFA
	<a href="#">Organic Agriculture Research and Extension</a>	Search program information
	<a href="#">Organic Transitions</a>	Search program information
	<a href="#">Specialty Crop Research Initiative</a>	Link to RFA
DOI	<a href="#">Funding Guide for Invasive Species Man-</a>	Search program information
NRCS	<a href="#">Conservation Innovation Grants</a>	This program has funded projects on
NSF	<a href="#">Plant Biotic Interactions</a>	A joint program with NIFA that focuses
USFS	<a href="#">Invasive Forest Plants</a>	Requests for applications through the

Each federal department and agency gathered at the symposium support weed and invasive plant science research and/or management through grant funding, technical assistance, and scientific studies. They represent a diversity of stakeholders who may be separated geographically yet have a common focus on weeds and invasive plants in crop, terrestrial, and aquatic ecosystems.

#### **NISAW 2024 Scheduled for February 26 – March 3, 2024 in Washington DC (but may change).**

Planning for the 25th anniversary of [National Invasive Species Awareness Week](#) (NISAW) is ongoing. Please note that the date may change due to Congress just changing their work schedule. The House and Senate are always in session the week after President's day when NISAW is held, but that will not occur in 2024 due the House being in session for 10 weeks straight after Labor Day. Please stay tuned. My hope is that all the invasive species stakeholder groups traveling to Washington DC will make establishing an invasive species management fund their #1 priority.

Lee Van Wychen, Ph.D.  
Executive Director of Science Policy  
Weed Science Society of America  
5720 Glenmullen Pl, Alexandria, VA 22303  
Cell: 202-746-4686

#### **National and Regional Weed Science Society Meetings**

Dec. 11 - 14, 2023 North Central Weed Science Society (NCWSS), Minneapolis, MN [www.ncwss.org](http://www.ncwss.org)  
Jan. 8 - 11, 2024 Northeastern Weed Science Society (NEWSS), Boston, MA [www.newss.org](http://www.newss.org)  
Jan. 22 - 25, 2024 Southern Weed Science Society (SWSS), San Antonio, TX [www.swss.ws](http://www.swss.ws)  
Jan. 22 - 25, 2024 Weed Science Society of America (WSSA), San Antonio, TX [www.wssa.net](http://www.wssa.net)  
Feb. 26–Mar. 3, 2024, 25<sup>th</sup> National Invasive Species Awareness Week, Washington DC [www.nisaw.org](http://www.nisaw.org)  
Mar 4 - 7, 2024 Western Society of Weed Science (WSWS), Denver, CO [www.wsweedscience.org](http://www.wsweedscience.org)  
Jul. 14 - 18, 2024 Aquatic Plant Management Society (APMS), St. Petersburg, FL [www.apms.org](http://www.apms.org)