



p. 10  
**Joanne Chory  
Receives Princess  
of Asturias Award  
for Technical and  
Scientific Research**



p. 11  
**Pam Ronald Returns  
to Sweden for  
Honorary Doctorate**



p. 13  
**2019 ASPB/AAAS  
Mass Media Fellow  
Reports In**

# ASPB News



THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

## President's Letter

### Be the Change

BY ROB LAST, Michigan State University, and  
MARY WILLIAMS, Features Editor, *The Plant Cell*

*"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."* Attributed to Margaret Mead (1901–1978), American cultural anthropologist

**W**hether or not Dr. Mead actually uttered this quote, the words are as meaningful today as anytime during our lives. We all have opportunities to make positive change, and collaborative change is more enjoyable, and perhaps more durable, than flying solo. Which groups of committed citizens do you affiliate with? Are you an active or aspiring agent of change at work, at home, or within your social network?

Perhaps, like us, you sometimes wonder whether you are doing enough to promote positive change. It is not uncommon for plant scientists to wonder whether it's a good idea to dilute their effort outside of research and teaching, and this is especially prevalent for



those early in their careers. The answer is "absolutely yes," and here we provide a few examples and thoughts.

*continued on page 3*

## Highlights from #PlantBio19

BY CELINE CASEYS  
University of California, Davis

**F**rom August 3 to 7, 2019, San Jose hosted Plant Biology 2019. The meeting hosted 1,454 participants representing 51 countries. For a few days, the city, known worldwide as the home to Silicon Valley, and its convention center became the hub for all things plant biology.

*continued on page 5*



# Contents

- 1 President's Letter
- 1 Highlights from #PlantBio2019
- 8 The Traveling #ThePlantCellebration30 T-Shirt: From San Jose to "Yes!"
- 10 Joanne Chory Receives Princess of Asturias Award for Technical and Scientific Research
- 11 Pam Ronald Returns to Sweden for Honorary Doctorate
- 13 2019 ASPB/AAAS Mass Media Fellow Reports In
- 14 Report from the 2019 AAAS Ralph W. F. Hardy Mass Media Science & Engineering Fellow

## Science Policy

- 15 Policy Update

## Education Forum

- 17 Education and Outreach at the Plant Biology 2019 #ASPBForward Innovation Pavilion
- 18 Education Evaluation and Assessment at Plant Biology 2019
- 19 Education Concurrent Symposium at Plant Biology 2019 Showcases Novel Ways to Increase Student Interest and Engagement with Plants

## ASPB Council

Council members highlighted in blue also serve on the Board of Directors.

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**PRESIDENT'S LETTER**  
*continued from page 1*

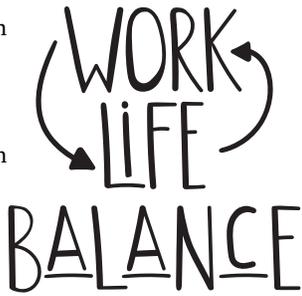
**Work–Life Balance Happens in Unexpected Ways**

Winslow Briggs (1928–2019; [bit.ly/ASPB\\_WinslowBriggs](https://bit.ly/ASPB_WinslowBriggs)) enjoyed a career that spanned decades, doing science until his death 25 years after his official retirement from the directorship of the Plant Biology Department of the Carnegie Institution for Science at Stanford in 1993.

In a memorable conversation, Winslow talked about how important downtime was to his creative process. He described how hiking, doing volunteer work at a nearby California state park, or relaxing in a beautiful place allowed his thoughts to move in unexpected directions, occasionally leading to some new scientific insight. Winslow is remembered not only for his contributions to science, but also for the time he spent with others—his encouragement and mentorship.

When you think about work–life balance, remember that a change of scene or work

on a project that benefits others can make you a better scientist. Reciprocally, being happy at work can make you a better friend, parent, and citizen. Self-awareness and self-care provide the foundation from which you can effect positive change.



**Allow Yourself to Be Influenced by Others**

Maureen Hanson's dedication to improving the Cornell plant biology community made a tremendous impression during Rob's time in Ithaca. In

addition to running a successful research group, Maureen led NSF-funded plant sciences training programs during those years, providing fellowships for undergraduates, grad students, and postdocs and bringing advanced technologies to Cornell's campus. Maureen created grassroots institutional change and inspired faculty members and others to follow.

Today we are fortunate to be surrounded by many other members of the ASPB community who continue to offer inspiration, often using *Plantae* and

ASPB training resources to have a global impact. Alex Rajewski and Sterling Field are helping ASPB to be a more welcoming environment for LGBTQ+ community members using *Plantae* ([bit.ly/LGBTQ\\_PlantSci](https://bit.ly/LGBTQ_PlantSci)) and through activities at the annual Plant Biology conference. Sonali Roy and Benjamin Schwessinger have led efforts to bring reproducibility training and training resources to the community (see [bit.ly/ExperimentalReproducibility101](https://bit.ly/ExperimentalReproducibility101) to get started). We are inspired by Liz Haswell, Joanna Friesner, and Jen Nemhauser for amplifying the importance of diversity for the future of plant science. They offer advice about making our disciplines more diverse on *Plantae* (see [bit.ly/PlantScienceDiversity](https://bit.ly/PlantScienceDiversity) and their article in July/August *ASPB News*), as well as through the *DiversifyPlantSci* database ([bit.ly/DiversifyPlantSciList](https://bit.ly/DiversifyPlantSciList)) and the *@DiversifyPlantSci* Twitter account. Consider how you can follow these advocacy examples by identifying institutional and community needs, and then use your energy and intellect to catalyze change.

**Influence the World by Becoming Part of Something Big and Positive**

For complex reasons beyond the scope of this essay, citizens across the world are becoming increasingly insular and nationalistic. This is interrupting an unusually long period of relative stability in large parts of the world and is dangerous. Seventy years without a continent-scale war was unheard of over hundreds of years of European history. If you live in a country where it is possible, get involved in politics by donating your time or money. If you have no taste for politics or you do not live in a democracy, work for positive change in your community. In addition to improving the world, it may lead you to become happier and more productive. Every one of us has a role to play in making the world more stable.

After pondering what message to leave with you, we offer the words of U.S. footballer Megan Rapinoe after her team received the Key to the City of New York from Mayor Bill DeBlasio on July 10, 2019: *"This is my charge to everyone. We have to be better. We have to love more, hate less. We've got to listen more and talk less. We've got to know that this is everybody's responsibility. Every single person here. Every single person who is not here. Every single person who doesn't want to be here. Every single person who agrees and doesn't agree. It's our responsibility to make this world a better place."* ■



Blossomed  
1989

# THE PLANT CELL IS 30!

#ThePlantCelebration30

This year Plant Biology 2019 celebrated 30 years of *The Plant Cell*. The anniversary T-shirt was designed by Nan Eckardt, senior features editor of *The Plant Cell*. It features nine outstanding images from the thousands of beautiful photos published in the journal over the years.

Place your order for the T-shirt and other anniversary items at

<https://my.aspb.org/store>



The image shows two views of a black t-shirt. On the left, a mannequin wears a t-shirt with a large graphic on the front. The graphic is a 3x3 grid of nine different plant images. Above the grid, the word "PLANT" is written in yellow. Below the grid, "#ThePlantCelebration30" is written in small text. On the right sleeve, there is a small yellow "PB" logo. In the center, a circular inset shows a close-up of the sleeve with a "PB19" logo and the text "PLANT CELL" below it. On the right, a women's fit t-shirt is shown, featuring the same front graphic and a small "PB19" logo on the left sleeve. Below the women's fit t-shirt, the text "Women's Fit" is written.

**The Plant Cell Anniversary T-Shirt** **\$22**



**16 Month Academic Calendar** **\$12**



**Athletic Knee High Socks** **\$11**



**Dress Socks** **\$12**



**5" x 7" Journal Notebook** **\$8**

**#PLANTBIO2019 HIGHLIGHTS**  
*continued from page 1*

The meeting participants were very diverse in career paths and stages, with a great turnout of early career researchers: 91 undergrads, 315 grad students, and 249 postdocs. Plant Biology 2019's schedule was packed with events, including 179 concurrent talks (including 29 two-minute lightning talks) and five major symposia (including three talks from the Awards Scientific Symposium winners).

**Day 1: Saturday, August 3**

The morning offered a choice of workshops, including an event coorganized with the Chinese Society for Plant Biology, which allowed several universities to introduce their infrastructure and engage in discussion with potential recruits.

The afternoon brought the ASPB President's Symposium, organized by Rob Last, and talks that were as much about humans as plants. Manajit Hayer-Hartl spoke about Rubisco and complex networks (of proteins and scientists), and Gaurav Moghe described families in metabolic networks.

Conference attendees took a break to enjoy birthday cupcakes in celebration of the 30th anniversary of *The Plant Cell* (check #ThePlantCellebration30 on Twitter for more anniversary excitement).

Also on Saturday, David Asai advocated for discovery-based science learning, and Beronda Montgomery revealed that we can learn a lot from mentoring "growing together" strategies from the study of plants and their environment.

The Awards Scientific Symposium showcased speakers Nathan Springer, talking about neighborhood and transposable elements; Mary Lou Guerinot, who discussed her goal of increased iron content in crops; and Pamela Ronald, talking about her career path in plant pathology and offering 20 tips to be an excellent scientist and science communicator.

The day ended with a reception for members of ASPB's early career programs, which provided the opportunity for attendees to meet with both ASPB and industry partners.

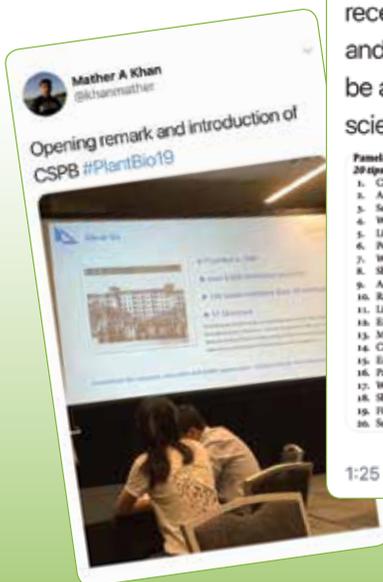
**Day 2: Sunday, August 4**

The morning was busy, with *The Plant Cell* Editor's Symposium, "Receptor Signaling in Plants," a session that encompassed

immunity (Cyril Zipfel), endocytosis (Jenny Russinova), fecundity (Julia Santiago Cuellar), and nutrient regulation (Giles Oldroyd). Midday workshops were offered, including the popular "Commercialization in Plant Science" and "When to Preprint/When to Publish."

The afternoon was filled with concurrent sessions as diverse as education, bioenergy, phenomics, and the Winslow Briggs Light Signaling session. The day ended with an intense poster session, including 867 physical posters and 154 electronic posters. Plant Biology 2019 was the first ASPB annual meeting to feature electronic poster presentations. The expanded poster session allowed for a lot of learning and interaction.

*continued on page 6*



**#PLANTBIO2019 HIGHLIGHTS**  
*continued from page 5*

**Day 3: Monday, August 5**

The third day started early with a networking breakfast followed by a major symposium on the future of food and agriculture. This symposium was particularly diverse, starting with a theoretical presentation by Timothy Griffin that was followed by a technical talk on how to use big data by Tom Osborn. After a coffee break, we got a “taste” of how the juicy and realistic 100% plant-based burger from Impossible Foods is made. David Slaughter provided insight into the future of farming using robots and drones.

The lunch break allowed attendees to mingle and attend conversation circles or small talks about opportunities beyond academia, the role of assistant features editors in *Plant Physiology* and *The Plant Cell*, and more. The afternoon was

filled with concurrent sessions, including how to decide between cutting-edge genomic tools, bioinformatics or metabolites for defense versus biotic interactions.

**Day 4: Tuesday, August 6**

The morning featured more than 50 talks spread over concurrent sessions.

The highlight of the afternoon was a major symposium on plant disease and resistance mechanisms. Xinnian Dong described the intercrossed roles of circadian clock, humidity, and plant defense. Sophien Kamoun drew a complex picture of NLR/NCR networks with genes as old as 100 million years. Wenbo Ma described the RNAi counterdefense battlefield, and Brian Staskawicz spoke about gene editing for fighting smart fungal pathogens.

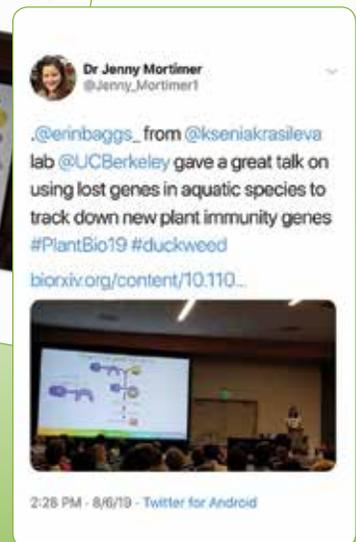
After a packed and animated town hall meeting, conference attendees met for drinks, snacks, dancing, and camaraderie at the annual party. The hit of the party was the second-floor “Dance Chamber,” with pulsing blue and red strobe lights.

**Day 5: Wednesday, August 7**

As in years past, the last day’s presentations were so good that it was worth staying until the final second. The major symposium on the future of plant synthetic biology, organized by Andrew Hanson, covered the use of nanomaterials for nucleic acid deliveries, a talk on delivering DNA into mature plants with nanomaterials by Markita Landry, a how-to on reprogram-

ming/hacking plants to create photosynthetic desalination units, by June Medford, and a fascinating presentation by Tobias Erb on how to rethink carbon fixation with a fully synthetic pathway composed of enzymes borrowed from nine different organisms. Sean Cutler showed how his group engineered inducible flowering.

For more details and perspectives on Plant Biology 2019, visit *Plantae* ([www.plantae.org](http://www.plantae.org); be sure to sign up for your own user profile if you have not done so already) and Twitter hashtag #PlantBio2019, which are packed with facts and opinions about all things learning and fun at Plant Biology 2019. ■



See you all next year in Washington, DC, for #PlantBio20!



**2019 ASPB winners, president, and speakers**

*Back row, left to right: Karen Koster (2019 Fellow of ASPB Award recipient), Andreas Weber (2019 Enid MacRobbie Corresponding Membership Award recipient), Rick Vierstra (2019 Stephen Hales Prize recipient), Craig Schenck (2019 Eric E. Conn Young Investigator Award recipient), Nathan Springer (2018 Charles Albert Shull Award recipient and speaker), James Carrington (2019 Fellow of ASPB Award recipient), Scott Peck (2019 Fellow of ASPB Award recipient), James Schnable (2019 Early Career Award recipient), David Mackill (2019 ASPB Innovation Prize for Agricultural Technology recipient), Maarten Chrispeels (2019 Adolph E. Gude, Jr. Award recipient), and Rob Last (ASPB president). Front row, left to right: Bob Buchanan (2019 Charles Reid Barnes Life Membership Award recipient), Jill Deikman (2019 Fellow of ASPB Award recipient), Alice Barkan (2018 Lawrence Bogorad Award for Excellence in Plant Biology Research recipient), Pamela Ronald (2019 ASPB Leadership in Science Public Service Award recipient and speaker), Manajit Hayer-Hartl (2018 Charles F. Kettering Award recipient), Mary Lou Guerinot (2018 Stephen Hales Prize recipient and speaker), Yi-Fang Tsay (2019 Enid MacRobbie Corresponding Membership recipient), and Tara Phelps-Durr (2019 Excellence in Education Award recipient). PHOTO BY KM DESIGN & PHOTOGRAPHY*



**2019 Recognition Travel Award (RTA) winners, past RTA recipients, and Minority Affairs Committee (MAC) members**

*Back row, left to right: Ravi Madhwani (friend of MAC), Jesus Hernandez (friend of MAC), Ivelisse Irizarry, Neelima Sinha (MAC), Patrick Thomas, Lauren Maynard, Miguel Vega-Sanchez (MAC), Jelani Lyda, Gustavo Macintosh (MAC chair). Front row, left to right: Asia Hightower (MAC), Gokhan Hacisalihoglu, Karina Morales, Brianna Griffin, Salvador Cruz Matus, William Jordan, Cris Argueso (MAC), Terri Long (MAC), Amanda Agosto Ramos, and Savithramma Dinesh-Kumar (MAC).*

# The Traveling #ThePlantCellebration30 T-Shirt: From San Jose to “Yes!”

JENNIFER A. REGALA

Managing Editor, *The Plant Cell* and *Plant Physiology*

**T**his year’s conference T-shirt was an indisputable hit.

Spotted everywhere on the streets of San Jose during Plant Biology 2019, these shirts traveled home with plant biologists all over the world.

It will be hard to top Kara Levin’s #ThePlantCellebration30 T-shirt story, though. ASPB headquarters staffers were abuzz when they spotted Kara on Twitter (@KaraLevin7) right after she became engaged to Kym Schmidt, in her conference shirt! Kara’s tweet proclaimed, “You’re not a true science nerd until you get ENGAGED in your #PlantBio19 T-shirt (because your partner flew 10,000 miles to surprise you in your hometown to ask you to marry him).”

Kara, a PhD candidate at the University of Adelaide, is studying wheat and cereal cyst nematode resistance. She decided to travel to her very first Plant Biology conference in San Jose and then to fly home to see her family in Maryland the following week. Kara made fast friends with fellow plant biologists, even some she already “knew” on Twitter. She made the most of every networking opportunity offered at the conference. She also gave a lightning talk and presented an e-poster.

Soon after landing in Maryland, Kara’s father insisted on going to historic downtown Annapolis for dinner on the water. Her dad walked her to the docks to “get a picture.” Much to



*Kara Levin, wearing her #ThePlantCellebration30 T-shirt, with fiancé Kym Schmidt.*

her surprise, Kym was standing there, waiting to propose to her! As luck would have it, Kara had dressed in the perfect outfit for

this life-changing occasion: the famous TPC30 T-shirt.

Not only is Kara enthusiastic about finding the love of her life, she has also realized how important ASPB is to her: “I think that ASPB is a necessary society. It’s a community that makes me feel like I belong and a place where I can search for help and advice, as well as keep up with exciting news within the plant biology group.”

Kara, if you want your wedding attendants to wear these T-shirts on your wedding day, please reach out to our publications staff! Black TPC30 shirts are the new black tie! ■



Save the date!

**PB20**  
PLANT BIOLOGY  
JULY 25–29 • WASHINGTON, DC



This article first appeared on the Princess of Asturias Foundation website on June 5, 2019 (<http://bit.ly/JoanneChoryAsturias>) and is adapted with permission.

## Joanne Chory Receives Princess of Asturias Award for Technical and Scientific Research

Joanne Chory has received the 2019 Princess of Asturias Award for Technical and Scientific Research for her work at the forefront of new lines of research with major future implications in the fight against climate change and its effects. Joanne shares the award with plant biologist Sandra Myrna Díaz (Argentina), who worked on the biodiversity component of the research. Awarded in Spain by the Princess of Asturias Foundation, this prize recognizes “the work of fostering and advancing research in the field of mathematics, astronomy and astrophysics, physics, chemistry, life sciences, medical sciences, earth and space sciences or technological sciences.”

Joanne graduated with a degree in biology with honors from Oberlin College and obtained her PhD in microbiology from the University of Illinois at Urbana-Champaign in 1984. She was a postdoctoral fellow at Harvard University and joined the Salk Institute in 1988, where she has occupied various positions, currently professor and director of the Plant Molecular and Cellular Biology Laboratory. She has been a Howard Hughes Medical Institute Investigator since 1997 and an adjunct professor at the



Joanne Chory, awarded Spain's 2019 Princess of Asturias Award for Technical and Scientific Research for her work on how plants may help humanity deal with climate change and protect biodiversity.

PHOTO BY EFE-EPA/CHRIS KEENEY/SALK INSTITUTE

University of California San Diego since 1992. Her field of research has focused on the study of regulatory mechanisms in plants, from the molecular to the cellular level, as well as plant responses to environmental conditions of stress. To conduct her research, she has used *Arabidopsis thaliana* as a model organism, revealing important aspects of the genes involved in functions such as sensitivity to light, the hormones that regulate

plant growth, and the response to hydric stress. Her contributions regarding the role of phytochrome, a plant photoreceptor sensitive to red and infrared light, and the coregulation of genes involved in photosynthesis are highly acclaimed.

Joanne is the executive director of the Salk Institute's Harnessing Plants Initiative. Employing the most innovative genetic editing techniques, such as CRISPR, this

research project combats global warming—and hence climate change—by optimizing the natural capacity of plants to capture and store carbon.

Her work has been distinguished with the L'Oréal–UNESCO Award for Women in Science (2000), the Breakthrough Prize in Life Sciences (2018), and the Gruber Prize in Genetics (2018), among others. Joanne is an elected member of the U.S. National Academy of Sciences (1999), an elected foreign member of The Royal Society (2011), a member of the American Association for the Advancement of Science, and the French Academy of Sciences, among other institutions. According to Google Scholar, her publications have been cited more than 60,000 times, with an h-index of 124.

Each Princess of Asturias Award recipient receives a Joan Miró sculpture symbolizing the awards, a cash prize of 50,000 euros, a diploma, and an insignia. The awards will be presented this autumn in Oviedo at a ceremony presided over by the king and queen of Spain. ■

This article first appeared online in Dateline UC Davis, July 29, 2019 (<http://bit.ly/pamronald>) and is adapted here with permission.

## Pam Ronald Returns to Sweden for Honorary Doctorate

BY DAVE JONES

Editor, *Dateline UC Davis*

**P**am Ronald, a distinguished professor in the Department of Plant Pathology at the University of California, Davis, has a vivid memory from the day she arrived in Sweden in 1984 to begin a year as a Fulbright Scholar at Uppsala University. “I was a young student who had just landed at the Stockholm airport, wondering how I was going to recognize my host, Professor Nils Fries,” Pam said. “My anxiety vanished when I saw a kind-looking man waving a stick with a *Boletus edulis* stuck on the end of it.”

That man was Nils Fries, an expert in fungi. “My flight had been delayed, so, while he was waiting, he jumped a fence to hunt wild mushrooms,” Pam said. Fries was in his 70s at the time—a scientist through and through, whom Pam remembers as “a very sophisticated, amazing, gentle man.”

In October, Pam will return to Sweden to receive an appointment as an honorary doctor of the Swedish University of Agricultural Sciences (Sveriges Lantbruksuniversitet, or SLU), more than 30 years after receiving her first degree in Sweden, a master of science in physiological botany from Uppsala.

### Fascinated by Fungi

Pam was an undergraduate at Reed College in Portland, Oregon, studying mycorrhizal fungi (species that form symbiotic

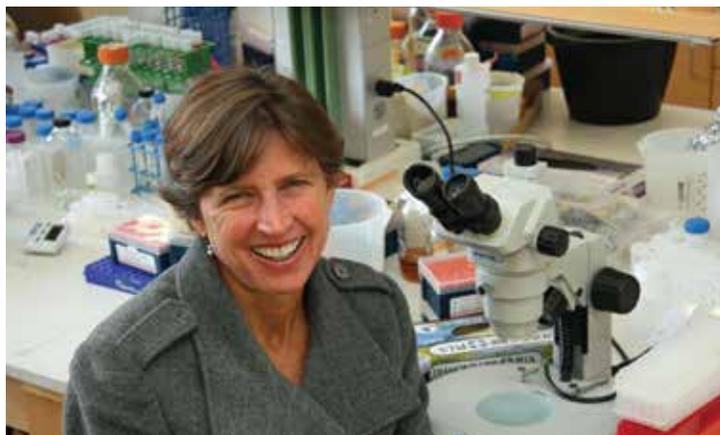


PHOTO BY JOHN STUMBOS/UC DAVIS

relationships with plants) when she learned of Fries. “I had read his work, and I had written to him to ask about working in his lab,” she said. “And he wrote back! It was so very exciting for me at that age.”

A few years later, after receiving a master’s degree in biology from Stanford, she applied successfully for a Fulbright fellowship to work with Fries at Uppsala. “My work in his lab enhanced my interest in science,” Pam said. Back then, she worked with fungi and trees, studying the microbial connections between them, specifically how fungi contribute to tree health.

Along the way, she discovered the difficulty of working with pine trees, mainly because they grow so slowly. Later, while working toward her PhD, she studied tomatoes and peppers, and eventually she switched to rice,

“always researching how plants and microbes recognize and respond to one another,” she said.

Her choice of rice was deliberate—it is one of the most important food crops in the world, and she wanted to help impoverished farmers. She is known for her contributions, with Dave Mackill, adjunct professor of plant sciences, to the isolation of a submergence-tolerance gene that led to the development of flood-tolerant rice varieties now grown by more than 6 million farmers in South and Southeast Asia.

Pam graduated from Reed in 1982, then earned her MS in biology from Stanford in 1984. After that she went to Sweden for her second MS, to UC Berkeley for a doctorate in molecular and physiological plant biology, and to Cornell for a postdoctoral fellowship. She joined the UC Davis faculty in 1992.

Besides her affiliation with the Department of Plant Pathology, she has an appointment at the Genome Center and the federally funded Joint BioEnergy Institute, which is working on biofuels. The latter, in Emeryville, California, is led by Lawrence Berkeley National Laboratory, with UC Davis among the institute’s academic research partners.

### Honorary Doctorate

On October 5 of this year, at SLU, Pam will become an honorary doctor of the Faculty of Natural Resources and Agricultural Sciences. She and this year’s other honorary doctors will give lectures the day before.

The university’s announcement states in part that researchers in several departments praised Pam’s “excellent contributions to science and outstanding ability for balanced communication” and that they hoped for “future collaboration in spreading knowledge about agriculture and plant breeding throughout society.”

The announcement references her 2015 TED talk on plant genetics, food security, and sustainable agriculture (<http://bit.ly/PamRonaldTedTalk>; translated into 26 languages and viewed more than 1.7 million times) and the book *Tomorrow’s Table: Organic Farming, Genetics, and the Future of Food*, by Pam and her husband, Raoul Adamchak,

*continued on page 12*

**PAM RONALD**  
*continued from page 11*

market garden coordinator at UC Davis's Student Farm.

In Sweden, Pam will meet up with her friend from the Fries lab, Gunilla Swedjemark, who will accompany her to the ceremony. Professor Fries died in 1994.

**Public Service Award**

Pam received the 2019 ASPB Leadership in Science Public

Service Award, recognizing individuals who have advanced the mission of the Society and its members through significant contributions to plant science and public policy leadership. "Pam is recognized for her tremendous contributions to the national and international dialog on agricultural production and plant science," the Society said in a June 25 news release (<http://bit.ly/aspb-leadershipinscience>).

Luis Herrera-Estrella, who won the award in 2008, said of Pam, "She has done a great public service by doing high-quality research with great practical implications and also by communicating to the general public the importance of plant biotechnology for sustainable agriculture." In conjunction with receiving the award, Pam gave an address at Plant Biology 2019 on August 3 in San Jose.

Both awards come on top of Pam's election in April to the National Academy of Sciences. She will be formally inducted at the academy's annual meeting in April 2020 in Washington, DC. ■



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## 2019 ASPB/AAAS Mass Media Fellow Reports In

BY NIKKI FORRESTER  
Freelance Science Writer

I sincerely thank ASPB for sponsoring the ASPB/AAAS Mass Media Science & Engineering Fellowship program and giving me the opportunity to work at the *St. Louis Post-Dispatch* this summer.

Reporting for the *Post-Dispatch* was a phenomenal experience that transformed my perspective of science journalism. I covered research and conservation at the Missouri Botanical Garden and Donald Danforth Plant Science Center. I also wrote about cat allergies, Apollo moon samples, businesses going green, and a research station in the suburbs.

My favorite story was about an urban garden in St. Louis that involved a partnership between a community church and The Nature Conservancy. I learned that the garden resulted, in part, from a legal settlement between the Environmental Protection Agency and the Metropolitan St. Louis Sewer District. While conducting interviews, I met a woman who was born and raised in St. Louis who remembered when her parents would get fresh produce from the market. Over time, she watched businesses close, people move away, and her entire neighborhood change. Now, she volunteers in the garden to bring fresh vegetables to her community once again.



Part of the reason I loved this story was that there were so many dimensions to it. There was science, religion, business, history, politics, and sociology. I was only able to scratch the surface of this complexity in my article, but it was essential to see how science was linked to everything else in the community.

Throughout the summer, I noticed that many people in St. Louis were using science to address environmental and social injustices. Because of this, I couldn't write stories just about science. I had to tell stories of people, challenges, wonder, and discovery, all of which occurred

in a particular place with its own realities and needs.

These discussions continually reminded me of the responsibility I had as a science journalist. Because I chose the stories I wanted to cover, selected the people I interviewed, and wrote each piece, I felt a deep obligation to tell these stories accurately. It wasn't always easy to know whether what I was doing was right, partially because I didn't get feedback from my sources until after pieces were published. Thankfully, I was surrounded by a team of reporters and editors who were willing to help in any way they could.

Working for the *Post-Dispatch* helped me become a much better interviewer, writer, and editor. Writing is a muscle, and using it every day was critical for my development as a journalist. Working on deadline and going through detailed critiques helped me identify pitfalls in my approach and better ways to engage an audience.

On a broader scale, I learned how a newsroom functions when a paper has to be published every day. Journalists provide a service to the public. They value their work, support one another, and work extremely hard to tell accurate, important, and engaging stories. Being part of the *Post-Dispatch* newsroom helped me gain a new level of appreciation for local journalism. Without local journalists, many stories would not be told and many local challenges wouldn't be uncovered. And because local journalists are part of the community, they tell these stories in a way no one else can. Every community deserves media coverage relevant to its people and place. This fellowship renewed my commitment to local journalism, and to ASPB for supporting it. ■

# Report from the 2019 AAAS Ralph W. F. Hardy Mass Media Science & Engineering Fellow

BY BECKY MACKELPRANG  
University of California, Berkeley

A few years ago, I glanced at the lunchroom table in my graduate school lab and picked up a copy of the *ASPB News*. I read about the AAAS Mass Media Science & Engineering Fellowship, and my interest was piqued by the reflections of a recent fellow about her summer. I was surprised that such an amazing opportunity existed, and having started exploring my interest in science communication, I began plotting out the steps I could take to maybe—just maybe—be a successful candidate for a fellowship myself.

Now, having recently returned from my summer as a fellow, I get to offer up my own reflections. The experience was everything I could have hoped for. I am grateful for my sponsorship by the Ralph W. F. Hardy Endowment and also appreciate the support I felt from the *ASPB* community.

I spent the summer at Ensia, a media outlet that focuses on solutions to environmental issues. When I arrived at Ensia, I didn't have a good understanding of what "solutions journalism" meant. Over the summer, I came to understand and appreciate a journalistic approach that recognizes the monumental environmental challenges we face, but that takes stories a step further to discuss how diverse stakeholders, including scientists, are tackling those challenges.



I was able to write about some of my favorite topics in plant biology. I was glad to write about how plant volatile organic compounds emitted by one plant can induce responses in another because plant-to-plant communication was one of the topics that initially interested me in plant biology. Maybe my article will ignite that interest in others.

In another piece, I explored the intersection of genetics and conservation. I wrote about ways CRISPR can potentially be used as a tool for preserving biodiversity. In that piece, I also wrote about the conversations scientists are having about when, if, and how to use genome editing to preserve biodiversity. It's helpful, I think, to communicate to the public that some scientists are

enthusiastically creating spaces to talk about where science, the unknown, and ethics collide.

One of my favorite parts of the summer was interviewing scientists. What a treat to ask innovative scientists about their work! I spoke with scientists all around the world, including Brazil, Nigeria, the Galápagos Islands, Australia, the United Kingdom, and across the United States. In addition to ensuring that I can do time zone conversions, this experience gave me a stronger appreciation for the curiosity and passion among the people who make science the focus of their professional lives.

I also learned about the behind-the-scenes aspects of journalism. I was able to read story pitches Ensia received and

provide the editorial team with input about them. I learned more about how editors approach their job, how fact checking works, and how visuals are chosen and created for stories. I learned strategies for how I might approach writing freelance pieces in the future.

With the mentorship I received at Ensia, I saw my writing improve over the summer. I learned to look for the threads within my writing that I could pull on to create a cohesive narrative. I learned which phrases I assumed everyone knows are, in fact, jargon. And the experience affirmed that, to me, science communication presents fun intellectual challenges—the types of challenges that I want to take with me into my future career.

I am grateful to AAAS for their long-standing commitment to science communication. I am a member of the 45th class of Mass Media Fellows, and I hope the program sees at least 45 more years. I am grateful to the people at Ensia for hosting and mentoring me this summer, to the Ralph W. F. Hardy Endowment for sponsoring me, and to *ASPB* for being a longtime supporter of the fellowship. I look forward to following the fellowship in the future. And in a few years, maybe I'll be reading about you. ■

## Policy Update

BY MICHAEL BUSE  
Lewis-Burke Associates, LLC

### NIFA and ERS Begin Move to the Midwest

On June 13, Agriculture Secretary Sonny Perdue announced that the National Institute for Food and Agriculture (NIFA) and the Economic Research Service (ERS) will be relocated to the Kansas City region. According to the press release, the city was selected on the basis of a cost-benefit analysis conducted by USDA that concluded the move could save as much as \$300 million over 15 years. Perdue also noted that NIFA and ERS are the only USDA agencies that are exclusively in the DC area, arguing that the move will bring experts closer to stakeholders in ways they already should have been.

Although the incentive package information has yet to be released, the Agricultural and Applied Economics Association has disputed the accuracy of the findings, arguing that omitted costs indicate a much higher price tag. The move will transition a combined 623 positions to the Midwest and keep a combined 100 in the Washington, DC, area. USDA hopes to complete the transition by the end of September.

Following the mid-June announcement, employees of NIFA and ERS were given a deadline of July 15 to submit their intention to relocate or resign their roles with USDA. According to a spokesperson at USDA, only 73 NIFA employees had accepted

their relocation assignment, and 153 had submitted their resignation. And although 72 of the reassigned ERS employees had accepted their new assignment, 99 had chosen to leave ERS. Although final data will not be available until the agencies complete the move in September, these high levels of attrition are likely to have far-reaching impacts on the future of these agencies and USDA as a whole.

Although NIFA and ERS have been quick to get the move underway after selecting Kansas City, they have encountered another potential delay: finding office space. On July 11, the General Services Administration (GSA), which oversees much of the federal procurement and leasing process, extended the deadline for proposals from July 7 to August 7. It remains to be seen what the overall impact of staff attrition and these additional delays will be on the activities of the agencies.

Those in opposition to USDA's proposal did breathe a sigh of relief when the secretary announced that the department would forgo the plan to realign ERS under the office of the chief economist, leaving ERS under the purview of USDA's chief scientist. The realignment was seen by many in the community as an attack on the research being done by ERS scientists and an attempt to punish the agency for publishing findings that did not support the administration's policies.

### Sources and Additional Information

- The USDA press release announcing the move to Kansas City can be found at <https://tinyurl.com/yy5gh6eu>.
- More information on staff attrition can be found at <https://tinyurl.com/yxz7o9la>.
- More information on the GSA extension can be found at <https://tinyurl.com/yxqs6sfz>.

### House and Senate Agree to Two-Year Budget Deal

On July 22, the White House and House Speaker Nancy Pelosi (D-CA) reached a tentative two-year budget deal that would raise spending caps by \$320 billion and suspend the debt ceiling for two years. With a budget agreement in place, the Senate is expected to finish drafting its fiscal year (FY) 2020 appropriations bills and to start advancing them through committee in September.

At the time of this writing, the Senate had not advanced or passed any of the 12 annual appropriations bills. If the Senate moves forward quickly with its appropriations bills, as they did last year, Congress could group several appropriations bills in a minibus package and pass it before the end of the fiscal year. However, it is likely that Congress will have to pass a continuing resolution to avoid a government shutdown and continue funding at FY2019 levels for most, if not all, government agencies.

Of interest to the academic and research community,

although the budget agreement provides a boost in funding in FY2020, there is almost no growth in funding in FY2021, with only a \$2.5 billion increase in nondefense spending that year. Given these limited increases, advocacy will be especially important focused on robust funding in FY2020 for federal science agencies and federal programs that fund research priorities for the academic and research communities.

### Source and Additional Information

- The Bipartisan Budget Act of 2019 can be found at <https://tinyurl.com/y2edy4rs>.

### President Issues Executive Order Streamlining Process for Agricultural Biotechnology

On June 11, President Trump announced a new executive order (EO), "Modernizing the Regulatory Framework for Agricultural Biotechnology Products," intended to enhance coordination across relevant agencies and decrease the regulatory burden associated with agricultural biotechnology. The EO directs USDA, the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA) to streamline regulations and promote innovation and public confidence in both regulations and products. The EO defines agricultural biotechnology as a plant, animal, or derived prod-

*continued on page 16*

## POLICY UPDATE *continued from page 15*

uct developed through genetic engineering or through “targeted in vivo or in vitro manipulation of genetic information, with the exception of plants or animals, or the products thereof, developed for nonagricultural purposes, such as to produce pharmaceutical or industrial compounds.”

The EO recommends that agencies base decisions on scientific and technical evidence, review applications in a timely and efficient process, ensure “transparency, predictability, and consistency of the regulation of products of agricultural biotechnology,” make regulatory determinations based on “risks associated with the product” and “intended use,” and urge trade partners to “adopt science- and risk-based regulatory approaches.” Agency leadership was given 180 days to identify regulations that can be streamlined and to use existing authority to exempt “low-risk” products from undue regulation. The EO builds on the recommendations released by the Interagency Task Force on Agriculture and Rural Prosperity in January 2018.

EPA, FDA, and USDA currently steward the Coordinated Framework for the Regulation of Biotechnology, which was established in 1986 and gives distinct roles to each agency in the oversight of products to ensure protection of human, animal, plant, and environmental

health. These roles and associated reporting requirements can be complex for stakeholders attempting to certify new products. The EO tasks the agencies with the creation of an online portal that can more easily connect researchers and product developers with relevant resources.

Additionally, the EO charges the agencies with developing a domestic engagement strategy to build public trust in biotechnology that supports research and education on effective science communication, integrates biotechnology into science education, creates “consumer-facing web content,” and develops materials that communicate the safety and benefits of biotechnology. This strategy will involve coordination between USDA and state-level agriculture departments.

### *Source and Additional Information*

- The executive order can be found at <https://tinyurl.com/y3xaaa7y>.

## Trump Administration Looks to Terminate FACA Committees

On June 14, President Trump issued an executive order calling on agencies to cut one-third of their advisory committees by the end of the fiscal year. This comes two months after the Department of the Interior chose to shutter the Invasive Species Advisory Council amid budget reductions proposed by the administration. The EO applies to advisory committees created through the Federal

Advisory Committee Act (FACA) and affects only committees that are not mandated by statute. The order directs agencies to cut any and all FACA committees whose stated objectives have been accomplished, that have become obsolete or redundant, or whose cost of operation outweighs their benefits. The EO further calls on agencies to cap the total number of FACA committees at 350 and bars the creation of new committees, except with a waiver, if the number would exceed the cap.

### *Source and Additional Information*

- The executive order can be found at <https://tinyurl.com/yy6xtspX>.

## NSF Releases Notice of Intent to Recompete NEON Contract

On July 26, NSF released a Dear Colleague Letter (DCL) announcing its intention to hold a competition for the management of the National Ecological Observatory Network (NEON). The contract, last awarded to Battelle in 2016, is expected to begin late in calendar year 2021 and to last for five years with a possible five-year renewal. Construction of NEON was completed in May, and now the contract will shift to management and operations. The headquarters in Boulder, Colorado, will be home to a data repository and specimen collections to support scientific collaboration between NEON and the community. Roland Roberts of the Division of Biological Infrastructure, who

serves as program director for NEON, expressed his vision that NEON will embrace a community-building role in support of ecology and other scientific disciplines that might leverage the network’s research.

This DCL comes on the heels of months of tension between Battelle and the greater scientific community. NEON experienced a tumultuous January, during which chief scientist Sharon Collinge resigned and Battelle Memorial Institute, the nonprofit that NSF contracted to manage NEON, dissolved the Science, Technology & Education Advisory Committee (STEAC) only to reinstate it a week later following tremendous community pressure. A letter from the STEAC membership expressed that Battelle’s handling of the situation had bred “mistrust” among the scientific community and that Battelle’s actions had “put the project at massive risk.” Frustrations with Battelle reached a boiling point when members of the Biological Sciences Advisory Committee stated at their May meeting that Battelle was a “bad steward of science.”

### *Sources and Additional Information*

- The Dear Colleague Letter can be found at <https://tinyurl.com/y3of9an5>.
- More information on the NEON program can be found at <https://tinyurl.com/yxv4cb7o>. ■

## Education and Outreach at the Plant Biology 2019 #ASPBForward Innovation Pavilion

BY WINNIE NHAM  
ASPB Education Coordinator

The #ASPBForward Innovation Pavilion at Plant Biology 2019 in San Jose, California, in August was filled with interactive education activities and discussions. Among the booth activities were demos and discussions hosted by the 2018 Plant Biology Learning Objectives, Outreach Materials, & Education (Plant BLOOME) grant winners:

- Engaging virtual reality (VR) experiences were hosted by the VRPlants team, including Larry Blanton, Colin Keenan, and Victoria Gerson, from North Carolina State University. Visitors donned VR glasses to test experiential education tools the VRPlants team has

developed to teach plant biology topics and eradicate plant blindness. These tools include a 360° tour and teaching hike of NC State's longleaf pine field laboratory, a digitized collection of plant specimens, and web VR apps designed to complement plant biology lesson plans. On the Innovation Stage, the VRPlants team shared more about using VR platforms to create digitized teaching collections.

- Mautusi Mitra (University of West Georgia) displayed solar-powered algae bead bracelets and necklaces that change color as they shift from light to darkness. Booth visitors were able to make their own brace-

lets and necklaces, which can be used to teach K–16 students about photosynthesis and respiration in a fun, interactive manner.

- Jessica Savage (University of Minnesota) shared curriculum activities developed with a Plant BLOOME grant that use an online visualization tool made by the National Phenology Network. Geared toward high school and college students, the activities encourage citizen science data collection and look at what phenological data can tell us about climate change.

Visitors also had the opportunity to learn about mentoring, publishing, and outreach oppor-

tunities from representatives of other organizations at the booth, including the PALM (Promoting Active Learning and Mentoring) Network, *CourseSource*, and *PlantingScience*. Additionally, the ASPB Education Committee hosted several conversation circles to spark discussions about innovative teaching tools and ways ASPB members can get more involved in the Society's education and outreach activities. We hope these ideas and conversations will extend beyond Plant Biology 2019 to serve as an inspiration and resource for our members into the start of the academic year. ■



Mautusi Mitra (center) demonstrating her algae bead-making protocol.



Booth visitors testing out the VRPlants virtual reality experience.

# Education Evaluation and Assessment at Plant Biology 2019

BY SARAH WYATT  
Ohio University

Assessment is necessary for evaluating how well our students are learning and whether our programs and classes actually meet the intended objectives. At Plant Biology 2019, an education workshop focused on evaluation and assessment.

Workshop participants were divided into roundtable working groups that each explored one of several topics, and participants worked with two groups during the workshop. One topic was overall program and curriculum assessment and course assessment and outcomes, hosted by Gloriana Trujillo (Stanford University) and Zachary Hui He (San Francisco State University). MariaElena Zavala (California

State University, Northridge) led a group in discussing ways to increase the diversity of assessments to be more inclusive of student backgrounds and learning styles. Estelle Hrabak (University of New Hampshire) and Tara Phelps-Durr (Radford University) shared their insights on measuring excellence in undergraduate research.

Good discussions were had all around, and the concluding large-group discussion provided a range of insights found and lessons learned. A list of resources referenced in the workshop can be found on the Plantae higher education network (<https://bit.ly/2m0ZGpg>). ■



Workshop participants and facilitators in a roundtable discussion on education evaluation and assessment.

## Call for Papers



## *Plant Physiology*

### 2020 Focus Issue on Parasitic Plants

Edited by Harro Bouwmeester, Claude dePamphilis, Neelima Sinha, and Julie D. Scholes

Submission Deadline: April 6, 2020, Publication Date: December 2020

This Focus Issue will showcase Updates and Research Articles in the field of parasitic plants on topics such as the parasitic plant life cycle and lifestyle (and how this compares to other pathogens), germination stimulants/strigolactones and the strigolactone receptor in parasitic plants, haustorium formation, the transfer of information between parasitic plants and their hosts, host manipulation by parasites, and the evolution of plant parasitism.

For more information go to <https://aspb.org/ppfocus/>.

# Education Concurrent Symposium at Plant Biology 2019 Showcases Novel Ways to Increase Student Interest and Engagement with Plants

BY ESTELLE HRABAK  
University of New Hampshire

The education concurrent sessions at Plant Biology 2019 in San Jose, California, in August showcased exciting work from recent Plant Biology Learning Objectives, Outreach Materials, & Education (Plant BLOOME) award winners and other plant scientists, all of whom had developed novel ways to increase student interest in and engagement with plants.

The first two speakers, Colin Keenan from Richard Blanton's group at North Carolina State University and Mautusi Mitra from the University of West Georgia, were awarded Plant BLOOME grants in 2018. Colin described the initial phases of development of VRPlants, a virtual reality (VR) system that allows users to interact with and learn about a variety of plant specimens in an extended-reality setting. Mautusi has developed a variety of lab exercises for middle school, high school, and college students that use the green alga *Chlamydomonas* to teach processes such as phototaxis and techniques such as cloning, sequencing, and bioinformatics. Both researchers also spent many hours at the ASPB Education & Outreach booth in the main exhibit hall, letting attendees enter a new world via the VR goggles or learn to make



*Education concurrent symposium speakers, left to right: Ashley Cannon (University of North Texas), Katherine Krolukowski (Contra Costa College), Mautusi Mitra (University of West Georgia), Colin Keenan (North Carolina State University), Eric Brenner (Pace University). PHOTO BY ESTELLE HRABAK*

*Chlamydomonas* bracelets.

Eric Brenner (Pace University), Katherine Krolukowski (Contra Costa College), and Ashley Cannon (University of North Texas) rounded out the afternoon's presenters. Eric discussed Plant Tracer, a program to analyze and quantify plant movements. Students can record a video of a shoot gravitropic response with an iPhone, then generate quantitative data for analysis. Both Katherine and Ashley are at institutions where student demand for the hands-on research train-

ing needed to obtain jobs in the biotech industry outpaces the capacity for one-on-one experiences.

Katherine described courses that provide students at her institution, many of them first-generation college students, with opportunities to perform research on the plant-soil microbiome at a local agricultural nonprofit as part of a long-term project to improve the soil. Similarly, a course designed by Ashley and her colleagues focused on providing training in sophisticated

molecular biology techniques to a highly diverse student body. By comparing pre- and postcourse surveys, they found that students reported feeling more sure of their abilities and having a better understanding of the type of career they wanted. Thanks to all of the speakers for making the session a success. ■

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