The Uniting Power of Green

BY KATIE DEHESH
ASPB President, University of California, Riverside

Climate change knows no borders. This obvious truth, and the well-recognized impacts of global warming on agriculture and food security, as well as the broad scope of individual and organizational efforts to ameliorate this urgent threat, were on display at the United Nations Climate Change Conference of the Parties (COP26) in Glasgow on October 31–November 12, 2021. Presentations at COP26 ranged from descriptions by governments of national-level efforts to reduce fossil fuel–based carbon emissions and reduce rising atmospheric CO₂ levels to reports by individual research groups and organizations on carbon capture initiatives using an array of technological applications and coordinated biosphere approaches.

Efforts to reduce current CO₂ levels comprise a spectrum of nonbiological and biological methods. The nonbiological methods encompass a large array of technological applications exploiting chemical and physical approaches. The biological approaches are centered primarily on the understanding that natural carbon storage is by far the most impactful climate solution we can implement apart from cutting fossil fuel emissions. Efforts to use the CO₂ fixation capacity of plants, broadly targeted at the capture and storage of carbon above and/or below ground, are being pursued. For example, halting and reversing forest loss and expanding and diversifying existing forests are among the most effective terrestrial approaches to capturing and storing carbon. The IPCC (https://www.ipcc.ch) estimated that 1 billion ha of forest would keep global warming increases below 1.5°C by 2050.

An additional seminal strategy was eloquently formulated by Joanne Chory, Salk Institute for Biological Studies, in her acceptance speech for the 2018 award for Breakthrough Prize in Life Sciences. This strategy targets exploiting our understanding of the intrinsic biology of plants. Although plants are effective in capturing CO₂ from the atmosphere by the process of photosynthesis, that fixed carbon is ultimately recycled back to the environment. Chory has proposed and is implementing a strategy to ensure that the captured CO₂ is sequestered in a nonrecyclable form for an extended period. She is using genetic engineering to generate plants that both convert captured carbon into enhanced levels of suberin in the roots and produce larger and deeper roots. This suberin, sequestered in the subterranean root biomass, is refractory to degradation by soil microflora, thus providing long-term underground carbon storage, resistance to re-emission to the atmosphere, and sequestration.

What can we do? As individual plant biologists, we can give some thought to how we might be able to use our own knowledge and experience with plant systems to develop new approaches that might contribute to plant-mediated CO₂ capture and sequestration. In addition, as we are all aware, there are widespread discussions, proposals, activities, and organizations aimed at curtailing climate change. As individuals, we can, like all other members of society,

- participate in public debates,
- visit classrooms,
- contribute financially to supporting such efforts, and
- help raise awareness of the small ways individuals can contribute on a daily basis.

But how can we best use the power of the united voices of our ASPB membership to make a difference in climate change?

I am by no means an expert in dealing with the broad scope of issues raised by climate change, but as ASPB president, I would like to represent you in conveying the extent of the existing research efforts of our individual members toward addressing climate change and in presenting our consensus views to those we may be able to influence. Thus, I am asking you all, as members of ASPB, to share your research programs, thoughts, views, suggestions, and so forth on what the content of our agenda should be and the targets you think may be most receptive to our input as an association of plant biologists.

What can we, as a Society, do to contribute to the solution of this critical

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2021–2022 Awards Committees

Listed below are Awards Committee members for the current year. The year in which each committee member’s term ends is indicated in parentheses.

**Adolph E. Gude Jr. Award**
Julia Bailey-Serres (2022), chair  
Maarten Chrispeels (2022), past winner  
Wendy Boss (2022)  
Joseph Hirschberg (2025)  
Sharlene Weatherwax (2025)

**Charles Albert Shull Award**
Dominique Bergman (2024), chair  
Adrienne Roeder (2022), past winner  
Libo Shan (2022)  
Marisa Otegui (2023)

**Charles F. Kettering Award**
David Somers (2026), chair  
Donald Bryant (2022), past winner  
Jennifer Fletcher (2026)  
Thomas Sharkey (2026)

**Charles Reid Barnes Life Membership Award**
Tuan-hua David Ho (2022), chair  
Bob Goldberg (2022), past winner  
Alan Jones (2023)  
Hailing Jin (2024)

**Early Career Award**
Hiroshi Maeda (2023), chair  
Troy Magney (2022), past winner  
Charlie Anderson (2023)  
Paula McSteen (2023)

**Enid MacRobbie Corresponding Membership Award**
Steffen Abel (2024), chair  
Jaswinder Singh (2023)  
Marilyn Anderson (2024)  
George Coupland (2024)  
Keiko Sugimoto (2024)

**Excellence in Diversity and Inclusion Award**
Cris Argueso (2026), chair  
Karina Morales (2022)  
Adam Steinbrenner (2024)  
Sophia Stone (2026)

**Excellence in Education Award**
Yan Lu (2023), chair  
Rupesh Kariyat (2022), past winner  
Karen Hicks (2022)  
Marta Laskowsk (2023)

**Fellow of ASPB Award**
Neelima Sinha (2023), chair  
Bonnie Bartel (2022)  
Julia Frugoli (2023)  
Joe Kieber (2023)

**Lawrence Bogorad Award for Excellence in Plant Biology Research**
David Jackson (2026), chair  
Alice Cheung (2022), past winner  
Eva-Mari Aro (2024)  
Justin Walley (2026)

**Robert Rabson Award**
Ken Keegstra (2022), chair  
Diane Okamuro (2022)  
John Shanklin (2024)  
Matthew Hudson (2026)

**Stephen Hales Prize**
Becky Boston (2023), chair  
Detlef Weigel (2022), past winner  
Alice Cheung (2022)  
Steve Briggs (2023)

**Summer Undergraduate Research Fellowship**
Chris Wolverton (2022), acting chair  
Amy Marshall-Colon (2024)  
Erich Grotewold (2022)  
Thomas Eulgem (2025)  
Meteweb Ayelew (interim)
Changes to the ASPB News

In anticipation of the ASPB News’s 50th year in 2023, the ASPB Membership Committee has approved upgrades and redesigns for the treasured publication. This is not the first time the ASPB News has been revamped, but it may be the most complete revamp of the newsletter to date. You will see some of the changes in this issue; other changes will be rolled out in subsequent 2022 issues.

When working on the redesign of the newsletter, the Membership Committee first discussed the purpose of the ASPB News, now and in the future. They determined that every article in the ASPB News should fill at least one of the following purposes:

1. Serve as a call to action for ASPB members
2. Celebrate the people of the plant science community, highlighting members
3. Notify members about activities and initiatives of ASPB, including committees and sections
4. Inform members about the policy activities of ASPB
5. Provide updates on current topics important to the plant science community
6. Publicize opportunities related to membership and meetings aimed at both members and nonmembers.

From there, the committee determined that to serve these purposes, it would be best to publish four issues of ASPB News, rather than six, so we can better curate content. Each of the four issues will focus on a theme that extends across several articles. These themes, in calendar order, are Membership, Policy, Education and Outreach, and Science and Research.

Other changes over the next few issues are as follows:

1. Each issue will have a cover that is designed to be attractive when left in offices and labs and shared with colleagues.
2. More articles will be solicited and accepted from the ASPB community. If you are interested in submitting an idea for an article, please contact info@aspb.org.
3. A new “Perspectives” column will highlight a topic of importance to plant scientists, although not always plant science related, and we will ask two to four members of the ASPB community to share their thoughts on the matter.
4. The newsletter will publish more policy-related articles from inside and outside the United States.
5. One of the most exciting changes will be the addition of interactive content. Some articles will have QR codes that readers can use to access more information and forums for discussions on the topic.
6. Opting out of receiving the print or email versions of the newsletter is now easier to do from your ASPB Portal profile (https://members.aspb.org/s/).

The following features of the ASPB News will remain the same:

1. The ASPB News will still be published both in print and electronically via email.
2. The issues will continue to be archived at https://aspb.org/aspb-news-past-issues/.
3. The Member Corner, Where Are They Now, Luminaries, and Unsung Heroes columns will still appear twice each year.
4. The President’s Letter will continue to be featured in each issue.

We hope that these changes will improve your enjoyment of the ASPB News. We encourage you to provide feedback on the changes by contacting info@aspb.org.
Laura Arribas-Hernández
Member since December 2021
I’m a postdoctoral researcher from Spain working on plant RNA biology at the University of Copenhagen. I became an ASPB member because I want to attend Plant Biology 2022 in Portland, Oregon. I saw that attendance is much more affordable for members and that, as a member, I could apply for travel grants. Although the price of membership was also something to consider, I noticed that memberships can be paid by group leaders with “ASPB miles,” which are given as a reward for reviewing journal articles. My supervisor, Peter Brodersen, often reviews for The Plant Cell and Plant Physiology, so I asked him if he had miles to cover my membership, and voilà! I became a member in the blink of an eye. I quickly used my new membership to apply for a Women’s Young Investigator Travel Award just before the deadline, and I’m crossing my fingers because I really would like to attend PB22.

Because my membership is still very young, I’ve barely had time to see what other advantages it may bring, but just by browsing the ASPB website I have learned some useful stuff. I have to admit that my Europe-based origin and career development to date have provided very little scientific contact with U.S. labs other than through journal articles. I hope that my new ASPB membership and (hopefully) attendance at Plant Biology 2022 will change that, and that I can expand my scientific horizon toward the United States in the future.

Judy Brusslan
Member since 1992
My first Plant Biology meeting was in San Antonio, Texas, in 1996. In 1995, I had become an assistant professor at California State University, Long Beach (CSULB), a primarily undergraduate institution (PUI) where I was the sole plant biologist, and ASPB offered a critical lifeline to current findings in plant biology. I remember attending as many presentations as I could fit in, running between talks during concurrent sessions, taking copious notes, speaking with colleagues at my poster, and staying out late every night. It was thrilling!

As my years at CSULB continued, ASPB offered the opportunity to bring undergraduate and master’s degree students to conferences, where they could experience the breadth and excitement of research. My students have presented undergraduate posters at Plant Biology and ASPB Western Section meetings and have greatly valued their in-depth conversations with other professors.

When I became an academic mom with two small children, I shared my experiences at Plant Biology career panels, encouraging others to be parents if they wanted. Last year, I was honored to speak in an education session about my efforts to incorporate primary literature into my courses. Plantae has allowed me to view plant biology talks from my home office. And when the Plant Biology conference returns in person, I plan to bring two students, who are looking forward to presenting their findings to interested colleagues.

The ASPB PUI community keeps me connected with other plant biologists who prioritize teaching and still run research labs. The ASPB community as a whole continues to foster my love of plant biology.

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Where Will You Find Me, When I’m Out of the Office?

BY ASHLYN WEDDE
Trait Portfolio Manager, Driscoll’s Global R&D, and ASPB Membership Committee
Postdoc Representative

While interviewing for graduate school, I asked a professor, Michael Kahn, for advice on how to make it through grad school. He shared some excellent advice, and I still think it applies to both school and life: “Work hard in your courses and in your research, but also focus on a hobby you love that is unrelated to your work. That way, when you fail a test, or your research comes to a dead end, you have something positive to invest your time in and keep you mentally strong to persevere.” I took this advice to heart and began horseback riding and throwing ceramics in my down time, and I’m so grateful that I invested time and energy in more than just my education during grad school.

To this day, I remain focused on maintaining work–life balance and have hobbies that recharge me and support my joy. I feel most grounded when I’m in nature, whether on a short hike loop or a multiday backpacking trip, so when I take time off and get out of the office, I head out to the wilderness to do what I love while supporting forest and water conservation efforts.

A few years ago, I heard about Adventure Scientists, and I got hooked. Adventure Scientists helps crowdsource data collection, including permitted sample collections, for meaningful large-scale environmental projects. I have worked on two projects so far, Timber Tracking and Wild and Scenic Rivers.

For the Timber Tracking project, I collected GPS location information and leaf, seed, and wood core samples of coastal redwoods (Sequoia sempervirens) and Alaska yellow cedar (Callitropsis nootkatensis) throughout their ranges to support the creation of chemical and genetic databases. This information is powering new ways both to understand the genetic diversity that exists naturally in a species and to pinpoint the geographic origin of timber samples using chemical signatures. Together, these databases will improve sustainable forestry management and help prevent illegal loggers from sneaking poached trees into the world’s wood supply.

I loved hiking to remote coastal California state parks and Bureau of Land Management lands to locate towering redwood trees, with their thick, porous, and often scorched red bark, centuries old and still thriving along the state’s northern coast and rivers. These majestic redwoods are the tallest trees on earth, and some live more than 2,000 years. I feel privileged to help protect them.

Our trips to collect Alaskan yellow cedar data were much more challenging, for rea-
WHY ASPB MEMBERSHIP IS IMPORTANT TO ME
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Ruth Welti
Membership Committee Chair
Member since 2001

One big benefit of ASPB membership is discounts on publishing in ASPB’s journals, *The Plant Cell*, *Plant Physiology*, and *Plant Direct*. An annual membership can more than pay for itself if you publish just once in an ASPB journal! For example, currently a member can save $824 on the cost of an open access article published in *Plant Physiology* compared with the cost for a nonmember. That is a lot of value for a $165 professional membership (and other membership categories cost even less)!

I’m also a huge podcast fan, and I love *The Taproot* with hosts Liz Haswell and Ivan Baxter (https://plantae.org/education/podcasts/the-taproot/). I’ve enjoyed hearing the stories behind the papers they highlight and the advice they and their guests provide for early career scientists. Check it out! I’m happy to know that my dues help support this podcast and other content on the Plantae website.

WHERE WILL YOU FIND ME
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sons ranging from wet fall days to wildfires causing evacuations from Oregon’s central state parks. Regardless, Alaskan yellow cedar are one of the rarest and most elusive trees in their southern range toward central Oregon, drawing us to remote corners of the wilderness to spot a silvery grandmother cedar with her beautiful yellow core.

Next up, I am working on the Wild and Scenic Rivers project. This project aims to survey rivers with unknown or unassessed water quality with the long-term goal of preserving these water resources to support wildlife and human communities. I will be collecting data at multiple sampling locations using field probes to measure pH, oxygen, salinity, temperature, dissolved oxygen, and conductivity and taking water samples for mineral, nutrient, and salinity analysis. This work surveying rivers that impact drinking water will provide a framework for understanding their current water quality and conditions to inform the management of these important waterways.

Finding purpose in our work is a universal desire, and when our down time contributions benefit other scientists focused on conservation and preservation efforts, it is rewarding to get out of the office and help make a positive impact.
After two years of virtual events, ASPB and the Canadian Society of Plant Biologists (CSPB) are looking forward to welcoming more than 1,000 plant scientists to Plant Biology 2022. While the program is being finalized, the Plant Biology 2022 Program Committee is working overtime to ensure that the meeting features the best plant science research from a broad range of speakers in our field. Whether this is your first Plant Biology meeting or you’re a returning attendee, this year’s event will be charged with renewed energy after two years online, and promises to engage, inform, and advance plant scientists of all career stages.

Fostering Meaningful Connections

As a premiere live gathering of plant scientists, Plant Biology 2022 will continue the tradition of connecting students and early career researchers with veterans from around the world, creating vast opportunities for connection and collaboration. Events are tailored to promote conversation and knowledge sharing, helping to establish the connections that drive plant science forward.

Scientific content is incorporated into major symposia, concurrent symposia, workshops, and poster sessions, creating an intensive learning environment. Within five days, attendees will expand their awareness of leading-edge research and develop foundational knowledge of novel topics, while building their professional network within the plant science community. There is nowhere better to initiate partnerships, collaborations, and collective projects.

About Portland

Host city Portland, Oregon, will honor Plant Biology 2022 with an official Plant Biology Week and is sure to deliver a unique conference experience. Individuality and creativity thrive here, as you might expect based on the local slogan “Keep Portland Weird.” Despite being Oregon’s largest city, full of urban neighborhoods, Portland is also one of the greenest cities in the United States, boasting 37,000 acres of green space and views of Mount Hood beyond the city limits.

Foodies will enjoy experiencing all Portland has to offer as a culinary treasure. The city is home to craft breweries, coffee, and top chefs and the birthplace of James Beard, the chef who established America’s place in global gastronomy. Experience the fresh, local ingredients that can be found at farmer’s markets, food carts, and fine dining locales alike.

To work off the calories, Portland is an outdoor explorer’s paradise. You’ll find urban hiking, ropes courses, kayaking, and more, all set amid the stunning beauty of the Pacific Northwest wilderness. Or stay in town and explore the International Rose Test Garden, Portland Art Museum, or Oregon Museum of Science and Industry.

The primary venue, the Oregon Convention Center, will help to ensure the health and safety of all attendees by requiring proof of vaccination and compliance with state mask requirements.

See the program and register at plantbiology.aspb.org.
When ASPB’s Plant Biology meetings were obliged to go virtual two years ago, the Program Committee was free to think and act globally. That global approach was reflected in the attendance: in 2021, registrants from outside the United States outnumbered those from within. In 2022, our return to an in-person, U.S.-based event brings with it both the excitement of resuming in-person meetings, which many in the plant science community have missed, and the realities of engaging speakers and attendees from around the world.

Engaging a diverse panel of speakers and ensuring an equitable and inclusive environment for plant scientists are critical issues. The Plant Biology 2022 Program Committee wishes to share the efforts previously implemented and recent changes in support of this priority.

**EDIC Representation on the Program Committee**

Miguel Vega-Sanchez, chair of ASPB’s Equity, Diversity, and Inclusion Committee (EDIC), and Adam Steinbrenner, EDIC member, have joined the Program Committee. Miguel will participate in all aspects of the committee’s deliberations for this year’s and next year’s conferences. Moreover, Adam will be participating directly in abstract reviews for Plant Biology 2022, joining the Program Committee at its pending in-person meeting. This fundamental change in how the Program Committee is composed ensures that development of the conference program is conducted mindfully and with purposeful EDI consideration. The EDIC continues to independently handle regular and recognition travel award applications and decisions.

**Accessibility**

The Plant Biology 2022 registration form will include a field for individuals with disabilities to request reasonable accommodations as part of their registration for the event. In April, the Plant Biology 2022 conference team will be in Portland at the event venue to review the requested accommodations and ensure an accessible experience for attendees. In addition, Plant Biology 2022 staff are reviewing resources for best practices for accessible events (e.g., https://bit.ly/3rV7nx1). More updates will be available as additional measures are put into place.

**Applying an Equity Lens to Abstract Review**

The EDIC has adapted a rubric used by the North American Arabidopsis Steering Committee to guide program development for the International Conference on Arabidopsis Research. The expanded Program Committee will use this rubric to guide and inform the assessment of submitted abstracts as the concurrent symposia are put together. To make this effort as effective as possible, we will be adding additional, but optional, demographic questions to the abstract submission form, and we encourage all submitters to share this information, which will be used only for this purpose. The goal, from the earliest planning stages of Plant Biology 2022, has been to engage speakers from underrepresented groups, and we continue to do so as the last major components of the program come together. The full program is not yet finalized, but we encourage you to follow the developments at https://plantbiology.aspb.org/.

In addition, the Program Committee, in response to a request from the EDIC, will invite all Plant Biology 2022 speakers to prepare diversity statements as optional openings for their talks. This practice was initiated two years ago for the speakers invited to the EDIC-sponsored minisymposium and is now being expanded to all speakers.

**New Program Selection Structure**

Plant Biology planning has gone from a top-down model of selecting conveners and speakers, in which members of the Program Committee made recommendations, to a bottom-up model, in which members of the community propose workshop and concurrent topics. People who previously might not have been invited in the top-down model have stepped forward and shared their considerable expertise to the benefit of the event and its attendees. This innovation, implemented for the first time in the fall planning sessions, has been a resounding success and will continue for future conferences.

**Postevent Access**

To ensure the continued access of Plant Biology meeting content by scientists around the world, recordings from all scientific sessions during Plant Biology 2022 will be available to registrants after the event. Although the exact format and details of access have yet to be determined, ASPB and the Canadian Society of Plant Biologists will ensure that scientists who aren’t able to attend in person nevertheless are able to access the information presented at the conference.

The plant science community rightfully demands change, and we hear and respect the voices of minoritized individuals and groups. As a field and as a community, we have begun to change, but we need to accelerate and expand our efforts, because there is much more to do. The changes we have outlined here represent some of the initial steps in what will be a journey that brings many more updates and changes aimed to benefit marginalized plant scientists in the United States and around the world.
How did you spend your career?

I completed a PhD in 1978 at the University of Alberta, working on the regulation of amino acid biosynthesis in *E. coli*. As I was finishing my thesis, my adviser received a gift of EcoRI from Howard Goodman, and we started playing around with DNA. My wife, Shauna, who had just finished an MS in plant breeding, and I formed the idea that genetic engineering was going to become possible in plants, and so during a several-month sojourn in Paris at the Pierre and Marie Curie Institute, we settled on Arabidopsis as a promising model plant for molecular genetics. In the beautiful library of that institute, we also learned of Bill Ogren’s ideas that plant productivity might be improved by suppressing photorespiration, so we joined his lab at the University of Illinois, where I did a postdoc and Shauna did her PhD. We isolated a series of mutants of Arabidopsis with mutations in genes for enzymes associated with the photosynthetic pathway that proved useful in resolving some issues associated with the mechanisms of photorespiration and CO₂ fixation.

In 1981 we accepted positions at the University of Alberta but found it difficult to obtain the resources needed to develop a robust research program. So in 1982 we moved to the DOE Plant Research Laboratory in East Lansing, Michigan. I was appointed as an associate professor, and after a short delay, Shauna was appointed assistant professor of plant pathology. She was initially discouraged by her department from continuing to work with Arabidopsis, because it was a useless weed. But after she obtained tenure, she was able to return to work with Arabidopsis.

Our big idea in those days was to try and encourage widespread use of Arabidopsis as a model system. So rather than continue working on photorespiration and photosynthesis, we started exploring the use of Arabidopsis for dissecting other areas of plant biology, with a view to seeding a bunch of topics that we saw as “demonstration projects.” We had the idea that our students and postdocs would go on to found labs working on Arabidopsis and we would create a community. We could not have guessed at that time how large the community would eventually grow to be. Shauna found mutants and ecotypes with altered pathogen responses, and I initially dabbled in various topics such as mutants with altered responses to phytohormones, herbicide resistance, starch synthesis, lipid synthesis, cell wall synthesis, and other things. The topics my group worked on were primarily related to problems in biochemistry and the use of plants as sources of renewable materials.

In 1994 we moved to the Carnegie Institution at Stanford, where I was the director and Shauna was a staff scientist. During the very enjoyable years at Carnegie, I was engaged in advancing the application of genomics through activities such as helping coordinate the international group that sequenced the Arabidopsis genome and setting up The Arabidopsis Information Resource with my former student Sue Rhee. At the same time, the ecologists in the institute educated me about climate change, which led to me proposing a new Carnegie Institute dedicated to research in global ecology. My concerns about climate change eventually led Shauna and me to move to the University of California (UC), Berkeley, in 2008, where I cofounded the Energy Biosciences Institute with a $350 million grant from British Petroleum and also participated in writing, with Jay Keasling and several colleagues, the $125 million DOE grant that supported the Joint BioEnergy Institute. I retired from UC Berkeley in 2016 and took a position as a science program officer in a philanthropy funded by Facebook cofounder Dustin Moskovitz and his wife Cari Tuna.

What do you consider to be your most important contributions to plant science?

I think that our efforts to develop Arabidopsis as a model system for molecular genetics were quite impactful. It was a team effort that initially included Shauna, me, Elliot Meyerowitz, Maarten Koornneef, and Dave Meinke, but it gained steam when people like Fred Ausubel, Dick Flavell, Mary Clutter, Machi Dilworth, Jeff Schell and Marc Van Montagu, Jerry Fink, Ron Davis, Howard Goodman, and many others adopted and supported the idea.

My group published a lot of research articles, but my favorite was probably a Science paper with my postdocs Pierre Broun and John Shanklin in which we were able to convert a fatty acid desaturase into a hydroxylase by introducing four mutations. The work built on a series of earlier papers from my group that included a collaboration with Brian Fox and Eckard Münck in which we used Mössbauer spectroscopy of a desaturase that we had cloned and functionally expressed in media with saturating Fe⁹⁰ to work out a probable reaction mechanism for desaturases.

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Most Recent
ASPB Pioneer Members
(as of February 10, 2022)

Richard Dixon
Yuji Kamiya
John Ohlrogge
Julian Schroeder
Ed Tolbert

https://aspb.org/membership/aspb-pioneer-members/
On the basis of that work, we hypothesized how a single reaction center could be used to make double bonds, hydroxyls, epoxides, and alkynes. The work provided a theoretical mechanistic explanation for much of the chemical diversity of fatty acids found in nature. I particularly liked that paper because of the broad implications, but also because we proceeded from hypothesis formulation to a test that supported the theory and made predictions.

However, looking back on my years as a professor, what I have found most satisfying has not been any particular paper. Rather, it has been the privilege of spending my career in the company of bright, curious, honest scientists and watching my students and postdocs go on to their own careers in science.

When did you become a member of ASPP/ASPB?

I became a member of ASPP in 1982 at the suggestion of my postdoc mentor, Bill Ogren, who advised me that the Society was a force for good that I should support. Also, in those days membership resulted in home delivery of Plant Physiology, thereby reducing the amount of time I had to devote to the library at the expense of time in the lab. In the succeeding years I was involved with some of the committees of the Society, such as serving on editorial boards and chairing the Publications Committee during the eventful years when we arranged a change in the editor-in-chief of Plant Physiology for the first time in about 30 years and founded The Plant Cell in the face of protests from loyal members who did not see any value in publishing a second journal.

How did the Society impact your career, and what motivated you to become a Founding Member of the Legacy Society?

I think of scientific research and teaching as highly social activities in which a group of people who share a passion for knowledge collaborate at the societal level to maintain, expand, and transmit knowledge. It is somewhat remarkable how weakly this activity is organized. There is no organized global or national bureaucracy that sets standards or goals for scientific activity. And yet all scientists in the world share a common understanding and practices and goals and standards. I think that one of the forces responsible for this unique human activity is scientific societies such as ASPB, which provide virtual and physical meeting places for scientists to share knowledge. In particular, I consider the journals of the Society to be the bedrock of knowledge in plant biology and deeply appreciate the fact that many papers published many decades ago continue to be cited as definitive sources of knowledge. I think the role of ASPB as a sources of knowledge is even more crucial now that the Internet has become a bottomless source of disinformation and misinformation.

Mostly, the Society supported my career by providing a high-quality venue for papers from my group, even when the topics were unfashionable at that moment. ASPB also offered me many opportunities to present my group’s work to the community and to get to know people from many different subfields. I received several awards from the Society, which I very much appreciate and which may have helped catalyze some of the opportunities to contribute to scientific leadership that I enjoyed.

What important advice would you give to individuals at the start of their career in plant science?

One of my nieces is currently finishing a PhD in plant biology, so I could write a book based on the many discussions we have had during her education. Creating a career as a scientist is very complex and involves a lot of difficult decisions—particularly about which topics to study, how to assess when to abandon a line of research, how to manage competition and collaboration, and countless other issues. Additionally, the amount of training required for uncertain employment prospects at an unknown location and a modest income requires quite a lot of self-confidence or single-mindedness.

Perhaps the best advice I gave to many of the postdocs and students who worked in my group was to not define themselves in terms of whatever problem they worked on, but rather to think of themselves as problem solvers. Thus, not a “lipid biochemist” or “pathologist” but simply a curious problem solver. This reflects my own experience. I started working in bacterial genetics, then worked in plant molecular genetics and biochemistry, then led a renewable energy institute that had a big chemistry and chemical engineering theme, and now I allocate funds for biomedical research. I have enjoyed the continual learning and found the various transitions to be challenging and enjoyable in equal measures.
Sabrina Chin

Title: Research Associate
Place of Work or School: University of Wisconsin–Madison
Member Since: 2016
Research Area: Root development, gravitropism, root hairs, flavonoids, root-knot nematodes

What would you tell colleagues to encourage them to join ASPB?
ASPB’s membership spans six continents and has amazing plant scientists under one roof, which makes it easier to network. It also offers great perks, such as membership discounts and travel grants to attend Plant Biology and regional meetings, as well as opportunities to shape the plant science community.

For students and early career scientists, it is a great place to expand leadership, teaching, and communication skills—for example, through the ASPB Ambassador Program and Plantae—and to earn fellowships—for example, through the ASPB Scholars Program and the Summer Undergraduate Research Fellowship. A lot of new initiatives involve early career researchers and focus on equity, diversity, and inclusion, and everyone should keep an eye out for them.

Was someone instrumental in getting you to join ASPB?
My PhD advisor, Ulrike Mathesius told me about ASPB during my PhD candidacy and supported my membership. I continued my membership when I began working with my previous postdoctoral adviser, Elison Blancaflor at the Noble Research Institute, becoming more involved with ASPB under his mentorship. He encouraged me to apply to be an ASPB ambassador and an early career representative on the Women in Plant Biology Committee; I might not have had these roles had it not been for him.

Have you enhanced your career, lab, research, or education using ASPB, the Plant Biology meetings, section meetings, Plantae.org, The Plant Cell, Plant Physiology, or Plant Direct?
I moved to the United States in 2019 and was mostly clueless about the U.S. academic system. ASPB’s Primarily Undergraduate Institutions (PUI) Section has been pivotal in acquainting me with how American universities, particularly PUIs, function. This information has been useful in helping me manage my expectations and plan my career. I have also enjoyed the Plantae platform, especially their research webinars during the lockdown and their teaching and learning tools.

In what ways has being an ASPB member been of value or importance in your career or education?
I am privileged to have had the opportunity to be an active ASPB member. Through ASPB, I have worked behind the scenes in roles that I never thought I’d be able to fill. For example, I cochaired concurrent symposia at Plant Biology 2020, interviewed a scientist for the Unsung Heroes column, and evaluated travel grant candidates. Above all, I have been able to work with amazing and inspirational scientists at different stages in their careers. These experiences have been invaluable in pushing me out of my comfort zone to learn nonbench skills.

How and why did you get into plant science?
For my Honours project (the Australian equivalent of a master’s degree), I deliberated between an immunology project and a plant science project on the delivery of RNAi to root-knot nematodes through the host plant. Frankly, I can’t even remember what the immunology project was, other than that I had to snap the necks of mice to gather...
spleen cells. Hence, it was an easy decision to pick plant science, and I haven’t looked back since. Moreover, I gathered that plant science is important because everyone needs to eat their greens.

What is your favorite thing about being a plant biologist?

My favorite thing about being a plant biologist is telling people that I am a plant biologist and then, when they ask about plants in their garden, seeing their reaction when I tell them that I can’t identify most garden plants.

How do you gather scientific information? What are your sources?

I start by reading reviews relating to a topic, and later I pinpoint specific journal articles in the reviews. My sources typically are search engines, such as Google and Web of Science. Journal sites also include article recommendations with the original article, which makes it easy to look for related articles. I don’t obsess over the journals, as long as I enjoy the quality of the articles and reviews. I also appreciate journal clubs, in which colleagues tell me about new and interesting findings.

What do you still have to learn?

I joked with my friends during my PhD about being a “professional student,” and I thought I’d throw my hat off to that when I graduated. Nonetheless, I still have a lot to learn, and I don’t think I’ll stop being a student. I struggle with my identity as a scientist, sometimes because of imposter syndrome, so I try to not take myself too seriously. As an early career researcher, I also find discovering my niche to be challenging, so I’m definitely leaning on my mentors and other scientists for help with that.

What do you think is the next big thing in plant biology?

The next big thing in plant biology is the transition of research from model plants to non–model plants, including crop plants such as maize, wheat, soybean, and rice, as well as other interesting plants such as moss. The advent of sequencing has enabled more plants to be sequenced, which has in turn led to more comparative genomics to delineate gene functions and gene evolution in non–model plants.

What do you see as the most important role for scientific societies such as ASPB?

I read a blog post by Mary Williams about how it takes a community to raise a scientist (https://blog.aspb.org/it-takes-a-community-to-raise-a-scientist/). ASPB as a professional society is part of that equation for scientists at all stages of their career.
Ann M. Lavanway
Dartmouth College
BY NABILA RIAZ
ASPB Ambassador

Ann M. Lavanway is a research support specialist for the Department of Biological Sciences at Dartmouth College. She manages the Life Sciences Center (LSC) Light Microscopy Facility and trains undergraduate students, graduate students, and staff to use its equipment, which includes laser scanning confocal microscopes, two spinning disk confocal microscopes, a total internal reflection fluorescence system, a multiphoton microscope, and a wide-field fluorescence microscope. By far her most important contribution is her collaboration with faculty, staff, and students to ensure that all research labs are running smoothly.

Ann has had a huge impact on the Dartmouth graduate student community. No one gets their PhD from the Department of Biological Sciences without Ann’s help, and graduate students have always acknowledged Ann’s efforts during their thesis defense seminars. Abdul Haseeb, a senior graduate student in the department, said, “She offers expertise in training students to use various microscopes housed in LSC. She is always available for help with equipment and planning imaging experiments.”

Ann is originally from a small town in Vermont. As a kid, she was always interested in how things worked in the world, and during her time at Trinity College in Burlington, Vermont, she began her formal studies in science. Ann had a work–study job preparing undergraduate teaching labs, and she was initially hired by the Biological Sciences Department at Dartmouth in 1993 to do the same and later promoted to special instructor. She then moved to the lab of Victor Ambros and Rosalind Lee in Dartmouth’s Biochemistry Department as a research scientist, just as micro-RNA research was taking off.

Soon after Ann joined the Ambros and Lee lab, an NSF Course, Curriculum, and Laboratory Improvement grant she had previously cowritten was approved, and she decided to return to the Biological Sciences Department to bring compound research–level microscopes to the teaching labs. When asked whether this decision was difficult, Ann replied, “I was delighted that we got the grant, so I came back. I must admit that I missed the undergraduate and graduate student populations a lot and wanted to work with a larger community.”

Ann’s contribution to Dartmouth’s Department of Biological Sciences extends beyond her role as a research support specialist. She was actively involved in the design and construction of the new Life Sciences Center, and in 2011, when the department moved to the new building, she took on additional responsibilities as building manager. Ann recalled, “It was an amazing experience for me. It was integral to have someone hearing every week how things were going, working with architects and engineers on things, trying to solve problems before we went to faculty with them, or just trying to solve problems when we discovered them.”

When asked how she handles the challenges and pressures that come with juggling multiple roles as a research support specialist, Ann replied, “I stopped putting barriers around things a long time ago, when I first started working at Dartmouth. My philosophy is, if you need me, you call me, and you can call me at home, too; that’s fine. I’d much rather be solving problems. I’m happy with that.”

Ann stressed the importance of the constant support and admiration she has received from her mentors and peers at Dartmouth: “Everybody in this department has given me lots of breathing room to grow, especially my mentors in microscopy, Roger Sloboda, Sharon Bickel, and Amy Gladfelter. Each of these people challenged me and supported me. Elizabeth Smith, Mary Lou Gue-rinot, Rob McClung, and Tom Jack all have been very supportive. The new faculty are so amazing, and they’re constantly moving me in a new direction. I love that.”

One of the contributions she is most proud of is her role in getting new faculty and their labs settled in. Her administrative experience and problem-solving capabilities enable Ann to anticipate the needs of new faculty and their labs, and with the support and trust of the department and faculty, she ensures that new PIs’ research becomes productive as quickly as possible.

In addition to Ann’s professional passions, conservation and wildlife are very important to her; for example, she served as chair of the Thetford [Vermont] Conservation Commission. Ann spends a lot of time outside keeping track of wildlife. She enjoys helping salamanders travel to pools and wetlands to breed during a migration called the “big night”: “It requires multiple nights going out at about midnight, looking for them on the road, and helping them across before they’re squished by cars.”
Join an ASPB Section!

ASPB has six sections that bring together members in U.S. regions, Canada, and Mexico to participate in smaller meetings and events and three sections that focus on specific topics. Each section has its own leadership team that plans activities and manages the section, and dues are just $5 per year per section. Please read a bit about each section below.

**Early Career Plant Scientists Section**

The Early Career Plant Scientists (ECPS) Section (https://earlycareer.aspb.org) was formed in 2020 to support the interests of early career plant scientists and formalize their representation in ASPB’s leadership structure. The ECPS Section has taken an active role in ASPB over the past two years, sponsoring workshops, activities, webinars, and Plant Biology attendance awards to help support the vibrant early career scientist community at ASPB.

The ECPS Section will continue to provide opportunities for early career ASPB members to grow and thrive in 2022. We’ve planned a series of webinars for the coming year. In addition, we’re hosting several events at Plant Biology 2022 to help provide a meaningful experience to attendees, including a Three-Minute Thesis Competition, professional development workshops, and social events to build and strengthen the early career scientist community at ASPB. We invite all those with an interest in the needs and representation of early career scientists to get involved! Follow us on Twitter @ASPB_ECPS.

**Environmental and Ecological Plant Physiology Section**

The Environmental and Ecological Plant Physiology (EEPP) Section (eep.org) was established in 2015 as the first topic-based ASPB section. The purpose of the EEPP Section is to encourage the growth of ecological and environmental plant physiology and to promote the general welfare, good fellowship, and creative interactions among plant biologists focusing on the many linkages among plant physiology, ecology, and the environment. EEPP Section members range from ecophysiologists to whole-plant physiologists to molecular physiologists with a focus on environmental responses. We meet annually at the Plant Biology conference, and Plant Biology 2021 featured lightning talks by early career EEPP Section scientists. We have also partnered with Plantae to organize plant physiology–focused webinars. So far, our webinars have featured a root physiology methods presentation from EEPP Section member Larry York and a panel discussion on translational plant science featuring scientists in industry and nonprofit research, and we have more webinars in the pipeline.

The EEPP Section welcomes new members and new ideas for ways to better support environmental and ecological plant physiology researchers! We also hope to strengthen our interactions with the regional and Early Career Plant Scientists sections of ASPB. Please join the EEPP Section business meeting at Plant Biology 2022, which will feature lightning talks by early career researchers and a keynote speaker who will highlight the state of the art in the field of environmental and ecological plant physiology. The business meeting will also provide members and interested participants with up-to-date information about the section’s recent and upcoming activities, future goals, and fit with the broader ASPB community. We look forward to seeing you in Portland!

**Mid-Atlantic Section**

Members of the Mid-Atlantic Section (https://midatlantic.aspb.org) are based in Pennsylvania, Maryland, New Jersey, Delaware, Virginia, West Virginia, and the District of Columbia. The section welcomes all members in the region and beyond. The major activity of the section has been, and will continue to be, hosting a sectional meeting each year. The Mid-Atlantic Section meetings have historically been well attended and collegial. They are centrally located with respect to population density (usually on the I-95 corridor) and low priced. Prominent investigators and rising stars give talks highlighting their research. The poster sessions are excellent and feature a mix of postdocs, graduate students, and undergraduate researchers. The Mid-Atlantic Section meetings are also excellent opportunities for networking.

The section’s primary goal for the coming year is to continue our tradition of
excellence in our section meetings. We look forward to seeing you there!

**Midwestern Section**

The Midwestern Section (midwest.aspb.org) has the largest membership of any of the ASPB sections and includes 15 states in the U.S. Midwest (Iowa, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, Oklahoma, South Dakota, West Virginia, and Wisconsin), as well as Manitoba and Ontario in Canada. The section got started in 1955, when groups at the University of Illinois, University of Minnesota, and Purdue University convened at an invitational meeting in Urbana, Illinois. Our quarterly newsletter provides a platform for communication among Midwest Section members, and we welcome articles and other contributions from our members. Features include Behind the Science Author Spotlights and Five Questions With Midwest Section Members.

Over many years, the Midwest Section annual meetings, which are usually held in February or March, have fostered communications across our region and represent an excellent opportunity for researchers, from undergraduate students onward, to present their work in a welcoming and stimulating environment. Additionally, our meetings offer career workshops and panel discussions to enhance participation by scientists at any level. Because of the pandemic, the Midwest Section meeting was cancelled in 2020 and 2021; there are tentative plans for a meeting at the University of Illinois in March, although the format and other details remain uncertain at this time.

We welcome new members to help us continue our goal to bridge educational and career opportunities in plant science within the agricultural heartland of North America. We hope to see you in Portland in July!

**Northeastern Section**

The Northeastern Section (NEASPB; http://northeast.aspb.org) was established in the 1930s to organize and gather plant scientists from the northeast region of the United States (Connecticut, Delaware, Massachusetts, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont). NEASPB members perform research in highly diverse areas of plant biology ranging from molecular to systems and ecosystems. The NEASPB is dedicated to supporting the training and inclusion of younger scientists from a diversity of backgrounds, and the section values the contributions of the next generation of plant scientists.

The NEASPB recently convened the 84th annual meeting of its members; the annual meetings provide postdoctoral scholars, graduate students, and undergraduate students with opportunities to present their work through scholarships that support travel and lodging. These scholarships are provided from the NEASPB budget and through generous sponsorship from donors in academia and industry.

The NEASPB is actively discussing ways to expand efforts in support of excellence that arises from equity, diversity, and inclusion (EDI). This is a priority area for NEASPB and complements recent efforts by ASPB to promote EDI excellence in plant science.

If you would like to join our section or get more information, please contact us at info@aspb.org, attend our annual meeting, or talk to us at the ASPB booth at Plant Biology 2022 in Portland.

**Primarily Undergraduate Institutions Section**

The Primarily Undergraduate Institutions (PUI) Section (pui.aspb.org) is composed of faculty currently working at PUIs and scientists at all career stages who are interested in learning more about them. Although teaching is a large part of being a PUI faculty member, maintaining a successful research program is also critical for career advancement and for providing undergraduates with high-caliber research experiences. The PUI Section advocates for ASPB support for PUI activities, hosts professional development opportunities, and facilitates connections within the PUI research community.

Each year, the PUI Section hosts a faculty development workshop during the Plant Biology annual conference. Our theme for 2022 is plant awareness: How can PUI faculty best communicate the importance of plant science research at a PUI to prospective and current research students and collaborators, non-STEM faculty colleagues, administrators at their institution, and the public?

The PUI Section benefits from strong networking and support and the sharing of resources and advice. We will continue our monthly Zoom networking events throughout this year; look for announcements about these gatherings on our Plantae page (https://tinyurl.com/fur9hdtd) and via Twitter (@ASPB_PUI). We’re excited to continue our activities in the future and look forward to seeing you!

**Southern Section**

The Southern Section (southern.aspb.org) includes members from Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The section’s annual meeting is generally held in March or April, and the venue is rotated among the Southern Section states. These meetings, which are well attended by both established plant scientists and students, are student focused; we encourage undergraduate, graduate, and postdoctoral researchers to present their research and give them priority for oral presentations. The best undergraduate poster presentations and graduate oral presentations are awarded cash prizes. To encourage students to participate in Southern Section meetings, we keep our student registration fees to a minimum.

The Kriton Hatzios Symposium is a major event on the last day of each Southern Section meeting, and it has a different theme each year. We invite renowned plant scientists to discuss their latest research on the theme.

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Our meetings always have a friendly, cordial environment with ample opportunities for networking. We plan to hold the 2022 Southern Section annual meeting in person March 26–28 at the University of Alabama in Birmingham. Our members’ health and safety are a major priority for us, and the in-person status will depend on the COVID-19 situation. If necessary, we will hold the meeting virtually. The 2022 Kriton Hatzios Symposium theme is “Plant Microbiome: Ecology, Functions, and Application Trends.”

Three experts in the plant microbiome area, Pamela G. Marrone, Rusty Rodriguez, and Jan E. Leach, will discuss their latest research. Registration and abstract submission details for the meeting will be available soon on the Southern Section website and newsletter. We expect to see most of the Southern Section membership at the meeting.

Western Section
Members of the Western Section (http://western.aspb.org) are from Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming, as well as Alberta, British Columbia, and Saskatchewan.

The Western Section is looking forward to in-person section meetings, but due to COVID, we are not planning a meeting in 2022. We do hope to see many of you at Plant Biology 2022 in Portland, Oregon. We are planning to have a section meeting in the Pacific Northwest in early 2023 and in Fullerton, California, in early 2024.

### Coming to Plant Biology 2022:
Three-Minute Thesis Science Communication Competition

Showcase your research on the plenary stage!
ASPB’s Early Career Plant Scientists Section will host a Three-Minute Thesis (3MT) competition at Plant Biology 2022.

Five finalists will be awarded travel grants to attend Plant Biology 2022, to be held July 9–13 in Portland, Oregon, where they will present their 3MT on the plenary stage and compete for a cash prize.

To be eligible, applicants must be a current student or a postdoc who graduated no more than three years previously. To be considered as a finalist, applicants must be members of both (1) ASPB or CSPB-SCVB and (2) the ASPB Early Career Plant Scientists Section.

The first round of competition opened February 1, and application videos are due March 11. Finalists will be notified by mid-April.

Check your inbox for the upcoming formal announcement. For more information go to bit.ly/3BsMKvd.

Sponsored by:
ASPB Centennial Challenge
ASPB’s Mexico Section Participates in the 2021 Mexican Society of Biochemistry Congress

BY STEFAN DE FOLTER
Center for Research and Advanced Studies of the National Polytechnic Institute and ASPB Mexico Section Council Representative

Every two years, the plant section of the Mexican Society of Biochemistry (SMB) organizes its national congress, by tradition with colleagues in the United States. Adding to that tradition, the ASPB Mexico Section, founded in 2019, now holds its section meeting as part of the congress. Officially titled the 19th National Plant Biochemistry and Molecular Biology Congress, the 12th Joint Symposium Between Mexico and the USA, and the 2nd ASPB Mexico Section Meeting (https://bit.ly/34JwuJV), the congress was held November 8–11, 2021. Did you miss it? No problem: You can watch the talks on YouTube or Facebook (https://bit.ly/3gAerZh).

Because of the COVID-19 pandemic, the congress was a completely virtual event. The Organizing Committee (Felipe Cruz [chair], Alejandra Covarrubias, Stefan de Folter, Mario Arteaga Vázquez, Ulises Rosas López, and Dan Chitwood) had to make the call whether to organize the congress at all. Luckily, we all said yes, and the congress turned out to be a great success! We decided to organize it as a virtual event and to make it free of charge for everyone. We managed this with the support of the National Autonomous University of Mexico (UNAM’s Faculty of Chemistry, Institute of Biology, and Institute of Biotechnology), the Organizing Committee members’ institutions (CINVESTAV, Universidad Veracruzana, and Michigan State University), and ASPB.

Planning a virtual congress opened the possibility of inviting speakers from around the world. We had 36 invited speakers, and half were from outside Mexico and the United States, including Canada, the United Kingdom, Spain, Chile, and Colombia. A total of 1,300 registered participants from 50 countries joined us.

The congress, inaugurated with welcome messages by SMB president Teresa Hernández Sotomayor, ASPB president Katie Dehesh, and the Organizing Committee, was held on Zoom and streamed live on YouTube and the Facebook pages of the organizing institutes. During the congress, 60% of the 3,000+ YouTube viewers were 25–34 years old, and Twitter accounts @SMBPlant2021 and @ASPB_Mexico were very active.

Another new tradition during the congress was the Federico Sánchez Rodríguez Prize, an award for the best poster flash talk presentations. Dr. Sánchez (1950–2016) was a professor at the Center for Genomic Sciences at UNAM and was very active in the plant science community and a great colleague and friend of many. During the congress, students and postdocs gave 107 poster flash talk presentations, and not one but three awards were made each day for the best presentations. All the presenters made excellent contributions.

We hope to see you all at the 2023 congress! The idea is to have a hybrid meeting with both virtual and in-person components. Maintaining a virtual component makes continued on page 20
The 85th annual meeting of ASPB’s Northeastern Section (NEASPB) took place October 30, 2021, remotely on Zoom. On hold since spring 2020 because of the COVID-19 pandemic, the meeting was held virtually to bring members together once again to hear about ongoing research in the Northeast region. There were 85 participants, including undergraduate and graduate students, postdoctoral researchers, professionals, and faculty from colleges and universities across the Northeast region.

The theme of the meeting, organized by Azam Noori from Merrimack College, was “Plant Responses to Environmental Pollutants.” The conference featured two keynote talks and four symposia that included 16 presentations by postdocs and students. Presentations by scientists from primarily undergraduate institutions (PUIs) were identified by the ASPB PUI Section logo.

After the meeting, posters and presentations were accessible online to all attendees for one month.

The meeting opened with welcome messages by conference chair Azam Noori; Sean Condon, provost of Merrimack College; and Joel Kuszmaul, dean of the School of Science and Engineering at Merrimack College. Two invited speakers delivered keynote talks: “Nano-Enabled Strategies to Enhance Crop Tolerance to Biotic and Abiotic Stress,” by Jason White from the Connecticut Agricultural Experiment Station, and “Measuring Abiotic Stress Responses Using Image-Based Phenotyping Methods with Undergraduate Researchers,” by Tara Enders from Hofstra University.

After the keynote addresses, symposium speakers presented on four topics. Four graduate and undergraduate students presented their research on abiotic stresses, a postdoc and an undergraduate student each presented a talk on biotic interactions, six talks discussed genes and genomes, and four presentations addressed biochemistry and metabolism. A panel of six judges evaluated the student presentations and selected six graduate students and three undergraduate students for monetary awards.

Attendees joined poster and networking sessions via Zoom, allowing them to interact with one another and meet in breakout rooms. Finally, NEASPB Secretary/Treasurer Subhash Minocha of the University of New Hampshire delivered the closing remarks.

The Executive Committee thanks ASPB for sponsoring the meeting and Merrimack College for supporting the organization of the meeting.

MEXICO SECTION

Science more accessible, especially to students and other early career scientists in Mexico and elsewhere who do not have the financial resources to participate in person. We hope the spirit of free or low-cost congresses will be maintained in the future. The Organizing Committee for the 2023 congress will be chaired by Stewart Gillmor and his Mexican colleagues, with the participation of Dan Chitwood and Sue Rhee in the United States. The committee has a big task, but they will do a great job of organizing the next congress. Feel free to give us any suggestions (aspb.mexico@gmail.com)!

Finally, membership in our societies is important. If you are not a member of the ASPB Mexico Section, please consider joining us (https://mexico.aspb.org/), and if you're working in Mexico, consider joining the SMB (https://smb.org.mx/). The ASPB Mexico Section really needs more members to maintain the section and the Society's support for it; by becoming a member, you will strengthen our work on behalf of plant science and scientists in Mexico. The language used in section events is primarily English.

¡Muchas gracias!
Policy Update

BY VICTORIA HABER
Lewis-Burke Associates, LLC

Congressional and Administration Updates

President Biden Signs Continuing Resolution

As the February 18 deadline for the current continuing resolution (CR) quickly approached, House Democrats advanced a stopgap that would initiate another CR expiring on March 11. The CR extends government funding and averts a government shutdown. The hope is that Congress will reach a bipartisan omnibus bill within the additional three weeks as they link the passage of fiscal year (FY) 2022 bills to success in responding to the climate crisis and to other priorities, including protecting public health in response to the COVID-19 pandemic.

Source and Additional Information

- More information on the CR is available at https://tinyurl.com/2p8ckfu3.

Federal Agency and Coalition Updates

NSF Holds BIO Advisory Committee Meeting

NSF’s Directorate for Biological Sciences (BIO) held an Advisory Committee meeting November 3 and 4 to outline plans for the year and provide a review of past BIO activities. Joanne Tornow, assistant director of BIO, announced several updates, including programmatic updates that fall within three themes the directorate will focus on in 2022: biotechnology to advance the bioeconomy, life on a warming planet, and emerging infectious diseases. Tornow also reiterated the directorate’s commitment to supporting scientists at career transition points, including the postbaccalaureate, postdoctoral, and early career stages, which was reflected in the directorate’s use of American Rescue Plan funding. Also of note, Alan Tessier, deputy assistant director of BIO, retired at the end of 2021.

The Advisory Committee also held a joint session with the Mathematical and Physical Sciences (MPS) Directorate to discuss the new report on “MPS and the Living World,” which focuses on how math and physical sciences can enable the future of biotechnology. Throughout this session, members from the BIO Advisory Committee described the need to foster interdisciplinary collaboration to address societal grand challenges such as climate change.

Microbiome Stakeholder Coalition Reflects on 2021, Plans for 2022

The Annual Microbiome Stakeholder Meeting, led by the American Society for Microbiology (ASM), met virtually for its annual meeting in early December. The meeting featured guest presentations by Lita Proctor from NIH and Sharlene Weatherwax from DOE, who discussed the landscape and outlook for microbiome research at their respective agencies and ways this field could be better supported through cross-agency collaborations. The speakers emphasized that microbiomes in all contexts are of interest to federal funders, including contexts associated with soils and crops; livestock and poultry; oceanic, aquatic, and forest environments; and built environments such as hospitals and schools.

ASM staff highlighted some of the coalition’s activities in the past year, which included advocating for favorable FY2022 appropriations report language supporting cross-agency coordination on microbiome research and hosting a series of research briefings. Meeting attendees also discussed 2022 goals for the coalition relating to the teams, tools, and talent needed to advance microbiome research. Within this framework, the coalition plans on working to:

- maintain and diversify the microbiome workforce,
- advocate for sustainable funding streams for microbiome research,
- address barriers to data sharing,
- support interagency collaboration, and
- continue to build support in Congress and the Biden administration.

The Microbiome Stakeholders Coalition has not announced their next meeting, but interested community members are encouraged to contact microbiome@asmusa.org to stay informed on future events and opportunities for engagement with fellow stakeholders, policy makers, and funders.

Source and Additional Information

- The series of research briefings can be found at https://tinyurl.com/4kvkprfjr.

USDA Leadership Nominees Continue to Advance Through Congress

On November 16, the Senate confirmed Robert Bonnie as USDA’s undersecretary for Farm Production and Conservation. He will be responsible for forming much of the agency’s plans concerning climate and conservation. Bonnie has received praise for his work at USDA and his ability to reach across the aisle to promote conservation efforts; not surprisingly, he received bipartisan support with a vote of 76–19. In his new role, he will oversee the Farm Service Agency, the Natural Resources Conservation Service, and the Risk Management Agency, the agencies tasked with the implementation of critical

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conservation programs. Bonnie was an integral part of the Biden transition team at USDA and has led the way in promoting carbon sequestration in the agricultural sector.

The Senate also moved forward on other USDA leadership positions, holding a joint nomination hearing for Chavonda Jacobs-Young as undersecretary for Research, Education, and Economics and Margo Schlanger as assistant secretary for civil rights on November 17. Jacobs-Young emphasized the importance of USDA serving as a leader in climate science, conservation efforts, and innovative technologies such as biotechnology and gene editing. Schlanger addressed the agency’s long history of exclusion and vowed to listen and promote equity across the department, consistent with the administration’s commitment to achieving environmental justice and inclusion. During the hearing, the Senate Committee on Agriculture, Nutrition, and Forestry demonstrated bipartisan support for both nominees, indicating that both should be confirmed without opposition.

Sources and Additional Information

- A press release on Robert Bonnie’s nomination is available at https://tinyurl.com/yckpbsj2.
- A recording of the nomination hearing for Chavonda Jacobs-Young and Margo Schlanger can be found at https://tinyurl.com/detzmf45.

NSF Holds ERE Advisory Committee Meeting

NSF’s Environmental Research and Education (ERE) Directorate held its Advisory Committee meetings on November 4 and 5 featuring updates from NSF leadership on environment-related investments and programs. During the meetings, NSF provided detail on the Civic Innovation Challenge (CIVIC), which was recently released (see below).

NSF also invited the heads of the Education and Human Resources (EHR), Engineering (ENG), and Geosciences (GEO) Directorates to discuss collaboration with ERE and the ways their directorates are supporting climate- and environment-related research. Sylvia Butterfield, acting assistant director of EHR, highlighted her directorate’s involvement in environmental programming. Susan Margulies, assistant director of ENG, spoke to the ways ENG is incorporating sustainability, climate change, mitigation, adaptation, and clean energy issues into engineering research and education. The assistant director of GEO, Alexandra Isern, noted that GEO’s priorities in climate change align with the U.S. Global Change Research Program’s investment themes, including the ocean’s role in climate change, terrestrial–climate interactions and water sustainability, and earth systems predictability and resilience. Isern also highlighted that three NSF Science and Technology Centers were awarded to GEO and acknowledged the GEO directorate-wide Climate Challenge, which directs GEO programs to be solutions and community oriented; use convergent approaches; prioritize justice, diversity, equity, and inclusion in investments; and support the development of the next-generation climate workforce.

Source and Additional Information

- More information on the Advisory Committee for Environmental Research and Education is available at https://tinyurl.com/3jcxa4ct.

Funding Opportunities

NSF Releases CIVIC Solicitation

NSF has released the second solicitation for the Civic Innovation Challenge program. The CIVIC program aims to accelerate the translation of basic research and new technologies into communities by supporting community-driven research activities at the local scale. This competition includes two research tracks to be addressed:

- Track A: Living in a changing climate: predisaster action around adaptation, resilience, and mitigation
- Track B: Bridging the gap between essential resources and services and community needs.

This competition is run in partnership with DOE and the Department of Homeland Security.

Proposals for Stage 1 planning grants of up to $50,000 for six months are due May 5, 2022. Stage 1 awardees will then be eligible to apply for Stage 2 full proposals of up to $1 million for 12 months, with proposals due February 1, 2023. NSF will host a webinar on the CIVIC program February 25, 2022, from 1:30 p.m. to 3:00 p.m. (ET).

Source and Additional Information

- Information on the webinar and the registration link can be found at https://tinyurl.com/2ex3fyac.
ASPB and CAST: Partners for 25 Years in Disseminating Plant Science

ASPB is committed to facilitating ongoing conversations around the importance and relevance of plant science in society. ASPB regularly issues position statements (https://aspb.org/about/aspb-position-statements/), which are an important communication tool ASPB uses to establish and pronounce its official view on a range of topics. Further, position statements are an invaluable opportunity for the Society to contribute formally to the public dialogue on a particular issue and are regularly referenced by policy makers and the media.

As a part of its mission to disseminate the benefits of plant science, ASPB has partnered with the Council for Agricultural Science and Technology (CAST) since 1997. CAST is a nonprofit 501(c)(3) organization with a national and international membership of scientific societies, companies, organizations, universities, and individuals. Over the years, ASPB has nominated members to serve on the CAST board of representatives; Amit Dhingra (https://bit.ly/AmitDhingra), an ASPB member since 2000 and professor and head of the Department of Horticultural Sciences at Texas A&M University, is ASPB’s current representative on the board.

CAST’s mission is to convene and coordinate networks of experts to assemble, interpret, and communicate credible, science-based information to policy makers, the media, the private sector, and the public. This mission is achieved through the publication of scientific papers on agricultural and food sciences, agricultural technology, animal sciences, and plant and soil sciences. All CAST publications are available free from the CAST website (https://bit.ly/CASTpublications).

An online form (https://tinyurl.com/5e75mskd) has been created to solicit suggestions and ideas from ASPB members for future CAST publications. Members’ suggestions and ideas will be compiled at the end of every quarter, and the ASPB Science Policy Committee will consider them. Ideas the committee approves will be presented to CAST by the ASPB representative. ASPB will provide a quarterly update to members through Plantae and the ASPB News on the status of the proposals. We invite each one of you, as an ASPB member, to provide your input and help represent ASPB in this process.

In 2020 CAST hosted 12 webinars and released 13 new publications, including translations of three previously published papers in Spanish, Chinese, and French (https://bit.ly/CASTtranslations). In addition to papers, CAST offers other helpful, timely resources, including the member newsletter Friday Notes (https://conta.cc/3zwjEu4), the CAST blog (https://bit.ly/CASTBlog), and several other social media platforms, that provide updates about news headlines, announcements, and educational resource materials related to agriculture, food, science, and COVID-19’s impacts on the agricultural industry. CAST has also developed student study guides (https://bit.ly/CASTstudy-guides) that educators can use for online learning or in-person instruction.

Recent publications that may interest ASPB members include

- Agriculture and the Microbiome (https://bit.ly/AgricultureMicrobiome), and
- Food Biofortification—Reaping the Benefits of Science to Overcome Hidden Hunger (https://bit.ly/3q0gOKF).

To receive CAST news and updates, join the CAST mailing list (https://conta.cc/31t6mSg).
Scaling Up Equity, Diversity, and Inclusion Through K–12 to Postsecondary Education

BY SIBONGILE MAFU, Women in Plant Biology Committee and ADAM STEINBRENNER, Equity, Diversity, and Inclusion Committee

The Equity, Diversity, and Inclusion Committee and the Women in Plant Biology Committee cohosted a workshop at Plant Biology 2021 entitled "Building Sustained Commitments to Equity and Inclusion." The invited panelists had focused their careers on science outreach and teaching for students at critical early stages in their education, especially to promote the early development of a STEM identity and self-efficacy. A recording of the panel discussion is available to meeting attendees through the Plant Biology 2021 portal at https://www.eventscribe.net/2021/ASPB/.

Early exposure to science concepts is essential to build students’ scientific identity. Bringing early career scientists to the K–12 education process is important not only for teaching the process of inquiry, but also for ensuring that students have access to role models, especially ones who look like them. A major challenge and recurring theme in this regard is that the diversity in the student population is greater than the diversity in the plant science community.

Three speakers highlighted their roles in established, large-scale K–12 education programs:

- Sally Mallowa coordinates a program at Augustana University to engage Indigenous (Native) and refugee students, as well as an international program based in Kenya, where she travels most summers.
- Christine Hatch works with the Eureka Program, an initiative by Girls Inc. and the University of Massachusetts Amherst that focuses on economically marginalized and underrepresented minority students in Springfield, Massachusetts.
- Teresa Barnett is executive director of Community Resources for Science (CRS), a California-based program that leads classroom visits and outreach programs for K–8 students. CRS also provides training opportunities for STEM researchers to work with teachers to develop communication and engagement skills that meet individualized needs.

These programs ensure their visibility in media outlets, linking volunteer efforts with their organization's community.

Engagement efforts at the K–12 level have been instrumental in increasing students’ participation and interest in science before they reach the undergraduate level. However, many students in the pipeline are lost during undergraduate and graduate training, where the tone of classes and research is often exclusionary and retention and support structures are often lacking. Chandler Purity, a lecturer at the University of California, San Diego, cautioned that postsecondary educators should not be inviting students into a “burning building”—that is, the hostile environment in science higher education. She drew on the experiences of her graduate cohort to describe how scientific training often shames rather than nurtures, leading to mental health challenges and abuse.

Developing STEM identities and self-efficacy in students depends on building inclusive higher education environments for STEM education and training. Providing support as high school graduates make the cultural adjustment to postsecondary settings is as critical a component of their education as recruitment.

Teaching practices focused on equity and inclusion can go a long way in ensuring

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Surviving Academia and Industry: Plant Biology 2021 Workshop

By Asia Hightower and Anjali Iyer-Pascuzzi, Equity, Diversity, and Inclusion Committee

At Plant Biology 2021, the Equity, Diversity, and Inclusion Committee hosted a virtual workshop called “Surviving Academia and Industry.” Navigating the scientific workforce can be challenging for anyone at any career stage, but it is particularly stressful for Black, Indigenous, and People of Color scientists. In this interactive, hands-on workshop, we aimed to help plant scientists recognize the effects (physical, mental, emotional, societal, and monetary) of systematic and institutional oppression on all scientists and the ways everyday choices and activities contribute to systematic and institutional oppression in all academic and industry institutions. Thirty people participated in the workshop.

The workshop was held virtually using the Gather interactive platform, which allowed participants to talk with one another individually and as an entire group (https://www.gather.town/). The workshop began with an interactive game played in the gather.town, similar to a choose-your-own-adventure novel; participants were given a series of scenes telling a story and could choose one of several options for how to proceed. In the gather.town, participants were able to move their avatars, interact with objects, and experience sound distributed throughout the space. Participants were asked to locate a “note” object in the space. When participants interacted with this “note,” text in the form of a Google Docs document appeared on their screen. This game was developed by Asia Hightower and beta-tested by Anjali Iyer-Pascuzzi.

In the story, two characters are stranded on an island, and participants played the game individually from the viewpoint of either character. Participants were allowed to play through both characters’ journeys as time permitted. One character is a graduate student from an underserved group helping her PI collect environmental data, and the other is a privileged graduate student doing research while working at his family’s hotel. During the story, people on the island suddenly become sick, exhibiting rabies-like behavior and acting aggressively. Participants, as one of the two characters, had to make choices in successive scenes about which sick people to help, how to leave the island, and how to respond to microaggressions, especially in the context of their character’s academic hierarchy.

Scenes and response choices reflected both the uncomfortable realities underrepresented people frequently face in academia and industry and the tools and coping mechanisms typically available to them. Scenes and response choices also reflected the relative privilege of each character.

For example, in one scene, a park ranger asks the less-privileged character to show...
SURVIVING ACADEMIA AND INDUSTRY
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her identification card but does not ask her PI to do so, and when the character objects, the park ranger threatens and verbally insults her. The participant had to decide whether to ignore the insults and show the ranger her identification card, show her card but report the ranger’s abusive behavior, or refuse to show her card. Depending on the participant’s response to this scene, the character moves to one of two scenes dealing with another institutional barrier.

In another scene, the relatively privileged character is offered a place on a special data collecting trip but subsequently learns that he would replace a student who had worked hard for the opportunity. The participant had to choose whether to go on the trip or give the spot back to the other student.

At the end of the game, participants came together to discuss their thoughts and experiences as they moved through the scenes as each character. Several people reflected that the scenes gave them insight into the discomfort often faced by many members of the plant biology community. We hope that reflecting on their choices, including why and whether the choices exist and why individuals respond as they do, will help participants promote more equitable, diverse, and inclusive workplaces in academia and industry.

After the workshop, we sent a survey to participants to gauge their reactions to their workshop experiences. Of the 10 participants who responded, eight found the workshop enjoyable and eight found it informative. When asked to describe their general takeaways from this workshop experience, many participants noted that the workshop was particularly useful for people of color. Many also said that the workshop was eye-opening when it came to the difficult situations students may face in graduate school depending on their relative privilege, as presented by the contrasting characters.

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retention. Elli Theobald, a biology lecturer at the University of Washington, highlighted the value of high-intensity active learning, which can promote greater equity than lectures and reduce achievement gaps among student populations based on ethnicity or race. In addition, students from underrepresented minorities want to understand how what they are learning will be applicable and solution based and how it will have a direct and immediate impact on their communities. For many such students, giving back to the community is an integral part of their reasons for pursuing a STEM career.

The five speakers exemplified the progress that has been made toward equitable and inclusive environments for STEM education and training. This progress has affected the lives of many thousands of students. The broader systems of STEM training must change to reflect this inclusive and supportive spirit. We hope you will be inspired to work at your home institution to support, and maybe even initiate, impactful programs to broaden STEM participation and retention.

The Equity, Diversity, and Inclusion Committee is organizing and sponsoring several events during Plant Biology 2022, including a minisymposium:

Plant Adaptations to Extreme Environments

Other events include the following:

- An Introduction to Culturally Aware Mentoring at All Career Stages (Luncheon and workshop)
- Careers Within and Beyond Academia (workshop co-organized with the Early Career Plant Scientists Section)
- How to Be a Diversity Advocate in Your Lab (workshop co-organized with the Women in Plant Biology Section)
- Idea Café: Equity Assessment of ASPB and CSPB-SCVB Activities and Processes (workshop co-organized with ROOT & SHOOT).

Please visit the conference website for more information.
ASPB Summer Undergraduate Research Fellowship (SURF)

Applications accepted through March 14, 2022

ASPB’s Summer Undergraduate Research Fellowships (SURF) fund promising undergraduate students so they can conduct research in plant biology during the early part of their college career. SURF recipients must present their research at ASPB’s annual Plant Biology meeting in the year following the fellowship award.

Eligibility
Application is open to all full-time undergraduate students in a degree-granting program. Students completing their second year are preferred, but well-prepared first- and third-year students who provide evidence of a strong interest in plant biology may also apply. Undergraduates needing more or less than the standard four years to earn a degree may still be eligible. International students and students following nontraditional academic calendars are welcome. In order to provide support to the maximum number of students, SURF awards are limited to applicants who are without other sources of stipend or salary for the proposed research, but supplemental funds for room and board are acceptable.

Faculty Mentors
Students must secure a mentor before submitting an application. The proposed research project must be pursued in the mentor’s laboratory. Mentors must be a member of ASPB, have an ongoing research program of high scientific merit, and demonstrate a commitment to undergraduate education and research. Mentors are expected to attend the Plant Biology meeting with their SURF student.

Need a mentor?
Students may work with a mentor at their own institution or at another institution. Additional guidance is available on the SURF webpage (see below).

Application
A complete application will include a research project statement and personal statement from the student, a research and mentoring statement from the mentor, a letter of recommendation from another faculty member (not the mentor or in the mentor’s lab), and undergraduate transcripts.

Selection Criteria
Competitive student applicants should have high academic achievement, strong motivation and skills for conducting research, and career objectives showing interest in or relevance to plant biology. Reviewers also will consider the contribution of the project to the mentor’s research program, institutional commitment to the proposed research, and the mentor’s commitment to undergraduate research.

Successful applicants receive a $4,000 summer stipend, a one-year membership in ASPB, and $700 (paid to the mentor or institution) for materials and supplies. Each fellowship also provides a $575 stipend to support student travel to the ASPB annual Plant Biology meeting. The travel stipend is sent only to SURF recipients who (1) register for the meeting, (2) submit proof of using social media or other outlets to communicate with the public or peers about the SURF project, and (3) author and submit an abstract about their SURF project to present as a poster at the meeting.

For additional details and to apply, visit http://surf.aspb.org
The ASPB Plant Biology Learning Outcomes, Outreach Materials, & Education Grant
https://bloome.aspb.org

Deadline for applications: May 1, 2022. Multiple proposals will be supported.

New focus for 2022! Plant BLOOME 2022 grant applications will open March 1 to ASPB members with the specific goal of developing education and outreach projects that can be implemented in K–12 classrooms to advance student and teacher knowledge and appreciation of plant biology.

- Materials must align with one or more of the newly redesigned Principles for Teaching Plant Biology (https://bit.ly/principlesPTPB) and should be targeted toward elementary, middle, and/or high school students.

- Materials developed should support classroom and/or laboratory instruction for the corresponding principles and include all necessary elements for teacher preparation, student implementation, and assessment.

- Funded projects will be featured on the ASPB website and will be disseminated to teachers at national meetings and outreach events.

- Visit bloome.aspb.org for award details, funding limits, and the full request for proposals.

Successful applicants will propose projects that develop classroom resources that are aligned with at least one of the Principles for Teaching Plant Biology and that use current, effective scientific teaching practices that are appropriate for the targeted student audience.

Plant BLOOME supports plant science education and outreach projects only. It does NOT support lab or field research projects.
NEW STAFF

ASPB Welcomes New Vice President of Content and Communications

For any organization, content and communications are a significant undertaking, but for a society like ASPB, with its robust journal publishing activities, expanding programming, and emphasis on connecting the global plant science community, a strategic eye is vital to ensure that members’ and the society’s needs are met. To help ASPB address its strategic priorities, the society welcomed Sarah Black, MS, as vice president of content and communications at the end of January.

Sarah joins ASPB from an association management company, where she had been working with a wide range of professional, technical, scientific, and medical associations and societies for the past nine years of her 17-year career on marketing, publishing, content and distribution strategies, and more. She began her career at a small educational non-profit before quickly moving on to the custom publishing arm of New York–based trade publisher Lebhar-Friedman. There, she oversaw production of a national consumer health care magazine with a circulation of 2 million copies while earning her master’s degree. In 2013, she made the shift to working with associations and brings with her a depth of knowledge in publishing and content and communications strategy. She holds a bachelor’s degree in English and a master’s degree in publishing.

“ASPB has an impressive portfolio of content and resources on which to build,” said Sarah. “I’m very excited to have the opportunity to help ASPB expand its offerings and approach to content and communications.”

As vice president of content and communications, Sarah will oversee journal publishing operations, ASPB content properties including the ASPB News and website, and content strategy development and implementation.

Outside of work, Sarah enjoys the outdoors and gardening, is active in her community as a volunteer, and leads her nine-year-old twin daughters’ very busy Girl Scouts troop.

Sarah reports to ASPB CEO Crispin Taylor and may be reached at sblack@aspb.org.

Elias Sanchez Is ASPB’s New Database Administrator

Please join us in welcoming Elias Sanchez as ASPB’s first permanent database administrator. Elias joined ASPB full time on January 6, 2022, as the senior database administrator manager. It was apparent to our technology team that a member relationship management system of Salesforce’s magnitude required a level of expertise that did not exist in house.

ASPB is thrilled to have Elias join our team!

Elias brings over 20 years of information technology work experience to ASPB. For previous employers, he was often the lead person in identifying and integrating key issues affecting technology challenges, from impact assessment to administration. His natural style is to seek feedback from others, and because he is very inquisitive, he looks for opportunities to master new knowledge and skills. Elias is a well-rounded, detail-oriented professional who is skilled at maximizing the accuracy and efficiency of technology functions by introducing new solutions, setting up internal controls, and assisting with documenting and implementing policies and procedures.

Elias earned a bachelor of science, with a concentration in management information systems, and a master of science in computer information systems. He has earned seven Salesforce certifications, which is impressive in the database field, as well as numerous other certifications.

In his spare time, Elias enjoys learning new skills, reading, doing interior design, working out, traveling, antiquing, and watching movies, especially documentaries.
Danny Schnell
1961–2021

BY STEVE THEG, University of California, Davis
and KATHY OSTERYOUNG, Michigan State University

The international plant biology community was deeply saddened by the news that Danny Schnell passed away December 15, 2021, after a valiant fight with cancer, from complications of his treatment. Danny was chair of the Department of Plant Biology in the College of Natural Sciences at Michigan State University (MSU), a position he had held since moving to East Lansing in 2016.

Danny grew up in Nebraska and attended the University of Nebraska–Lincoln as an undergraduate. He moved to California and earned his PhD working on lectins with Marilyn Etzler at the University of California, Davis. He began the research for which he is best known, the study of protein targeting to chloroplasts, working with Nobel laureate Günter Blobel as a postdoctoral fellow at the Rockefeller University. He then went to Rutgers University as an assistant professor and was promoted to associate professor before being recruited to the University of Massachusetts and finally to MSU. He led the MSU Plant Biology Department for five years.

Danny and I (Steve Theg) joined the field of protein targeting to chloroplasts at nearly the same time, Danny with Blobel and I with Ken Keegstra. I met Danny soon after his publication, with Blobel and Felix Kessler in 1994, of two seminal works, both in Science, identifying proteins in the outer chloroplast envelope membrane participating in chloroplast protein import. At that time, the major complexes in mitochondria responsible for importing proteins to the matrix were known, and the chloroplast field was far behind. These papers went a long way toward correcting that.

Danny devoted much of his life’s work to understanding how chloroplast protein import is carried out and regulated. He and his group combined biochemical, structural, and genetic strategies to elucidate critical steps in the import pathway in fine molecular detail. He was meticulous, and his studies revealed new functions for major components of the import machinery, uncovered new mechanisms regulating the developmental and physiological specificity of chloroplast protein import, and yielded significant insight into the evolution of the import complex.

He was a pioneer in techniques allowing us to pause the import process at different stages and had recently used these techniques to map the locations of the transit peptide along the import route. Following the example of the leaders in the mitochondria import field, who named the TOM and TIM components, Danny was the lead author on a paper in 1997 giving us the clever consensus nomenclature TOC and TIC for protein import components in the chloroplast envelope membranes. His work led to the recognition of multiple related receptor complexes in the outer envelope membrane, and to the idea that different forms of TOC159 and TOC34 could be mixed and matched to provide an additional level of control over the import process. It is hard to overstate his influence on the chloroplast protein import field.

Danny also applied his expertise in chloroplast biology to developing the oilseed plant Camelina sativa as a sustainable bioenergy crop. This collaborative work led to a $10 million award from DOE to an interdisciplinary team, which remains active.

Danny was selfless in his service and his dedicated leadership in the broader scientific community. Among his many contributions, he was elected secretary of ASPB, chaired the Program Planning Committee for the Society’s annual meeting, served on and chaired the ASPB Board of Trustees, and served on the editorial boards of numerous leading journals. Remarkably, Danny also made time to organize several conferences, including the Gordon Research Conference on Protein Transport Across Membranes and a conference on organelle biogenesis sponsored by the American Society for Biochemistry and Molecular Biology. In recognition of his research contributions and scientific leadership, Danny received many honors, including being named a fellow of both ASPB and AAAS.

We reached out to others in the field for their thoughts about Danny and received a number of heartfelt statements. Two are reprinted here.
Holy Grail of Protein Translocation

The following story was contributed by Felix Kessler:

“I first met Danny Schnell in 1992 when I joined Günter Blobel’s lab. I had arrived at the Rockefeller University with a fellowship to study nuclear-cytoplasmic transport. However, Günter suggested that I first look at this chloroplast project and noted that there was about to be a big breakthrough as Danny now had a few bands on a gel. I wasn’t very convinced at first, and Danny probably thought that Günter was bringing in the internal competition. . . . But of course, those were very special bands, of proteins associated with the famous translocation intermediates. We first called them IAPs (intermediated associated proteins), and they were later termed TIC and TOC.

“Around that time, Danny moved to Rutgers University to commence a tenure track assistant professorship while I stayed at the Rockefeller. We had nice bands on a gel but absolutely no protein information; mass spectrometry was still a long way away. But luckily we had the protein analysis platform at the Rockefeller and were able to obtain a few peptides each of what are now known as TOC159, TOC75, and TOC34. We knew that these proteins were very rare compared to Rubisco or chlorophyll a/b-binding proteins, and that only the very best cDNA library would work.

“With the help of another postdoc, Jun Sakegawa, who, according to Günter, made the best libraries known to humankind, I constructed our own library. We used the precious unamplified library and screened it using 32 P-labeled oligonucleotides. We got really lucky on the phone, shouting, ‘Danny, I will never, ever, submit a paper again to Science if these papers are rejected.’ We then dutifully replied to the reviewer comments, and the papers were rapidly accepted. Danny, Günter, and I were all so happy! What a big adventure in the unfolding scene.

“While we were sitting on the couch in his office like schoolboys, Günter got Daniel Koshland, then editor-in-chief of Science, on the phone, shouting, ‘Danny, I will never, ever, submit a paper again to Science if these papers are rejected.’ We then dutifully replied to the reviewer comments, and the papers were rapidly accepted. Danny, Günter, and I were all so happy! What a big adventure in science this was with Danny, the dream of any postdoc come true.”

Someone I Could Trust

This story is from Hsou-min Li:

“In 2004, I invited Danny to be one of the external reviewers for the annual review (site visit) of our plant and structural biology groups at the Institute of Molecular Biology, Academia Sinica. At my insistence, Danny came a few days early to tour northern Taiwan. I noticed immediately that he had done his homework on the localities, as he always had nice and insightful things to say about every place we took him. Ultimately, I ended up liking Taipei better after his visit.

“In the few days I spent with him, I learned that he was fond of the arts, had a greenhouse in which he collected and grew orchids, and was an accomplished cook. At one buffet lunch in Taipei, he even pointed to a dish he told me was one of his specialties.

“However, a strong stomach was not one of his considerable array of attributes, and regrettably, he got sick from something he ate at one of our night markets. I ended up taking him to a medical clinic together with my daughter, who had a mild cough. Danny was so considerate, taking the time to reassure her and praising the new jumper dress she was wearing. In fact, he told her about how once, as a kid, he ran with both hands inside the strap of his jumper and fell face first. The way he described it made my daughter laugh.

“As is the tradition in our institute, invited reviewers are asked to present their seminars first. I distinctly remember watching him on our stage with a slide of the chloroplast translocon in the background and thinking, ‘This is every scientist’s dream!’ After his seminar, I was surprised when multiple colleagues remarked to me, ‘You are very brave to have invited him.’ Later, one of them explained that this view arose from a concern that I would be worried about competition from such an eminent scientist.

“It was then I realized that throughout the years of communicating with Danny, I had never doubted that he was someone I could trust, and I was grateful for every chance of collaborating with him. Since then, I have appreciated even more how important it is to have someone so wise and noncombative as him to lead the field.”

We, perhaps like you, were stunned by Danny’s passing. What a sad tragedy. He will be sorely missed both by the scientific community and by his many friends.”
NEW! Do you manage a meeting or event that is open to the plant science community?

Add it to the Global Plant Science Events Calendar!

https://plantae.org/events-calendar/

ASPB staff are dedicated to serving our members. We welcome your questions and feedback.

For quick response, email us at info@aspb.org.