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ASPBnews

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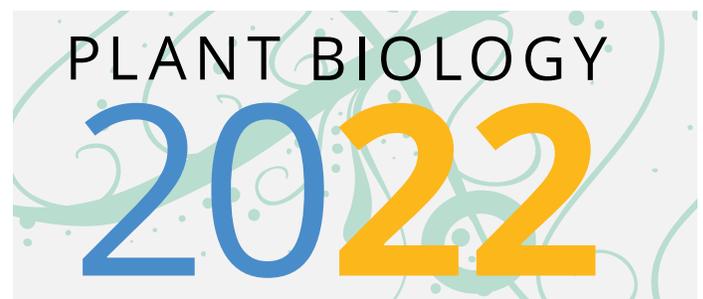
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The Power of Communication

BY KATIE DEHESH

ASPB President, University of California, Riverside

The undeniable reality is that meaningful science cannot be siloed, and scientists cannot operate in a socioeconomic and political void. In principle, the success of science in society requires two pillars: scientific achievement and clear communication of outcomes to the public. The paramount importance of clear communication has been long recognized; for example, the Greek philosopher Plato, who lived between 428 and 347 BCE, grounded his doctrine in the importance of transmitting knowledge, laying one of the foundations of Western culture. Plato initially believed that writing in the form of dialogues was imperative for transmitting principles to people and spreading the concepts in the most effective and congenial way. However, he later came to fear that his writings could be read by people unable to understand the truth and, even worse, that they could fall prey to the wrong interpretation. This concern led him to found his Academy in 387 BC, where he sought to establish an oral debate forum and to consolidate his theory of the superiority of speaking over writing in communication.

Over recent decades, the rapid expansion of science and scientific organizations, combined with reduced funding, have entangled scientists in the strangling web of searching for financial support. One casualty of this preoccupation has been the neglect of public engagement—that is, connecting with the public in a layperson's language in ways that enable people to distinguish between unsubstantiated fiction and evidence-based facts. This unintended misstep has led to a deepening loss of public trust in science and scientists. The long-term ramifications of this loss are best highlighted in the selection of “post-truth” as the word of the year by Oxford Dictionaries in 2016. They defined this term as “relating to or denoting circumstances in



which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief” (<https://languages.oup.com/word-of-the-year/2016/>).

Our prolonged silence on this issue, together with the widening spread of the Internet and the rapidly evolving digital age, have deepened the gap between scientists and the public. This gap has aided the rapid development of intellectual traps and a web of contradictory information that have reshaped and diluted the importance of key, established scientific concepts, such as evolution, the benefits of genetic engineering and vaccination, the contributions of human activities to climate change, and more. In the past several years, we have witnessed the magnified efforts of some agents to manipulate established facts, resulting in an explosion of pseudoscientific ideas and conspiracy theories targeting many areas.

One such area is related to the COVID-19 pandemic and vaccinations. At times, the messages of “anti-vaxxers” have outperformed those of others who have tried to teach us what vaccines are and how they work. In the rare media events featur-

ing scientists, they have either delivered a monologue or debated scientific approaches and facts rather than effectively engaging a public audience. The outcomes of these events were mostly disappointing; interested audience members couldn't fathom what the intended message was and soon lost interest. The messages of conspiracy theorists came to dominate, and incentivized in part by strong economic forces, their messages spread false and contradictory information in layperson's language, often using content appealing to human emotion calculated to be in synchrony with the cultural narratives and perspectives of the public. BBC interviews with 50 experts in 2017 identified the breakdown of trusted information sources as the “grand challenge we face in the 21st century” (<https://www.bbc.com/future/article/20170301-lies-propaganda-and-fake-news-a-grand-challenge-of-our-age>).

This grand challenge of the century is becoming even greater with the passage of time, given the accelerated expansion of fake information and manipulation by the mass media, all augmented by the continuous growth of the internet. Unfortunately, this expansion serves not only to spread falsehood, but also to severely reduce public interest in seeking informational facts on scientific advances and objective realities. This combination is lethal for the truth, making the task of convincing the public with strong scientific evidence even harder.

Luckily, though, the internet is not a one-way street. We, too, have access to this platform, and we should use it to amplify our voices, expand awareness of science-based evidence, and overwhelm fake information with facts. The task is by no means trivial, and perhaps we can learn and implement some of the already estab-

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PRESIDENT'S LETTER *continued from page 3*

lished principles used by educational and media platforms—for example, Science Friday on NPR (<https://www.npr.org/podcasts/583350334/science-friday>); Alan Alda's 2017 book on communication, *If I Understood You, Would I Have This Look on My Face?*; the CLEAR (Communication, Literacy & Education for Agricultural Research) Project (<https://clear-project.org/>); its sister program Science Says (<https://davissciencesays.ucdavis.edu/>); and many more. The following principles are apparent in these platforms:

- using lay language
- engaging in clear and transparent bilateral communication to address the public's fears reflected in their questions
- better understanding of our communities and their concerns
- keeping people's minds engaged by not overloading their attention spans
- popularizing science using storytelling, humor, and entertainment
- producing documentaries on topics of public interest
- enhancing science literacy at all levels of education
- infusing science communication training into tertiary education curricula
- expanding training in science journalism that provides comprehensible information while adhering to scientific accuracy
- seeking funding to support production of accurate information by ethical and trusted public media.

In this context, the crisis of the COVID-19 pandemic has provided us with a golden opportunity for engaging the public and enhancing the interactions between science and society. The development of vaccines in record time and the

efficacy of the new strategies have led the public to partially regain some trust and to shift toward accepting and depending on scientists to a greater extent. The unfolding of scientific breakthroughs in real time during this period has also compelled at least some politicians to accept science as the savior of the moment, enticing them to work more closely alongside scientists. In addition, the crisis led to global efforts to enhance collaboration and the sharing of scientific information among nations, assisted in part by multinational funding agencies. More importantly, the necessity of science taking the spotlight increased public understanding of scientific principles and vocabulary. Now PCR (polymerase chain reaction) is a term understood and used by people around the globe.

At this time, our ability to use the internet and social media to instantly reach a global audience, combined with people's current state of mind, presents us with an excellent opportunity to reestablish the credibility of science and regenerate the public trust. Members of ASPB can sustain this trend by being open to and understanding the uncertainties of our communities and by using readily comprehensible language in conveying scientific findings, whether simple or complex. Effective and open communication will be our key weapon in overcoming agents of misinformation and empowering the public to respond rationally to science.

We are part of numerous ongoing national and international efforts to diminish the threat of misinformation jeopardizing trust in science. The enormity and complexity of this task, however, require constant reminders for us to call for action, collectively and in unison, to push back the tsunami of misinformation and reestablish trust through the power of clear, open, and simple communication. The undeniable truth is that science is both part of society and dependent on society, and each is shaped by the conduct and culture of the other. Please be engaged, and provide us with your opinions and ideas for solutions to this global challenge. Let us join forces.

Recognizing the Pioneers of ASPB

BY BRIAN LARKINS

Chair, Centennial Challenge Committee and Legacy Society Leadership Committee

As ASPB approaches its centennial in 2024, it is an appropriate time to recognize and remember individuals who contributed to plant science research and teaching and helped make ASPB a leading international society of plant biology. Our understanding of plant biology has increased dramatically since the American Society of Plant Physiologists was created in 1924.

When I was a graduate student in the 1970s, our general understanding was as follows:

- Plant cells contained three types of RNA: ribosomal, transfer, and messenger.
- Genetic information was encoded in DNA, but the nature of the gene and how it was regulated were unknown.
- Plants had five hormones—auxin, gibberellin, abscisic acid, ethylene, and cytokinin—but their receptors and modes of action were unknown.
- The mechanisms controlling cell differentiation and organ development were a black box, as was the plant cell wall.
- Florigen was a hypothetical hormone that causes flowering.
- Phytochrome was a pigment protein that played a role in day length control of flowering, but its mode of action was unknown.
- The function of xylem was to transport water to leaves, and the function of phloem was to transport sugar and amino acids from leaves to other parts of the plant.
- The “gene-for-gene” hypothesis described the interaction between plants and their pathogens, but there was no understanding of how plants recognized pathogens and created the hypersensitive response that destroyed infected cells.



2019 ASPB Legacy Society Leadership Committee members behind the Centennial Challenge, left to right: Brian Larkins, Ralph Quatrano, and Debby Delmer.

- The light reactions (photosystems) and dark reactions (carbon fixation) of photosynthesis had been described, but many aspects of light capture, charge separation, water oxidation, electron–proton transfer, ATP synthesis, photoprotection, and alternative pathways that compete with carbon gain for photosynthetic energy had not been elucidated.

Think how much our understanding of these and other aspects of plant physiology has increased in the past 50 years!

In 2019, three members of the ASPB Legacy Society Leadership Committee (LSLC), Debby Delmer, Brian Larkins, and Ralph Quatrano, began considering fundraising activities that would coincide with the Society’s centennial celebration in 2024.

The Centennial Challenge was conceived as a way to increase financial support for a variety of ASPB programs, including professional development activities. As part of the Centennial Challenge, we envisioned a fundraising activity that would recognize individuals who made important contributions to our understanding of plant biology and provided leadership to the Society and its journals. We decided these individuals should be called Pioneers of ASPB.

What constitutes a Pioneer? According to the Oxford English Dictionary, a pioneer is someone who was the first to explore, develop, or use or apply a new method, area of knowledge, or activity. Often when scientists are recognized for their research, they say,

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RECOGNIZING PIONEERS *continued from page 5*

“We stand on the shoulders of giants.” Who are the giants of plant biology? Charles Darwin, Gregor Mendel, and Stephen Hales come to mind, as do Nobel Prize winners such as Barbara McClintock (genetics); Johann Deisenhofer, Robert Huber, and Hartmut Michel (photosynthesis); and Norman Borlaug (peace). But you don’t have to be a giant to be a pioneer. Whether or not you consider people like Kenneth Thimann, James Bonner, Melvin Calvin, Joe Varner, and Winslow Briggs, among others, to be giants, they certainly were pioneers who had a major impact on the current status of plant biology.

The truth is that scientific knowledge increases incrementally over time, hypothesis by hypothesis, detail by detail. Valuable contributions come from many individuals who develop or apply innovative techniques, resolve hypotheses, and add details about enzymatic pathways, cellular mechanisms, and diverse aspects of plant growth and development. Although some of these people might not have received research awards or other formal distinctions, the insights their publications provided made valuable contributions to their field of research, and some of their students went on to even more impactful scientific careers.

Other pioneers have made a substantial impact on plant science through their teaching. When I was an undergraduate at the University of Nebraska, a professor in the Botany Department, John Davidson, taught introductory botany through the inquiry method. Davidson published only one or two research articles (on how to teach botany), but he was responsible for many undergraduate botany majors, and his method of teaching influenced scores of high school and college teachers, including me!

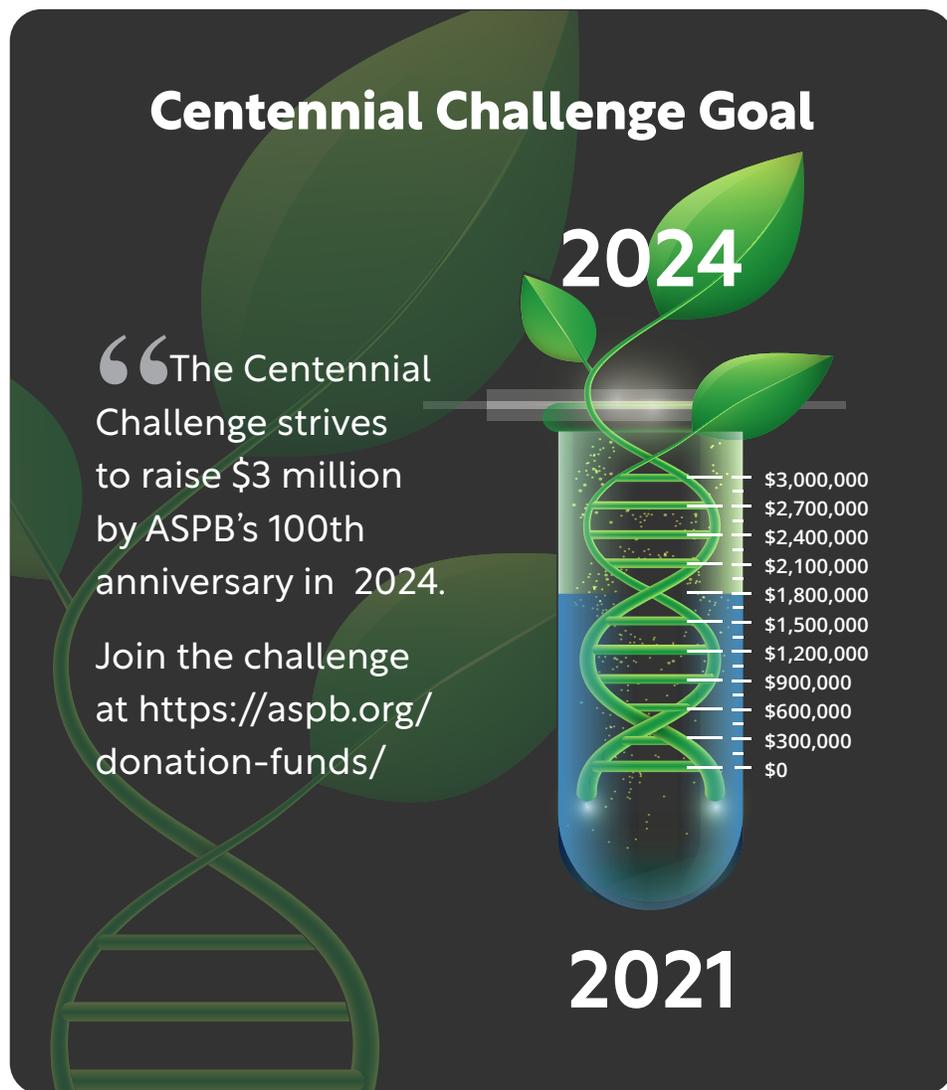
And it isn’t just teachers and researchers who have led plant biology to where it is today. Visionary people working at federal research funding agencies, like Mary Clutter (NSF), Holly Schauer (DOE), and Robert Rabson (DOE), have supported and initiated novel research programs that launched the careers of many plant scientists. These pioneers worked with some visionary politicians: Senator Kit Bond comes to mind, as he was

particularly influential in securing funding that led to the NSF Plant Genome Project.

Initially, the LSLC considered whether a Pioneer candidate needed to be deceased or at least retired, but it didn’t take long to realize it would be troublesome to create a checklist of criteria that define a Pioneer of ASPB; the arguments would never end. Consequently, we decided to leave it to the individuals who have the greatest insight: the students, postdocs, peers, and colleagues of potential Pioneers. If this group of people felt strongly enough to make a combined contribution of \$5,000 or more to recognize their mentor as a Pioneer of ASPB, who were we to disagree? To initiate the ASPB Pioneer recognition program, the LSLC worked with individuals who led an effort to recognize some deceased or very senior ASPB members and

leaders of scientific agencies. We also made this opportunity available to anyone who was willing to lead an effort to recognize their mentor as a Pioneer.

I encourage you to see the current roster of Pioneers and what they did at <https://aspb.org/membership/aspb-pioneer-members/>. The webpage features a photograph of each Pioneer, the names of the donors who supported their recognition, a short biography or obituary describing their career, and, more recently, short testimonials from donors describing the impact the Pioneer had on their career. And if someone is not listed who you feel played an important role in your career or the trajectory of the discipline, please contact Brian Larkins (larkins@email.arizona.edu) or Crispin Taylor (ctaylor@aspb.org) to learn how to recognize them as a Pioneer of ASPB.



AS OF MARCH 31, 2022. UNAUDITED.

This article first appeared March 4, 2022, on the University of California San Diego, website (<https://bit.ly/3Nv9Ua3>) and is adapted here with permission.

Julian Schroeder Honored by the Alexander von Humboldt Foundation

BY MARIO AGUILERA
University of California San Diego

Distinguished Professor and Novartis Chair Julian Schroeder of the University of California San Diego Division of Biological Sciences has been selected to receive the Carl Friedrich von Siemens Research Award from the Alexander von Humboldt Foundation.

During a long and distinguished career, Julian has pioneered the characterization of ion channels in higher plants. His laboratory led research identifying basic molecular mechanisms by which plants respond to and mount resistance to drought, salinity, and heavy metal stress. In an era during which climate warming is a growing global concern, Julian's research also has shed light on how plants regulate water loss in response to the continuing rise of atmospheric carbon dioxide.

The Carl Friedrich von Siemens Research Award is conferred "in recognition of the award winner's entire academic record to date."

The award carries a prize of €65,000 (approximately \$73,000). Alexander von Humboldt award winners are invited to conduct research projects of their choosing in cooperation with German colleagues.

"I'm humbled by this award," said Julian, a member of the Section of Cell and Developmental Biology. "I'm thankful to my laboratory members, former and present, and all of their efforts and advances in our lab's research. I'm also grateful to my predecessors in plant biology and other research fields who opened doors that allowed our lab and others to thrive."

The Alexander von Humboldt Foundation and the Carl Friedrich von Siemens Foundation have been jointly awarding research fellowships, research awards, and fellowship supplements since 2015. Humboldt Foundation fellows and award winners are selected within the regular assignment procedures of



research fellowships and research awards, with no restrictions placed on the choice of topic or the applicant's country of origin.

Julian received his PhD from the Max Planck Institute for Biophysical Chemistry and was a von Humboldt postdoctoral fellow at the University of California, Los Angeles, School of Medicine. Among his many awards and honors, Schroeder has received the Presidential Young Investigator Award from NSF, ASPB's Charles Albert Shull Award and Stephen Hales Prize, and the Blasker Award in Environmental Science and Engineering from the San Diego Foundation. He is a member of NAS and a fellow of AAAS and the German National Academy of Sciences Leopoldina.

Fionna Samuels Awarded 2022 AAAS Ralph W. F. Hardy Mass Media Science & Engineering Fellowship

BY FIONNA SAMUELS
PhD Candidate at Colorado State University and a freelance science writer

In some ways, I've studied plants my entire life. As a kid in Texas, I routinely went with my mom on botany walks with the high schoolers she taught. These trips sparked my curiosity and love of the natural world. When we moved to Colorado, I was fascinated by the new ecosystem around me, learning plant names on Mom-guided hikes. To this day, I point out plants to friends (or my dog) as we explore the Rockies. I always insist we find a moment to wrap our arms around a sun-

warmed ponderosa pine and inhale the caramel-sweet scent lingering in the deep grooves of its bark.

As a PhD student at Colorado State University, rather than looking at an entire plant, I use microscopes to peer into plant cells searching for differences in cryoprotectant behavior within. An entire plant can be resurrected from the deep freeze of cryopreservation if the correct cryoprotectants are used. We want to know why some cryoprotectants work while others fail.



I've always loved sharing science stories, and I'm excited to transition to science writing as my PhD studies come to an end. I'm incredibly grateful to everyone who helped me on this path and thrilled to be writing for *Scientific American* this summer!

Max Barnhart, 2022 ASPB/AAAS Mass Media Science & Engineering Fellow, Working at NPR This Summer

BY MAX BARNHART

My name is Max Barnhart, and I am currently a fourth-year PhD candidate in the Department of Plant Biology at the University of Georgia. For my dissertation research, I study sunflower pollen and the effect of high temperatures on the fertilization process. I completed an MS in biological sciences at the State University of New York at Buffalo, where I studied the evolution of ancient ebolavirus-like viruses by searching for fossilized genetic material hidden in the DNA of these viruses' mammalian hosts.

I got involved in science communication my first semester at the University of Georgia by joining the Athens Science Observer, a small graduate student-run science blog aimed at training students how to better write

about science for the public. What started out as a fun side project quickly turned into a passion, and I eventually worked my way up to become editor-in-chief. With support from a 2020 ASPB Plant BLOOME grant, I also led an initiative to create, print, and distribute short student-created science zines for the public in Athens, Georgia.

This summer, I will be working at NPR in Washington, DC, which is absolutely a dream come true! I cannot express enough how grateful I am to AAAS and ASPB for sponsoring my fellowship.

When I'm not at work, I'm either doing yoga or martial arts (I have a second-degree black belt in tae kwon do) or hanging out with my cats. Go Bills!



This article first appeared December 7, 2021, on the New Mexico Consortium website (<https://bit.ly/3tCNnQB>) and is adapted here with permission.

Richard Sayre Elected to National Academy of Inventors

Richard Sayre, a New Mexico Consortium chief scientist, is one of 164 academic innovators from all over the world elected to the National Academy of Inventors (NAI) in December 2021. The NAI Fellows Program calls attention to academic inventors who have demonstrated a spirit of innovation in creating or facilitating outstanding inventions that have made a great impact on the quality of life, economic development, and welfare of society. Election as NAI fellow is the highest professional distinction granted only to academic inventors.

To date, NAI fellows hold more than 48,000 issued U.S. patents, which have generated more than 13,000 licensed technologies and companies and created more than 1 million jobs. In addition, over \$3 trillion in revenue has been generated from the discoveries of NAI fellows.



IMAGE COURTESY OF LOS ALAMOS NATIONAL LABORATORY

“More about the NAI Fellows Program and the 2021 recipients can be found at <https://prn.to/3uYrevl>.

Richard, a biotechnology scientist, joined Los Alamos National Laboratory (LANL) as a senior research scientist in 2011 and retired from there in 2017. While at LANL, he directed multiple DOE biofuel programs and helped establish the Entrada Biolabs Research Center.

Richard has cofounded and served as chief scientific officer of Pebble Labs and Trait Biosciences, as well as Spartina Biotechnologies, which develops targeted siRNA delivery technologies for the control of human viral diseases and metabolic disorders. In 2020, he launched Richard Sayre Consulting, LLC (<https://richardsayreconsulting.com/about/>).

Richard has authored more than 140 peer-reviewed research publications, has given approximately 350 invited presentations, and has more than 40 patents issued and pending.

Welcome to the *ASPB News* “Perspectives” column. These articles explore the topical theme of each quarterly issue of the newsletter. They are typically written by members who are actively involved in the work of the Society to support and nurture plant science and plant scientists.

ASPB’s Science Policy Committee: Advocating for Plant Science and Plant Scientists

BY TESSA BURCH-SMITH
Chair, Science Policy Committee

I became a member of the Science Policy Committee (SPC) in 2019. At that time, I was at the University of Tennessee and busy with all the professor-type activities and had only a vague idea of what the SPC was and what it did. Well, the learning curve was steep! The SPC engages in numerous advocacy activities to advance the ASPB membership’s interests. One major focus of our advocacy is securing and increasing funding for promoting plant science research and training the next generations of plant scientists. Other topics we address include ensuring access to common resources such as databases, encouraging investments in the bioeconomy, and supporting efforts to mitigate the effects of climate change. Although many of these topics can be politically charged, the SPC works in a nonpartisan way to advance these issues for the benefit of ASPB membership and the wider society.

To achieve its goals, the SPC undertakes a variety of activities to facilitate engagement with the government, funding agencies, and other scientific and professional societies. Because there is strength in numbers, we join other societies, universities, and interest groups in writing letters to Congress to address funding issues and specific legislative issues or bills. Each year we sign on to dozens of letters in partnership with numerous other scientific and professional societies with shared priorities.

Another important outreach activity of the SPC is our Hill meetings. Each spring, as the presidential budget is being prepared and congressional offices are establishing their own funding priorities, members of the SPC



U.S. Capitol, Washington DC. PHOTO BY WALLY GOBETZ

meet with leaders of the federal agencies that fund most plant science research—USDA, NSF, and DOE—as well as representatives of other agencies. At these meetings we seek to determine the evolving research interests of each agency and then convey these interests to individual congressional offices in subsequent meetings. Since the pandemic, these meetings have been held virtually; nevertheless, they are still a vital part of ASPB’s advocacy efforts. We also engage in educational activities that inform legislative and agency staff on scientific topics pertinent to plant science.

I became chair of the SPC in 2020. Since then, we have continued the excellent work of previous committees, but we are also

branching into new arenas that are congruent with changes in the political and research climate. Last year, we had the opportunity to engage with the White House Office of Science and Technology Policy (OSTP). We were invited to submit a white paper on plant science with a focus on the bioeconomy and workforce development. Our submission was well received and has led to follow-up discussions with OSTP. We look forward to continued advocacy with this important group of presidential advisers.

Beyond the OSTP, the SPC is making efforts to engage with nontraditional sources of funding for plant science research, including NASA, the Department of Defense, and

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PERSPECTIVES

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NIH. With the Biden administration's focus on climate change and the bioeconomy, we believe that increased engagement with these agencies will help create space for plant science in their research outlook and portfolios.

All members of the SPC contribute to these efforts. The committee's membership is a bit different from that of other ASPB committees. Like all other committees, we strive to have a diverse membership that is representative of our whole Society membership and consistent with ASPB's diversity, equity, and inclusion goals. An additional consideration, however, is geographic representation. Because one of our major activities is to petition Congress in support of causes favored by ASPB, we also consider the composition of powerful congressional committees and subcommittees that set policy and appropriations for federal agencies that fund plant biology research and other issues pertinent to ASPB. On the basis of the composition of these congressional committees, we select SPC members from relevant congressional

districts to ensure that we can personally engage with our elected representatives to discuss ASPB's concerns. Election results can upend our carefully laid plans, so we try to maintain some flexibility with this approach.

In addition to ASPB members, the SPC works in close collaboration with staff from Lewis-Burke Associates, a government relations firm that specializes in issues related to higher education and research. Lewis-Burke Associates provides the SPC with insight into government processes and helps us develop effective strategies for engaging with the government and other professional societies to further ASPB's interests. The staff contribute to the SPC in myriad ways, including helping organize meetings with congressional representatives and delegations, assisting with the preparation of congressional testimony, producing comprehensive summaries on important congressional activities, and coordinating interactions among the many professional societies and other advocacy groups.

Now, you don't need to be a member of the SPC to engage in advocacy on ASPB's behalf. Indeed, writing, emailing, or calling

your congressional representatives' offices as a private citizen is a fantastic way to advance ASPB's efforts. The SPC occasionally puts out calls for just these actions from the general membership, so please pay attention and help amplify our efforts.

The SPC also hosts advocacy-focused activities at the annual Plant Biology meetings. This year in Portland, we will host a workshop organized by our early career representatives, Erin Doody and Ka Man Jasmine Yu, where you can hear from a local government policy professional and prepare and hone your own advocacy elevator pitch! Consider attending the workshop for what will be an exciting opportunity.

And of course, if you want to join the SPC, feel free to reach out to me or to ASPB president-elect Gustavo MacIntosh. Serving on the SPC is an excellent way to contribute to our goals as a Society, and it's also a wonderful way to learn about how our government works. After my time on the SPC, I no longer view advocacy as a necessary evil, but rather as a productive activity to advance causes important to society!



ASPB Recognizes Members Elected to the National Academy of Sciences in 2022



John A. Browse
Washington State University



Clint Chapple
Purdue University



Gregory Martin
Boyce Thompson Institute & Cornell University



Blake Meyers
Donald Danforth Plant Science Center



Eugenia Russinova
Ghent University

Policy Update

BY VICTORIA HABER
Lewis-Burke Associates, LLC

Congressional Updates

Fiscal Year 2022 Omnibus Bill Signed into Law

With strong bipartisan support, Congress passed a massive end-of-year spending package that includes \$1.5 trillion in fiscal year (FY) 2022 omnibus appropriations, which President Biden signed into law March 15. Overall, many of the climate- and environment-focused programs received significant increases relative to the overall average increase (6.7%) for nondefense spending over FY2021 levels. Nonetheless, the final numbers for these programs were, for the most part, below or far below the president's budget request and the House and Senate bills. Some funding levels of note are as follows:

- USDA's National Institute of Food and Agriculture (NIFA) will receive \$1.64 billion in discretionary funding in the final agreement, \$66.8 million or 4.3% above the FY2021 enacted level.
 - The Agriculture and Food Research Initiative (AFRI) will receive a \$10 million increase over FY2021, bringing the top line to \$445 million.
 - The omnibus also provides a small increase for the Agricultural Genome to Phenome Initiative, funding it at \$2 million, \$1 million over FY2021.
- DOE's Basic Energy Sciences program will receive \$2.31 billion, \$63 million or 2.8% above the FY2021 enacted level.
- DOE's Biological and Environmental Research program will receive \$810 million, \$62 million or 10.2% above the FY2021 enacted level.
- NSF will be funded at \$8.84 billion, an increase of \$351 million or 4.1% over the FY2021 enacted level, but significantly

below the proposed increases in the House and Senate bills and the president's request.

- The Research and Related Activities account, which funds all of NSF's research directorates, will be funded at \$7.16 billion, an increase of 3.6% over the FY2021 level.
- The omnibus also included language for NSF's Understanding Rules of Life program.

With FY2022 finalized, Congress is already pivoting to FY2023 appropriations. The Biden administration released the FY2023 president's budget request in late March, officially announcing its priorities for the year and kicking off the congressional FY2023 appropriations process.

Sources and Additional Information

- The Explanatory Statement for the USDA budget is available at <https://tinyurl.com/37s74yxb>.
- The Explanatory Statement for the Energy and Water budget is available at <https://tinyurl.com/jwhvr248>.

House Agriculture Committee Hearings on Farm Bill Programs, USDA Farm Policy

In early February, the House Agriculture Committee held a hearing on the implementation of 2018 Farm Bill policies to lay the groundwork for needs in the upcoming 2023 Farm Bill reauthorization. The Environmental Quality Incentives Program, which houses some collaborative research programs including the Conservation Innovation Grant, was brought up several times by members of the committee, to which Terry Cosby, chief of the Natural Resources Conservation Service, responded that it is a critical program that will continue providing advancements toward climate-smart agriculture. Republi-

can members also posed questions regarding how conservation regulations and practices would affect the bottom line for farmers, indicating continued pushback on these kinds of programs going into the next Farm Bill.

The following week, after USDA announced its \$1 billion investment in the Partnerships for Climate-Smart Commodities program, the House Agriculture Committee hosted a hearing with Robert Bonnie, the top climate change authority at USDA. Although the hearing was focused on farm policy, many Republican members used the time to question the authority of USDA to administer such a program without congressional authorization using Commodity Credit Corporation funds, given that these funds are specifically for market-related initiatives. In response, Bonnie reassured members that the intent of the program was to improve agricultural market opportunities for farmers who choose to pursue climate-smart practices. The strong objections to this program suggest that the program is unlikely to be reissued if Republicans regain their majority in Congress following the 2022 election cycle.

Sources and Additional Information

- The Farm Bill conservation programs hearing can be found at <https://tinyurl.com/5n6mwtfp>.
- The hearing with Robert Bonnie is recorded at <https://tinyurl.com/yckpf4vd>.

Federal Agency and Administrative Updates

President Biden Releases FY2023 Budget Request Reflecting Climate and Environment Priorities

On March 28, President Biden released a \$1.6 trillion budget proposal to Congress for FY2023 providing an indication of agency priorities and future directions. Overall, the

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budget request would increase funding for research and development, climate and environment, and education programs of interest to the research and scientific communities with climate- and environment-focused programs proposed to receive even larger increases for FY2023 than proposed in FY2022. The release of the budget request marks the beginning of the FY2023 appropriations process, at which point Congress will decide to accept, modify, or reject the president's budget proposals. The FY2023 president's budget request and the accompanying agency budget justifications are indicative of how the agencies will approach priorities over the next year.

Related to environment and climate change priorities, climate and clean energy innovation programs at NSF and DOE would also receive greater support compared with FY2022 enacted levels, including \$700 million for new climate mitigation, adaptation, and resilience programs at the Advanced Research Projects Agency–Energy. The budget request would provide \$4.9 million to the Agriculture Advanced Research and Development Authority (AGARDA) to build on the \$1 million it received in FY2022 and \$564 million for AFRI, \$119 million over the FY2022 enacted level.

Sources and additional information:

- The FY2023 president's budget request is available at <https://tinyurl.com/2duf7pb2>.
- The Lewis-Burke analysis of the FY 2023 budget request is available at <https://tinyurl.com/3k974ynr>.

Technology, Innovation and Partnerships Directorate Announced

On March 16, NSF director Sethuraman Panchanathan announced the establishment of the Directorate for Technology, Innovation and Partnerships (TIP), the first new directorate at NSF in more than 30 years. The TIP Directorate is expected to focus on accelerating the development of new technologies, advancing the frontiers of research and education across all fields of STEM, growing the economy, and sustaining U.S. competitiveness. TIP will comprise new

programming and several existing innovation NSF programs that will be repositioned there. Erwin Gianchandani has been selected as the inaugural assistant director for TIP. Previously, Gianchandani served as Panchanathan's senior adviser for translation, innovation, and partnerships, and he was the deputy assistant director for computer and information science and engineering for six years at NSF.

In addition to announcing the new directorate, Panchanathan called on Congress to pass pending competitiveness legislation and stated that the package was "critical to ensuring TIP can generate a transformational evolution in translating America's research to expand our economic leadership in the technologies of the future."

Sources and Additional Information

- The TIP Directorate announcement can be found at <https://tinyurl.com/436efze3>.
- More information on TIP is available at <https://tinyurl.com/ymc325zd>.

Carrie Castille and Parag Chitnis to Leave NIFA

Carrie Castille, who was appointed to a six-year term as director of NIFA at USDA in December of 2020, has resigned her position to lead the Institute of Agriculture at the University of Tennessee, Knoxville, beginning July 1. NIFA serves as the primary extramural funding arm for USDA and oversees many programs pertaining to agricultural competitiveness and conservation. During her 14 months as NIFA director, Castille helped fill more than 100 vacancies at the agency and promoted innovation within agricultural sciences.

Parag Chitnis, who currently serves as NIFA's associate director for programs and acting associate director for operations, is also departing USDA in the coming months to begin a new role as vice president for research and economic development at the University of Wyoming May 31. In his current roles, Chitnis oversees and implements NIFA's programs, which amount to \$1.75 billion for research and extension initiatives in food and agricultural sciences.

In the interim, Dionne Toombs, who is currently the director of the Office of the Chief Scientist, will serve as NIFA's acting director, but it is not clear who will step in for Parag

Chitnis. These positions will need to be filled swiftly to ensure that research and innovation for the agricultural sciences do not lag.

Sources and Additional Information

- The two press releases are available at <https://tinyurl.com/4v7svdmw> and <https://tinyurl.com/2p83xryu>.

Funding and Engagement Opportunities

USDA Releases FY 2022 Agricultural Genome to Phenome Initiative RFA

The USDA-NIFA released a request for applications (RFA) for the FY2022 Agricultural Genome to Phenome Initiative (AG2PI). AG2PI aims to advance scientific understanding of genomes and phenomes of plants and animals of significance to American agriculture. This is the second RFA for this program after it was initially authorized in the 2018 Farm Bill and first competed in FY2020. The FY2022 solicitation includes \$1.92 million in total funding, double the amount of available funding over the previous edition. Applications should seek to (1) develop datasets and tools to advance genome engineering to optimize animal reproduction and nutrition; (2) mitigate the environmental impacts of crop and animal production; and (3) support development of root stops to increase carbon capture. Projects proposing collaboration between crop and animal researchers are encouraged.

The RFA describes eleven goals, as directed in the 2018 Farm Bill, that AG2PI projects must support:

- Expand knowledge concerning genomes and phenomes of crops and animals of importance to the agriculture sector of the United States;
- Understand how variable weather, environments, and production systems impact the growth and productivity of specific varieties of crops and species of animals in order to provide greater accuracy in predicting crop and animal performance under variable conditions;
- Support research that leverages plant and animal genomic information with phenotypic and environmental data through an interdisciplinary framework,

leading to a novel understanding of plant and animal processes that affect growth, productivity, and the ability to predict performance, which will result in the deployment of superior varieties and species to producers and improved crop and animal management recommendations for farmers and ranchers;

- Catalyze and coordinate research that links genomics and predictive phenomics at different sites across the United States to achieve advances in crops and animals that generate societal benefits;
- Combine fields such as genetics, genomics, plant physiology, agronomy, climatology, and crop modeling with computation and informatics, statistics, and engineering;
- Combine fields such as genetics, genomics, animal physiology, meat science, animal nutrition, and veterinary science with computation and informatics, statistics, and engineering;
- Focus on crops and animals that will yield scientifically important results that will enhance the usefulness of multiple crop and animal species;
- Build on genomic research, such as the Plant Genome Research Project and the National Animal Genome Research Program, to understand gene function in production environments that is expected to have considerable returns for crops and animals of importance to the agriculture of the United States;
- Develop improved data analytics to enhance understanding of the biological function of genes;
- Allow resources developed under this section, including data, software, germplasm, and other biological materials, to be openly accessible to all persons, subject to any confidentiality requirements imposed by law; and
- Encourage international partnerships with each partner country responsible for financing its own research.”

Eligibility: Colleges and universities; university research foundations; other research institutions; private organizations, foundations, or corporations; state agricultural

experiment stations; national laboratories; federal agencies; and individuals are eligible to apply to this program, as well as groups of two or more of these entities.

Deadline: Applications must be submitted by July 21, 2022 at 5:00pm ET.

Award Information and Matching: The FY 2022 AG2PI has \$1.92 million in total available funding. Applicants may request up to a total of \$1.92 million, with a project period of no more than three years. USDA does not specify the number of awards they expect to provide under this program. There is a one-to-one matching requirement, but this may be waived under certain conditions specified in the RFA.

Sources and additional information:

- The full RFA is available at <https://tinyurl.com/bdhux4z8>.
- The AG2PI program page is available at <https://tinyurl.com/2n7nw7yk>.

FY2022 AFRI Foundational and Applied Science RFA

NIFA released an RFA for the FY2022 Foundational and Applied Science (FAS) program, the second of the annual AFRI programs. The solicitation calls for applications in the following research areas:

- Plant Health and Production and Plant Products
- Animal Health and Production and Animal Products
- Food Safety, Nutrition, and Health
- Bioenergy, Natural Resources, and Environment
- Agriculture Systems and Technology
- Agriculture Economics and Rural Communities
- Cross-Cutting Programs.

This RFA is an updated version of the FY2021–2022 solicitation posted in 2020. Changes to the solicitation include a \$10 million increase, for total program funding of \$300 million, and several new program area priorities:

- Conventional Plant Breeding for Cultivar Development within Plant Health and Production and Plant Products

- Environmental and Natural Resource Economics within Agriculture Economics and Rural Communities
- Extension, Education, and USDA Climate Hubs Partnership within Crosscutting Programs
- AFRI Commodity Board Cofunding Topics within Crosscutting Programs
- Rapid Response to Extreme Weather Events Across Food and Agricultural Systems within Crosscutting Programs
- Regional Innovation and Demonstration of Climate-Smart Agriculture for Future Farms within Cross-Cutting Programs.

Additionally, the Engineering for Agricultural Production Systems priority area has been split into Agriculture Systems and Technology: Engineering for Agricultural Production and Processing and Engineering for Precision Crop and Water Management.

Individual award amounts, award distribution, project periods, and deadlines will vary based on research area.

Sources and Additional Information

- The full RFA is available at <https://tinyurl.com/2a9ne4u9>.
- The program page for FAS is available at <https://tinyurl.com/mrmu495x>.

A Day in the Life of a Government Relations Professional

BY ELIZABETH STULBERG
Lewis-Burke Associates, LLC



We call it “advocacy,” “government relations,” and “lobbying”—everything we do to negotiate across the federal landscape to ensure progress—

and there’s never a dull moment. Lewis-Burke Associates is a government relations firm based in Washington, DC, that focuses on representing clients with research, education, or health interests. The lobbyists and experts at Lewis-Burke have worked with ASPB since 2009, helping the Society navigate three presidential administrations and seven sessions of Congress.

Like all advocacy efforts, our strategies are often shaped by the priorities of elected officials. Sometimes we work with congressional champions who support our priorities. Other times it is important to educate policymakers on the importance of core programs so that funding is not cut or redirected. Although this can seem straightforward, advocacy is often a patchwork of numerous actions, connections, and compromises.

At the beginning of 2021, there was a new administration and a new Congress. Senate Majority Leader Chuck Schumer had announced his intention of establishing a new directorate at NSF, the Technology, Innovation, and Partnerships (TIP) Directorate. Not all of NSF’s stakeholders were happy with exactly what was proposed, but most recognized that this was a rare opportunity to harness interest in NSF and to bring heightened visibility—and potentially additional dollars—to the crucial work that NSF funds.

Throughout 2021, the Senate and House of Representatives worked on legislation that would reauthorize NSF to include this new directorate. This legislation would also sup-

port additional provisions related to federal support of energy, manufacturing, economic development, space research, and more. But an authorization alone would not financially support any of these efforts: funding passed through the annual appropriations process would be necessary. Using the momentum of these efforts, we facilitated ASPB’s joining the community of NSF stakeholders working with House and Senate appropriators to add \$1 billion in additional funding for NSF in fiscal year (FY) 2022.

Despite the overall support for research in Congress, and for NSF in particular, partisan disagreements over total spending slowed the momentum that we and the other NSF stakeholders had achieved. In addition, the escalation of the war in Ukraine refocused priorities, and when Congress’s final appropriations package for FY2022 was released, stakeholders discovered that NSF received only \$350 million of the \$1 billion increase we had expected.

Although there was disappointment, it must be noted that this funding increase is the largest NSF has seen in more than a decade. In other words, this outcome was not an issue of a lack of support; rather, it was a clarion call that strengthened the resolve of the broader community of NSF stakeholders to redouble our efforts to increase NSF funding and to ensure that the compromise competitiveness legislation is signed into law.

Lewis-Burke Associates promoted ASPB’s participation in these advocacy efforts by helping ensure that ASPB signed on to letters of support, drafting outside witness testimony for congressional hearings, participating in meetings on Capitol Hill, and proposing legislative language to support ASPB-related priorities. But none of this would have been as effective had we not first invested in building relationships with lawmakers, their staff, and other scientific societies.

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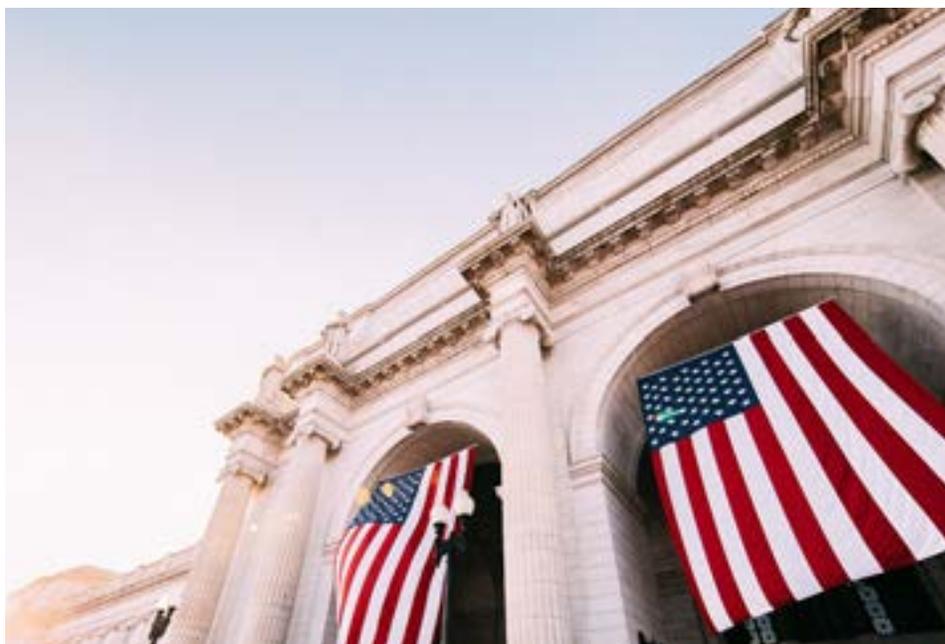


PHOTO BY CALEB FISHER

How Policy Is Made: An Interview with OSTP

BY ERIN DOODY

Early Career Representative, Science Policy Committee, and University of Pennsylvania



PHOTO BY BISHWAS SHARMA

In February, I had the opportunity to conduct an off-the-record interview with a senior staffer at the White House Office of Science and Technology Policy

(OSTP). We discussed what OSTP is and how the office develops sound policies and budgets to promote the advancement of science and technology in the United States. The following are some highlights from our conversation, lightly edited for clarity.

Please describe OSTP and its function at the White House.

OSTP has been around since World War II, but it has evolved since then. We began with two core missions. The first is to provide advice to the president and White House on science. The second is to learn about, coordinate, and implement government policy. Over the years, a third mission has developed: to foster collaborations among government, industry, universities, and international partners to solve global challenges.

How do we do this? Policy is a contact sport. It's done through conversations, papers, and meetings to determine how we can move forward as a nation using informed policy.

Who works at OSTP, and how is the office organized?

Currently, OSTP consists of 150 people in a corner of the Eisenhower Executive Office Building next to the White House. Science policy takes all sorts of people. I am a policy person, but there are also lawyers, artists, writers, and community organizers. Most of my own office consists of scientists with PhDs in various disciplines: engineering, physics, mathematics. They come to work at

OSTP for a year or two at a time on rotation from federal agencies, academia, and nonprofits.

One year ago, when I joined OSTP after President Biden's inauguration, there were 28 people in my office: about 10 career staff who were in support functions, and some 20 scientists finishing their rotations. Most of the past year we have spent doing lots of hiring.

How do people typically find their way to work at OSTP?

There is no set process for finding rotating scientists; it's a mix of targeted recruiting and open calls. For example, we take some of the AAAS Science and Technology (S&T) policy fellows every year and some fellows from other programs, and we do custom searches. Some people are appointed by the president. OSTP has more continuity than many other offices, so some stay around between administrations.

Can you briefly describe a typical workday?

Our main function is to be at the table to help formulate the administration's response to scientific challenges. Right now, we are focused on the pandemic, but we also work on topics such as climate change and the transition to clean energy.

Practically, this work is done through lots of meetings and emails and by negotiating with Congress for legislation to authorize and appropriate funding for scientific budgets. For example, yesterday I met with people at the State Department to discuss new STEM immigration provisions for work in universities and associations.

Immigration provisions in STEM must be legislated; we depend on Congress to make changes to the laws to help STEM talent to come to the United States. But because

Congress hasn't acted on needed changes, we try to make the process easier. We are trying to help foreign-born faculty and postdocs by making the J1 visa rules simpler. Additionally, for early career STEM research (ECR) initiatives, we want to encourage companies to take advantage of J1 visas to bring international talent to the United States.

How do you ensure that your office is well informed on policy?

Being well informed on policy is difficult. We try to stay plugged into the political and policy parts of the White House by networking with several political appointees. The trick is to mix that with being well informed on the science. For this, we rely on colleagues and connections to scientists in their fields.

The COVID-19 pandemic has magnified the importance to society of funding basic research and public health. Has this change in perspective been reflected in conversations or initiatives at OSTP? Has the role of OSTP changed during the pandemic?

We've always believed in articulating the benefits of basic research, but now it's easier to have those conversations. The pandemic has helped many of our policy proposals get approved.

Right now, OSTP is shifting focus to preparing for future pandemics (the COVID-19 Response Team is taking care of this one). This focus is easier to justify now that everyone is aware of the possibility of another pandemic. The role of OSTP is still evolving—it is always adjusting to changing situations and finding ways to best provide advice to the White House.

We also have a brand new White House climate policy office, which is working to determine how to provide the administration

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The Eisenhower Executive Office Building. PHOTO BY ABOVEFOLD

HOW POLICY IS MADE *continued from page 15*

with policy on climate change. We advise President Biden on the important science questions he needs to be aware of. It's an elaborate process to get information to the president. For example, it was important for President Biden to be at the United Nations Climate Change Conference of the Parties (COP26) meetings in Glasgow last year, so OSTP Director Eric Lander went as well to make sure we were putting science at the table.

What got you interested in science policy? Can you tell us anything about your career trajectory?

I started in economics and policy research as an undergraduate, and then I got interested in science policy in my first year of grad school. I gravitated toward the political and economic part of science. My first job was working on internships and federal research funding at a nonprofit science and engineering society. I was there for a long time before starting at OSTP.

What is the most exciting or fun part of your job?

Overall, the most fun part is being able to meet and talk to my colleagues. We have amazing people rotating through OSTP, and I love to get to work with them. But because I started here after the pandemic began, I

don't know them in 3D yet, so I am looking forward to getting to know everyone better.

Are there any important moments that stand out as career changing for you?

My career-defining highlight was getting to brief President Biden in the Oval Office last year. This was at the height of the pandemic (i.e., masked, tested, and screened), and I never expected I would get to do this.

Where do you think you've had the most impact in benefiting science during your career to date?

In 2009, our task at my previous job was to fulfill President Obama's commitment to triple the number of NSF research fellowships: to take it from 1,000 to 3,000 a year. We worked with OSTP, NSF, and others to make plans that could triple the number. This effort required working constantly to solve problems and clear obstacles to make a budget that accommodated this. We did this by presenting trade-offs and negotiating where things could be cut. In the end, we didn't triple the number of fellowships, but we did double it.

How do you usually negotiate budgets?

A main role of OSTP is to advise the president on a budget and ways to get the funding for it. Awareness of scientific opportunities and challenges is key. We think about how we can continue to make progress on our goals for

scientific advancement, and then we work with federal agencies and their resource constraints. We then make recommendations on how we should shift money around to make an impact on basic research and meet our goals.

For example, during the pandemic we want to increase support for ECRs across science. Option 1 is obviously to just give science agencies more money. But it's much more difficult to decide where we could shave costs. So that's a conversation we are having right now: how to reappropriate money and present different options for NSF to increase ECR support.

Why do you think scientists should care about science policy?

Well, simply: the money. Federal support for research is vital, and that is science policy in action. But it is also important to determine how we can translate the results of your work into national action on solving some of our greatest challenges—clean water, the environment, agriculture. It is all about how we keep the U.S. science enterprise going and contributing to what we care about.

What do you think are the most effective ways for a scientist to get involved in science policy at the federal level?

It depends. I ask scientists to think about how they can be most effective, which can be different for everyone. For some of you, it may involve occasional engagement, such as doing a visit with Capitol Hill staff once a year in DC. For others it might mean getting involved in bringing science information to your community by working with your town council or a nonprofit. For those who can make a bigger commitment, you could consider a policy fellowship or work at a federal agency for a year.

Some of you might find you can make a career change and transition to a career in policy. It is very common for scientists to leave bench science and go into policy. For example, about two-thirds of the AAAS S&T policy fellows never go back to the bench—they stay in policy. Whether a large or small commitment, everyone must find what works for them.

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Your Science Policy for the Crosswise

The answers to this crossword are areas of focus within the sphere of the Science Policy Committee (SPC). Good luck!

ACROSS

- 2. Commander in chief's annual spending wishes, produced by the Office of Budget and Management; also, lowbrow brew (abbr.)
- 5. Group that seeks to influence politicians; also, where one checks in
- 7. "It's getting warmer and drier, but storms are worse"; also, focus of an almost-U.S. president (2 words)
- 8. I'm the federal agency in charge of forestry, farming, and food! (abbr.)
- 9. Common name for the Agriculture Improvement Act of 2018, to be renewed in 2023 (2 words)
- 12. Congressional law that provides an agency with budget authority; also, cultural theft
- 13. Containing DNA introduced by artificial means
- 15. Congressional group within a group that focuses on specific issues; also, where the SPC sends the answer to 5-down
- 16. Powerful rule makers; also, an old baseball team
- 19. Nickname for the home to the U.S. legislative branch (2 words)
- 20. The government makes this complicated; also, people do this after a fight

DOWN

- 1. Share of a country's wealth and resources based on products, services, and processes derived from biological resources, including plants
- 3. Product derived from algae, corn, and canola
- 4. All the DNA in an organism
- 5. The SPC signs on to these as needed
- 6. 10-year plan produced by the Plant Science Research Network (2 words)
- 9. Money to get research (and much else) done
- 10. NSF program providing postdoc fellowships in plant science (abbr.)
- 11. Body having "Power To lay and collect Taxes," for example
- 14. Partner organization to which Amit Dhingra is ASPB's representative (abbr.)
- 17. Rules set by government; also, control by transcription factors
- 18. Public show of support on behalf of something; also, what the SPC does!

SEE PAGE 19 FOR ANSWERS

HOW POLICY IS MADE *continued from page 16*

Do you have any suggestions for ways scientists can help promote good science policy to the public?

I suggest you find your comfort zone. It will be different for plant biologists than for astronomers or epidemiologists. But for all of us, now is a good time to think about what science policy means to the public. Our response to this pandemic is science policy in action. The pandemic has forced individuals, schools, governments, business owners—everyone—to use scientific evidence to make policies, and that is making a big impact on our lives. It's a good place to start the conversation.

Do you have any advice for early career researchers who are interested in starting a career in science policy?

First, think about what your options for a time commitment are, from once a year to full time. To all ECRs, especially post-

docs, if you have the opportunity, try to have some basic policy experience. This experience could come from a Hill visit or formal coursework, but there are also many opportunities to work in science policy at the university level. For example, get involved in institutional postdoc policies. That is science policy, and it also involves dealing with federal agencies.

Find a way to dip your toes in, and if it's of interest, consider applying for a fellowship, making a career change, or volunteering. There are many ways to get involved; find the one that works best for you.

What do we have to look forward to in scientific innovation and policy? Is there anything you're particularly excited about for the future of OSTP or science as a whole?

Regarding policy, I get most excited about bills and budgets. I would really like to pass the COMPETES Act of 2022. We've been working on it for a decade, since the

COMPETES Act of 2010 passed (<https://bit.ly/371aKL9>). This bill could really change how we combat sexual harassment and provide support to immigrant and early career scientists. In the bigger picture, it will lead to better ways to connect policy to clean energy and the climate. These are all opportunities to make progress on our biggest challenges.

Regarding the science, I am most excited about new frontiers: I just got to see images from the James Webb Space Telescope. Tomorrow, I am getting briefed on a proposal for redefining plastic waste. Yesterday, I had a meeting on the promise of fusion energy. All of this gets really exciting on a scientific basis for the years to come.

A DAY IN THE LIFE *continued from page 14*

Indeed, a typical day in the life of a government relations professional is filled with outreach. Perhaps we send an article on how plants are contributing to COVID-19 vaccine development to a Hill staffer with "ICYMI" ("in case you missed it") in the subject line. Or we schedule a coffee with an old friend to chat about the current state of carbon markets. We might pick up the phone to talk with an agency program manager to hear what new issues they might be targeting.

Another way we build our network is to maintain relationships with organizations that have common interests. For example, coalitions that support funding for NSF, DOE, USDA, and NIH are supported by universities and scientific societies across the country, even when those organizations have differing focus areas. Working together is a smart way to leverage everyone's collective resources.

Government relations professionals work with all kinds of stakeholders, even ones who

do not, at first blush, share the same priorities—sometimes the bedfellows are strange! It is unusual, for example, to see the Nature Conservancy and Environmental Defense Fund team up with the American Farm Bureau Federation or Food Industry Association. Often these groups work at cross-purposes. But recently they formed the Food and Agriculture Climate Alliance to promote shared climate policy priorities. This kind of collaboration is strategic: policy makers are more apt to trust groups that work together despite their differences because their proposals have likely already passed bipartisan muster.

Building out and maintaining a network is a way for advocates to stay informed about which issues might see new opportunities (or challenges), but it is just as important to have science-backed policy recommendations for those issues when the opportunity arises. Networking with scientists at all career stages is key to making sure recommendations are backed by the scientific community. For example, members of the Lewis-Burke

team regularly volunteer to mentor graduate students and early career professionals, and we prepare policy and advocacy training events for scientists. This networking keeps us connected to the needs of the academic community, and it creates an estimable bench of friends and colleagues to give realistic feedback on science policy proposals.

Networking, coordination, and planning can reap policy rewards, but even when there are setbacks, as in the case of this year's NSF funding, government relations professionals know that there is always a next step, a next call, and a next bill. We will continue maintaining relationships with the most diverse, motivated, professional, and intelligent people we can find, and next time, science will take another step forward.

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

“To receive CAST news and updates, join the CAST mailing list (<https://conta.cc/31t6mSg>).



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/3zjwEu4>), 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

- *Stewardship Challenges for New Pest Management Technologies in Agriculture* (<https://bit.ly/StewardshipChallenges>),
- *Economic Impacts of COVID-19 on Food and Agricultural Markets* (<https://bit.ly/3JgBDv>),
- *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>).

Answers to Your Science Policy for the Crosswise

<p style="text-align: center;">DOWN</p> <p>1. Bioeconomy 3. Biofuel 4. Genome 5. Letters 6. Decadal Vision 9. Funding 10. PGRP (abbr. for Plant Genome Research Program) 11. Congress 14. CAST (abbr. for Council for Agricultural Science and Technology) 17. Regulation 18. Advocacy</p>	<p style="text-align: center;">ACROSS</p> <p>2. PBR (abbr. for president's budget request) 5. Lobby 7. Climate change 8. USDA 9. Farm Bill 12. Appropriation 13. Transgenic 15. Subcommittee 16. Senators 19. The Hill 20. Reconciliation</p>
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Klaus Raschke

1928–2022

BY CHRISTIANE GATZ, RAINER HEDRICH,
and TOM SHARKEY

On February 21, 2022, Klaus Raschke, emeritus of the Georg August University of Göttingen in Germany, passed away. His main research interest was the question of how CO₂ uptake and H₂O release through the stomata of leaves respond to environmental conditions. He succeeded in identifying the biochemical–biophysical processes underlying the opening and closing of stomata and in characterizing important regulatory parameters. Klaus’s research laid part of the foundation for the development of climate models by coworkers.

Klaus was born January 19, 1928, in Löbau in Saxony and experienced the last days of the World War II as a marine on the Baltic Sea. After the war, he taught in his hometown before studying agricultural sciences at the Universities of Halle and Bonn from 1949 to 1951. Following a notice on a bulletin board, he went as a young researcher to Poona (now Pune) in India, where he worked in agricultural meteorology. He earned his PhD in 1955; his research was on the impact of environmental change on the microclimate of crop stands. Back in Germany, he was an assistant at the Technical University of Berlin in 1958–1959 before leading research projects in the field of potassium fertilization in industry for five years. In 1962 he was drawn back to academia, and in 1965 he was habilitated in botany at the University of Giessen on “Experiments to Analyze the Guard Cell Reaction to Light and CO₂.”

In 1967 Klaus was appointed to the nascent Plant Research Laboratory in East Lansing, Michigan. By the early 1970s, he



Klaus Raschke (center) with student Margaret (Marlee) Pierce and postdoc Graham Farquhar.

was a world leader in research into guard cell physiology. By developing a sophisticated system to measure gas exchange, his lab was able to noninvasively and quantitatively record guard cell movement in response to various environmental conditions. He also demonstrated that potassium ions move into the guard cells to open the stomata. In 1974 he received a Guggenheim Fellowship for a sabbatical at the Technical University of Munich, where, together with Heide Schnabl, he demonstrated that chloride or malate compensate for the positive charge of potassium and contribute to increasing the osmotic pressure that is important for guard cell movement. In the mid-1970s, Klaus showed that CO₂ and abscisic acid jointly regulate stomatal opening and closing.

In 1979 Klaus continued his successful research on the physiology of stomata at the Georg August University of Göttingen. At the Albrecht von Haller Institute for Plant Sciences, he studied the carbon metabolism of guard cells when the stomata open and close. In particular, he devoted himself to

the synthesis, uptake, and release of sugars, organic acids, and ions to fuel the osmotic motor of stomata movement. In order to follow the transport of ions, he established electrophysiology methods in his lab. He and his students benefited from the patch-clamp technique developed by Erwin Neher and Bert Sakmann at the Max Planck Institute for Biophysical Chemistry in Göttingen, for which they won the Nobel Prize in 1991. In close cooperation with Erwin Neher’s laboratory, Klaus’s lab showed for the first time that guard cells use potassium and anion channels to regulate osmotic pressure. This refuted the then-prevailing opinion that only excitable cells of nerves and muscles have ion channels.

Klaus’s work has appeared in numerous publications (for a selection, see <https://bit.ly/3LA8A3t>). He was a member of the Göttingen Academy of Sciences, AAAS, and ASPP/ASPB.

Klaus was passionate about science. His employees and colleagues will never forget that he was ready at any time (even coming out of a deep sleep) to examine and discuss new research results. Everyone who worked with him witnessed his distinctive, rigorous, and analytical scientific approach. He always encouraged scientists in his field not only to describe plant reactions, but also to trace them back to quantitatively measurable physical–chemical processes: this concept was formative for his students.

Thank You and Best Wishes to Annette Kessler, Peer Review Manager for *The Plant Cell*

BY ROBERT B. GOLDBERG, Founding Editor, 1987–1991; BRIAN A. LARKINS, Founding Associate Editor and Editor, 1992–1998; RALPH S. QUATRANO, Founding Associate Editor and Editor, 1999–2003; RICHARD A. JORGENSEN, Editor-in-Chief, 2004–2008; CATHIE MARTIN, Editor-in-Chief, 2009–2014; SABEEHA S. MERCHANT, Editor-in-Chief, 2015–2019; BLAKE C. MEYERS, Editor-in-Chief, 2020–2024; and NANCY A. ECKARDT, Senior Features Editor

In many places, employees come and go all the time. ASPB is different, and clearly it's a wonderful place to work. The Society enjoys relatively low turnover among the staff, and a number have been with us for 10 years or more. Over the past 35 years, perhaps a dozen ASPB employees who have contributed to managing *The Plant Cell*—managing



editors, production managers, and other staff—have moved on to other endeavors. Only one has remained a constant for all of those years: Annette Kessler.

After nearly 35 years at ASPB, Annette retired from her position as peer review manager for *The Plant Cell* at the end of April 2022. As the longest serving employee of ASPB, Annette has been a part of *The Plant Cell* since the very beginning. She joined the ASPB staff in October 1987 and began to

work as an editorial assistant for *The Plant Cell* when it was founded, with the first issue published in January 1989. Annette has been an invaluable part of the journal's success ever since.

As peer review manager, Annette has always been on the front line, working with authors, editors, and peer reviewers to guide and ease their navigation

through the journal's manuscript submission process. Her expertise and experience in this work span the era from paper submissions and FedEx to our current electronic system. Annette is the face (or at least the name) that is most familiar to and most recognized by our authors, reviewers, and editors.

As the successive editors-in-chief of the journal since its inception (seven of us) and a staff editor for the journal for nearly 22 years

(NAE), we thank Annette for her dedicated efforts and for providing continuity and solid grounding behind the scenes that benefited the journal immeasurably for 35 years.

Annette's professionalism and dedication to excellence were instrumental in establishing and maintaining *The Plant Cell* as a premier journal. Her guidance, gentle reminders, and archival knowledge have been invaluable. All of us have many fond memories of Annette's remarkable patience in dealing with editors, authors, and reviewers, even when they occasionally behaved in an unruly or frustrated manner (if you are one of those editors, authors, and/or reviewers, surely we do not mean you)! Annette's patient and kind assistance is probably unrivaled in the history of journal peer review managers.

Congratulations on a remarkable career, Annette, and thank you for everything! We wish you the best for your retirement.

NEW STAFF

Marcia Puig-Lluch, Program Facilitator for the ROOT & SHOOT Research Coordination Network



Marcia Puig-Lluch has joined the ROOT & SHOOT Research Coordination Network (RCN) as its full-time program facilitator. ROOT & SHOOT (Rooting Out Oppression Together & SHaring Our Outcomes Transparently) seeks to cultivate change toward a diverse, equitable, and inclusive future for the plant sciences.

This RCN comprises seven plant science organizations—American Phytopathological Society, ASPB, American Society of Plant Taxonomists, Botanical Society of America, International Society for Molecular Plant–Microbe Interactions, Maize Genetics Cooperation, and the North American Arabidopsis Steering Committee—as well as other organizations that serve marginalized scientists. ROOT & SHOOT is funded by a five-year grant awarded by NSF’s LEAPS (Leading Cultural Change Through Professional Societies of Biology) program.

Marcia’s area of expertise is advancing opportunities for underrepresented populations in various fields in the nonprofit sector. At Wider Opportunities for Women, she advocated for women’s economic independence and advancement in the trades. At the American Gastroenterological Association, she managed leadership development programs for physician–scientists from underrepresented populations and facilitated dozens of career development workshops. Marcia is passionate about improving diversity, equity, and inclusion in STEM.

Marcia received her bachelor’s degree in international studies and is currently working toward a master of public administration degree in public and nonprofit management. In her free time, she enjoys watching bad movies, reading good books, and spending time in the great outdoors. She can be reached at marcia@rootandshoot.org.

Jayson Padilla Is ASPB’s New Community Engagement Administrator



Jayson Padilla has joined the ASPB staff as community engagement administrator. Jayson believes strongly in the power of community engagement as a tool to affect positive social change, and he looks forward to helping ASPB mold its communities and spaces to become more diverse, equitable, inclusive, and welcoming of people from all backgrounds and lived experiences.

Before joining ASPB, Jayson worked for the U.S. Department of Homeland Security

and for WETA, a public broadcasting station in the nation’s capital. He has also worked for several nonprofit organizations in Northern Virginia and served as an AmeriCorps member.

In his spare time, Jayson enjoys traveling, trying new restaurants, spending time outdoors, collecting vinyl records, and exploring all that the DC metropolitan area has to offer with his family and friends. Jayson can be reached at jpadilla@aspb.org.

2022 ASPB Award Winners Announced

Each year ASPB honors excellence in service, outreach, education, and research through its awards to individuals who advance the mission of our Society. Congratulations to the 2022 recipients, who will be recognized during Plant Biology 2022 in Portland, Oregon, in July.

Adolph E. Gude Jr. Award

Beronda Montgomery
Michigan State University

Charles Albert Shull Award

Lucia Strader
Duke University

Charles F. Kettering Award

Christine Foyer
University of Birmingham

Charles Reid Barnes Life Membership Award

Peggy Lemaux
University of California, Berkeley

Early Career Award

Emily Josephs
Michigan State University

Enid MacRobbie Corresponding Membership Nominees

Corresponding Member status is conferred by election on the Society's annual ballot. This honor, initially given in 1932, provides life membership to distinguished plant biologists outside the United States. The following individuals have been nominated this year:

Nicolas Smirnoff
University of Exeter

Tzyy-Jen Chiou
Academia Sinica

Andreas Schaller
University of Hohenheim

Excellence in Diversity and Inclusion Award

Thelma Madzima
University of Washington Bothell

Excellence in Education Award

Thelma Madzima
University of Washington Bothell

Fellow of ASPB Award

Erich Grotewold
Michigan State University

Georg Jander
Boyce Thompson Institute

Jiming Jiang
Michigan State University

Pamela Ronald
University of California, Davis

Yunde Zhao
University of California San Diego

Lawrence Bogorad Award for Excellence in Plant Biology Research

Manajit Hayer-Hartl
Max Planck Institute of Biochemistry

Robert Rabson Award
Berkley Walker
Michigan State University

Stephen Hales Prize
Xinnian Dong
Duke University

Future Plant Biology Meetings



2023

Savannah, Georgia
August 6–10



2024

Honolulu, Hawaii
June 21–25

2022 Women’s Young Investigator Travel Award Winners

Each year, ASPB’s Women in Plant Biology Committee makes travel awards to enable early career women investigators to attend the Plant Biology conference. The goal of the competitive process that underpins the Women’s Young Investigator Travel Award (WYITA) program is to increase the attendance of early career women investigators at Plant Biology meetings by providing travel funds. Applications are

open to scientists who are within the first five years of their appointment in academic faculty-level positions, government research positions, or industry research scientist positions, as well as experienced postdocs. Selection is based on the science and quality of the abstract submitted, relative to the applicant’s amount of time as an early career investigator; a statement describing why their travel should be supported; and financial need.

Seven women were selected this year, and each will receive a \$1,000 award to travel to Plant Biology 2022 in Portland, Oregon (<https://plantbiology.aspb.org/>). One or more of this year’s awardees have also been selected by the ASPB Program Committee to present their research in talks during concurrent symposia.

Congratulations to all of the 2022 WYITA winners!



Laura Arribas-Hernández
University of Copenhagen,
Copenhagen, Denmark
Principles of mRNA Targeting
and Regulation via the Arabidopsis
m6A-Binding Proteins
ECT2 and ECT3



Carina Collins
Marian University,
Indianapolis, Indiana
The Phloem Protein OC-
TOPUS Is a Novel Negative
Regulator of flg22-Induced
Signaling



Junghyun Kim
University of Texas, Austin
Warm Temperature Triggers
VIL1-Mediated H3K27me3
Accumulation in Arabidopsis



Laura Klasek
Elemental Enzymes, St. Louis,
Missouri
Mechanism of Multi-potent
Vismax™-Mediated Disease
Resistance to Endemic Citrus
Greening and Citrus Canker



Katherine Murphy
Donald Danforth Plant Science
Center, St. Louis, Missouri
Understanding Heat Stress
Susceptibility of a Next-
Generation Biofuel Crop
Using High-Throughput
Phenotyping



Sonali Roy
Tennessee State University,
Nashville
Genome Wide Association
Studies Combined with
Chemogenomics and Tran-
scriptomics Provide Insights
into GOLVEN Control of Root
Lateral Organ Formation



Tingting Xiang
The University of North
Carolina at Charlotte
Cnidarian-Symbiodiniaceae
Symbiosis Establishment Is
Independent of Photosyn-
thesis

Coming to Plant Biology 2022

As Plant Biology 2022 gets closer, ASPB committee members, staff, and volunteers are working to make it an enjoyable event for all attendees. From child care to innovative and thought-provoking art exhibits, this year's meeting will provide something for everyone.

Art Showcase

Plant Biology 2022 has partnered with the Plant Cell Atlas (PCA) initiative to show incredible works by PCA artists on-site in Portland. First exhibited at historically Black colleges and universities, Hispanic-serving institutions, and primarily undergraduate institutions, these works were created to raise awareness of the impact plant research has on society, the environment, and the economy.

Two PCA exhibits are part of a special display for Plant Biology 2022 attendees and the general public. The first exhibit, launched in fall 2021, features historically significant Black figures in plant science. The eight-foot-square works include portraits and short biographies of each featured scientist and graphics depicting their research. The second exhibit, new in spring 2022, focuses on impressive feats of plant biotechnology, including phytoremediation and vaccine production in plants.

Community Outreach

The ASPB Education Committee is hosting an outdoor event that includes learning stations and activities for visitors to engage with ASPB

volunteers in Portland. In addition, ASPB has partnered with the Girls Scouts of Oregon and Southwest Washington to provide guided programming for the Think Like a Citizen Scientist journey badge; Girl Scouts will learn about the scientific method, meet a scientist, and practice making observations and recording data.

The goal of these outreach activities is to raise awareness of the role of plant science in solving global problems and to nurture a generation of future scientists. If you would like to volunteer to help at the community outreach event, please contact Sarah Black at sblack@aspb.org.

On-Site Child Care

ASPB is pleased once again to support parents who are registered attendees of Plant Biology 2022 with on-site child care, partially supported by a grant from ASPB's Romanoff Fund. ASPB has contracted with KiddieCorp for hands-on child care at Plant Biology 2022. All KiddieCorp team members are carefully screened, with background checks including Social Security number trace, nationwide criminal database search, and sex offender registry search. They also undergo extensive training.

Virtual Programming

Those who can't attend Plant Biology 2022 in person can take advantage of Plant Biology EXTENDED virtual workshops, which will kick off Friday, July 8. These workshops will

cover a wide range of topics from scientific content to career-related issues and will present opportunities for networking and connecting with plant scientists from around the world.

Plant Biology EXTENDED will also provide access to the Plant Biology 2022 mobile app containing all abstracts and communication tools. You'll be able to message abstract presenters and speakers, join discussions, and engage with Plant Biology content in this dedicated space.

After the event, you can enjoy a full year of on-demand access to Plant Biology 2022 scientific content, including recorded sessions and materials. Plant Biology EXTENDED registration will open soon at [https://plantbiology.aspb.org/!](https://plantbiology.aspb.org/)

PLANT
BIOLOGY
2022
extended

“Learn more about the Plant Cell Atlas initiative artists and request an exhibit at your institution at <https://www.plantcellatlas.org/pca-art-exhibit.html>.



SCAN ME

“Contact info@aspb.org with any questions regarding child care. Registration information will be posted soon at <https://plantbiology.aspb.org/>.



SCAN ME

Friday, July 8

8:00 AM–11:00 AM PDT Virtual Workshops

Saturday, July 9

8:00 AM–12:00 PM PDT Workshops

12:00 PM–2:30 PM PDT Plenary 1: RNA Biology

3:30 PM–3:50 PM PDT  Networking Coffee Break

3:50 PM–6:00 PM PDT Plenary 2: Science Without Borders: Migration, Domestication and Culture

6:00 PM–7:30 PM PDT Welcome Reception in the Exhibit Hall

Sunday, July 10

7:30 AM–8:00 AM PDT  Morning Coffee & Networking

8:30 AM–11:00 AM PDT Plenary 3: Interacting and tangled plant immune pathways

11:30 AM–1:00 PM PDT Posters & Exhibit Hall Open

1:00 PM–2:45 PM PDT Concurrent Symposium

2:45 PM–3:15 PM PDT  Networking Coffee Break

3:15 PM–5:00 PM PDT Concurrent Symposium

5:00 PM–7:00 PM PDT Exhibit Hall Reception

Monday, July 11

8:00 AM–10:00 AM PDT Morning Networking

10:00 AM–12:00 PM PDT Workshops

12:00 PM–1:00 PM PDT 3 Minute Thesis Presentation

12:00 PM–1:30 PM PDT Posters & Exhibit Hall Open

1:30 PM–3:00 PM PDT Workshops

3:00 PM–3:30 PM PDT  Networking Coffee Break

3:30 PM–5:30 PM PDT Poster Sessions

5:30 PM–7:00 PM PDT Exhibit Hall Reception

Tuesday, July 12

7:30 AM–8:00 AM PDT  Morning Coffee & Networking

8:30 AM–11:00 AM PDT Plenary 4: Breakthroughs in Innate Immune Receptor Biology

11:35 AM–1:00 PM PDT Posters & Exhibit Hall Open

1:00 PM–2:45 PM PDT Concurrent Symposium

2:45 PM–3:15 PM PDT  Networking Coffee Break

3:15 PM–5:00 PM PDT Concurrent Symposium

7:30 PM–11:00 PM PDT Annual Party

Wednesday, July 13

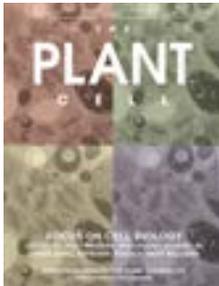
7:30 AM–8:00 AM PDT  Morning Coffee & Networking

8:00 AM–9:45 AM PDT Concurrent Symposium

10:30 AM–1:00 PM PDT Plenary 5: Nature-Based Solutions to Tackle Climate Change: A Plant Perspective

From ASPB Journals

Latest Focus Issues

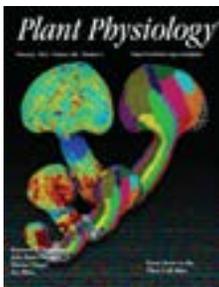


The Plant Cell: Focus on Cell Biology (January 2022)

Focus Issue editors: Dolf Weijers, Magdalena Bezanilla, Liwen Jiang, Adrienne H. K. Roeder, and Mary Williams

In this Focus Issue, the editors went back to the “roots” of the journal, and the basis for its name, turning their attention to the many fascinating facets of plant cell biology.

The 11 review papers and 11 original research articles in this Focus Issue exemplify the breadth of the field and highlight both established concepts and recent achievements.

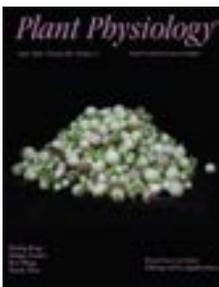


Plant Physiology: The Plant Cell Atlas (February 2022)

Focus Issue editors: Kenneth D. Birnbaum, Marisa S. Otegui, Julia Bailey-Serres, and Seung Y. Rhee

Recent years have brought technological breakthroughs that provide a new perspective on the living cell. Single-cell RNA sequencing and other high-resolution omics

now routinely collect information on tens of thousands of different cells in a single experiment. Advances in live imaging offer unprecedented resolution in views of the dynamic function of organelles and cellular machines. Proximity labeling opens new avenues to interrogate protein interactions in live cells and inventory the proteome of cellular compartments in specific cell types. A common thread of these techniques and others featured in the Focus Issue is large-scale data collection intertwined with fine-scale insights into the plant cell and its compartments. These new techniques offer a systems-level approach that helps sort the cacophony of signals and processes of individual cell types into their functional units—the cell, the organelle, and the interactome of a single protein.



Plant Physiology: Gene Editing and Its Applications (April 2022)

Focus Issue editors: Holger Puchta, Jiming Jiang, Kan Wang, and Yunde Zhao

Recent advancements in gene editing provide unprecedented tools for plant biology research and offer unlimited potential for

improving existing crops and de novo domesticating new crops. This Focus Issue presents the latest technological innovations in gene editing, addresses challenges in using the technology in both basic and applied plant biology research, and provides perspectives on future developments in the field.



The Plant Cell: Focus on Plant Biotic Interactions (May 2022)

Focus Issue editors: Roger W. Innes, Yangnan Gu, Dan Kliebenstein, and Dorothea Tholl, Cris Argueso, Libo Shan, and Mary Williams

From their editorial for this issue, Roger W. Innes, Yangnan Gu, Dan Kliebenstein, and Dorothea Tholl wrote: “The field of plant

biotic interactions appears to have entered a golden age over the last three years with multiple major discoveries being reported. The eight reviews cover an impressive breadth of topics in plant–biotic interactions, while the 14 primary research papers in this focus issue are even more diverse ... [and] answer some long-standing questions while raising many new ones.”

Submit your paper for an upcoming *Plant Physiology* Focus Issue at <https://bit.ly/3xQW1NT>.

New Teaching Tools in Plant Biology Coming Soon from *The Plant Cell*

Plants & Python: A Series of Lessons in Coding, Plant Biology, Computation, and Bioinformatics

Designed by Robert VanBuren, Alejandra Rougon-Cardoso, Erik J. Amézquita, Evelia L. Coss-Navarrete, Aarón Espinosa-Jaime, Omar Andres Gonzalez-Iturbe, Alicia C. Luckie-Duque, Eddy Mendoza-Galindo, Jeremy Pardo, Guillermo Rodríguez-Guerrero, Pablo Y. Rosiles-Loeza, Marilyn Vásquez-Cruz, Selene L. Fernandez-Valverde, Tania Hernández-Hernández, Sourabh Palande, and Daniel H. Chitwood

Computation, modeling, and mathematics have always inspired discoveries in plant biology, and vice versa. The importance of these fields will continue to grow in a data-driven, interdisciplinary future.

People and cultures around the world have contributed scientifically to modern plant biology. As we confront global grand challenges, collaboration across cultures and languages will be increasingly important. Yet because of gatekeeping, coding literacy and intercultural communication in the plant sciences are not as

continued on page 28

SOCIETY NEWS

FROM ASPB JOURNALS *continued from page 27*

widespread as they can and should be. To address these challenges, we designed Plants & Python as a bilingual curriculum in English and Spanish for learners who have no prior experience in coding or knowledge about plant biology.

This series of lessons teaches coding learning objectives in Python, a general programming language, using data sets and mathematical examples inspired by plants. Whether used in a classroom or for self-directed learning, the lessons cover coding essentials in Python, ways to use a UNIX command line, and bioinformatics. Whether learners are interested in plant biology or computational science, whether they come to these lessons speaking English or Spanish, Plants & Python provides them with a starting point for interdisciplinary and intercultural collaboration in the plant and computational sciences.

The Floral Transition and Adaptation to a Changing Environment: From Model Species to Cereal Crops

Designed by Michela Osnato

Over the course of their lives, animals and plants are exposed to environmental fluctuations associated with seasonal changes. Unlike animals, however, many plants have highly plastic postembryonic growth. Because of their sessile nature, plants have evolved strategies to modulate the development of their organs (roots, shoots, leaves, flowers, fruits, and seeds) in response to changes in external conditions. In particular, the development of reproductive organs must occur when conditions are favorable to ensure the success of the next generation.

The switch from vegetative to reproductive development depends on many factors, both intrinsic (such as plant age and physiological state) and extrinsic (such as hours of sunlight and climate). When plants move to new geographic locations (e.g., because of human intervention), they must retune their timing of reproduction; environmental stress can further affect flowering time.

Because much of the human diet is derived from seeds, understanding the molecular basis of flowering time is extremely important for both basic research and agronomic applications. This lesson examines the gene regulatory networks underpinning the floral transition, looking first at the model plant *Arabidopsis thaliana* and then at important cereal crops. Learners will explore how plants have adapted to different regions and how the changing climate might affect flowering and thus food security.



Find the latest Teaching Tools in Plant Biology at <https://bit.ly/3OG8B8w>.



Interviews by *Plant Physiology* Associate Features Editors

Members of the *Plant Physiology* editorial board are participating in an initiative to help the plant science community get to know the editorial board better through editor profiles written by Associate Features Editors (AFE). Set as a conversational interview between the editor and an AFE, each profile covers the editor's career trajectory, experiences as editor of a research journal, and advice for early career researchers, along with interesting and fun anecdotes. The first profile, of Editor-in-Chief Yunde Zhao, was written by Sjon Hartman in April. The second, published in May, is of Monitoring Editor Eirini Kaiserli, written by Sarah Coubier. Get to know the editors of *Plant Physiology* through these interesting and insightful profiles!



Read the editor profiles at <https://bit.ly/EditorProfiles>.



Plant Physiology Is Recruiting Assistant Features Editors for 2023

By Yunde Zhao, Editor-in-Chief, and Mary Williams, Features Editor

The mission of the *Plant Physiology* Assistant Features Editor program is to help disseminate exciting discoveries published in the journal and to advance young scientists' careers. In January, the editorial board welcomed 13 new Assistant Features Editors, who joined those recruited in 2021. These young scientists have brought their passion for science to the journal through News and Views articles, which communicate to our readers some of the most exciting *Plant Physiology* papers. Examples can be found in the News and Views section of the May 2022 issue at <https://academic.oup.com/plphys/issue#1359022-6554961>.

SOCIETY NEWS

Plant Physiology Assistant Features Editors receive professional advice on scientific writing from our seasoned editors and have abundant opportunities to network with our regular editors. For example, Assistant Features Editors write editor profiles based on informal interviews with editorial board members, enabling the Assistant Features Editors and *Plant Physiology* readers to get to know our editors. Examples of editor profiles can be viewed at <https://plantae.org/research/plant-physiology>.

Assistant Features Editors are invited to the *Plant Physiology* editorial board meetings, with their travel expenses covered by the journal. At the meetings, they not only interact with and learn from senior scientists, but also contribute to discussions on journal policies and operation.

We are recruiting a new cohort of Assistant Features Editors to join the *Plant Physiology* editorial board to replace those who will step down at the end of 2022. This new cohort will work with the journal for 24 months beginning in January 2023. If you are interested in becoming an Assistant Features Editor, we are welcoming applications through Monday, October 3, 2022.

We would like to hear about your current position and future goals and the reasons for your interest in the Assistant Features Editor program. We will also need your CV and the contact details for two individuals familiar with your work as a researcher. In addition, we require two samples of your writing, one a first-authored paper and the other a sample News and Views commentary you write on one of the *Plant Physiology* articles listed at <https://plantae.org/plant-physiology-is-recruiting-assistant-features-editors-for-2023>. We hope to announce the new Assistant Features Editors late in November.

If you would like to be considered for this program, please submit your application materials to PPAFEapplications@aspb.org, with “Plant Physiology AFE application” as the subject, by October 3, 2022. These materials should include the following:

- cover letter
- CV
- contact information for two referees
- PDF of first-authored paper
- sample News and Views–style article highlighting a paper listed at <https://plantae.org/plant-physiology-is-recruiting-assistant-features-editors-for-2023>. *Note:* If you have difficulty accessing the paper you would like to write about, please email Mary Williams at mwilliams@aspb.org.

News and Views articles provide readers with a brief summary of the main findings of a recent research article, along with relevant and interesting background information and a brief commentary on why the findings are important. Articles should contain 800–1,000 words and a maximum of 10 reference citations (including the highlighted paper). You may also include an image—for example, an image in the paper or a diagram you prepare that summarizes the key

findings. Read examples of News and Views articles published in a recent issue of the journal (e.g., <https://academic.oup.com/plphys/issue/188/4>) to familiarize yourself with the style and format.

Submit your application materials
by October 3, 2022, to
PPAFEapplications@aspb.org.

Plantae Happening on Plantae



Focus Issue Webinars

In a new series of webinars, the editors of *The Plant Cell* Focus Issues and select contributors will gather to discuss the focus topic. Take advantage of the opportunity to engage with Focus Issue authors and editors and gain deeper insight into special topics.

Stay updated at: <https://plantae.org/education/plantae-webinars/>.



Featured Jobs

Postdoctoral Fellows: Computable Plant Initiative

Purdue University

Postdoctoral Associate

Wallace Lab, University of Georgia

Assistant Professor for Arthropod Vectors of Plant Pathogens

University of Nebraska-Lincoln

Postdoctoral Research Associate

University of Wisconsin–Platteville

See jobs descriptions and apply at <https://jobs.plantae.org/>.



Plant Science Weekly

Plantae editors highlight new plant science research articles with short summaries that describe key findings with links to full articles. Get this exciting roundup of plant science research delivered right to your inbox. Subscribe at <https://plantae.org/research/wwrtw/>.



**Come for the Science.
Stay for the Community.**

2022

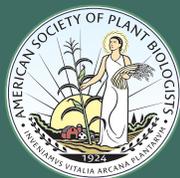
PLANT BIOLOGY

July 9–13, 2022

Portland, Oregon
Oregon Convention Center
777 NE Martin Luther King Jr Blvd, Portland, OR 97232

Join the plant biology community in person for leading-edge research, connection, and collaboration. And, for the first time ever, the City of Portland has declared the week of the Plant Biology meeting Plant Science Week! Join us in vibrant Portland for the very best plant science has to offer, and enjoy this year's unique events and programming.

**Early discounts end June 8! View program information
and register now at plantbiology.aspb.org.**



POWERED BY
ASP and CSPB/SCBV





Champions of Plant Science

ASPB invests in programs and services to help the plant science community thrive.

PROPELS CAREERS IN PLANT SCIENCE FORWARD

- Professional development resources
- Career workshops and webinars—How to Publish, Peer Reviewing, Writing
- Ambassadors and Fellows Programs
- Plantae

ELEVATES THE PLANT SCIENCE COMMUNITY

- ASPB Innovation Prize for Agricultural Technology
- Leadership in Science Public Service Award
- Early Career Award
- Excellence in Education Award

BRINGS NEW RESEARCH TO THE WORLD

- Influential plant science journals—*Plant Physiology*, *The Plant Cell*, and *Plant Direct*
- Plant Science Research Weekly
- Emerging science—specialty meetings on phenomics and synthetic biology
- The Plant Biology annual meeting

ADVOCATES FOR PLANT SCIENCE

- Science policy position statements
- Liaison with the U.S. Congress and executive branch
- Development of advocates for plant science

BRINGS PEOPLE TOGETHER

- Plant science meetings all over the world
- Satellite and specialty meetings and workshops
- Conference support from Meeting & Event Solutions

PROVIDES FUNDING

- Summer Undergraduate Research Fellowship
- Travel Awards
- Sponsorships and program support
- The Plant Biology Learning Objectives, Outreach Materials, & Education Grant

SUPPORTS EDUCATORS

- Teaching Tools in Plant Biology
- Undergraduate programs and educators
- Vision and Change in Undergraduate Biology Education
- Support for NSF Broader Impacts
- Activities and resources for youth, families, and K–12 science educators

Explore what ASPB has to offer at aspb.org

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Actions to Get More Value from Your ASPB Membership

1

Search the Member Directory for colleagues.

Sign in to the Member Portal and click on the Member Directory in the top menu.

2

Apply to join a committee.

Sign in to the Member Portal and click on Serve on a Committee in the top menu.

3

Read *Plant Physiology and The Plant Cell*.

Sign in to the ASPB site using your member username and password.

4

Update your profile.

The more we know about you, the better we can target our emails and programming to your interests.

5

Nominate a fellow plant scientist (or yourself).

Nominees are needed every year for ASPB leadership positions and named awards.

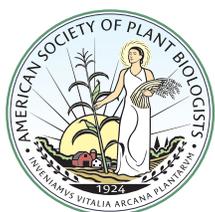
Learn more about ASPB benefits at <https://aspb.org/membership/>.

Access the Member Portal at <https://members.aspb.org/s/>.

Have a question? Contact info@aspb.org.



SCAN ME



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

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