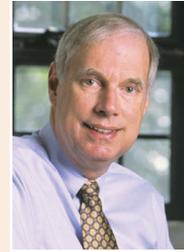




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1947–2020

# ASPB News



THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

**PB21**  
PLANT BIOLOGY  
*Worldwide Summit*  
July 19–23

**Plant Biology 2021  
will be a  
virtual conference!**

**Mark Your Calendars  
July 19–23**

## President's Letter

### Moving Forward

BY MAUREEN McCANN  
ASPB President, National Renewable Energy Laboratory

**T**here's a carving of a crocodile on the walls of the old Cavendish Laboratory in Cambridge in honor of Ernest Rutherford, the father of nuclear physics. It was commissioned by Peter Kapitza, a Soviet Nobel laureate, and various legends attach to its significance. "The Crocodile" was Kapitza's pet name for Rutherford, and it is a symbol for father in Russia. Other legends include Kapitza's fear of having his head bitten off by Rutherford, because Rutherford's booming voice preceded his arrival anywhere, like the crocodile's alarm clock in *Peter Pan*. But my favorite is that it symbolizes the forward progress of science, which, like the crocodile, never looks backward.



If you are an international member, please forgive my focus on the United States in this letter. After an election that was a resounding success in terms of voter partici-

ation, the incoming Biden administration is expected to restore the federal workforce and return to normal operations of government. It is a long, cold drink of water in the desert. We can all anticipate that objective facts and evidence-based policies will be agreed and acted upon. But what can we actually look forward to?

ASPB, working together with a government relations consulting firm, Lewis-Burke Associates, provides our community with a strong voice for plant science. The Science Policy Committee is our primary instrument for communicating with Congress—legislators and their aides—and federal funding agencies about the importance of our research and its value. This advocacy is one of the most important things that ASPB can do

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

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# ASPB Members Elected to the 2020 Class of AAAS Fellows

**T**hirteen members of the ASPB community were elected to the 2020 class of AAAS fellows. Each year, the AAAS Council elects fellows based on their contributions to science and technology in the areas of research; teaching; technology; services to professional societies; administration in academe, industry, and government; and communicating and interpreting science to the public. Fellows are recognized from among AAAS members “whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished.” New fellows will be honored with a certificate and a blue and gold rosette to symbolize their distinguished achievements at the 2021 AAAS annual meeting.

Nominations for the 2021 AAAS fellows awards will be accepted until April 28, 2021. Please visit <https://www.aaas.org/programs/fellows/current-nomination-cycle> to view the nominating requirements and procedures.

## Section on Agriculture, Food, and Renewable Resources



**Carl Bernacchi**  
USDA-ARS

For outstanding contributions toward understanding photosynthesis from the molecular to the global scale.



**TJ Higgins**  
CSIRO Agriculture and Food (Australia)

For distinguished contributions to the field of molecular plant science, particularly the use of gene technology to transfer useful traits to grain legumes for food security.



**Daniel Kliebenstein**  
University of California, Davis

For distinguished contributions in the field of plant metabolomics and quantitative variation, and for exceptional service on his home campus and to the scientific community.

## Section on Biological Sciences



**John Michael Burke**  
University of Georgia

For outstanding contributions to the field of evolutionary genomics and domestication of crops using sunflower as a model.



**Alice Y. Cheung**  
University of Massachusetts Amherst

For contributions to understanding the molecular and cellular biology of fertilization and polarized cell growth in plants.



**Gregory P. Copenhaver**  
University of North Carolina at Chapel Hill

For distinguished contributions to the field of plant molecular genetics, particularly novel insights into plant reproductive biology.

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

for plant biologists in the United States. As individuals, we have minor traction, and our institutions only sometimes have plant biology front and center, but ASPB always does and always will.

From Lewis-Burke's most recent analysis of the U.S. general election, there are three main take-home messages. With Democrats in the majority in the Senate as well as the House, more pathways are open for funding of the Biden-Harris legislative agenda including recovery from the COVID-19 pandemic, the Climate Plan, and addressing systemic issues of racial inequality. However, research support will likely remain steady, and fiscal year 2021 appropriations proposals currently have small budget increases. Second, the impacts of the pandemic in the agricultural sector will focus attention on food supply disruption and related threats and the need to address these challenges. And third, turnover on numerous congressional committees, including the House Science, Space and Technology Committee and new leadership in the House and Senate Agriculture Committees, will provide new opportunities for ASPB to build relationships and engage champions for plant biology. This effort

will be particularly important because climate change and the importance of inclusion in all sectors, including agriculture and STEM, will be key issues for both Congress and the administration.

The incoming Biden administration has signaled strong trust in science, and this bodes well for serious conversations on the impacts of climate change and the environment. In terms of research priorities beyond environment, there will likely be a continued focus on artificial intelligence and the bioeconomy as well as their potential intersections. As with the development of nanotechnology, the bioeconomy, an all-encompassing term that means many different things to different people, will continue to evolve. The definition of bioeconomy in the National Academies' 2020 report *Safeguarding the Bioeconomy* is "economic activity that is driven by research and innovation in the life sciences and biotechnology, and that is enabled by technological advances in engineering and in computing and information sciences." The unprecedented speed of vaccine design since January 2020, following the public release of the SARS-CoV-2 genome sequence, and television footage of the first few British seniors getting their jabs in early December illustrate how modern tools of biology

and a global scientific focus can solve problems in an accelerated time frame. Now we must parlay this example of success to keep protection of plant biodiversity, global food security, and the biomass-based bioeconomy at the forefront of the political agenda.

Politics is in our homes and in our labs, like it or not, and we are all somebody's constituents. Just because the importance of plant biology is obvious to us doesn't mean that it's anyone else's priority. We cannot move our science forward without a well-informed citizenry and elected representatives. It's on all of us to learn how to communicate science much more effectively.

And although ASPB elections don't have the consequence of presidential elections (thank goodness!), this is a gentle reminder that nominations for elected positions close February 12. ASPB relies on dedicated individuals who commit time and energy to leading the Society. It is also important to our profession that we recognize our colleagues' achievements in plant biology; nominations for awards close February 19 (<https://aspb-awards.secure-platform.com/a/>). In addition to ASPB's own awards, the Science Policy Committee often nominates individuals or groups for prestigious international awards such as the World

Food Prize or prominent national awards such as the National Medal of Science and National Medal of Technology and Innovation. Please take the time to think about your colleagues and the recognition they deserve.

At the turn of the 20th century, Rutherford suggested that radioactivity provided a source of energy that explained the existence of the Sun for the millions of years required for life to evolve, as proposed by Charles Darwin. At the time, the age of the Sun was a matter of scientific controversy. I'm tickled that the Crocodile's rationale was based in biology. He is also quoted as saying, "A theory that you can't explain to a bartender is probably no damn good." Our science might be complex, but our ability to explain it to bartenders, and everyone else, has never been so critical. ■

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*Note: For those of you interested in learning more about how best to communicate with your elected officials, please contact Crispin Taylor at [ctaylor@aspb.org](mailto:ctaylor@aspb.org). Maureen thanks Bridget Krieger of Lewis-Burke and ASPB CEO Crispin Taylor for their helpful edits.*

**AAAS FELLOWS**  
continued from page 3



**Stacey Lynn Harmer**  
*University of California, Davis*  
For distinguished contributions to the field of chronobiology, particularly mechanisms by which circadian rhythms regulate plant growth.



**Barbara N. Kunkel**  
*Washington University in St. Louis*  
For important discoveries in how the bacterium *Pseudomonas syringae* uses multiple strategies to manipulate its plant host's hormone biology to promote pathogenesis and disease.



**Paula McSteen**  
*University of Missouri–Columbia*  
For distinguished contributions to the field of plant genetics, particularly the role of the hormone auxin in maize reproductive development.



**Beronda L. Montgomery**  
*Michigan State University*  
For distinguished contributions to plant biology and microbiology, particularly the use of photobiological analyses to investigate physiological and morphogenic adaptation of photosynthetic organisms.



**Basil Nikolau**  
*Iowa State University*  
For distinguished contributions to the field of biochemistry, particularly the characterization of novel metabolic processes.



**G. Eric Schaller**  
*Dartmouth College*  
For distinguished contributions to the field of plant signaling, particularly novel insights into plant hormone biology.



**Nathan Michael Springer**  
*University of Minnesota*  
For distinguished contributions to genomics and epigenetics of crop plants and their impact on variation of gene expression. ■

ASPB members share a common goal of promoting the growth, development, and outreach of plant biology as a pure and applied science. This column features some of the dedicated and innovative members of ASPB who believe that membership in our Society is crucial to the future of plant biology. If you are interested in contributing to this feature, please contact ASPB Membership at [info@aspb.org](mailto:info@aspb.org).

**Name:** Jason Williams

**Title:** Assistant Director, External Collaborations, DNA Learning Center

**Place of Work:** Cold Spring Harbor Laboratory

**Member Since:** 2011 (I think)

**Research Area:** Bioinformatics, Education



## What would you tell colleagues to encourage them to join ASPB?

As someone who got their start in plant molecular biology, I think plant scientists are a bit special—collaborative, thoughtful, and fun. Maybe it has something to do with working on organisms that can't be rushed? ASPB naturally brings together some of the best and brightest in the community. I'd hope someone would join because of the forum ASPB provides for scientific exchange and networking opportunities. It's also important to recognize the roles of professional societies in research communities. Participating in these societies is one way to fulfill our responsibility to prepare the next generation of researchers and create diverse, value-oriented communities committed to scientific excellence, inclusion, and opportunity.

## Was someone instrumental in getting you to join ASPB?

I'm not embarrassed to say I wasn't sure what ASPB was

all about when I joined, but since I was to present at a Plant Biology meeting, it seemed like the right economic decision as far as discounted registration. Thankfully, my opportunities to attend Plant Biology meetings over the years have become much more than matters of frugality and have led to wonderful collaborations and chances to help people.

## Have you enhanced your career, lab, research, or education using ASPB, the Plant Biology meeting, section meetings, *Plantae.org*, *The Plant Cell*, *Plant Physiology*, or *Plant Direct*?

There are several ways that ASPB membership has opened the door to collaboration and opportunity for me. I work across many communities, so I find that the Plant Biology meeting is the highlight of the year because it's a concentrated time to catch up on things. There are always so many projects and distractions to occupy one's time; I really value

the few days of meetings to orient myself, reestablish connections, and form new ones.

## How and why did you get into plant science?

When I started college, I had plans to do internships in laboratories each summer. I pressed the elevator button for the top floor of the life sciences building at Stony Brook University and ended up in the Ecology and Evolution Department working on the phylogenetics of *Dioscorea*. With apologies to anyone who cringes at the hundred or so term papers every semester that open with "Plants are sessile..." I'd use the term *sessile* to describe myself because I stayed at Stony Brook throughout my undergraduate career. I guess that was the start.

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

Outside of experiment, perhaps the answer to this is supposed to be journals. For me, though, the

real answer is coffee. Talking with someone and hearing what they are excited about are what make me want to read a journal article—not the article that shows up on my key word alert, but something off my radar that I should be paying attention to.

## How important is social media to your education or career as a plant scientist?

Social media is totally important! For those who follow me (@JasonWilliamsNY on Twitter), notoriously I'm mostly tweeting about what I'm cooking (does that count as SciComm? I *am* using plants!). The most important tweets are the ones in which someone is looking for a method or needs help bringing something into the classroom. My main focus is bioinformatics and education, so social media is a critical way to connect and really sets the groundwork for in-person connections. Social media is also an important vehicle for giving a voice to people who might not otherwise have it.

## What advice would you give to a plant scientist just starting out?

Hard to answer this in just a few sentences. If I'd choose just one: Assume that you will meet everyone in your field. Plant science is always getting bigger, but I'd like to think this assumption is true. Assuming that it is will hopefully reinforce your responsibility to treat everyone with care and respect. Do you really want to

trash online the work of someone you are going to meet face to face next week? Do you know whether the person you are meeting at Plant Biology for the first time is thinking about asking if you are interested in a position? Cultivate your reputation as a scientist and as a person even when you don't think people are paying attention—they are.

**What do you still have to learn?**

Everything. Since I can't do it all at once, I'll settle for continuing to

learn how to delegate, motivate, and organize people when I find myself in leadership positions.

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

No need for me to be original here; I'll say CRISPR. Actually, let me be on brand and say “data management.” CRISPR, or maybe something even hotter than CRISPR, will be the next big thing in the molecular toolkit, but if we and the larger community

can't effectively work with, share, and manage (and I count data ethics as part of management) the data produced, then we will never get the fullest benefit of those techniques. Besides, are there any people with personalities more intriguing and attractive than your local data stewards or bioinformatics pipeline engineers?

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

One role—create a path for every scientist who joins to be the best they can be at what they do. ■

## Fond Farewell to Jon Munn



Jon Munn, production manager of *Plant Physiology*, has accepted a position with the American Urological Association as publications production manager. We are sad to see Jon go and wish him all the best.

Jon joined ASPB on March 15, 2004. During Jon's time as production manager of *Plant Physiology*, he helped the journal adapt to the demands of the rapidly changing publications landscape. He oversaw the production schedule and workflow for the journal and worked with the publications

and editorial staff to plan and manage focus issues, create a social media component for the journals, and implement and manage an Assistant Features Editors program.

Jon represented *Plant Physiology* many times at ASPB Plant Biology meetings, and he will be sorely missed whenever we are able to have another in-person meeting. He also helped plan and facilitate the yearly *Plant Physiology* editorial board meetings. In addition, he has been a member of the Council of Science Editors since 2004 and has regularly

attended the CSE annual meeting, where he has been a presenter. He has served on the CSE Publications Committee as well, and he completed the CSE Certificate Program, for which he wrote a paper entitled “Embracing Change in the Digital Publishing Landscape: One Society's Journey.”

We are very appreciative of all the hard work Jon has done in the publications department and for other departments over the past 16+ years. Jon's leadership will be missed! ■

Welcome to the *ASPB News* “Unsung Heroes of Plant Biology” column! These stories, brought to you by the ASPB Ambassador Program, showcase the vital contributions of non-tenure-track scientists in plant biology. Please contact Shawna Rowe, ASPB ambassador and column editor, at roweshaw@gmail.com with questions or comments.



## Marcela K. Tello-Ruiz

Doreen Ware Lab, Cold Spring Harbor Laboratory

BY SABRINA CHIN

ASPB Ambassador, Noble Research Institute

**M**arcela K. Tello-Ruiz works as a computational science manager in Doreen Ware’s lab at Cold Spring Harbor Laboratory (CSHL). With a strong background in genetics and bioinformatics, she crafts and manages bioinformatics databases such as Gramene ([www.gramene.org](http://www.gramene.org)). In addition, she writes grant proposals, scientific publications, and reports to funding agencies. Occasionally, she does transcriptomic data analysis. She is also an avid science communicator and educator who markets these resources to researchers at workshops and conferences, in webinars, and on social media; for example, she organized the Plant Bioinformatics Resources workshop at Plant Biology 2020. More recently, she has been involved in scientific outreach for K–12 classrooms as part of the broader impacts outcomes of an NSF grant awarded to the Gramene project.

Marcela had a humble beginning in Mexico as the youngest of

11 siblings. Despite the fact that her parents had only basic schooling, her mother strongly emphasized the importance of education and encouraged Marcela to pursue science. Marcela recalled, “One day, my mother ecstatically told me about a news feature on a Mexican scientist, Francisco Bolívar Zapata from the Institute of Biotechnology at the National Autonomous University of Mexico, who had received the renowned Princess of Asturias Award. That inspired me to knock on a few doors at that institute to intern in a lab over the summer, and I felt very fortunate that Gloria Soberón-Chávez gave me that opportunity. The manager in Gloria’s lab encouraged me to apply for summer internship programs, and since then I have worked at other labs in Mexico, including Therese Markow’s, who was a visiting scientist at my university. I am especially grateful to the women whose encouragement and support were crucial early in my scientific career.”

These experiences cemented Marcela’s ambition to become a scientist, and she went on to receive a Fulbright scholarship with a top-up fellowship from the Delta Kappa Gamma Society to pursue a PhD in genetics at the State University of New York at Stony Brook and CSHL campuses. Marcela’s time at CSHL was pivotal in directing her toward bioinformatics; there she met newly appointed associate professor Lincoln Stein, who eventually became her mentor.

Marcela worked on identifying transcript isoforms of a protein kinase that affected memory formation in *Drosophila* using northern blots for her PhD. This process was time-consuming, and the experiments took Marcela six months to complete. It was then that she realized that bioinformatics could have predicted the alternative transcripts and saved her time by using computational techniques. She took the initiative to learn coding with Stein and completed other bioinformatics

courses offered at CSHL. After receiving her PhD, Marcela was involved in bioinformatics projects including the *Caenorhabditis elegans* database WormBase, the human Reactome pathway database, the first Latino admixture map, and the human HapMap Project, before working with plants with Ware as a computational science manager and outreach coordinator.

Marcela relishes being able to assist researchers with their bioinformatics analysis and helps them troubleshoot various issues. Ware, a computational biologist for USDA–ARS and an adjunct professor at CSHL, acknowledged Marcela’s commitment and dedication to the plant science community: “Marcela is an amazing advocate for researchers and has a strong desire to support them by developing resources and providing training. Over the past 10 years, she has focused on coordinating multinational projects that deliver access to plant genomes to the science commu-

nity. Marcela is always there and available, regardless of the time and day. Her organizational skills and integrity have been critical in sustaining and maintaining bioinformatics resources for the plant science community, and we look forward to her continued support. On top of that, she is an amazing individual.”

Marcela said, “My favorite day at work? The day I get to

speak at my son’s school! I have designed plant outreach activities for his grade level since he was in kindergarten.” Marcela’s blog about her K–12 outreach can be found at <https://news.gramene.org/blog/12>. She hopes that by increasing her visibility in school outreach programs, she can inspire young Latinas to pursue science through her representation as a Latina scientist.

Although she enjoys the work flexibility of being a bioinformatician and has made a conscious decision to prioritize her family over work, she admits that the demanding schedules and deadlines can be challenging. When Marcela is away from the computers, she spends time with her son and loves to hike, dance, and travel. Most of her family lives in Mexico, so she makes an effort to

visit them every year. When asked whether her family understands her job as a scientist, Marcela laughed, because her mom once asked her, “You’re still like a student, right?” ■

## Plantae Internships: Opportunities for Undergrad Research



*Summer REU program intern and mentor at the Boyce Thompson Institute.*

Looking for undergraduate research experiences in plant science? **Plantae Internships** is a curated list of more than 130 research programs across the United States. Discover summer programs with hands-on research experiences in molecular biology, ecology, botany, agronomy, bioinformatics, and other disciplines.

Visit [plantae.org/Internships](https://plantae.org/Internships) to find resources for summer Research Experiences for Undergrads (REU) and other opportunities.

### Five Tips for Applying to an REU Program

- 1 Connect with your adviser and mentors early to discuss your interest in summer research opportunities.
- 2 Ask for guidance in putting together a competitive application.
- 3 Familiarize yourself with the programs, and focus on the research or labs you’re interested in at the institution and why.
- 4 If you have any uncertainties, email the program coordinator before you apply.
- 5 Don’t wait! Applications for many programs are due in early February 2021.

Finally, be sure to contact the program coordinator for information about how the COVID-19 pandemic will affect their research program in summer 2021.

## Policy Update

BY VICTORIA HABER  
Lewis-Burke Associates, LLC

### Joe Biden Elected President, Divided Government Likely

After a contested and unpredictable general election, Democratic nominee Joe Biden defeated President Trump to become the 46th president of the United States in January 2021. While the majority of the 117th Congress was sworn in on January 3, policymakers in Washington closely watched two runoff elections in Georgia that yielded Democratic control of the Senate and will allow President-elect Biden to advance his priorities more easily in the first two years of his Administration. As a result of Democrats winning the two Senate seats in Georgia, they now hold control of the Senate with a razor-thin 50-50 margin with Vice President-elect Kamala Harris becoming the tie breaker vote.

The narrow margins in both the House and Senate present challenges for the Biden Administration in advancing its priorities, such as confirming its cabinet nominees or enacting additional stimulus legislation to address the public health and economic crises caused by the COVID-19 pandemic.

Despite the Senate runoff victories in Georgia, the Administration will face significant challenges in getting its legislative priorities passed unless they have bipartisan support.

In the first week of his presidency, Biden has used several executive actions, to advance

his priorities, such as rejoining the Paris Agreement on Climate Change to tackle global climate change, and reverse many of the Trump administration's executive orders on immigration, the federal workforce, and "race and sex stereotyping." Of note, President-elect Biden has stated that he plans to put science at the forefront of policy making, especially to address the coronavirus and future pandemics and to lay the groundwork for a path to net zero carbon emissions economy-wide by 2050 to mitigate climate change.

#### Source and Additional Information

- The full Lewis-Burke analysis on the election can be found at <https://bit.ly/398p5Co>.

### President-elect Biden's Team to Push Environment and Climate

As President Biden prepared to take office, he focused on filling his transition team and cabinet with climate and environmental experts, suggesting there will be significant attention to these topics across the federal government. The agency review teams, which advise on the current state and needs of federal agencies, departments, and councils, would typically include experts at environment-focused institutions; however, it is noteworthy that environmental experts are also serving on review teams of agencies that traditionally have been peripheral on environmental issues, such as the Small Business Administration and the Federal Reserve.

Initial White House cabinet appointments have the experience and expertise to advance environmental agendas both domestically and internationally. The selection of Ron Klain as President-elect Biden's chief of staff is a positive sign for action on environmental issues given his skills in working with people across the political spectrum and his experience working for climate advocates Vice President Al Gore and Sen. Ed Markey (D-MA). Former Secretary of State John Kerry's selection as special climate envoy, a new position on the National Security Council focused on climate change, will help international partners begin to see the United States as a trustworthy partner. The elevation of climate change evident in Kerry's appointment is an example of a renewed prioritization of international environmental engagement. The appointment of Brian Deese, a former Obama aide who played a prominent role in the negotiation of the Paris Agreement, as director of the National Economic Council signifies that Biden's White House will consider climate and environment as a central component of economic recovery and job creation.

Staffing shortages at many federal agencies and the COVID-19 pandemic will pose implementation challenges to some of Biden's initiatives. Filling vacancies at the same time as developing and implementing a domestic and international response to the pandemic will take time and

could slow the Biden administration's environmental agenda.

### A New Congress

As the U.S. Congress prepares for its 117th session beginning January 3, the research community is eager to understand how research priorities will be addressed. House Democrats and Republicans held formal votes on December 3 to determine congressional committee leadership for the 117th Congress, but the Senate has not held votes yet. The new chair of the House Appropriations Committee is Rep. Rosa DeLauro (D-CT). Rep. DeLauro is a strong supporter of environmental policies addressing climate change and, as chair of the House Labor, Health and Human Services, and Education Appropriations Subcommittee, was a reliable champion for biomedical and health care research.

The House Agriculture Committee will also have new leadership as Chairman Collin Peterson (D-MN) lost his reelection bid and Ranking Member Mike Conaway (R-TX) is retiring. House Democrats elected Rep. David Scott (D-GA) to be the committee's new chairman, and Republicans chose Rep. Glenn Thompson (R-PA) as the ranking member.

Major changes await relevant Senate committees as well, although leaders have yet to be chosen. Senate Agriculture Chairman Pat Roberts (R-KS) is retiring and will likely be replaced by Sen. John Boozman (R-AR).

The information in this article was accurate at the time of writing.

In this role, Sen. Boozman will prioritize Arkansas agricultural strengths and new markets to sell agricultural products. The Senate Energy and Natural Resources Committee will have new Republican leadership as well and is likely to elect Sen. John Barrasso (R-WY), a proponent of energy research and development, as its new ranking member. This will mean that Sen. Shelley Moore Capito (R-WV) will likely be the ranking member of the Senate Environment and Public Works Committee.

### Senate FY2021 Appropriations Updates

On November 10, the Senate Appropriations Committee released all 12 of its annual fiscal year (FY) 2021 appropriations bills. Although the House passed 10 of its 12 spending bills earlier in 2020, the Senate had not passed any. With the slowest start to the congressional appropriations process in more than 30 years, the Senate finally released the details of its bills to help launch negotiations with the House and try to pass an omnibus spending package that includes all 12 bills. Because the Senate bypassed the formal process of voting on each bill through the committee and fielding votes on the Senate floor, the bills primarily reflected Senate Republican priorities. Congressional leaders were also interested in pairing the omnibus with additional COVID-19 relief, although several outstanding items further delayed a final agreement.

Like the House, the Senate rejected significant cuts to federal agencies proposed by the Trump administration. Facing the same budget constraints as during the

past year of legally mandated budget caps, the Senate, like the House, would provide only modest increases to federal programs compared with prior years. Details on how ASPB priorities have fared in the Senate FY2021 appropriations bills are as follows:

#### Agriculture

The Agriculture, Rural Development, Food and Drug Administration, and Related Agencies bill, which funds USDA and the Food and Drug Administration, would provide a total of \$23.98 billion in discretionary funding, an increase of \$422 million above the FY2020 enacted level.

- ARS would be funded at \$1.51 billion, \$97 million or 5.6% below the FY2020 enacted level.
- The National Institute of Food and Agriculture (NIFA) would receive \$1.54 billion, \$11.5 million or 0.85% above the FY2020 enacted level. Research and education activities within NIFA would be funded at \$971.6 million, \$8.76 million more than the enacted level in FY2020.
- The Agriculture and Food Research Initiative (AFRI) would receive \$435 million, an increase of \$10 million over the FY2020 enacted level.

#### Energy and Water

The overall Senate Energy and Water Development bill would total \$51.75 billion. This bill includes \$42 billion for DOE, \$3.45 billion above the FY2020 enacted level.

- The Advanced Research Projects Agency–Energy would be funded at \$430 million, \$5 million above the FY2020 enacted level. The committee rejected

the administration's proposal to terminate this program.

- The Basic Energy Sciences program would be funded at \$1.86 billion, up \$6 million from FY2020.
- Biological and Environmental Research would be flat funded at \$750 million.

#### Commerce, Justice, Science

The Commerce, Justice, Science and Related Agencies bill would provide a total of \$71.09 billion in discretionary funding for NSF, NASA, the National Oceanic and Atmospheric Administration, the National Institute of Standards and Technology, the Economic Development Administration, and the Department of Justice, among other programs. This amount would include \$8.5 billion for NSF, \$200 million above the FY2020 enacted level.

#### Labor, Health and Human Services, and Education

The Senate Labor, Health and Human Services, and Education bill would provide \$184.5 billion in overall funding for programs at the Departments of Labor, Health and Human Services, and Education, an increase of \$1.43 billion. Although the House appropriations bill would provide \$24.4 billion in emergency funding for several agencies and programs to further bolster the response to the COVID-19 pandemic, the Senate appropriations bill focuses only on annual funding needs unrelated to the pandemic. NIH would receive \$43.68 billion, \$2 billion above the FY2020 enacted level.

#### Source and Additional Information

- The Senate's appropriations bills can be found at <http://bit.ly/2XdtOxd>.

### Senate Agriculture Committee Holds Hearing on Research and Food Security

On December 2, the Senate Agriculture Committee convened for its final hearing of the year, the last one led by Chairman Pat Roberts (R-KS), who is retiring at the end of this term. The hearing focused on agricultural research and securing the domestic food supply, pointing out the persisting fallout of climate volatility and the COVID-19 pandemic on the agricultural sector. Chairman Roberts and Ranking Member Debbie Stabenow (D-MI) emphasized the importance of robust support for agricultural research to increase the understanding of zoonotic diseases and ways to protect the nation's food sources from foreign pathogens, as well as ways to use regenerative agriculture to decrease the agriculture sector's environmental footprint.

Witnesses encouraged the committee and future administrations to connect animal and human health to enable a more holistic understanding of how they relate and the impact they have on the food supply. Investing in research on zoonotic diseases is imperative to protect our food supply from attack and will help in the deployment of surveillance and early detection mechanisms to identify foreign pathogens entering the United States. Increased investment in research on climate change was also pushed in light of the damaging effects of soil erosion, loss of biodiversity, forest fires, degradation of natural resources, and other impacts of climate change on the U.S. food supply.

*continued on page 12*

## POLICY UPDATE *continued from page 11*

Throughout the hearing, members and witnesses voiced support for the Agriculture Advanced Research and Development Authority (AGARDA) and the Foundation for Food and Agricultural Research (FFAR), pointing out the important role they play in advancing public-private partnerships within agriculture. Former secretary of agriculture Dan Glickman testified during the hearing that stable funding, rather than reactionary funding increases, was needed for FFAR. Witnesses argued that more funding for FFAR and AGARDA would aid developments in research and agricultural technologies through public-private partnerships and help move these tools out of the research stage and into use.

### *Source and Additional Information*

- A video of the hearing is available at <http://bit.ly/2Xco9aP>.

## Food and Agriculture Climate Alliance Releases Joint Climate Policy Recommendations

The Food and Agriculture Climate Alliance (FACA), a coalition of groups representing farmers, ranchers, forest owners, the food sector, and environmental advocates, announced new joint policy recommendations to steer the development of federal climate policy. The group is cochaired by the American Farm Bureau Federation, Environmental Defense Fund, National Council of Farmer Cooperatives, and National Farmers Union and aims to dem-

onstrate to Congress the wide call for bipartisan climate legislation. Together, the group formulated more than 40 policy recommendations that are “based on three principles: agricultural and forestry climate policies must be built upon voluntary, incentive-based programs and market-driven opportunities; they must promote resilience and adaptation in rural communities; and they must be science-based.”

The policy recommendations focus on soil health, livestock and dairy, forests and wood products, energy, research, and food loss and waste. The following are some of the group’s climate policy recommendations:

- Leverage public-private partnerships and tools to incentivize agricultural and forestry producers to prioritize and scale climate-smart practices and achieve a meaningful and workable food date-labeling program to reduce food waste and loss because of confusing consumer-facing packaging.
- Incentivize farmers to reduce energy consumption and turn to on-farm renewable energy production to reduce the life cycle greenhouse gas emissions of agriculture- and forestry-based renewable energy.
- Invest broadly in agriculture, forestry, and food-related research, specifically within the areas of measurement and verification and outreach and deployment within the Natural Resources Conservation Service and ARS.

### *Source and Additional Information*

- FACA climate policy recommendations can be found at <http://bit.ly/3pMN9kU>.

## Funding Opportunity: AFRI Sustainable Agricultural Systems RFA

USDA and NIFA released a request for applications (RFA) for AFRI’s Sustainable Agricultural Systems (SAS) program. The program aims to help transform the U.S. food and agricultural system by increasing agricultural production 40% in sustainable ways “and to do so in the context of economic, societal, and environmental attributes of sustainability.” Originally launched in FY2018, the FY2021 SAS solicitation will focus on leveraging advances made in data science, plant and animal biology, social sciences, technology development, and other disciplines to make novel discoveries and reduce the environmental impact of agriculture. This solicitation has combined funding from FY2020 and FY2021 totaling \$150 million, with up to \$10 million for each award. This funding will allow the program to support nearly twice as many grantees as in a usual year.

The solicitation is for single-function Research, Education, and Extension Projects and Integrated Projects. Applicants are encouraged to take a systems-based approach to solve pressing agricultural challenges by promoting research, education, and extension at the intersection of science, technology, and agriculture, and applicants are required to outline concrete efforts to enhance training and education. Additionally, extension activities should focus on public engagement to encourage adoption of transformative discoveries.

Projects should address one of four long-term goals from the

USDA Science Blueprint, which is a strategic framework for leadership and direction in advancing USDA’s scientific mission through 2025. At least one of the following overarching themes and subtopics for research, education, and economics must be addressed:

1. *Sustainable agricultural intensification*—Food supply and resource use, including solutions to labor challenges, land stewardship, food and agricultural production and biosecurity, or resiliency and robustness of food and agricultural systems.
2. *Agricultural climate adaptation*—Effective approaches to climate adaptation. Applicants are encouraged to collaborate with USDA Climate Hubs to center projects around plant and animal breeding, soil health and management practices, pest and beneficial management, or water issues.
3. *Value-added innovation*—Sustainable rural development and agriculture-based economies, including projects supporting new or improved strategies for agricultural products and the economic benefits of such products.
4. *Food and nutrition translation*—How changes to food and agricultural systems influence food waste, foodborne illness, and chronic diseases. Projects must develop cost-effective strategies and resources, preharvest or postharvest interventions, new approaches to improve understanding or engineering of the functionality of foods, or new knowledge of precision nutrition.

In addition, there will be a SAS program evaluation award that aims to assess the value of NIFA's investments in the SAS program from FY2018 through FY2024 and to outline the successes and areas of improvement for the program. This award will fund one project up to \$1 million for up to five years.

The RFA also supports the White House Office of Science and

Technology Policy (OSTP) priority of advancing artificial intelligence and industries of the future by encouraging projects that use automation, artificial intelligence, and other data-driven approaches as well as genome design and prescriptive interventions.

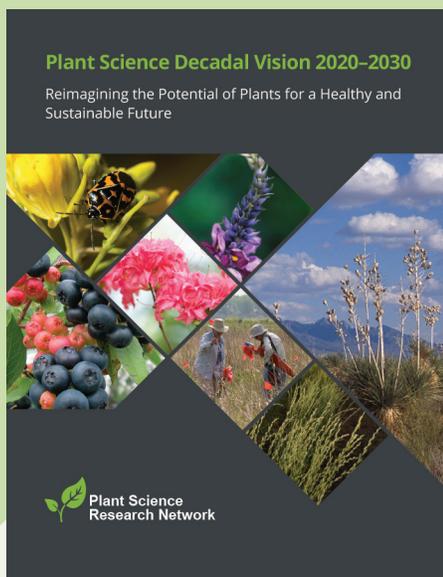
Because the SAS program is focused on long-term goals, proposals should include concrete metrics for success, which may

include “how the proposed system and its components contribute to productivity and profitability, reduced environmental footprint, natural resources quality, food safety and quality, nutritional security, human health and well-being, a skilled workforce, and safe jobs.”

*Sources and Additional Information*

- The full SAS RFA is available at <https://bit.ly/3pSVpjo>.

- More AFRI RFA resources are available at <http://bit.ly/2MtY1G4>.
- The USDA Science Blueprint is available at <https://bit.ly/359V7g3>.
- Information about USDA Climate Hubs is available at <https://www.climatehubs.usda.gov/>. ■



## Decadal Vision: Major Goals for Plant Science

The *Plant Science Decadal Vision 2020–2030* identifies eight major goals to integrate research, people, and technology over the next decade. Addressing these goals will require unprecedented collaborations within and outside the plant and microbial sciences, new technologies, new training paradigms, new work cultures, and the broadening of participation.

The Decadal Vision is a call to inspire the research community and policy makers to invest in plant science over the next 10 years.

Download the *Plant Science Decadal Vision 2020–2030* report at [plantae.org/PSRN](http://plantae.org/PSRN).

# ASPB Summer Undergraduate Research Fellowship (SURF)

<http://surf.aspb.org/>

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

## Eligibility

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

## Faculty Mentors

Students must secure a mentor before submitting an application. The proposed research project must be pursued in the mentor's laboratory. Mentors must be a member of ASPB, have an ongoing research program of high scientific merit, and demonstrate a commitment to undergraduate education and research. Mentors are expected to attend Plant Biology 2022 in Portland, Oregon, with their SURF student.

*Need a Mentor?* Students may work with a mentor at their own institution or at another institution. Additional guidance is available by contacting ASPB (see below).

## Application

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

## Selection Criteria

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

Successful applicants receive a \$4,000 summer stipend, a one-year membership in ASPB, and \$700 (paid to the mentor or institution) for materials and supplies. Each fellowship also provides student

travel support to Plant Biology 2022, the ASPB annual meeting, to be held July 9–13, 2022, in Portland, Oregon. These travel funds are sent only to the 2021 SURF recipients who (1) register for the meeting, (2) submit proof of using social media or other outlets to communicate with the public or peers about the SURF project, and (3) author and submit an abstract about their SURF project to present as a poster at the meeting.

## A Successful SURF Applicant's Sample Timeline

**Contact potential mentors:** NOW

**Discuss research topics:** NOW

**Request a reference letter:** by January 2021 (from college/university faculty member who is not the mentor)

**Submit SURF application:** by the deadline, March 28, 2021 (11:59 p.m. ET)

**Look for emailed decisions:** by April 2021

**Conduct research:** over 10 consecutive weeks when classes are not in session

**Present research:** July 9–13, 2022, at Plant Biology 2022 in Portland, Oregon.

**Applications will be accepted through March 28, 2021 (11:59 p.m. ET).**

## Need additional help?

Contact Winnie Nham, ASPB Education Coordinator ([education@aspb.org](mailto:education@aspb.org)).

# James Nash Siedow

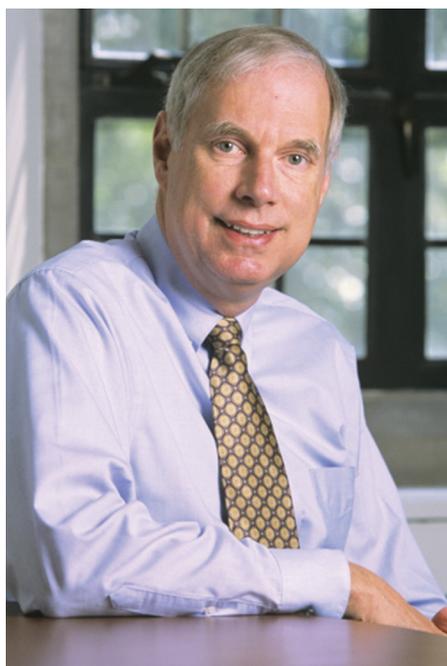
1947–2020

BY TONY MOORE  
University of Sussex

It is with great sadness I report that James Nash Siedow passed away peacefully on November 15 following a brave fight with Parkinson's. He was 73.

Jim graduated from the University of Utah in 1969 with a degree in chemistry and botany. In 1972 he earned a PhD in biochemistry from Indiana University under the supervision of Anthony San Pietro, investigating electron transfer from photosystem II to photosystem I. The work in his thesis conclusively established that the light-induced oxidation of cytochrome f depended absolutely on the presence of plastocyanin in a 1:1 stoichiometry, a hitherto hotly debated question. During his postdoctoral training with Graham Palmer at both the University of Michigan and Rice University, he continued his work on electron transfer in chloroplasts and mitochondria. Additionally, he published a protocol to isolate and purify enzymatically active Complex III from baker's yeast (Siedow et al., 1978) in an article that has stood the test of time and remains highly cited.

In 1976 Jim secured a faculty position in the Department of Botany at Duke University, where he remained until his retirement in 2016. During this period, Jim's research was focused on deciphering the nature of the cyanide-resistant alternative oxidase



(AOX). Of his many contributions to our understanding of this enigmatic yet important mitochondrial oxidase, he will be best remembered for his pioneering work on the role of cysteine residues in the regulation of plant AOX activity, in vivo measurement of AOX in plants, its in vivo function in the attenuation of reactive oxygen species, and of course its structure and mechanism of action.

I first met Jim in 1978, when we both attended the first plant mitochondrial meeting organized by Claude Lance and Gaston Ducet in Marseilles. We went on to have a long and successful collaboration investigating how

the redox poise of the ubiquinone pool could regulate electron flow through the oxidase, which, in Jim's view, became somewhat of a cottage industry in terms of publications! Jim was always fascinated by how an enzyme such as AOX could reduce oxygen to water in a four-electron process without possessing any haem proteins. His grounding in chemistry and previous work on iron sulphur proteins during his postdoctoral days with Graham Palmer led him to postulate

that AOX was a nonhaem iron dicarboxylate protein. This was subsequently shown to be correct when the first crystal structure of this enzyme was published in 2013. Jim always enjoyed the cut and thrust of research, particularly during intense debate. Who could forget his drive and intellectual curiosity, his often acerbic wit, and the occasional lash of his tongue with the words "and what's your point?"

In addition to his role as a research leader, Jim's responsibilities shifted from working in the lab to becoming dean of faculty development at Duke in 1997 and then, in 2001, vice provost of research, a position he held until

he returned to the Department of Biology in 2014. As my career had followed a similar path, Jim and I used to debate the organizational changes required to balance enterprise, excellence, and equity. Such debates often led to thoughts gone by and being back in the lab—prompting the grimaces of our postdoctoral students!

In addition to his work at Duke, Jim served as program director for NSF (1988–1989), as president of ASPP (1994–1995), and in a massive turn of office on the editorial board of the *Journal of Biological Chemistry* from 1998 to 2016!

Jim will be remembered not only for his major contributions to plant physiology but above all, for me, his friendship. He was not only the seconder for my inaugural professoriate lecture but also the best man at my wedding. Our adventures in London on my bachelor night will remain legendary.

Rest in peace, Jim—we miss you! ■

## References

Siedow, J. N., Power, S., de la Rosa, F. F., and Palmer, G. (1978). The preparation and characterization of highly purified, enzymically active complex III from baker's yeast. *Journal of Biological Chemistry* 253(7): 2392-2399



**Call for Papers**

## *Plant Physiology*<sup>®</sup>

### **2021 Focus Issue on Digital Agriculture**

**Edited by Rod Wing, Jennifer Clarke, Jiming Jiang, Ning Jiang, Jesse Poland, and Mark Tester**

**Submission deadline: March 1, 2021; Publication date: October 2021**

For more information, go to <https://bit.ly/3IDMuRz>. To submit an article, go to <http://pphys.msubmit.net/>.



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