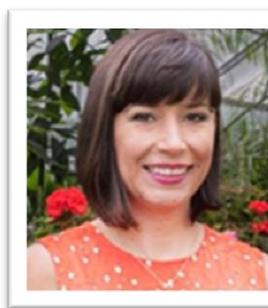


SPRING 2015

The SS-ASPB

Newsletter of the Southern Section of the American Society of Plant Biologists



*Greetings from
Dr. Ashlee McCaskill
2014-2015
Chair of the SS-ASPB*

Welcome spring!

We may be only a few weeks into spring, but it has already been a busy and productive season! We hosted another terrific annual meeting, the details of which can be found in the newsletter. I want to thank Dr. Ken Korth, the current SS-ASPB Sec/Treas, and Drs. Tim Sherman and Kelly Major, the local site coordinators, for all of their efforts organizing the meeting. As always, our meeting provided a friendly and economical venue for our members, especially the students, to present their research. Also occurring this spring are national ASPB elections. The deadline for voting is midnight on May 29, 2016. Information about the ballot can be retrieved at <https://excom.aspb.org/>. Finally, in a blatant rip off of Stephen Colbert's "Better Know a District" segment, I am introducing a new section to the newsletter! "Better Know a Member" has the simple goal of community building. I hope you enjoy it! Best wishes,

A handwritten signature in blue ink that reads "Ashlee".

In This Issue

Letter from the Chair...1

SS-ASPB 2015
Summary.....2

Kriton-Hatzios
Symposium.....6

SS-ASPB 2016.....9

Better Know a
Member.....9

ASPB 2015.....10

Officer Listing.....10

SS-ASPB 2015

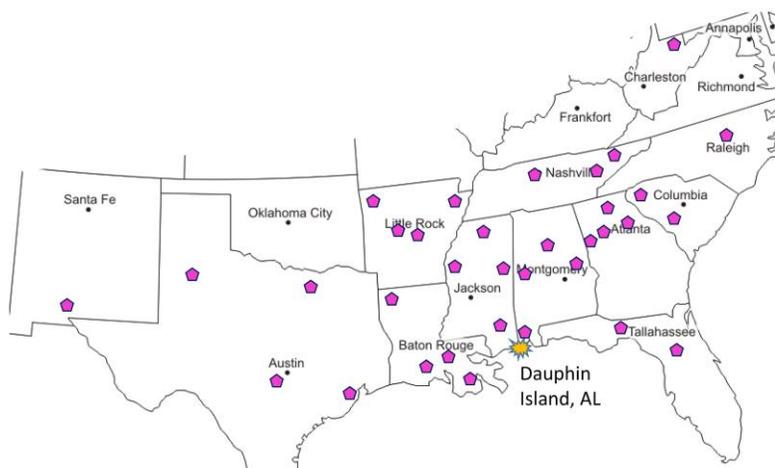
Dauphin Island Sea Lab

The 2015 annual meeting of the SS-ASPB was held at the Dauphin Island Sea Lab, Alabama, at the edge of Mobile Bay from March 28th – 30th. Over 130 plant biologists from 35 institutions enjoyed discussing plant science in a scenic and relaxing setting at the Sea Lab. We fit a lot of science into the two-day meeting, with 61 poster presentations and 33 talks, in addition to the Kriton-Hatzios Symposium focusing on *Incorporating Bioinformatics into Plant Biology*. The annual student competitions were as strong as ever, with 22 graduate students competing for awards with oral presentations, and 28 undergraduate poster competitors. Students made up two-thirds of the total number of attendees. The meeting was chaired by Ashlee McCaskill, and Rick Turley organized the Kriton-Hatzios Symposium. Events were organized by Ken Korth and local organizers Tim Sherman, Kelly Major, and Molly Miller. A special ‘thank you’ goes out to all that helped with planning, judging, presenting, helping out as needed, and asking insightful questions of the presenters.



The meeting began Saturday evening with socializing and a low country boil by the beach. The meal was prepared by the dedicated “boil team” of Tim Sherman (left), Molly Miller and Kelly Major (both right), all from the University of South Alabama in Mobile. They deserve a huge thank you for all of their efforts!

The map on the right shows the locations of the attendee home institutions. Members from across the section made their way to Dauphin Island.





The Dauphin Island Sea Lab facility provided a delightful and intimate location for our meeting. Meals were spent together at the cafeteria, which allowed for the opportunity to converse with friends old and new. During breaks, attendees strolled on the beach, explored the island or watched the birds.

Following breakfast on Sunday morning, Ashlee McCaskill opened the meeting and we started into a full slate of talks. Beginning at mid-morning, we divided into concurrent sessions to accommodate all speakers. Following oral presentations by faculty and post-docs, graduate student talks began and continued throughout the afternoon. Starting after lunch, small groups of undergraduate poster presenters met with judges to allow for adequate time to interact. Students returned to their posters to further discuss their work in the general session along with all poster presenters. A special thank you goes to this year's competition judges: Caryl Chlan, Nihal Dharmasiri, Becca Dickstein, Steve Grace, Nathan Hancock, Beth Hood, Mautusi Mitra, Mustafa Morsy, Shane Sanders, Jay Shockey, Meg Staton and Rick Turley.

The annual banquet on Sunday evening was held at the Sea Lab Estuarium. We enjoyed a delicious catered meal with a backdrop of lively marsh and sea creatures. Awards for student presentations were also distributed during the banquet. A listing of the winners can be seen on the next pages.



2016 Graduate Student Oral Presentation Award Recipients



First place was awarded to Thiya Mukherjee from Texas Tech University. Her talk was titled “Constitutively over-expressing a tomato fructokinase gene (LeFRK1) in cotton, *Gossypium hirsutum* L., (c.v. Coker 312) positively affects plant vegetative growth, boll number, and seed cotton yield”.

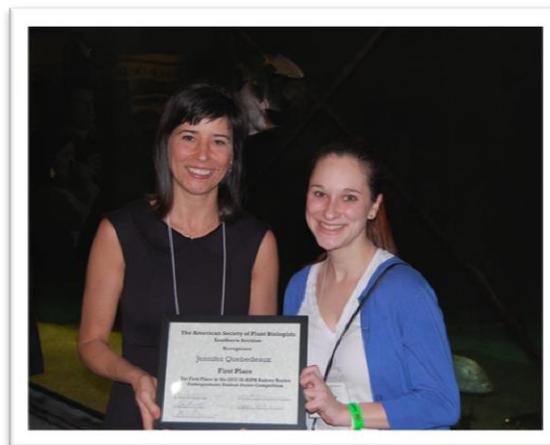
Second place was awarded to Ashley Crook from Clemson University. Her talk was titled “The SUNN Symbiotic Kinase participates in multiple protein:protein interactions”.



Third place was awarded to Hayley Tumas from the University of Georgia. Her talk was titled “Landscape genetics of the Gulf Coast salt marsh: a multispecies approach”.

2016 Aubrey Naylor Undergraduate Student Poster Competition Award Recipients

First place was awarded to Jennifer Quebedeaux from Louisiana State University. Her poster was titled “Localization of carbonic anhydrase isoforms in *Arabidopsis thaliana*”.



Second place was awarded to Ashley Strother from the University of South Carolina-Aiken. Her poster was titled “Targeted insertion of the transposable element, *mPing*”.

Third place was awarded to Zuma Bongeka from Spelman College. Her poster was titled “Roles of Invertase Inhibitors during Early Seed Development in *Arabidopsis*”.

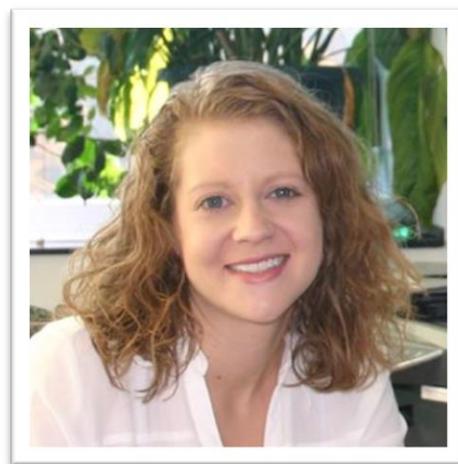


2015 Kriton-Hatzios Symposium

Incorporating Bioinformatics into Plant Biology Research

**How bioinformatics is helping to restore
the American Chestnut: next generation
sequencing, data mining and online
resources**

Dr. Meg Staton
University of Tennessee
Knoxville, TN



The chestnut research community has invested significant time and resources into developing genomic tools for Chinese chestnut (*Castanea mollissima*), primarily to help in the search for a genetic source of resistance to chestnut blight (*Cryphonectria parasitica*), the fungal pathogen that killed billions of American chestnut (*Castanea dentata*) trees in the early 1900s. An integrated physical map and a dense genetic map has been developed for the Chinese chestnut genome. With an existing interspecies (*C. mollissima* × *C. dentata*) F2 mapping population, the blight resistance trait has been mapped to three primary quantitative trait loci (QTLs). We have undertaken a whole genome sequencing effort as well as targeted sequencing of bacterial artificial chromosomes (BACs) spanning the blight-resistance QTL regions in an effort to find candidate blight resistance genes. These genomic resources further enable an examination of the micro- and macro-synteny of the chestnut genome to ten other reference plant genomes, revealing major regions of macro- and micro-synteny with peach, grape and poplar genomes. To further the utilization and integration of genomic resources from chestnut and other hardwood tree species, a suite of online tools are now available, including a genome browser, a gene editor and a genome comparison tool at the Hardwood Genomics website (<http://hardwoodgenomics.org>).

2015 Kriton-Hatzios Symposium, cont.

Genome Evolution of Allotetraploid Cotton

Dr. Joshua Udall
Brigham Young University
Provo, UT



Cotton tetraploids are a valuable source of fiber for textiles and their genome evolution has not been fully characterized. We analyze the evolution of allotetraploid cotton using whole-genome resequencing data consisting of over 18 billion reads from over 30 lines and all 7 allotetraploid species. We mapped the polyploid reads to both the *G. raimondii* and *G. arboreum* reference sequences using GSNAP and PolyCat, eliminating or severely reducing mapping biases between species with information from ~25 million homoeo-SNPs. With this depth and breadth of data, we examine non-reciprocal homoeologous recombination (gene conversion). Past studies have been unable to confidently distinguish between gene conversion events and polymorphisms arising in diploid lines. With the broad sampling of our study, we show that roughly half of putative events reflect true non-reciprocal homoeologous recombination events. We provide a refined phylogeny based on whole-genome SNP data, including the AT and DT genomes of each species--including the newly described *G. eckmanianum* and AD7--and 10 extant diploid relatives. We identify introgression of *G. barbadense* into *G. hirsutum* and vice versa. Homoeo-SNPs between the A and D genomes and allele SNPs within and between tetraploid species are made available for free use at CottonGen.

2015 Kriton-Hatzios Symposium, cont.

Genome Assembly & Analysis - From “Gold-Standard” Assemblies to “Base Metals”

William S. Sanders
Mississippi State University
Mississippi State, MS



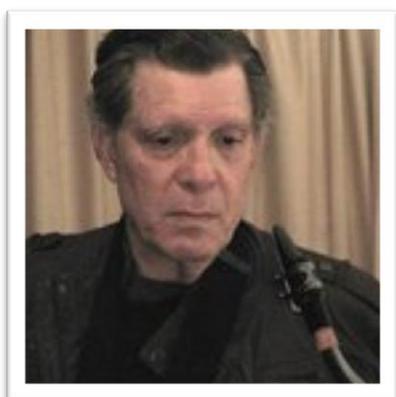
The costs of obtaining large quantities of genomic sequence data are steadily falling due to advancements in sequencing technologies, but the species targeted for sequencing can itself play a significant role in the genome assembly process. As researchers increasingly focus on the molecular characterization of non-model organisms with very few and often sparsely characterized related species, even more consideration should be applied to what constitutes a quality genome assembly. As the genomic material for a given organism becomes more difficult to obtain, assumptions used by *de novo* genome assembly algorithms no longer hold, and this causes errors and artifacts to arise in the genome assembly. I will discuss what constitutes a quality genome assembly, and how these quality genome assemblies are generated with a discussion of the “gold-standard” *Gossypium raimondii* genome sequence. Additionally, I will discuss and share lessons learned from our genome assembly of a wild-sourced and highly heterozygous plant-parasitic nematode species, *Rotylenchulus reniformis*, and I will highlight emerging techniques for obtaining quality genome assemblies.



SS-ASPB 2016



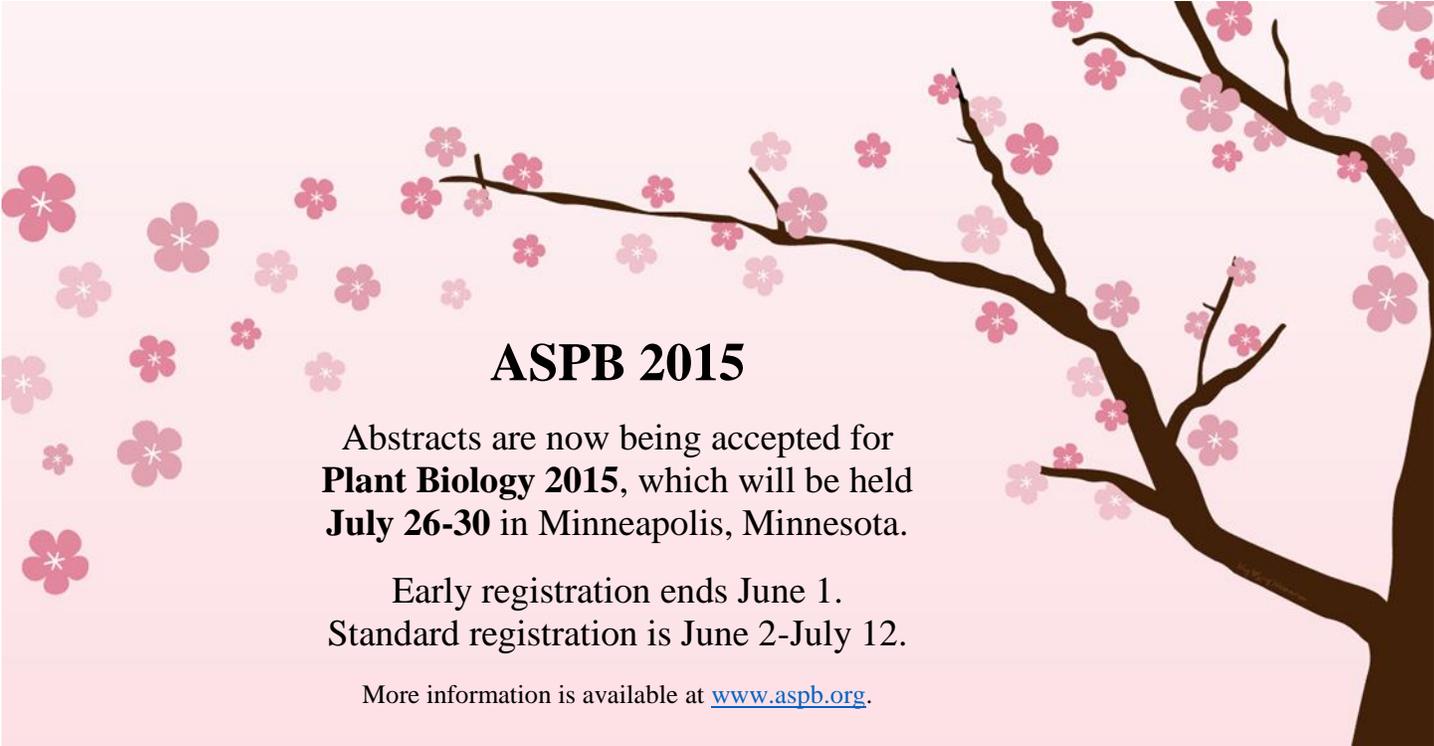
Get out your calendars! The next meeting of the SS-ASPB is already on the books. Plan to join us April 2-4, 2016, in Denton, TX. Incoming SS-ASPB Secretary/Treasurer Nihal Dharmasiri and the local site hostess Becca Dickstein already have the planning wheels in motion. The meeting will be held on the campus of the University of North Texas. Rumored to be on the schedule is an optional Saturday field trip to the Ft. Worth Botanical Gardens! Denton is conveniently located approximately 30 minutes from the Dallas-Ft. Worth airport.



Better Know a Member

DR. JAZZ REVEALED!

Many of you know **Marc Cohn** (LSU AgCenter, Baton Rouge) as SS-ASPB's financial overseer or as one of the world's experts in seed dormancy and recalcitrance research. But did you know he has an alter ego? Well, he does. He's Dr. Jazz. Not just a jazz fan, but a world-wide and long-time jazz radio personality. Starting out as a tender (and not very slick, according to him, anyway) DJ on WNEU/WRBB in Boston, moving over to WVBR in Ithaca, a quick post-doc stop at WTJU in Charlottesville, and a long-term gig at KLSU, he's been a weekly show host for almost 50 years. After taking a break to edit *Seed Science Research*, he's now back on the air doing Saturday afternoons (3-5 pm CDT) on WHYR-FM, 96.9, Baton Rouge Community Radio. And wherever you are on the planet, you can listen in live at why.org or via the Tune In app for your phone or tablet. If Saturday afternoon is too busy a time for you, check out any of his WHYR shows 24/7 on www.mixcloud.com/drjazz, where he has over 5000 followers. Special features on his program are monthly jazz birthday salutes, 50th anniversary commemorations of classic Blue Note recordings, a chronological retrospective of the entire Horace Silver discography, and a celebration of Billie Holiday on this, her 100th birthday year. When jazz needs to be more than wallpaper in your life, it's time to call the doctor!



ASPB 2015

Abstracts are now being accepted for
Plant Biology 2015, which will be held
July 26-30 in Minneapolis, Minnesota.

Early registration ends June 1.
Standard registration is June 2-July 12.

More information is available at www.aspb.org.

2014-2015 SS-ASPB Officers

Chair

Dr. Ashlee McCaskill

Associate Professor of Plant Biology
University of North Georgia
Dahlonega, GA 30597
706-864-1954
amccaskill@ung.edu

Vice-Chair

Dr. Rick Turley

Research Plant Physiologist
USDA-ARS, Jamie Whitten Delta States
Research Center
Stoneville, MS 38776
662-686-5268
Rick.Turley@ars.usda.gov

Secretary/Treasurer

Dr. Ken Korth

Professor of Plant Pathology
University of Arkansas
Fayetteville, AR 72701
479-575-5191
kkorth@uark.edu

Executive Committee Members

Dr. Jay Shockey

USDA-ARS, Southern Regional Research Center
New Orleans, LA 70124
504-286-4296
Jay.Shockey@ars.usda.gov

Dr. Paul Stephenson

Associate Professor of Biology
Rollins College
Winter Park, FL 32789
407-646-2481
pstephenson@rollins.edu

Dr. Rebecca Dickstein

Professor of Biology
University of North Texas
Denton, TX 76203
940-565-3359
beccad@unt.edu

*2014-2017 Southern Section Representative to
ASPB Executive Committee*

Dr. Rebecca Dickstein

beccad@unt.edu