

SCIENTIFIC PROGRAM

SATURDAY, AUGUST 11

2:00 PM - 5:00 PM

Hyatt, Enchantment C-D

MEETING: *Flora of North America* Management Committee Meeting

Presiding: NANCY R. MORIN, The Arboretum at Flagstaff, 4001 S. Woody Mountain Road, Flagstaff, AZ 86001.
Tele: (520) 774-1442, Ext. 104, E-mail: Nancy.Morin@nau.edu.

3:30 PM - 6:00 PM

Hyatt, Enchantment A-B

MEETING: BSA Financial Advisory Committee

Presiding: HARRY T. HORNER, Department of Botany, Iowa State University, Ames, IA 50011-1020. Tele: (515) 294-8635, E-mail: hth@iastate.edu.

6:30 PM - 10:00 PM

Hyatt, McGrath's

MEETING: BSA Executive Committee

Presiding: PATRICIA G. GENSEL, Department of Biology, CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280. Tele: (919) 962-6937, E-mail: pgensel@bio.unc.edu.

SUNDAY, AUGUST 12

8:30 AM - 4:00 PM
MEETING AND LUNCHEON: ASPT Council

Hyatt, Fiesta 1

Presiding: WALTER S. JUDD, Department of Botany, University of Florida, 220 Bartram Hall, P. O. Box 118526, Gainesville, FL 32611-8526. Tele: (352) 392-5135, E-mail: wjudd@botany.ufl.edu.

9:00 AM - 3:00 PM
MEETING AND LUNCHEON: BSA Council

Hyatt, Fiesta 3-4

Presiding: PATRICIA G. GENSEL, Department of Biology, CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280. Tele: (919) 962-6937, E-mail: pgensel@bio.unc.edu.

3:00 PM - 6:30 PM
MEETING: AFS Council

Hyatt, Enchantment C-D

Presiding: BARBARA JOE HOSHIZAKI, 577 Westmoreland Avenue, Los Angeles, CA 90004. Tele: (213) 662-0655, E-mail: pterophil@email.msn.com.

5:00 PM - 7:00 PM
MEETING: ABLs Executive Committee

Hyatt, Enchantment A-B

Presiding: ROBERT S. EGAN, Department of Biology, University of Nebraska at Omaha, Omaha, NE 68182-0040. Tele: (402) 554-2491, E-mail: regan@mail.unomaha.edu.

7:30 PM - 8:30 PM
OPENING CEREMONY / PLENARY ADDRESS: All Societies

Hyatt, Pavilion IV-VI

Presiding: PATRICIA G. GENSEL, Department of Biology, CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280. Tele: (919) 962-6937, E-mail: pgensel@bio.unc.edu.

Welcome from the University of New Mexico.

Welcome to Albuquerque and New Mexico: RAY POWELL. *Commissioner of Public Lands, State of New Mexico, Santa Fe.*

Plenary Address: GARY P. NABHAN. *Center for Sustainable Environments, Northern Arizona University, Flagstaff.* Bridging Western science and indigenous science: ethnobiology and cross-cultural conservation collaborations in the binational Southwest.

8:30 PM - 10:00 PM
MIXER: All Societies

Hyatt, Pavilion I-III

MONDAY MORNING, AUGUST 13

7:00 AM - 8:30 AM

BREAKFAST: ABLS (Ticketed Event)

Hyatt, Fiesta

8:00 AM - 11:00 AM

SESSION 1

ACC, 101-Brazos

PLENARY SYMPOSIUM: All Societies –
Comparative and functional genomics: evolutionary implications

Organized by: DOUGLAS E. SOLTIS, Department of Botany and the Genetics Institute, University of Florida, Gainesville, FL 32611. E-mail: dsoltis@mail.wsu.edu.

Presiding: DOUGLAS E. SOLTIS, University of Florida, Gainesville.

- 8:00** **1-1** WENDEL, JONATHAN F. *Iowa State University, Ames.* Evolution of crop plants: models, mechanisms, and implications.
- 8:30** **1-2** OSBORN, T. C.*; M. E. SCHRANZ, P. A. QUIJADA, and L. N. LUKENS. *University of Wisconsin, Madison.* Polyploidy and genetic variation in *Brassica* species.
- 9:00** **1-3** ROSENZWEIG, FRANK. *University of Florida College of Medicine, Gainesville.* Microarrays and applications in evolutionary biology.
- 9:30** **BREAK**
- 9:45** **1-4** SOMERVILLE, CHRIS. *Carnegie Institution and Stanford University, Stanford, CA.* The evolution of chemical diversity.
- 10:15** **1-5** WALBOT, VIRGINIA. *Stanford University, Stanford, CA.* Accelerating the pace of allelic diversity: the role of transposable elements.
- 10:45** **DISCUSSION**

8:00 AM - 12:00 PM

SESSION 2

ACC, 205-San Miguel

CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
Phylogeny of plants and major plant clades

Presiding: BARBARA A. WHITLOCK, Biology Department, University of Massachusetts, Amherst, MA 01003. Tele: (413) 545-0035, E-mail: bwhitloc@bio.umass.edu.

- 8:00** **2-1** LEE, JUNGHO^{1,2*}, OLENA DOMBROVSKA^{1,2}, MARGARET HOEY^{1,3}, BARBARA A. WHITLOCK¹, and YIN-LONG QIU^{1,2}. ¹*University of Massachusetts, Amherst*; ²*University of Zürich, Switzerland*; ³*Fitchburg State University, Fitchburg, MA.* A phylogenetic analysis of land plants using four genes from three genomes.
- 8:15** **2-2** YIP, KWOK LEUNG* and BRENT D. MISHLER. *University of California, Berkeley.* A reappraisal of the resorption pores of hyalocysts in the Calymperaceae and their phylogenetic significance.

- 8:30** **2-3** CHAW, SHU-MIAW^{1*}, TERRENCE W. WALTERS², SHARON S. HU¹, and HSIN-HSIAO CHEN¹. ¹*Academia Sinica, Taipei, Taiwan*; ²*Montgomery Botanical Center, Miami, FL*. Phylogeny of extant Cycadales inferred from chloroplast *matK* gene.
- 8:45** **2-4** RAI, HARDEEP S.^{1*}, HEATH O'BRIEN¹, RICHARD G. OLMSTEAD², and SEAN W. GRAHAM¹. ¹*University of Alberta, Edmonton, Canada*; ²*University of Washington, Seattle*. Phylogeny of the cycads and their placement in the seed plants, as inferred from a large chloroplast data set.
- 9:00** **2-5** TANK, DAVID C.^{1,2*}, XIAO-QUAN WANG³, and TAO SANG². ¹*University of Washington, Seattle*; ²*Michigan State University, East Lansing*; ³*Chinese Academy of Sciences, Beijing*. Recent transfers of cinnamyl alcohol dehydrogenase genes between conifers diverged 200 million years ago.
- 9:15** **2-6** RYDIN, CATARINA^{1,2*}, MARI KALLERSJÖ², and ELSE MARIE FRIIS². ¹*Stockholm University, Sweden*; ²*Swedish Museum of Natural History, Stockholm*. Seed plant relationships and the systematic position of Gnetales; evidence from nuclear and chloroplast DNA demonstrates the monophyly of Conifers.
- 9:30** **2-7** ICKERT-BOND, STEFANIE, M.* and RAYMOND J. CRANFILL. *Arizona State University, Tempe*; *University of California, Berkeley*. Revisiting Stapf: Phylogeny of *Ephedra*, insights from plastid genes and morphology.
- 9:45** **2-8** HILU, KHIDIR W.^{1*}, THOMAS BORSCH², VINCENT SAVOLAINEN³, PAMELA S. SOLTIS⁴, DOUGLAS E. SOLTIS⁴, MARK W. CHASE³, KAI MULLER², TRACEY SLOTTA¹, MARTYN POWELL³, LARS CHATROU³, JENS G. ROHWER⁵, HERVE SAUQUET⁶, PHILIPPE CUE-NOUD³, CHRISTOPH NEINHUIS², and LARRY A. ALICE⁷. ¹*Virginia Polytechnic Institute and State University, Blacksburg*; ²*Friedrich-Wilhelms-Universität Bonn, Germany*; ³*Royal Botanic Gardens, Kew, United Kingdom*; ⁴*University of Florida, Gainesville*; ⁵*Universität Hamburg, Germany*; ⁶*Museum National d Histoire Naturelle, Paris, France*; ⁷*Western Kentucky University, Bowling Green*. Angiosperm phylogeny based on *matK* sequence data.
- 10:00** **BREAK**
- 10:15** **2-9** WHITLOCK, BARBARA A.^{1*}, JUNGHO LEE^{1,2}, OLENA DOMBROVSKA^{1,2}, FABIANA BERNASCONI-QUADRONI², and YIN-LONG QIU^{1,2}. ¹*University of Massachusetts, Amherst*; ²*University of Zürich, Switzerland*. Dating the age of angiosperms with DNA sequences of seven mitochondrial, plastid, and nuclear genes.
- 10:30** **2-10** BARKMAN, TODD J. *Western Michigan University, Kalamazoo*. Angiosperm phylogenetics: genomic congruence and methodological incongruence.
- 10:45** **2-11** STEVENS, PETER F. *Missouri Botanical Garden, St. Louis, and University of Missouri, St. Louis*. Angiosperm phylogeny and morphology: characterisations of “all” clades of subfamilies and above.
- 11:00** **2-12** BHARATHAN, G.¹, T. GOLIBER², J-J CHEN^{2*}, and N. SINHA². ¹*State University of New York, Stony Brook*; ²*University of California, Davis*. Simple leaves, complex leaves: which way?
- 11:15** **2-13** TAYLOR, DAVID WINSHIP^{1*}, GILBERT J. BRENNER², SA'D H. S. BASHA³, and ALI H. AL-HAMMAD³. ¹*Indiana University Southeast, New Albany*; ²*State University of New York, College at New Paltz*; ³*University of Jordan, Amman*. Lower Cretaceous evidence for the Cabombaceae water lily lineage and implications for molecular divergence in ancient monophyletic clades.

- 11:30 2-14** NEINHUIS, CHRISTOPH^{1*}, STEFAN WANKE¹, KHIDIR W. HILU², and THOMAS BORSCH¹. ¹*Universität Bonn, Germany*; ²*Virginia Polytechnic Institute and State University, Blacksburg*. Peppers and pipevines: phylogenetic relationships within Piperales.
- 11:45 2-15** TEPE, ERIC J.*¹, MICHAEL A. VINCENT¹, and LINDA E. WATSON¹. *Miami University, Oxford, OH*. Evolution of ant mutualisms in *Piper* subg. *Macrostachys* (Piperaceae): variation in ant-associated characters.

8:15 AM - 11:45 AM
SESSION 3

ACC, 215-Mesilla

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Biogeography***

Presiding: GREGORY M. PLUNKETT, Department of Biology, Virginia Commonwealth University, Richmond, VA 23284-2012. Tele: (804) 828-1562, E-mail: gmplunke@vcu.edu.

- 8:15 3-1** PLUNKETT, GREGORY M.^{1*}, PORTER P. LOWRY², and JONATHAN M. EIBL¹. ¹*Virginia Commonwealth University, Richmond*; ²*Missouri Botanical Garden, St. Louis*. Evolution and speciation in New Caledonian Araliaceae.
- 8:30 3-2** DILLON, MICHAEL O. *The Field Museum, Chicago, IL*. Biogeography and diversity of the Solanaceae in the lomas formations of Chile and Peru.
- 8:45 3-3** MIONE, THOMAS^{1*}, SEGUNDO LEIVA G.², and DONALD H. LES³. ¹*Central Connecticut State University, New Britain*; ²*Universidad Privada Antenor Orrego, Trujillo, Peru*; ³*University of Connecticut, Storrs*. The biogeography of South American *Jaltomata* (Solanaceae).
- 9:00 3-4** WOLFE, ANDREA D.^{1*}, CHRISTOPHER P. RANDLE¹, and KIM E. STEINER². ¹*The Ohio State University, Columbus*; ²*California Academy of Sciences, San Francisco*. Phylogeny and biogeography of Orobanchaceae reconstructed from nuclear rDNA 5.8s and ITS sequence data.
- 9:15 3-5** LINDQVIST, CHARLOTTE* and VICTOR A. ALBERT. *University of Alabama, Tuscaloosa*. The Hawaiian endemic mints are derived within North American *Stachys* (Lamiaceae).
- 9:30 3-6** BALDWIN, BRUCE G. *University of California, Berkeley*. Phylogeography and major range disjunctions of the rare, granite endemic *Carlquistia muirii* (Compositae–Madiinae): ancient long-distance dispersal or surfing on the Salinian Block?
- 9:45 3-7** BERGH, N. G.*¹, T. A. J. HEDDERSON¹, H. P. LINDER¹, and W. J. BOND¹. *University of Cape Town, South Africa*. Genetic variation in the renosterbos, *Elytropappus rhinocerotis* (Asteraceae) in the southwestern Cape, South Africa.
- 10:00 BREAK**
- 10:15 3-8** STONE, R. DOUGLAS. *University of California, Berkeley*. Southern hemisphere biogeography: phylogenetic evidence from angiosperms and other groups.
- 10:30 3-9** MEUDT, HEIDI M.* and BERYL B. SIMPSON. *University of Texas, Austin*. Austral biogeography: the evolution of subalpine *Ourisia* (Veronicaceae/Scrophulariaceae s.l.) in a phylogenetic context.
- 10:45 3-10** SIMMONS, SARAH L.* and JOSE L. PANERO. *University of Texas, Austin*. Phylogeny and biogeography of Staphyleaceae (DC.) Lindl.

- 11:00 3-11** COSKUN, FATIH^{1*}, JIANHUA LI², and CLIFFORD R. PARKS¹. ¹*University of North Carolina, Chapel Hill*; ²*Harvard University, Jamaica Plain, MA*. Molecular systematics and biogeography of the genus *Tilia* (Tiliaceae).
- 11:15 3-12** FRITSCH, PETER W.^{1*}, CHARLES C. DAVIS², JIANHUA LI³, and MICHAEL J. DONOGHUE⁴. ¹*California Academy of Sciences, San Francisco*; ²*Harvard University, Cambridge, MA*; ³*Harvard University, Jamaica Plain, MA*; ⁴*Yale University, New Haven, CT*. The phylogeny and historical biogeography of *Cercis*: evidence from ITS and *ndhF* DNA sequences.
- 11:30 3-13** JANOVEC, JOHN P.^{*}, BERRY BROSI, and AMANDA K. NEILL. *The New York Botanical Garden, Bronx*. Systematic research and the geospatial realm: examples from studies of Neotropical plants.

8:15 AM - 11:45 AM
SESSION 4

ACC, 103-Galisteo

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Early-diverging asterids and euasterids II***

Presiding: THOMAS G. LAMMERS, Department of Biology and Microbiology, University of Wisconsin Oshkosh, Oshkosh, WI 54901. Tele: (920) 424-1002, E-mail: lammers@uwosh.edu.

- 8:15 4-1** WIESE, ANNA K.^{*} and L. ALAN PRATHER. *Michigan State University, East Lansing*. Phylogenetic relationships in *Cantua* (Polemoniaceae): inferences from cpDNA sequences, nrDNA ITS sequences, and pollen morphology.
- 8:30 4-2** TIMME, RUTH E.^{*} and ISABELLE DE GEOFROY. *San Francisco State University, CA*. A molecular phylogeny of the genus *Polemonium* (Polemoniaceae) using ITS sequence.
- 8:45 4-3** MAST, AUSTIN R.^{1*}, ELENA CONTI¹, A. JOHN RICHARDS², SYLVIA KELSO³, DANIELA LANG¹, and D. SKY FELLER¹. ¹*University of Zürich, Switzerland*; ²*University of Newcastle upon Tyne, United Kingdom*; ³*Colorado College, Colorado Springs*. Implication of a two-intron cpDNA phylogeny of *Primula* (Primulaceae) for the group's taxonomy and evolutionary history.
- 9:00 4-4** KRON, KATHLEEN A.^{*} and E. ANN POWELL. *Wake Forest University, Winston-Salem, NC*. Phylogenetic relationships within the blueberry tribe (Vaccinieae, Ericaceae) based on *matK* and nrITS sequence data.
- 9:15 4-5** POWELL, E. ANN^{*} and KATHLEEN A. KRON. *Wake Forest University, Winston-Salem, NC*. Hawaiian blueberries and their relatives - A phylogenetic analysis of *Vaccinium* L. sections *Macropelma* (Klotzsch) Hooker f., *Myrtillus* Dumortier, and *Hemimyrtillus* Sleumer.
- 9:30 4-6** COSTELLO, ANNEMARIE^{*} and TIMOTHY J. MOTLEY. *New York University, New York, and The New York Botanical Garden, Bronx*. Systematics of the *Tetraplasandra* group (Araliaceae) using molecular and morphological data.
- 9:45 4-7** NEVES, SUSANA S.^{*} and MARK F. WATSON. *Virginia Polytechnic Institute and State University, Blacksburg*; *Royal Botanic Garden Edinburgh, United Kingdom*. Phylogeny of *Bupleurum* (Apiaceae) based on ITS sequence data.
- 10:00 BREAK**

- 10:15 4-8** ZHANG, WEN-HENG, ZHI-DUAN CHEN*, HU-BIAO CHEN, and YAN-CHENG TANG. *Peking University, Beijing, China and Institute of Botany, the Chinese Academy of Sciences, Beijing.* Phylogeny of the Dipsacales s.l. based on chloroplast *trnL-F* and *ndhF* sequences.
- 10:30 4-9** EDDIE, W. M.^{1*}, T. SHULKINA², J. GASKIN², R. HABERLE¹, and R. K. JANSEN¹. ¹*University of Texas, Austin;* ²*Missouri Botanical Garden, St. Louis.* Reconstruction of the phylogeny of the Campanulaceae s. str. using ITS.
- 10:45 4-10** EDDIE, W. M.* and C. N. CUPIDO. *University of Texas, Austin; National Botanical Institute, Kirstenbosch Research Centre, South Africa.* Some observations on the reproductive morphology of the wahlenbergioid genera of the family Campanulaceae s.str.from the fynbos vegetation of South Africa.
- 11:00 4-11** KNOX, ERIC B.* and A. MUTHAMA MUASYA. *Rutgers University, Newark, NJ; National Museums of Kenya, Nairobi.* The phylogeny and biogeography of the Lobeliaceae based on the chloroplast genes *atpB* and *rbcl* and their intergenic spacer sequence.
- 11:15 4-12** LAMMERS, THOMAS G. *University of Wisconsin, Oshkosh.* Neotropical Lobelioideae (Campanulaceae): more new species, more new characters.
- 11:30 4-13** BATTERMAN, MCLYNDA R.W. and THOMAS G. LAMMERS.* *University of Wisconsin, Oshkosh.* Trichome morphology and its systematic implications in *Centropogon* and other genera of Lobelioideae (Campanulaceae).

8:15 AM - 12:00 PM
SESSION 5

ACC, 107-Aztec

**CONTRIBUTED PAPERS: Ecological Section, BSA –
Life history and phenotypic plasticity**

Presiding: CAROL C. BASKIN, School of Biological Sciences, University of Kentucky, Lexington, KY 40506-0225. Tele: (859) 257-3996, E-mail: ccbask0@pop.uky.edu.

- 8:15 5-1** BLOOM, THOMAS C.¹, JERRY M. BASKIN^{2*}, and CAROL C. BASKIN². ¹*1209 Glade Street, College Station, TX* and ²*University of Kentucky, Lexington.* Ecological life history of the facultative biennial *Arabis laevigata* var. *laevigata* (Brassicaceae).
- 8:30 5-2** HANNAN, GARY L. *Eastern Michigan University, Ypsilanti.* Size-related changes in biomass allocation to male and female function in a wind-pollinated annual plant.
- 8:45 5-3** HAWKINS, TRACY S.^{1,2*}, JERRY M. BASKIN², and CAROL C. BASKIN². ¹*Hazard Community College* and ²*University of Kentucky, Lexington.* Ecological life cycle and phenology of biomass allocation in *Cryptotaenia canadensis*.
- 9:00 5-4** NIKLAS, KARL J.,^{1*} and BRIAN J. ENQUIST². ¹*Cornell University, Ithaca* and ²*University of Arizona, Tucson.* An axiomatic tree biomass allocation pattern: derivation and verification.
- 9:15 5-5** QUINN, JAMES A.,^{1*} and SCOTT J. MEINERS². ¹*Rutgers University, New Brunswick* and ²*Eastern Illinois University, Charleston.* Sex ratios, growth rates, and survivorship of red cedar (*Juniperus virginiana*) on the New Jersey Piedmont from 1963-2000.
- 9:30 5-6** RICHARDSON, CHARLES R.,* , D. NICHOLAS MC LETCHIE, and PHILIP H. CROWLEY. *University of Kentucky, Lexington.* Life-history tradeoffs and genotypic variation in the dioecious liverwort *Marchantia inflexa*.

9:45 5-7 BHASKAR, RADIKA,* and DAVID ACKERLY. *Stanford University*. Responses of hydraulic traits to light and water availability in a California chaparral shrub.

10:00 BREAK

Presiding: MASSIMO PIGLIUCCI, Departments of Botany and of Ecology & Evolutionary Biology, University of Tennessee, Knoxville, TN 37996-1100. Tele: (865) 974-6221, E-mail: pigliucci@utk.edu

10:30 5-8 MILLER, JILL S.* and PAMELA K. DIGGLE. *University of Colorado, Boulder*. Evolutionary diversification of plastic sex expression in andromonoecious *Solanum* section *Lasiocarpa*.

10:45 5-9 PIGLIUCCI, MASSIMO^{1*} and JOHANNA SCHMITT². ¹*University of Tennessee, Knoxville* and ²*Brown University, Providence, RI*. Phenotypic plasticity to foliar and neutral shade in gibberellin mutants of *Arabidopsis thaliana*.

11:00 5-10 TYLER, ANNA P.* and DIANE L. MARSHALL. *University of New Mexico, Albuquerque*. Effects of elevated CO₂ on male fitness in wild radish, *Raphanus sativus*.

11:15 5-11 WALKER, JASON C.* and KATHERINE C. LARSON. *University of Central Arkansas, Conway*. Morphological plasticity in two types of *Lonicera* in response to light availability.

11:30 5-12 ASHLEY, NATALIE* and GARY K. GREER. *West Virginia State College, Institute*. Effects of above-ground injury on the ability of *Ailanthus altissima* to effect neighbors via soil properties.

11:45 5-13 ENDRESS, BRYAN A. and DAVID L. GORCHOV.* *Miami University, Oxford, OH*. Effects of leaf harvesting and browsing on the demography of *Chamaedorea radicalis* Mart. (Arecaceae) palms in the El Cielo Biosphere Reserve.

8:30 AM - 12:00 PM
SESSION 6

ACC, 201-La Cienega

CONTRIBUTED PAPERS: Genetics Section, BSA –
Population and conservation genetics, molecular evolution and genetics

Presiding: PAUL G. WOLF, Department of Biology, Utah State University, Logan, UT 84322. Tele: (435) 797-4034, E-mail: wolf@biology.usu.edu.

8:30 6-1 NASSAR, JAFET. M.^{1,2*}; J. L. HAMRICK³; and THEODORE H. FLEMING². ^{1,2}*Instituto Venezolano de Investigaciones Cientificas, Caracas, Venezuela*, ²*University of Miami, Coral Gables, FL* and ³*University of Georgia, Athens*. Outcrossing rates and correlated paternity in Venezuelan cacti with contrasting reproductive strategies.

8:45 6-2 NOVAK, STEPHEN J.* and ANGELA Y. WELFLEY. *Boise State University, ID*. Allozyme variation within and among populations of the introduced plant *Poa bulbosa* (Poaceae).

9:00 6-3 NOVAK, STEPHEN J.^{1*}; JOHN K. SCOTT²; and PAUL C. QUIMBY³. ¹*Boise State University, ID*, ²*CSIRO European Laboratory, Montferrier-sur-Lez, France* and ³*USDA European Biological Control Laboratory, Montferrier-sur-Lez, France*. Genetic diversity is low in naturalized populations of *Lepidium latifolium* (Brassicaceae) from southern France.

9:15 6-4 AFZAL-RAFII, ZARA* and RICHARD S. DODD. *Universite d'Aix-Marseille III, Marseille, France* and *University of California Berkeley, CA*. Population genetic structure in *Pinus nigra* subspecies *salzmannii* from southern France.

- 9:30** **6-5** DODD, RICHARD S.* and ZARA AFZAL-RAFII. *University of California Berkeley, CA and Universite d'Aix-Marseille III, Marseille, France.* Genetic differentiation and adaptation in the mangrove *Avicennia germinans*.
- 9:45** **6-6** WOLF, PAUL G.^{1*}; BERNARD DOCHE²; LUDOVIC GIELLY²; and PIERRE TABERLET². ¹*Utah State University, Logan* and ²*Universite Joseph Fourier, Grenoble, France.* Genetic structure of alpine *Rhododendron* across a wide range of spatial scales.
- 10:00** **6-7** HELENURM, KAIUS. *University of South Dakota, Vermillion.* High levels of genetic polymorphism in the insular endemic herb *Jepsonia malvifolia* (Saxifragaceae).
- 10:15** **BREAK**
- 10:30** **6-8** HALL, SUZANNE S.^{1*} and KAIUS HELENURM². ¹*San Diego State University, CA* and ²*University of South Dakota, Vermillion.* Dissimilar patterns of genetic variation in two insular endemics with similar habitat, distribution, recent history, and species characteristics.
- 10:45** **6-9** CALIE, P. J.^{1*}; N. SELTSAM¹; A. T. DENHAM¹; and B. A. FORD². ¹*Eastern Kentucky University, Richmond* and ²*University of Manitoba, Winnipeg, Canada.* Genetic diversity present in the restricted endemic *Solidago shortii* (Asteraceae).
- 11:00** **6-10** HERMAN, SALLIE J.* and LINDA A. RAUBESON. *Central Washington University, Ellensburg.* Genetic diversity in a rare buttercup.
- 11:15** **6-11** PEPPER, ALAN E.*; HEATHER HERRICK; and LAURA NORWOOD. *Texas A&M University, College Station.* Evolution and population structure of *Caulanthus amplexicaulis* var. *barbarae* (Brassicaceae), a rare serpentine endemic plant.
- 11:30** **6-12** GARCIA, MIGUEL A.*; ERICA H. NICHOLSON, and DANIEL L. NICKRENT. *Southern Illinois University, Carbondale.* Intra-individual variation in plastid rDNA sequence from the holoparasite *Cynomorium* (Cynomoriaceae).
- 11:45** **6-13** PIKE, LEE M.^{1*}; SEAN A. WHITCOMB², and DANIEL L. NICKRENT². ¹*East Tennessee State University, Johnson City* and ²*Southern Illinois University, Carbondale.* A survey of linkage between nuclear 5S and 26S rDNA in land plants.

8:40 AM - 11:30 AM
SESSION 7

ACC, 207-Ruidoso

**CONTRIBUTED PAPERS: Paleobotanical Section, BSA –
*Isabel Cookson Student Award Session***

Presiding: BONNIE JACOBS, Environmental Science Program, Southern Methodist University, P. O. Box 750395, Dallas, TX 75275-0395. Tele: (214) 768-2743, E-mail: bjacobs@mail.smu.edu.

- 8:40** **7-1** PIGG, KATHLEEN. *Arizona State University, Tempe.* Intro and comments from the Chair.
- 8:45** **7-2** SORIA, AUDE^{1*}, BRIGITTE MEYER-BERTHAUD¹, and STEPHEN E. SCHECKLER². ¹*Universite Montpellier, France*; ²*Virginia Polytechnic Institute and State University, Blacksburg, VA.* Development and architecture of a Gondwanan representative of the late Devonian genus *Pietzschia* (Cladoxylopsida).
- 9:00** **7-3** DUNN, MICHAEL T.*, GAR W. ROTHWELL, and GENE MAPES. *Ohio University, Athens.* Upper Mississippian ovules with characteristics of two unique morphogenera: *Stephanospermum* and *Rhynchosperma*.

- 9:15** **7-4** BOYCE, C. KEVIN. *Harvard Botanical Museum, Cambridge, MA*. The evolution of leaves and leaf development in the Paleozoic.
- 9:30** **7-5** TOMESCU, ALEXANDRU MIHAIL FLORIAN* and GAR W. ROTHWELL. *Ohio University, Athens*. Exploring the cladistic relationships of sphenopsids.
- 9:45** **7-6** HERNANDEZ-CASTILLO, GENARO^{1*}, GAR ROTHWELL², and GENE MAPES². ¹*University of Alberta, Edmonton, Alberta, Canada*; ²*Ohio University, Athens*. Evidence for compound pollen cones in Paleozoic conifers.
- 10:00** **BREAK**
- 10:15** **7-7** SMITH, SELINA Y.* and RUTH A. STOCKEY. *University of Alberta, Edmonton Alberta, Canada*. Further investigations of *Keratosperma allenbyensis* (Araceae) from the Middle Eocene Princeton chert (Allenby Formation) of British Columbia.
- 10:30** **7-8** HERNANDEZ-CASTILLO, GENARO* and RUTH A. STOCKEY. *University of Alberta, Edmonton, Alberta, Canada*. Taxodiaceous pollen cones from the Eocene of British, Columbia, Canada.
- 10:45** **7-9** LITTLE, STEFAN A.^{1*}, RUTH A. STOCKEY¹, and GRAHAM BEARD². ¹*University of Alberta, Edmonton, Alberta, Canada*; ²*Vancouver Island Paleontology Museum, Qualicum Beach, British Columbia, Canada*. Angiosperm fruits and seeds from the Eocene of Vancouver Island.
- 11:00** **7-10** MCCLAIN, AMY M. *Florida Museum of Natural History, and University of Florida, Gainesville*. *Acer* section *Palmata* in the leaf fossil record.
- 11:15** **7-11** PHIPPS, CARLIE J.^{1*}, THOMAS N. TAYLOR¹, EDITH L. TAYLOR¹, and WILLIAM C. REMBER². ¹*University of Kansas, Lawrence*; ²*University of Idaho, Moscow*. Fossil fungi from the Miocene of Idaho.

9:00 AM - 11:15 AM
SESSION 8

ACC, 113-Dona Ana

**CONTRIBUTED PAPERS: Developmental and Structural Section, BSA –
*Roots and shoots***

Presiding: JAN E. MIKESELL, Department of Biology, Gettysburg College, Gettysburg, PA 17325. Tele: (717) 337-6158, E-mail: jmikesel@gettysburg.edu.

- 9:00** **8-1** SEAGO, JAMES L. *SUNY, Oswego*. Root cortex development in *Cyperus alternifolius*.
- 9:15** **8-2** GROOT, E. P. *, S.A. NICHOL, J. A. DOYLE and T. L. ROST. *University of California, Davis*. Phylogenetic relationships and root apical meristem organization in the dicots.
- 9:30** **8-3** GROOT, E.P., K. CHAPMAN*, and T. L. ROST. *University of California, Davis*. Root apical meristem organization is a dynamic character in dicot roots.
- 9:45** **8-4** BAKER, DAVID M. *University of California, Berkeley*. Stipules and shoot development of *Exbucklandia populnea*.
- 10:00** **BREAK**
- 10:15** **8-5** KORN, ROBERT W. *Bellarmine University, Louisville, KY*. The origin of stomatal clusters in *Begonia bracteosa*.

- 10:30 8-6** MIKESSELL, JAN E. *Gettysburg College, Gettysburg, PA*. Comparison of gametophyte and sporophyte development in ragweed species.
- 10:45 8-7** KIM, INSUN. *Keimyung University, Taegu, Korea*. Greatly reduced duckweed morphology with highly effective structural organization.
- 11:00 8-8** NIKLAS, K. J.^{1*}, F. MOLINA-FREANER², C. TINOCO-OJANGUREN², and D. J. PAOLLILLO, JR.¹. ¹*Cornell University, Ithaca, NY*; ²*UNAM, Hermosillo, Mexico*. Biomechanics and anatomy of *Pachycereus pringlei* root systems.

9:00 AM - 11:45 AM
SESSION 9

ACC, 111-Cimarron

**SYMPOSIUM: ABLIS / Bryological Section, BSA –
Form and function in bryophytes: development, constraints and consequences**

Organized by: ANGELA E. NEWTON, Botany Department, Natural History Museum, Cromwell Road, London SW7 5BD, England. Tele: +44 (0) 20-7942-5209, E-mail: a.newton@nhm.ac.uk.

Presiding: ANGELA E. NEWTON, Natural History Museum, London.

- 9:00 9-1** NEWTON, ANGELA E. *Natural History Museum, London, UK*. Introduction.
- 9:15 9-2** RICE, STEVEN K.* and SCOTT ROBINSON. *Union College, Schenectady, NY*. Canopy exchange and functional trade-offs in bryophytes.
- 9:45 9-3** DURING, HEINJO J. *Utrecht University, Utrecht, Netherlands*. On the role of branching patterns in the density-dependent growth of pleurocarpous chalk grassland mosses.
- 10:15 BREAK**
- 10:30 9-4** NEWTON, ANGELA E. *Natural History Museum, London, UK*. Phylogenetic constraints on branching architecture in mosses.
- 11:00 9-5** FISHER, KIRSTEN M. *University of California, Berkeley*. Ontogenetic changes and their relationship to patterns of reproduction and diversification in a paleotropical moss complex, *Syrrhopodon involutus*.
- 11:30 9-6** FUSELIER, LINDA C.* and D. NICHOLAS McLETCHIE. *University of Kentucky, Lexington*. Sex-specific and environment-dependent phenotypic selection on pre-adult traits in *Marchantia inflexa*.

9:00 AM - 9:45 AM
SESSION 10

ACC, 203-Tijeras

CONTRIBUTED PAPERS: Economic Botany Section, BSA –

Presiding: FELIX G. COE, Tennessee Technological University, Department of Biology, P. O. Box 5063, Cookeville, TN 38505. Tele: (931) 372-6258, E-mail: fcoe@tntech.edu.

- 9:00 10-1** ESTRADA-FLORES, JULIETA G.¹ and HEIKE VIBRANS^{2,*}. ¹*Universidad Autonoma del Estado de Mexico, Mexico*; ²*Colegio de Postgraduados en Ciencias Agricolas, Mexico*. Reconstructing the spread of Toluca teosinte (*Zea mays* subsp. *mexicana*).

- 9:15 10-2** VERHOEK, SUSAN. *Lebanon Valley College, Annville, PN*. Botany in European fairy tales.
- 9:30 10-3** VIEYRA-ODILON, LETICIA¹ and HEIKE VIBRANS^{2,*}. ¹*Universidad Autonoma del Estado de Mexico, Mexico*; ²*Colegio de Postgraduados en Ciencias Agricolas, Mexico*. Contribution of maize field weeds to a rural economy in the Valley of Toluca, Mexico.

**9:15 AM - 11:15 AM
SESSION 11**

ACC, 209-Pecos

CONTRIBUTED PAPERS: AFS / Pteridological Section, BSA –

Presiding: CHRISTOPHER H. HAUFLE, Department of Ecology and Evolutionary Biology, University of Kansas, Lawrence, KS 66045. Tele: (785) 864-3255, E-mail: vulgare@ukans.edu.

- 9:15 11-1** COX, PATRICIA B. *University of Tennessee, Knoxville*. A re-evaluation of the pteridophyte flora in the Great Smoky Mountains National Park.
- 9:30 11-2** WHITTIER, DEAN P. *Vanderbilt University, Nashville, TN*. Apogamy in *Psilotum* and *Tmesipteris*.
- 9:45 11-3** PETERSEN, RAYMOND L.* and LISA FUNDERBURK. *Howard University, Washington, DC*. A history of ozone pollution (1850-1990) in eastern United States based on the use of *Osmunda cinnamomea* L. herbarium specimens.
- 10:00 11-4** HOOT, SARA B.^{1*}, W. CARL TAYLOR², and NANCY S. NAPIER¹. ¹*University of Wisconsin, Milwaukee* and ²*Milwaukee Public Museum, Milwaukee*. Parental species of *Isoetes* allotetraploids, including “dead-beat” parents.
- 10:15 BREAK**
- 10:30 11-5** DES MARAIS, DAVID L.^{1*}, KATHLEEN M. PRYER², and ALAN R. SMITH¹. ¹*University of California, Berkeley* and ²*Duke University, Durham, NC*. Phylogeny, character evolution, and biogeography of extant horsetails (*Equisetum*).
- 10:45 11-6** BARKER, MICHAEL S.* and WARREN D. HAUKE. *Denison University, Granville, OH*. An evaluation of *Sceptridium dissectum* (Spreng.) Lyon and *S. oneidense* (Gilb.) House (Ophioglossaceae) using ISSR markers: implications for *Sceptridium* species circumscriptions.
- 11:00 11-7** HENNEQUIN, SABINE* and JEAN-YVES DUBUISSON. *Université Pierre et Marie Curie, Paris, France*. Systematics of the fern genus *Hymenophyllum* s.l. (Hymenophyllaceae) inferred from *rbcl* and *rps4* nucleotide sequences and morphology.
- 11:15 11-8** SPEER, WILLIAM D.^{1*}, ELIZABETH SHEFFIELD², and PAUL G. WOLF¹. ¹*Utah State University, Logan* and ²*University of Manchester, Manchester, UK*. Relationships among Northern Hemisphere *Pteridium*: some new perspectives.

10:00 AM - 11:00 AM

BUSINESS MEETING: Economic Botany Section, BSA

ACC, 203-Tijeras

Presiding: FELIX G. COE, Tennessee Technological University, Department of Biology, P. O. Box 5063, Cookeville, TN 38505. Tele: (931) 372-6258, E-mail: fcoe@tntech.edu.

11:30 AM - 12:00 PM
SESSION 12

ACC, 203-Tijeras

CONTRIBUTED PAPERS: Historical Section, BSA

Presiding: RICHARD M. MCCOURT, Academy of Natural Sciences of Philadelphia, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103. Tele: (215) 299-1157, E-mail: mccourt@acnatsci.org.

11:30 12-1 MCCOURT, RICHARD M.*, EARLE E. SPAMER, and ALFRED E. SCHUYLER. *Academy of Natural Sciences, Philadelphia, PA*. The herbarium of the Lewis and Clark expedition: saving an American treasure.

11:45 12-2 TOUWAIDE, ALAIN. *University of Oklahoma, Norman*. From Phylo-code vs. Linnaeus, back to Dioscorides vs. Theophrastus. A study in the transformation of systems of plant classification.

11:30 AM - 1:00 PM

LUNCHEON: Economic Botany Section, BSA (Ticketed Event)

Hyatt, Fiesta 3-4

Presiding: FELIX G. COE, Tennessee Technological University, Department of Biology, P. O. Box 5063, Cookeville, TN 38505. Tele: (931) 372-6258, E-mail: fcoe@tntech.edu.

Speaker: GARY NABHAN, *Center for Sustainable Environments, Northern Arizona University, Flagstaff*. Ethnobiological education and conservation based in indigenous communities: successes in the Sonoran Desert and Colorado Plateau.

MONDAY AFTERNOON, 13 AUGUST

12:00 PM - 1:30 PM

LUNCHEON: AFS (Ticketed Event)

Hyatt, Fiesta 1-2

1:00 PM - 3:30 PM
SESSION 13

ACC, 111-Cimarron

**CONTRIBUTED PAPERS: ABLs / Bryological Section, BSA -
A. J. Sharp student presentations**

Presiding: FRANK BUNGARTZ, Department of Plant Biology, Arizona State University, P. O. Box 871601, Tempe, AZ 85287-1601. Tele: (480) 965-7133, E-mail: frank.bungartz@asu.edu.

1:00 13-1 BONINE, MARY L.* and LLOYD R. STARK. *University of Nevada, Las Vegas*. Growth and gametangial maturation in the desert moss, *Syntrichia caninervis*.

1:15 13-2 WALL, DENNIS P. *University of California, Berkeley*. Population structure and patterns of island radiation in the paleotropic endemic moss, *Mitthyridium*: insights from a rapidly evolving nuclear gene, glyceraldehyde 3-phosphate dehydrogenase (gpd).

1:30 13-3 HAX, NEVA P.* and BERNARD GOFFINET. *University of Connecticut, Storrs*. Systematic inferences in *Bryoxiphium* based on morphological and molecular characters.

1:45 **13-4** YIP, KWOK LEUNG. *University of Cincinnati, Cincinnati, OH*. A revision of the genus *Pleuridium* (Ditrichaceae, Musci).

2:00 **BREAK**

Presiding: MARY L. BONINE, Department of Biology, University of Nevada-Las Vegas, 4505 S. Maryland Parkway, Box 454004, Las Vegas, NV 89154-4004. Tele: (702) 895-3853, E-mail: mbonine@nevada.edu.

2:15 **13-5** SELF, SHERRY L.* and BARBARA J. CRANDALL-STOTLER. *Southern Illinois University, Carbondale*. The systematic status of *Pellia ?appalachiana*.

2:30 **13-6** SCHUETTE, SCOTT W. *Southern Illinois University, Carbondale*. Morphology of the simple thalloid liverwort *Jensenia* Lindb. (Pallaviciniaceae).

2:45 **13-7** KOBIYAMA, YUKI. *Southern Illinois University, Carbondale*. Diversity of central strand structure in the Metzgeriidae.

3:00 **13-8** DAVIS, CHRISTINE. *Duke University, Durham, NC*. Molecular identification of endophytic Xylariaceae (Ascomycota) from Jamaican species of *Bazzania* (Lepidoziaceae: Jungermanniopsida).

3:15 **13-9** BUNGARTZ, FRANK* and THOMAS H. NASH III. *Arizona State University, Tempe*. Is *Buellia subalbula* (Nyl.) Müll. Arg. a "*Diplotomma*" with one-septate ascospores?

1:00 PM - 5:00 PM
SESSION 14

ACC, 101-Brazos

**SYMPOSIUM: ASPT / Systematics Section, BSA –
*Linnaean taxonomy: a viable system for the new millennium?***

Organized by: JERROLD I. DAVIS, L. H. Bailey Hortorium, 467 Mann Library, Cornell University, Ithaca, NY 14853. Tele: (607) 255-7980, E-mail: JID1@cornell.edu.

Presiding: JERROLD I DAVIS, Cornell University, Ithaca, NY.

1:00 **14-1** DAVIS, JERROLD I. *Cornell University, Ithaca, NY*. Introduction.

1:15 **14-2** SCHUH, RANDALL T. *American Museum of Natural History, New York, NY*. The Linnaean system and its 250 year persistence.

1:45 **14-3** MOORE, GERRY. *Brooklyn Botanic Garden, NY*. Should taxon names be defined?

2:15 **14-4** BARRIE, FRED R. *Missouri Botanical Garden, St. Louis*. Type-basis nomenclature: a precise and simple system of naming taxa.

2:45 **BREAK**

3:00 **14-5** JANOVEC, JOHN P.^{1*}, LYNN G. CLARK², and SCOTT A. MORI¹. ¹*New York Botanical Garden, Bronx*; ²*Iowa State University, Ames*. Monographs, floras, classification, and the consumer.

3:30 **14-6** GANDOLFO, MARIA A. *Cornell University, Ithaca, NY*. Fossils and the Linnaean system of nomenclature.

4:00 **14-7** NIXON, KEVIN C. *Cornell University, Ithaca, NY*. The phylocode is fatally flawed and the current Botanical Code can be easily fixed.

4:30 **DISCUSSION**

1:00 PM - 5:00 PM
SESSION 15

ACC, 205-San Miguel

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Molecular characters in phylogenetic analysis, Rare species and conservation genetics***

Presiding: NELSON D. YOUNG, Department of Biology, Trinity University, 715 Stadium Drive, San Antonio, TX 78212. Tele: (210) 999-7236, E-mail: nyoung@trinity.edu.

1:00 **15-1** JANSEN, ROBERT K.^{1*}, DAVID BADER², BERNARD M. E. MORET², LINDA A. RAUBESON³, LI-SAN WANG¹, TANDY WARNOW¹, and STACIA WYMAN¹. ¹*University of Texas, Austin*; ²*University of New Mexico, Albuquerque*; ³*Central Washington University, Ellensburg*. New approaches for using gene order data in phylogeny reconstruction.

1:15 **15-2** MORET, BERNARD M. E.^{1*}, DAVID A. BADER¹, TANDY WARNOW², STACIA K. WYMAN², and MI YAN¹. ¹*University of New Mexico, Albuquerque*; ²*University of Texas, Austin*. GRAPPA: a high-performance computational tool for phylogeny reconstruction from gene-order data.

1:30 **15-3** RAUBESON, LINDA A.^{1*}, DAVID BADER², BERNARD M. E. MORET², LI-SAN WANG³, TANDY WARNOW³, and STACIA K. WYMAN³. ¹*Central Washington University, Ellensburg*; ²*University of New Mexico, Albuquerque*; ³*University of Texas, Austin*. Inferring phylogenies of photosynthetic organisms from chloroplast gene orders.

1:45 **15-4** FREUDENSTEIN, JOHN V.* and MARK P. SIMMONS. *The Ohio State University, Columbus*. Artifacts of coding amino acids and other composite characters for phylogenetic analysis.

2:00 **15-5** SIMMONS, MARK P.^{1*}, HELGA OCHOTERENA², and JOHN V. FREUDENSTEIN¹. ¹*The Ohio State University, Columbus*; ²*Universidad Nacional Autónoma de Mexico, Mexico D.F.*. Amino acid vs. nucleotide characters: challenging preconceived notions.

2:15 **15-6** LARA-CABRERA, SABINA, CELESTE RAKER, and DAVID M. SPOONER.* *USDA, Agricultural Research Service, University of Wisconsin, Madison*. Utility of microsatellites in wild potatoes.

2:30 **15-7** YOUNG, NELSON D.* and JOHN HEALY. *Trinity University, San Antonio, TX*. Incorporating indels as characters in phylogeny and the search for the best multiple sequence alignment.

2:45 **15-8** RANDLE, CHRISTOPHER P.*, MARK P. SIMMONS, JOHN V. FREUDENSTEIN, and JOHN W. WENZEL. *The Ohio State University, Columbus*. Limitations of Relative Apparent Synapomorphy Analysis (RASA) for measuring phylogenetic signal.

3:00 **BREAK**

3:15 **15-9** VANDERPOOL, STACIA S.* and LINH V. HOANG. *Arkansas State University, State University*. Genetic variation among populations of *Solidago riddellii* (Asteraceae): an uncommon species with a wide range.

- 3:30** **15-10** SLOTTA, TRACEY A. BODO* and DUNCAN M. PORTER. *Virginia Polytechnic Institute and State University, Blacksburg.* Population genetics in *Iliamna* using ISSRs.
- 3:45** **15-11** BATEMAN, RICHARD M.^{1*}, PETER M. HOLLINGSWORTH², JANE SQUIRRELL², JAMES H. DICKSON³, and MARK TEBBITT⁴. ¹*Natural History Museum, London United Kingdom*; ²*Royal Botanic Garden, Edinburgh, United Kingdom*; ³*Glasgow University, United Kingdom*; ⁴*Brooklyn Botanic Garden, NY.* Population genetic structure, phylogeny, and breeding system in *Epipactis* (Orchidaceae: Neottieae).
- 4:00** **15-12** BOGLER, DAVID^{1,2*}, ALEXANDRA MARRACCINI¹, and JAVIER FRANCISCO-ORTEGA^{1,2}. ¹*Fairchild Tropical Garden, Miami, FL*; ²*Florida International University, Miami.* Conservation genetics of *Microcycas calocoma*, a rare cycad endemic to Cuba: preliminary data from RAPD and AFLP markers.
- 4:15** **15-13** WOLFE, ANDREA D.^{1*}, REBECCA REILAND¹, CHRISTOPHER P. RANDLE¹, FRANK J. SMITH², and PAUL G. WOLF³. ¹*The Ohio State University, Columbus*; ²*Western Ecological Services, Inc.*; ³*Utah State University, Logan.* Conservation genetics of *Penstemon bicolor* ssp. *bicolor*.
- 4:30** **15-14** LUTZ, ANDREW W. and ANDREA D. WOLFE.* *The Ohio State University, Columbus.* Genetic diversity on the endemic *Penstemon caryi* Pennell using ISSR markers.
- 4:45** **15-15** SAPOZHNIKOVA-BOYLE, TATIANA G. *Sustainable Ecosystems Institute, Portland, OR.* Rare plant species on the Russian Far East.

1:00 PM - 5:00 PM
SESSION 16

ACC, 107-Aztec

**SYMPOSIUM: Ecological Section, BSA –
*Plasticity of integrated phenotypes***

Organized by: KATHERINE A. PRESTON, Department of Biological Sciences, Stanford University, Stanford, CA 94305. Tele: (650) 723-6526, E-mail: kap1@stanford.edu; and THEODORE G. WONG, School of Computational Science and Information Technology, Florida State University, Tallahassee, FL 32306. E-mail: tgwong@bio.fsu.edu.

Presiding: KATHERINE A. PRESTON, Stanford University, Stanford, CA.

- 1:00** **16-1** PRESTON, KATHERINE A. *Stanford University, Stanford, CA.* Plasticity in integrated phenotypes: a conceptual overview.
- 1:30** **16-2** SANDQUIST, DARREN. *California State University, Fullerton.* Integrated physiological, morphological and phenological responses to drought associated with “adaptive” leaf pubescence in a desert perennial shrub.
- 2:00** **16-3** WINN, ALICE A.* and K. S. MORIUCHI. *Florida State University, Tallahassee.* Integration of plastic responses of leaves and flowers to seasonal environmental variation in a perennial violet.
- 2:30** **BREAK**
- 3:00** **16-4** WONG, THEODORE G. *Florida State University, Tallahassee.* Architectural integration of traits and plasticity in simulated plants.

- 3:30** **16-5** BONSER, STEPHEN P.* and MONICA A. GEBER. *Cornell University, Ithaca, NY*. Growth form controls developmental and morphological responses to light quality in two annual plant species.
- 4:00** **16-6** WEINIG, CYNTHIA* and JOHANNA SCHMITT. *Brown University, Providence, RI*. Constraints on the evolution of plasticity: insights from molecular marker-based linkage mapping.
- 4:30** **DISCUSSION**

1:00 PM - 2:15 PM
SESSION 17

ACC, 207-Ruidoso

**CONTRIBUTED PAPERS: Paleobotanical Section, BSA –
*Early land biota, paleobotany of New Mexico***

Presiding: BRIAN AXSMITH, Department of Biological Sciences (LSCB 124), University of South Alabama, Mobile, AL 36688. Tele: (334) 460-7528, E-mail: baxsmith@jaguar1.usouthal.edu.

- 1:00** **17-1** TAYLOR, WILSON A. *University of Wisconsin-Eau Claire*. Assessing the earliest putative land plant remains - Cambrian cryptospores.
- 1:15** **17-2** TAYLOR, THOMAS^{1*}, HAGEN HASS², HANS KERP², and MICHAEL KRINGS². ¹*University of Kansas, Lawrence*; ²*Westfälische Wilhelms-Universität, Münster, Germany*. Ascomycetes in the Rhynie chert.
- 1:30** **17-3** KNAUS, M. JANE^{1*} and SPENCER G. LUCAS². ¹*Southwest Texas State University, San Marcos*; ²*New Mexico Museum of Natural History and Science, Albuquerque*. Upper Paleozoic floras of New Mexico.
- 1:45** **17-4** LUCAS, SPENCER G. *New Mexico Museum of Natural History, Albuquerque*. Upper Triassic megafossil plant biostratigraphy, Chinle Group, western United States.
- 2:00** **17-5** BOUCHER, LISA D. *University of Nebraska-Omaha*. Cuticular features in Late Cretaceous floras from northwestern New Mexico.

1:30 PM - 4:45 PM
SESSION 18

ACC, 215-Mesilla

**SYMPOSIUM: IOPB –
*Origin and biology of desert flora***

Organized by: TIMOTHY K. LOWREY, Department of Biology, University of New Mexico, Albuquerque, NM 87131. Tele: (505) 277-2604, E-mail: tlowrey@unm.edu

Presiding: TIMOTHY K. LOWREY, University of New Mexico, Albuquerque.

- 1:30** **18-1** CROZIER, BONNIE* and ROBERT K. JANSEN. *University of Texas, Austin*. Historical relationships in the American desert plant family Cactaceae.
- 2:00** **18-2** LEWIS, LOUISE A.. *University of Connecticut, Storrs*. Green algae of desert microbiotic crusts: survey of North American taxa.
- 2:30** **18-3** LANDRUM, VIC. *Washburn University, Topeka, KS*. Four families and 40 million years of evolution and adaptation to xeric environments.

3:00 BREAK

3:15 18-4 MULDAVIN, ESTEBAN H. *University of New Mexico, Albuquerque.* Some floristic characteristics of the northern Chihuahuan Desert: a search for its northern boundary.

3:45 18-5 VERBOOM, G. ANTHONY*, WILLIAM D. STOCK, and H. PETER LINDER. *University of Cape Town, Rondebosch, South Africa.* Phylogenetics of the Cape grass genus *Ehrharta* (Ehrharteae): evidence for diversification in a summer-arid system.

4:15 DISCUSSION

1:30 PM - 4:00 PM

SESSION 19

ACC, 103-Galisteo

CONTRIBUTED PAPERS: Developmental and Structural Section, BSA – Fertilization, embryos, endosperm, and developmental genetics

Presiding: MICHAEL ZANIS, Washington State University, School of Biological Sciences, Pullman, WA 99164-4236. Tele: (509) 335-4798, E-mail: mzanis@wsunix.wsu.edu.

1:30 19-1 TIAN, HUI-QIAO^{1,2}, TONG YUAN¹, and SCOTT D. RUSSELL^{1,*}. ¹*University of Oklahoma, Norman;* ²*Xiamen University, Fujian, P.R. CHINA.* Relationship between double fertilization and the cell cycle in male and female gametes of tobacco.

1:45 19-2 NGUYEN, HONG*, ROY C. BROWN, and BETTY E. LEMMON. *University of Louisiana, Lafayette.* Cytoskeletal patterns in endosperm development of *Coronopus didymus* (Brassicaceae).

2:00 19-3 WILLIAMS, JOSEPH H. JR.* and W. E. FRIEDMAN. *University of Colorado, Boulder.* Double fertilization and diploid endosperm in basal angiosperms?

2:15 19-4 LARSON, TROY and PHILIP J. VILLANI.* *Augustana College, Rock Island, IL.* The effects of thidiazuron on the release of foliar embryos in *Bryophyllum calycinum*.

2:30 19-5 GHOSH, NABARUN^{1*}, A. CHATTERJEE², and DON W. SMITH³. ¹*West Texas A & M University, Canyon;* ²*University of Calcutta, India;* ³*University of North Texas, Denton.* *Albizia lebbek* Benth.: *In Vitro* regeneration via embryogenesis, karyotypic analysis and SEM studies.

2:45 BREAK

3:00 19-6 DOUST, ANDREW N* and ELIZABETH A KELLOGG. *University of Missouri, St Louis.* Integrating phylogeny, developmental morphology and genetics: a case study of inflorescence evolution in the 'bristle grass' clade (Panicoideae; Poaceae).

3:15 19-7 LITT, AMY* and VIVIAN IRISH. *Yale University, New Haven, CT.* The A of the ABC model: phylogeny of the *AP1*-like gene family.

3:30 19-8 ZANIS, MICHAEL J.^{1*}, DOUGLAS E. SOLTIS², and PAMELA S. SOLTIS². ¹*Washington State University, Pullman;* ²*University of Florida, Gainesville.* Isolation and characterization of floral MADS Box genes from *Nuphar* and *Illicium*.

3:45 19-9 ALBERT, VICTOR A.^{1*} and RICHARD W. JOBSON^{1,2}. ¹*The University of Alabama, Tuscaloosa;* ²*The University of Queensland, Brisbane, Australia.* Relaxed structural constraints in *Utricularia* (Lentibulariaceae): a possible basis in one or few genes regulating polar auxin transport.

1:30 PM - 3:45 PM
SESSION 20

ACC, 201-La Cienega

**CONTRIBUTED PAPERS: Genetics Section, BSA –
*Molecular evolution and genetics***

Presiding: STEPHEN J. NOVAK, Department of Biology, Boise State University, 1910 University Drive, Boise, ID 83725. Tele: (208) 385-3548, E-mail: snovak@boisestate.edu.

- 1:30** **20-1** LEE, JUNGHO* and J. R. MANHART. *Texas A&M University, College Station.* Transition from aquatic algae to land plants - phylogenomic evidences.
- 1:45** **20-2** CANNON, CHARLES H.^{1,2*}; and PAUL S. MANOS¹. ¹*Duke University, Durham, NC* and ²*University of Malaysia, Sarawak.* The molecular phylogeny of *Lithocarpus* (Fagaceae): limited migration and ancient persistence.
- 2:00** **20-3** RAINA, S. N. *University of Delhi, Delhi, India.* Genome organization and evolution in peanut (*Arachis hypogaea*) cultivars and its related wild species inferred from molecular DNA marker and molecular cytogenetic analysis.
- 2:15** **20-4** AINOUCHE, LILY M.^{1*}; ALEX BAUMEL¹; RANDALL J. BAYER²; RUSLAN KALENDAR³; and ALAN SCHULMAN³. ¹*University of Rennes 1, France*, ²*CSIRO Plant Industry, Canberra, Australia* and ³*University of Helsinki, Finland.* Hybridization, speciation and genome evolution in European Spartines (Poaceae).
- 2:30** **BREAK**
- 2:45** **20-5** GROSS, BRIANA L.^{1*}; ANDREA E. SCHWARZBACH²; and LOREN H. RIESEBERG³. ¹*Willamette University, Salem OR*, ²*Kent State University, OH*, ³*Indiana University, Bloomington.* Potential multiple origins for *Helianthus deserticola*, a diploid hybrid species.
- 3:00** **20-6** WHITKUS, RICHARD^{1*}; HAHN DOAN²; VINCENT WENG³; and TIMOTHY LOWRY⁴. ¹*Sonoma State University, Rohnert Park, CA*, ²*University of California, Los Angeles*, ³*University of California, Riverside* and ⁴*University of New Mexico, Albuquerque.* A QTL analysis of inter-sectional differences in Hawaiian *Tetramolopium* (Asteraceae).
- 3:15** **20-7** DOYLE, JEFF J.^{1*}; RAYMOND H. MAK¹; JASON T. RAUSCHER¹; and JULIE M. VOGEL². ¹*Cornell University, Ithaca, NY* and ²*DuPont Agricultural Biotechnology, Newark, DE.* The evolution of gene expression in a wild soybean polyploids complex: conventional and genomics approaches.
- 3:30** **20-8** RIESEBERG, LOREN H.* and JOHN BURKE. *Indiana University, Bloomington.* The biological reality of species: gene flow, selection, and collective evolution.

1:30 PM - 3:00 PM
SESSION 21

ACC, 113-Dona Ana

CONTRIBUTED PAPERS: Physiological Section, BSA –

Presiding: BRUCE N. SMITH, Department of Botany and Range Science, Brigham Young University, Provo, UT 84602. Tele: (801) 378-4885, E-mail: bruce_smith@byu.edu.

- 1:30** **21-1** OLSON, AARON. *Brigham Young University, Provo, UT.* Metabolic pathways of oats.

- 1:45** **21-2** GREAVER, TARA LIN. *University of Miami, Coral Gables, FL.* The effects of reflected light on the anatomy and photosynthesis of *Ipomoea pes-caprae* (L.) R. BR. (Convolvulaceae), a tropical sand dune vine.
- 2:00** **21-3** SMITH, BRUCE N. *Brigham Young University, Provo, UT.* Differences in temperature dependence of respiration among subspecies and hybrid populations of big sagebrush: nature vs. nurture.
- 2:15** **21-4** BUCK, MEGHAN*, ROBERT REINSVOLD, GERRY SAUNDERS, and TERESA HINZ. *University of Northern Colorado, Greeley.* Effects of magnesium chloride on *Pinus contorta* seedlings.
- 2:30** **21-5** MOHAMED, SALEH M. *National Research Centre, Cairo, Egypt.* Endoproteases in *Sorghum bicolor* (Cv. Giza 10) during germination.
- 2:45** **21-6** FOLLOSCO, MINDA P. *De La Salle University, Manila, Philippines.* Clonal propagation of *Tectona philippinensis* Bentham et Hooker f. ex Merrill of family Verbenaceae.

2:00 PM - 4:15 PM
SESSION 22

ACC, 209-Pecos

CONTRIBUTED PAPERS: AFS / Pteridological Section, BSA –

Presiding: KATHLEEN M. PRYER, Department of Biology, Duke University, Durham, NC 27708. Tele: (919) 684-5828, E-mail: kpryer@fmnh.org.

- 2:00** **22-1** SMITH, ALAN R.* and RAYMOND B. CRANFILL. *University of California, Berkeley.* Intrafamilial relationships of the thelypteroid ferns (Thelypteridaceae).
- 2:15** **22-2** SKOG, JUDITH E.1*, JOHN T. MICKEL², ROBBIN MORAN², and ELIZABETH A. ZIMMER³. ¹*George Mason University, Fairfax, VA,* ²*New York Botanical Garden, Bronx and* ³*Smithsonian Institution, Washington, DC.* Phylogeny of the fern genus *Elaphoglossum* based on two chloroplast genes.
- 2:30** **22-3** GEIGER, JENNIFER M. O. 1*, TOM. A. RANKER¹, and DANIEL. D. PALMER². ¹*University of Colorado, Boulder and* ²*Bishop Museum, Honolulu, HI.* Phylogenetic systematics and biogeography of Hawaiian *Dryopteris* (Dryopteridaceae).
- 2:45** **22-4** NAKAZATO, TAKUYA* and GERALD J. GASTONY. *Indiana University, Bloomington.* Molecular phylogenetics of *Anogramma* species and related genera (Pteridaceae: Taenitidoideae).
- 3:00** **BREAK**
- 3:15** **22-5** RANKER, T. A. ¹, J. M. GEIGER^{1*}, S. C. KENNEDY¹, A. R. SMITH², C. H. HAUFLER³, and B. A. PARRIS⁴. ¹*University of Colorado, Boulder,* ²*University of California, Berkeley,* ³*University of Kansas, Lawrence,* ⁴*Fern Research Foundation, New Zealand.* Phylogenetic systematics of the Hawaiian endemic genus *Adenophorus* (Grammitidaceae).
- 3:30** **22-6** HAUFLER, CHRISTOPHER H.1*, ALAN R. SMITH², HARALD SCHNEIDER², TERRI HILDEBRAND¹, RAY CRANFILL², and TOM A. RANKER³. ¹*University of Kansas, Lawrence,* ²*University of California, Berkeley,* ³*University of Colorado, Boulder.* *Polypodium* redefined: morphology, biogeography, and DNA sequences provide clues to lineages.

- 3:45** **22-7** GREER, GARY K.* and DORTHY CURRY. *West Virginia State College, Institute, WV.* Pheromonal interactions among cordate gametophytes of the lady fern, *Athyrium filix-femina*.
- 4:00** **22-8** AMOROSO, CECILIA BELTRAN* and VICTOR B. AMOROSO. *Central Mindanao University, Musuan, Bukidnon, Philippines.* Micropropagation and plantlet production of the endangered and endemic giant staghorn fern of the Philippines (*Platycerium grande* (Fée) Presl.).

3:00 PM - 3:45 PM
SESSION 23

ACC, 203-Tijeras

**CONTRIBUTED PAPERS: Phytochemical Section BSA –
*Phytochemistry***

Presiding: SUSAN S. MARTIN, USDA-ARS, 1701 Central Avenue, Fort Collins, CO 80526. Tele: (303) 498-4212; E-mail: smartin@lamar.ColoState.edu.

- 3:00** **23-1** PALMER, REID G.*; A. H. D. BROWN; MARVIN P. SCOTT; and HARRY T. HORNER. *USDA ARS CICGR, Ames, IA.* A survey of wild perennial *Glycine* species to assess nectar production, composition and floral morphology.
- 3:15** **23-2** JOHNSON, EMANUEL L.*; WALTER F. SCHMIDT; STEPHEN D. EMCHE; MAGDI M. MOSSOBA; and STEPHEN M. MUSSER. *USDA ARS ACSL BARC-W, Beltsville, MD.* Kaempferol rhamnoside, a new flavonol from Amazonian coca (*E. c.* var. *ipadu*).
- 3:30** **23-3** MARTIN, SUSAN S. *USDA-ARS, Fort Collins, CO.* Late season accumulation of sucrose and oligosaccharides in sugarbeet (*Beta vulgaris*).

3:45 PM - 5:00 PM
SESSION 24

ACC, 111-Cimarron

**PRESENTATION: ABLs / Bryological Section, BSA –
*Graduate opportunities in bryology***

Presiding: WILLIAM R. BUCK, Institute of Systematic Botany, New York Botanical Garden, Bronx, NY 10458-5126. Tele: (718) 817-8624, E-mail: bbuck@nybg.org.

At this session there will be short oral presentations by professional bryologists on their graduate programs in bryology. Students will then be able to ask questions of the presenters and compare the different programs.

- 24-1** DUKE UNIVERSITY: Jonathan Shaw
24-2 MISSOURI BOTANICAL GARDEN: Bruce H. Allen
24-3 NEW YORK BOTANICAL GARDEN: David L. Lentz and William R. Buck
24-4 SOUTHERN ILLINOIS UNIVERSITY: Barbara J. Crandall-Stotler
24-5 UNIVERSITY OF CALIFORNIA: Brent D. Mishler
24-6 UNIVERSITY OF CONNECTICUT: Bernard Goffinet
24-7 UNIVERSITY OF NEVADA AT LOS VEGAS: Lloyd R. Stark
24-8 International Association of Bryologists Education Initiative: Angela E. Newton

4:00 PM - 5:00 PM **ACC, 201-La Cienega**
BUSINESS MEETING: Genetics Section, BSA

Presiding: JERI W. HIGGINBOTHAM, Division of Natural Sciences, Transylvania University, Lexington, KY 40508-1797. Tele: (606) 233-8241, Email: jhigginbotham@transy.edu.

4:00 PM - 5:00 PM **ACC, 113-Dona Ana**
BUSINESS MEETING: Phycological Section, BSA

Presiding: RICHARD M. MCCOURT, Academy of Natural Sciences of Philadelphia, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103. Tele: (215) 299-1157, E-mail: mccourt@acnatsci.org.

4:00 PM - 5:00 PM **ACC, 203-Tijeras**
BUSINESS MEETING: Phytochemical Section, BSA

Presiding: JAMES W. WALLACE, Department of Biology, Western Carolina University, Cullowhee, NC 38723. Tele: (704) 227-7244; E-Mail: wallacej@wcu.edu.

4:15 PM - 5:00 PM **ACC, 209-Pecos**
BUSINESS MEETING: Pteridological Section, BSA

Presiding: CHRISTOPHER H. HAUFLE, Department of Ecology and Evolutionary Biology, University of Kansas, Lawrence, KS 66045. Tele: (785) 864-3255, E-mail: vulgare@ukans.edu.

5:15 PM - 6:00 PM **ACC, 205-San Miguel**
BUSINESS MEETING: ASPT / Systematics Section, BSA

Presiding: WALTER S. JUDD, Department of Botany, 220 Bartram Hall, University of Florida, Gainesville, FL 32611. Tele: (352) 392-5135, E-mail: wjudd@botany.ufl.edu.

5:15 PM - 6:00 PM **ACC, 111-Cimarron**
MEETING: Bryophyte Flora of North America

Presiding: RICHARD H. ZANDER, Clinton Herbarium, Buffalo Museum of Science, 1020 Humboldt Parkway, Buffalo, NY 14211-1293. Tele: (716) 895-5200 x 351, E-mail: rzander@sciencebuff.org.

MONDAY EVENING, 13 AUGUST

5:30 PM - 7:30 PM **ACC, 103-Galisteo**
MIXER AND BUSINESS MEETING: Developmental and Structural Section, BSA

Presiding: JEAN M. GERRATH, Department of Biology, University of Northern Iowa, Cedar Falls, IA 50614-0421. Tele: (319) 273-7152, E-mail: jean.gerrath@uni.edu.

5:30 PM - 8:00 PM
RECEPTION / MIXER: IOPB (Ticketed Event)

Hyatt, Enchantment A-B

Presiding: KONRAD BACHMANN, Institut für Pflanzengenetik und Kulturpflanzenforschung, IPK Gatersleben, D-06466 Gatersleben, Germany. Tele: +49-39482-5465, E-Mail: bachmann@ipk-gatersleben.de.

6:00 PM - 6:30 PM
MIXER: Paleobotanical Section, BSA

New Mexico Museum of Natural History

6:30 PM - 10:00 PM
BANQUET AND AUCTION: Paleobotanical Section, BSA (Ticketed Event)

New Mexico Museum of Natural History

8:00 PM - 9:00 PM
RECEPTION: *Flora of North America*

Hyatt, Enchantment A-B

MONDAY

TUESDAY MORNING, 14 AUGUST

7:00 AM - 8:30 AM **Hyatt, Fiesta 1-2**
BREAKFAST: Missouri Botanical Garden (Ticketed Event)

7:00 AM - 8:30 AM **Hyatt, Fiesta 3-4**
BREAKFAST: Miami University of Ohio (Ticketed Event)

8:00 AM - 12:00 PM **ACC, 101-Brazos**
SESSION 25
CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA – Asteraceae I

Presiding: VICKI A. FUNK, U. S. National Herbarium, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0166. Tele: (202) 357-2560, E-mail: funkv@nmnh.si.edu.

- 8:00** **25-1** DEVORE, MELANIE L.^{1*}, JOHN J. SKVARLA², ZAIMING ZHAO³, and ROBERT K. JANSEN³. ¹Georgia College & State University, Milledgeville; ²University of Oklahoma, Norman; ³University of Texas, Austin. Comparisons of Tubuliforidites and pollen types within Asteraceae and related families: how do you recognize Asteraceae in the fossil record?
- 8:15** **25-2** KIM, HYI-GYUNG^{1*}, VICKI A. FUNK², ROBERT K. JANSEN³, and ELIZABETH A. ZIMMER¹. ¹Smithsonian Institution, Suitland, MD; ²Smithsonian Institution, Washington, DC; ³University of Texas, Austin. Phylogenetic relationships of Mutisieae (Asteraceae) from the Guayana Highland.
- 8:30** **25-3** SAMUEL, ROSABELLE^{1*}, TOD F. STUESSY¹, and CARLOS M. BAEZA². ¹University of Vienna, Austria; ²Universidad de Concepcion, Chile. Molecular phylogeny of *Hypochaeris* (Asteraceae) and relationships to other genera of Hypochaeridinae.
- 8:45** **25-4** LEE, JOONGKU*, BRUCE G. BALDWIN, and L. D. GOTTLIEB. *University of California, Berkeley*. A molecular phylogenetic reexamination of the western North American subtribes Stephanomeriinae and Microseridinae (Compositae-Lactuceae).
- 9:00** **25-5** GAILING, OLIVER* and KONRAD BACHMANN. *Institute of Plant Genetics and Crop Plant Research, Germany*. Evolutionary reduction of inner pollen sacs (microsporangia) within the asteracean genus *Microseris*: a model system for the evolution of diagnostic characters.
- 9:15** **25-6** KELCH, DEAN G.* and BRUCE G. BALDWIN. *University of California, Berkeley*. Utility of the External Transcribed Spacer (ETS) in Compositae tribe Cardueae phylogeny reconstruction and rapid evolution of North American thistles (*Cirsium* species).
- 9:30** **25-7** FUNK, VICKI A.* and HYI-GYUNG KIM. *Smithsonian Institution, Washington DC*. An evaluation of the proposed sister group relationships of the tribe Liabeae (Compositae).
- 9:45** **25-8** KIM, HYI-GYUNG^{1*}, VICKI A. FUNK², and ELIZABETH A. ZIMMER¹. ¹Smithsonian Institution, Suitland, MD; ²Smithsonian Institution, Washington, DC. Molecular phylogenetics of the Liabeae (Asteraceae-Cichorioideae) based on ITS and *ndhF* sequences.
- 10:00** **BREAK**

- 10:15** 25-9 BAYER, RANDALL J.* , EDWARD W. CROSS, and NEIL H. BAGNALL. *CSIRO, Australian National Herbarium, Canberra, Australia*. A reassessment of tribal affinities of several enigmatic genera of Australian Asteraceae, based on three chloroplast sequences.
- 10:30** 25-10 WAGSTAFF, STEVEN J.* and ILSE BREITWIESER. *Landcare Research, Lincoln, New Zealand*. Phylogenetic relationships of New Zealand Asteraceae inferred from ITS sequences.
- 10:45** 25-11 WATSON, LINDA E.¹, TIMOTHY M. EVANS^{2*}, MATTHEW M. UNWIN¹, and AMY B. KORKVEN. ¹*Miami University, Oxford, OH*; ²*Hope College, Holland, MI*. Origin and diversification of Tribe Anthemideae (Asteraceae), based on molecular phylogenies of *ndhF* and ITS.
- 11:00** 25-12 BOEREMA, DAVID¹, TIMOTHY M. EVANS^{1*}, and GREGORY K. BROWN². ¹*Hope College, Holland, MI*; ²*University of Wyoming, Laramie*. Phylogenetic relationships in *Oönoopsis* (Asteraceae) based on DNA sequences from three spacer regions.
- 11:15** 25-13 MORGAN, DAVID R. *Western Washington University, Bellingham*. Nuclear rDNA ETS sequence data and the systematics of *Machaeranthera* (Asteraceae).
- 11:30** 25-14 ROBERTS, ROLAND P.* and LOWELL E. URBATSCH. *Louisiana State University, Baton Rouge*. Phylogenetic investigations of the *Ericameria/Chrysothamnus* complex (Astereae, Asteraceae) based on nuclear ribosomal ITS and ETS sequence data.
- 11:45** 25-15 WHITTON, JEANNETTE*, STACEY THOMPSON, KATRINA DLUGOSCH, and LINDA P. JENNINGS. *The University of British Columbia, Vancouver, Canada*. Phylogenetic relationships in the genus *Townsendia* (Asteraceae: Astereae) based on nuclear ribosomal DNA variation in ITS and ETS regions.

8:00 AM - 12:00 PM
SESSION 26

ACC, 205-San Miguel

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Paleoherbs, magnoliids, Ranunculales and Caryophyllales***

Presiding: DONALD B. PRATT, Department of Botany, Iowa State University, Ames, IA 50011-1020. Tele: (515) 294-4035, E-mail: dbp@iastate.edu.

- 8:00** 26-1 BORSCH, THOMAS^{1*}, KHIDIR W. HILU², JOHN H. WIERSEMA³, C. BARRE HELLQUIST⁴, SURREY W.L. JACOBS⁵, VOLKER WILDE⁶, and WILHELM BARTHLOTT¹. ¹*Friedrich-Wilhelms-Universität Bonn, Germany*; ²*Virginia Polytechnic Institute and State University, Blacksburg*; ³*USDA/ARS, Beltsville, MD*; ⁴*Massachusetts College of Liberal Arts, North Adams*; ⁵*Royal Botanic Gardens, Sydney, Australia*; ⁶*Forschungsinstitut Senckenberg, Frankfurt am Main, Germany*. Phylogeny and evolution of *Nymphaea*: integrating evidence from different genomic regions and from paleobotany.
- 8:15** 26-2 KIM, SANGTAE*, CHONG-WOOK PARK, and YOUNGBAE SUH. *Seoul National University, Korea*. Phylogeny and evolution of the Magnoliaceae implied by sequences of 10 chloroplast DNA regions.
- 8:30** 26-3 SAUQUET, HERVE^{1*}, ANNICK LE THOMAS¹, JAMES A. DOYLE², TANYA SHER KHAN², KHIDIR W. HILU³, THOMAS BORSCH⁴, and LARS W. CHATROU⁵. ¹*Museum National d'Histoire Naturelle, Paris, France*; ²*University of California, Davis*; ³*Virginia Polytechnic Institute and State University, Blacksburg*; ⁴*Friedrich-Wilhelms-Universität Bonn, Germany*; ⁵*National Herbarium of the Netherlands, Utrecht University branch*. Insights into the origin and evolution of Myristicaceae (Magnoliales), based on morphological and molecular data.

- 8:45** **26-4** JANOVEC, JOHN P. *The New York Botanical Garden*. Monographic studies of *Compsonera*, a Neotropical genus of the Myristicaceae.
- 9:00** **26-5** NICKRENT, DANIEL L.^{1*}, ALBERT BLARER², YIN-LONG QIU^{2,3}, DOUGLAS E. SOLTIS⁴, and MICHAEL ZANIS⁴. ¹*Southern Illinois University, Carbondale*; ²*University of Zürich, Switzerland*; ³*University of Massachusetts, Amherst*; ⁴*Washington State University, Pullman*. Paleoherb status of Hydnoraceae supported by multigene analyses.
- 9:15** **26-6** WHITE, PAMELA J.^{1,2*} and DENNIS W. STEVENSON². ¹*Cornell University, Ithaca, NY*; ²*The New York Botanical Garden, Bronx*. An emerging analysis of the evolution of fruit and seed features in the Menispermaceae.
- 9:30** **26-7** SCHUETTPELZ, ERIC J.* and SARA B. HOOT. *University of Wisconsin, Milwaukee*. Phylogenetic and biogeographic relationships of *Caltha* (Ranunculaceae) based on DNA sequence data and morphology.
- 9:45** **26-8** SLOMBA, JONATHAN, M.* , FREDERICK B. ESSIG, and JAMES R. GAREY. *University of South Florida, Tampa*. A re-evaluation of the infrageneric classification of *Clematis* (Ranunculaceae) using chloroplast DNA sequences.
- 10:00** **BREAK**
- 10:15** **26-9** NEPOKROEFF, MOLLY¹, WARREN L. WAGNER^{2*}, ELIZABETH A. ZIMMER¹, STEPHEN G. WELLER³, ANN K. SAKAI³, and RICHARD K. RABELER⁴. ¹*Smithsonian Institution, Suitland, MD*; ²*Smithsonian Institution, Washington, DC*; ³*University of California, Irvine*; ⁴*University of Michigan Herbarium, Ann Arbor*. Origin of the Hawaiian subfam. Alsinoideae and preliminary relationships in Caryophyllaceae inferred from *matK* and *trnL C-F* sequence data.
- 10:30** **26-10** NEPOKROEFF, MOLLY^{1*}, WARREN L. WAGNER², STEVEN G. WELLER³, PAMELA S. SOLTIS⁴, ELIZABETH A. ZIMMER¹, ANN K. SAKAI³, and DOUGLAS E. SOLTIS⁴. ¹*Smithsonian Institution, Suitland, MD*; ²*Smithsonian Institution, Washington, DC*; ³*University of California, Irvine*; ⁴*University of Florida, Gainesville*. Diversification in the endemic Hawaiian subfam. Alsinoideae (Caryophyllaceae): evidence from nrDNA ITS, ETS sequences and morphology.
- 10:45** **26-11** PRATT, DONALD B.* , LYNN G. CLARK, and ROBERT S. WALLACE. *Iowa State University, Ames*. A tale of two families: phylogeny of the Chenopodiaceae-Amaranthaceae.
- 11:00** **26-12** BUTTERWORTH, CHARLES A.* and ROBERT S. WALLACE. *Iowa State University, Ames*. Infrageneric relationships in the genus *Pereskia* (Cactaceae).
- 11:15** **26-13** BUTTERWORTH, CHARLES A.* and ROBERT S. WALLACE. *Iowa State University, Ames*. What is the sister-group of the tribe Cactaeae? (Cactaceae: Cactoideae).
- 11:30** **26-14** WALLACE, ROBERT S. *Iowa State University, Ames*. Phylogenetic relationships among North American columnar cacti revisited.
- 11:45** **26-15** LEVIN, RACHEL A.^{1,2*} and LUCINDA A. MCDADE³. ¹*University of Arizona, Tucson*; ²*Smithsonian Institution, Suitland, MD*; ³*Academy of Natural Sciences, Philadelphia, PA*. The utility of floral and vegetative fragrance for phylogenetic inference in three genera of Nyctaginaceae.

8:00 AM - 12:00 PM
SESSION 27

ACC, 103-Galisteo

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
Monocots**

Presiding: CAROL A. WILSON, Department of Biology, Portland State University, Portland, OR 97207.
Tele: (503) 725-3870, E-mail: bwcw@odin.pdx.edu.

- 8:00** **27-1** DAVIS, J.I.^{1*}, D.W.M. STEVENSON^{1,2}, L. CAMPBELL², D. GOLDMAN¹, C. HARDY^{1,2}, F. MICHELANGELI^{1,2}, M. SIMMONS¹, and C. SPECHT². ¹*Cornell University, Ithaca, NY*; ²*The New York Botanical Garden, Bronx*. Phylogenetic relationships among the monocots, as inferred from morphology and nucleotide sequence variation in three genes.
- 8:15** **27-2** SOROS, CONNIE L.* and DONALD H. LES. *University of Connecticut, Storrs, CT; University of Guelph, ON, Canada*. Phylogenetic relationships in the Alismataceae.
- 8:30** **27-3** KEENER, BRIAN R.*, ROBERT R. HAYNES, CHARLOTTE LINDQVIST, and VICTOR A. ALBERT. *The University of Alabama, Tuscaloosa*. Molecular systematics of *Sagittaria* (Alismataceae).
- 8:45** **27-4** REESE, NANNETTE*, ROBERT R. HAYNES, CHARLOTTE LINDQVIST, and VICTOR A. ALBERT. *The University of Alabama, Tuscaloosa*. A morphological and molecular cladistic analysis of *Echinodorus* with emphasis on the placement of *E. floridanus* (Alismataceae).
- 9:00** **27-5** HAYNES, ROBERT R.*, CHARLOTTE LINDQVIST, and VICTOR A. ALBERT. *The University of Alabama, Tuscaloosa*. Molecular systematics of *Potamogeton* (Potamogetonaceae).
- 9:15** **27-6** LES, DONALD H.^{1*}, MICHAEL L. MOODY¹, SURREY W. L. JACOBS², and RANDALL J. BAYER³. ¹*University of Connecticut, Storrs*; ²*Royal Botanic Garden, Sydney, Australia*; ³*Division of Plant Industry, CSIRO, Canberra, Australia*. Systematics and taxonomy of Australian seagrasses (family Zosteraceae).
- 9:30** **27-7** MCPHERSON, MARC A.* and SEAN W GRAHAM. *University of Alberta, Edmonton, Canada*. Inference of Asparagales phylogeny using a large chloroplast data set.
- 9:45** **27-8** BOGLER, DAVID J.^{1,2*}, TIM RAWLINGS², and JAVIER FRANCISCO-ORTEGA^{1,2}. ¹*Fairchild Tropical Garden, Miami, FL*; ²*Florida International University, Miami*. Evolutionary relationships in *Dasyllirion* (Nolinaceae): an assessment using AFLP markers.
- 10:00** **BREAK**
- 10:15** **27-9** WILSON, CAROL A. *Portland State University, OR*. A phylogenetic study of *Iris* subgenus *Iris* utilizing *matK* sequence and morphological data.
- 10:30** **27-10** CAMERON, KENNETH M. *The New York Botanical Garden, Bronx*. An expanded phylogenetic analysis of Orchidaceae using three plastid genes: *rbcl*, *atpB*, and *psaB*.
- 10:45** **27-11** FREUDENSTEIN, JOHN V.^{1*}, CASSIO VAN DEN BERGH², W. MARK WHITTEN³, KENNETH M. CAMERON⁴, DOUGLAS H. GOLDMAN⁵, and MARK W. CHASE². ¹*The Ohio State University, Columbus*; ²*Royal Botanic Gardens, Kew, United Kingdom*; ³*University of Florida, Gainesville*; ⁴*The New York Botanical Garden, Bronx*; ⁵*Cornell University, Ithaca, NY*. A multi-locus combined analysis of Epidendroideae (Orchidaceae).

- 11:00** 27-12 BATEMAN, RICHARD M.* and PETER M. HOLLINGSWORTH. *Natural History Museum, London, United Kingdom; Royal Botanic Garden, Edinburgh, United Kingdom.* Phylogenetics of Tribe Orchideae (Orchidaceae).
- 11:15** 27-13 SALAZAR, GERARDO A.^{1,2}, MARK W. CHASE¹, and MARTIN INGROUILLE².* ¹*Royal Botanic Gardens, Kew, United Kingdom;* ²*University of London, United Kingdom.* Phylogenetic assessment of subtribe Spiranthinae and tribe Cranichideae (Orchidaceae) from four plastid and one nuclear DNA sequence datasets.
- 11:30** 27-14 ALVAREZ, AIDA^{1,2*} and KENNETH CAMERON¹. ¹*The New York Botanical Garden, Bronx;* ²*The City University of New York, Bronx.* Phylogenetic analysis of *Gomphichis* and the subtribe Prescottiinae (Orchidaceae).
- 11:45** 27-15 FAY, MICHAEL F.^{1*}, KATE BORLAND², PENELOPE STRANC², and MARK W. CHASE¹. ¹*Royal Botanic Gardens, Kew, United Kingdom;* ²*Smith College, Northampton, MA.* Phylogenetics of the genus *Tulipa* (Liliaceae): evidence from five plastid DNA regions.

8:00 AM - 12:00 PM
SESSION 28

ACC, 215-Mesilla

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Molecular evolution and polyploidy***

Presiding: J. CHRIS PIRES, Jodrell Laboratory, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3DS, UK. Tele: (020) 8332-5312, E-mail: j.pires@rbgkew.org.uk.

- 8:00** 28-1 SIMMONS, MARK P.* and JOHN V. FREUDENSTEIN. *The Ohio State University, Columbus.* The effects of increasing genetic distance on alignment of, and tree construction from, rDNA internal transcribed spacer sequences.
- 8:15** 28-2 GOERTZEN, LESLIE R.*, JAMIE J. CANNONE, ROBIN R. GUTELL, and ROBERT K. JANSEN. *University of Texas, Austin.* ITS secondary structure derived from comparative analysis: implications for sequence alignment and phylogeny in the Asteraceae.
- 8:30** 28-3 VERBOOM, G. ANTHONY*, SIMON T. MALCOMBER, ANDREW N. DOUST, and ELIZABETH A. KELLOGG. *University of Missouri, St. Louis.* Sequence variation in the *KNOTTED1* gene family across the grass family (Poaceae): implications for protein primary and secondary structure.
- 8:45** 28-4 MALCOMBER, SIMON T.*, ANDREW N. DOUST, TONY VERBOOM, and ELIZABETH A. KELLOGG. *University of Missouri, St. Louis.* Nucleotide and amino acid sequence evolution of *tassleseed2* in Poaceae and implications for estimated secondary protein structure.
- 9:00** 28-5 SANDERSON, MICHAEL J. *University of California, Davis.* Estimating absolute rates of molecular evolution and divergence times: a penalized likelihood approach.
- 9:15** 28-6 SMITH, JAMES F.^{1*}, DAVID A. BAUM², and LENA HILEMAN³. ¹*Boise State University, ID;* ²*University of Wisconsin, Madison, WI;* ³*Harvard University Herbaria, Cambridge, MA.* Evolution and phylogenetic analysis of *Gcyc* (a Gesneriaceae *cycloidea* homolog) in subfamily Gesnerioideae (Gesneriaceae).
- 9:30** 28-7 KELCHNER, SCOT A. *CSIRO Plant Industry, Canberra, Australia; The Australian National University, Canberra, Australia.* Chloroplast introns in plant systematics.

- 9:45** **28-8** CIMINO, M.T.*; L.M. BRINKAC, M.E. HOPKINS, N.A. GROSS, and R.A. BEVER. *The Bode Technology Group, Inc., Springfield, VA*. Molecular systematic analysis of botanical trace evidence.
- 10:00** **BREAK**
- 10:15** **28-9** LI, CHANGBAO^{1,2*}, DAMING ZHANG¹, SONG GE¹, DE-YUAN HONG¹, and TAO SANG². ¹*Chinese Academy of Sciences, Beijing, China*; ²*Michigan State University, East Lansing*. Genomic in situ hybridization: a useful tool for understanding genome evolution of *Oryza* (Poaceae).
- 10:30** **28-10** CHASE, MARK W.^{1*}, ANTONY V. COX¹, SANDY KNAPP², JEFFREY JOSEPHS¹, and ALEX S. PAROKONNY ^{3,4}. ¹*Royal Botanic Gardens, Kew, United Kingdom*; ²*The Natural History Museum, London, United Kingdom*; ³*Institute of Cell Biology and Genetics, Kiev, Ukraine*; ⁴*Nottingham University, United Kingdom*. Molecular systematics, GISH, and the origin of amphidiploids in *Nicotiana* (Solanaceae).
- 10:45** **28-11** TATE, JENNIFER A.* and BERYL B. SIMPSON. *University of Texas, Austin*. Double trouble: multiple origins of polyploidy in *Tarasa* (Malvaceae).
- 11:00** **28-12** SHERWOOD, ANNA M^{1*}, PAMELA S SOLTIS², and DOUGLAS E SOLTIS³. ¹*Washington State University, Pullman*; ²*University of Florida, Gainesville*; ³*University of Florida, Gainesville*. ITS sequence variation in *Tragopogon* (Asteraceae): phylogeny and gene evolution in allopolyploids.
- 11:15** **28-13** PIRES, J. CHRIS^{1*}, ANNA M. SHERWOOD², K. YOONG LIM³, ANDREW R. LEITCH³, ILIA J. LEITCH¹, MICHAEL D. BENNETT¹, PAMELA S. SOLTIS⁴, and DOUGLAS E. SOLTIS⁴. ¹*Royal Botanic Gardens, Kew, United Kingdom*; ²*Washington State University, Pullman*; ³*University of London, United Kingdom*; ⁴*University of Florida, Gainesville*. Integrating molecular cytogenetics and phylogenetics: genome evolution in diploid and polyploid *Tragopogon* (Asteraceae).
- 11:30** **28-14** DOYLE, JEFF J.^{1*}, JANE L. DOYLE¹, JASON T. RAUSCHER¹, REID G. PALMER², and TONY BROWN³. ¹*Cornell University, Ithaca, NY*; ²*USDA-ARS CICGR, Ames, IA*; ³*CSIRO Plant Industry, Canberra, Australia*. Dissecting an extensive polyploid complex in *Glycine* subgenus *Glycine* (Leguminosae) using low copy nuclear genes, nuclear ribosomal genes, and chloroplast sequences.
- 11:45** **28-15** SANG, TAO. *Michigan State University, East Lansing*. Utility of low-copy nuclear genes in plant phylogenetics.

8:00 AM - 11:15 AM
SESSION 29

ACC, 201-La Cienega

CONTRIBUTED PAPERS: Teaching Section, BSA –
Teaching and learning plant biology in the 21st Century

Presiding: ROBERT J. REINSVOLD, Department of Biological Sciences, University of Northern Colorado, Greeley, CO 80639. Tele: (970) 351-2716, E-mail: rjreins@unco.edu.

- 8:00** **29-1** RICE, STANLEY A. *Southeastern Oklahoma State University, Durant*. South with the spring: Teaching evolution through budburst times of deciduous trees.

- 8:15** **29-2** SCHERER, JACQUELYN*; GARLAND R. UPCHURCH, Jr.; and MARGARET J. KNAUS. *Southwest Texas State University, San Marcos*. A laboratory exercise for teaching plant-climate relationships.
- 8:30** **29-3** RICE, STEVEN K.*; GRANT E. BROWN; and R. PAUL WILLING. *Union College, Schenectady, NY*. Computer modeling exercises enhance investigative laboratory experiences in plant biology.
- 8:45** **29-4** WOEPEL, JAMES J. and DAVID WINSHIP TAYLOR.* *Indiana University Southeast, New Albany*. Increasing biology undergraduates' mathematical proficiency through math/biology course using of the computer program MATLAB.
- 9:00** **29-5** PATIL, M. S.* and S. K. DESHPANDE. *Regional Research Station, Bijapur, India and College of Agriculture, Bijapur, India*. Agriculture education in India.
- 9:15** **DISCUSSION**
- 9:30** **BREAK**
- 9:45** **29-6** THOMAS, MEGAN*; ROBERT REINSVOLD; and GERRY SAUNDERS. *University of Northern Colorado, Greeley*. Interaction of self-efficacy and inquiry in an introductory biology laboratory.
- 10:00** **29-7** WOLF, STEVEN J. *California State University Stanislaus, Turlock*. Creating a web based digital image database.
- 10:15** **29-8** NOYD, ROBERT K. *U. S. Air Force Academy, Colorado Springs, CO*. Connecting classroom concepts to the local flora: the Plant Profile Project.
- 10:30** **29-9** WANDERSEE, JAMES H.* and ELISABETH E. SCHUSSLER. *Louisiana State University, Baton Rouge and Southeastern Natural Sciences Academy, Augusta, GA*. Plants that draw a crowd: an analysis of the visual characteristics of six unusual plants featured at botanic gardens.
- 10:45** **29-10** GERBER, D. TIMOTHY. *University of Wisconsin-La Crosse, La Crosse*. K-8 educational outreach: the TULIP Project.
- 11:00** **DISCUSSION**

8:15 AM - 11:30 AM
SESSION 30

ACC, 107-Aztec

**CONTRIBUTED PAPERS: Ecological Section, BSA –
*Evolutionary ecology and conservation biology***

Presiding: JEFFREY L. WALCK, Department of Biology, Middle Tennessee State University, Murfreesboro, TN 37132. Tele: (615) 904-8390, E-mail: jwalck@mtsu.edu.

- 8:00** **30-1** RICHARDS, J. H.,^{1*} Q.J. STOBBER², R.D. JONES³, and S.L. RATHBUN¹. ¹*Florida International University, Miami*, ²*EPA Region 4 Science and Ecosystem Support Division, Athens, GA*, ³*Southeast Environmental Research Center, Miami, FL*. A quantitative analysis of wetland plant communities in south Florida Everglades.
- 8:15** **30-2** DEVAL, MARGARET,^{1*} NATHAN SCHIFF¹, and DOUGLAS BOYETTE². ¹*Bottomland Hardwoods Research, Stoneville, MS* and ²*Agricultural Research Service, Stoneville, MS*. Ecology

and reproductive biology of pondberry (*Lindera melissifolia* [Walt.] Blume, Lauraceae), an endangered species.

- 8:30** **30-3** HUEBNER, CYNTHIA D. *USDA Forest Service, Northeastern Research Station, Morgantown, WV.* Distribution of invasive plant species in eastern oak-hickory forests of West Virginia.
- 8:45** **30-4** MORRIS, LORNA L.* and JEFFREY L. WALCK. *Middle Tennessee State University, Murfreesboro.* Growth and reproduction of the nonnative *Ligustrum sinense* and native *Forestiera ligustrina* (Oleaceae): implications for invasibility of exotic shrubs.
- 9:00** **30-5** BELL, TIMOTHY J.,^{1*} MARLIN BOWLES², JENNY MCBRIDE², KARYI HAVENS³, and PATI VITT³. ¹*Chicago State University, IL*, ²*Morton Arboretum, Lisle, IL*, and ³*Chicago Botanic Garden, IL.* Viability analysis of a restored Illinois population of the federal threatened Pitcher's Thistle (*Cirsium pitcheri*).
- 9:15** **30-6** MEEKER, RALPH B.* and KATHERINE C. LARSON. *University of Central Arkansas, Conway.* Fragmentation in a Southern Oak-Hickory forest: impacts on species richness and invasibility.
- 9:30** **30-7** MORROW, PATRICE A.¹ and JOEL P. OLFELT.^{2*} ¹*University of Minnesota, St. Paul* and ²*St. Olaf College, Northfield, MN.* Defoliation elicits long term disappearance of clones.
- 9:45** **30-8** PETERSEN, RAYMOND L.,* ANDREA FAUST, JACQUELINE NAGAWA, CHANDI THOMAS, and ANNICK VILMENAY. *Howard University, Washington, DC.* Foreign mosquito survivorship in the pitcher plant *Sarracenia purpurea* – the role of the pitcher-plant midge *Metriocnemus knabi*.
- 10:00** **BREAK**
- Presiding: MARGARET DEVALL, Center for Bottomland Hardwoods Research, P. O. Box 227, Stoneville, MS 38776. Tele: (504) 866-3676, E-mail: mdevall@fs.fed.us.
- 10:30** **30-9** DAVIES, STUART J.,¹ SHAWN K.Y. LUM^{2*}, RAYMUND CHAN³, and LUAN KENG WANG⁴. ¹*Harvard University Herbaria, Cambridge, MA*, ²*National Institute of Education, Singapore*, ³*University of California, Berkeley*, and ⁴*University of Washington, Seattle.* Evolution of myrmecophytism in west Malesian species of *Macaranga* (Euphorbiaceae).
- 10:45** **30-10** ST. OMER, LUCY. *San Jose State University, CA.* Parasitic choice of host individuals in a seemingly homogeneous environment.
- 11:00** **30-11** WEEKLEY, CARL W.* and ERIC S. MENGES. *Archbold Biological Station, Lake Placid, FL.* Fire and Florida scrub: responses of 13 endemics and postburn community shifts.
- 11:15** **30-12** RICE, STANLEY A,^{1*} ERICA CORBETT¹, DIANA L. BANNISTER¹, JENNIFER MARBLE^{1,2}, IAN B. MANESS¹, and JONATHAN V. EDELSON². ¹*Southeastern Oklahoma State University, Durant*, and ²*Watkins Agricultural Research and Extension Center, Lane, OK.* Seasonal changes in herbivore defense in oak leaves: results from bioassays.

8:30 AM - 11:30 AM
SESSION 31

ACC, 111-Cimarron

**CONTRIBUTED PAPERS: ABLIS / Bryological Section, BSA –
 Bryophyte morphology, biology, conservation and systematics**

Presiding: A. JONATHAN SHAW, Department of Biology, Box 90338, Duke University, Durham, NC 27708-0338. Tele: (919) 660-7344, E-mail: shaw@duke.edu.

- 8:30** **31-1** OLIVER, MELVIN J.*, JOHN A. WHEELER, BRENT D. MISHLER and JEFF VELTEN. *USDA-ARS Plant Stress and Water Conservation Laboratory, Lubbock, TX.* A bryophyte rehydrin trackable marker for the evolution of desiccation tolerance.
- 8:45** **31-2** STARK, LLOYD R.* and CLAUDIO DELGADILLO. *University of Nevada, Las Vegas.* Is *Crossidium* really an annual? Initial observations from the Mojave Desert.
- 9:00** **31-3** McLETCHE, D. NICHOLAS*, GISELA GARCÍA-RAMOS and PHILIP H. CROWLEY. *University of Kentucky, Lexington.* A model of local sex-ratio dynamics and spore production in the dioecious liverwort *Marchantia inflexa*.
- 9:15** **31-4** KRAYESKY, DAVID M. and BARBARA J. CRANDALL-STOTLER*. *Southern Illinois University, Carbondale.* An SEM photo atlas of spore terminology in the Fossombroniaceae.
- 9:30** **31-5** BRAGGINS, JOHN E., JOHN J. ENGEL, MATTHEW J. VON KONRAT* and PETER J. DE LANGE. *University of Auckland, Auckland, New Zealand.* Rare and threatened liverworts: an overlooked area of conservation in the New Zealand botanical region.
- 9:45** **31-6** RISK, ALLEN C. *Morehead State University, Morehead, KY.* On the distribution, abundance, biology, and habitat of *Fissidens hyalinus* Wils. & Hook.
- 10:00** **BREAK**

Presiding: BARBARA J. CRANDALL-STOTLER, Department of Plant Biology, Southern Illinois University, Carbondale, IL 62901. Tele: (618) 453-3232, E-mail: crandall@plant.siu.edu.

- 10:15** **31-7** DE LUNA, EFRAÍN* and BEATRIZ BIASUSO. *Instituto de Ecología, Xalapa, Ver., Mexico.* Morphometric variation and species delimitation in the *Braunia exserta* complex (Hedwigiaceae).
- 10:30** **31-8** SHAW, JON. *Duke University, Durham, NC.* What can molecular data tell us about species delineation in the peatmosses (*Sphagnum*)?
- 10:45** **31-9** O'BRIEN, TERRY J. *Rowan University, Glassboro, NJ.* The dubious origins of pleurocarpous mosses: molecular evidence for the phylogenetic positions of *Aulacomnium* Schwägr. and Rhizogoniaceae.
- 11:00** **31-10** COX, CYMON J.*, A. JONATHAN SHAW and SANDRA B. BOLES. *Duke University, Durham, NC.* Toward a sub-familial classification of the recircumscribed Mniaceae (Bryopsida).
- 11:15** **31-11** GOFFINET, BERNARD*, A. JONATHAN SHAW and SANDRA BOLES. *University of Connecticut, Storrs.* Multigene phylogenetic reconstruction of the family Orthotrichaceae (Bryophyta).

8:30 AM - 12:00 PM
SESSION 32

ACC, 209-Pecos

SYMPOSIUM: AFS / Pteridological Section, BSA –
Evolution and adaptations of pteridophytes in dry climates

Organized by: GEORGE YATSKIEVYCH, Missouri Botanical Garden, P. O. Box 299, St. Louis, MO 63166. Tele: (314) 577-9522, E-mail: george.yatskievych@mobot.org; and ELISABETH A. HOOPER, Division of Science, Truman State University, 100 E. Normal Street, Kirksville, MO 63501. Tele: (660) 785-4623, E-mail: lhooper@truman.edu.

Presiding: GEORGE YATSKIEVYCH, Missouri Botanical Garden, St. Louis.

- 8:30** **32-1** HOOPER, ELISABETH A.* and GEORGE YATSKIEVYCH. *Truman State University, Kirksville, MO and Missouri Botanical Garden, St. Louis.* Distribution of arid climates and drought-adapted pteridophytes, an introduction.
- 9:00** **32-2** BENZING, DAVID, H. *Oberlin College, Oberlin, OH.* Ferns as epiphytes.
- 9:30** **32-3** CARLQUIST, SHERWIN* and EDWARD SCHNEIDER. *Santa Barbara Botanic Garden, Santa Barbara, CA.* SEM studies of vessels in ferns of xeric habitats.
- 10:00** **BREAK**
- 10:30** **32-4** OLIVER, MELVIN J.* and BRENT D. MISHLER. *USDA-ARS, Lubbock, TX and University of California, Berkeley.* Desiccation-tolerant pteridophytes: a unique position in the evolution of desiccation tolerance in land plants.
- 11:00** **32-5** WINDHAM, MICHAEL D.* and CHRISTOPHER H. HAUFLER. *University of Utah, Salt Lake City and University of Kansas, Lawrence.* Apomixis in ferns: a consequence of marginal habitats and outcrossing?
- 11:30** **32-6** GASTONY, GERALD J.* and GEORGE YATSKIEVYCH. *Indiana University, Bloomington and Missouri Botanical Garden, St. Louis.* Morphological reassessment of molecular phylogenetic inferences in the xerically adapted cheilanthoid ferns (Pteridaceae: Cheilantheoideae).

8:30 AM - 12:00 PM
SESSION 33

ACC, 113-Dona Ana

CONTRIBUTED PAPERS: Developmental and Structural Section, BSA –
Reproductive and dispersal structures and cell biology

Presiding: MELVIN R. DUVALL Department of Biological Sciences, Northern Illinois University, DeKalb, IL. Tele: (815) 753-7806, E-mail: mel-duvall@niu.edu.

- 8:30** **33-1** DUVALL, MELVIN R. *Northern Illinois University, DeKalb.* Screening a spurious synapomorphy: an ultrastructural study of “monocot” type anther wall development in *Acorus* L. (Acoraceae).
- 8:45** **33-2** FREUDENSTEIN, JOHN V. and ELIZABETH M. HARRIS.* *The Ohio State University, Columbus.* Re-evaluating critical anther characters in Orchidaceae: a developmental anatomy approach.

- 9:00** **33-3** HISER, KENNETH M.* , ANDREW N. DOUST, and ELIZABETH A. KELLOGG. *University of Missouri, St. Louis*. Inflorescence development and phylogenetic relationships of the genus *Ixophorus*.
- 9:15** **33-4** VON BALTHAZAR, MARIA* and PETER K. ENDRESS. *University of Zurich, Zurich, Switzerland*. Floral structure and phylogeny of Buxaceae.
- 9:30** **33-5** KONG, HONGZHI, ANMING LU, and ZHIDUAN CHEN. *The Chinese Academy of Sciences, Beijing, China*. Floral organogenesis of *Chloranthus sessilifolius* K. F. Wu (Chloranthaceae) with special emphasis on the morphological nature of the androecium of *Chloranthus* Sw.
- 9:45** **33-6** ROTHWELL, GAR W.^{1*} and RUTH STOCKEY². ¹*Ohio University, Athens*; ²*University of Alberta, Edmonton, Canada*. Pollen tubes, contractile tissue, and pollination biology in Cycadeoidales/Bennettitales.
- 10:00** **BREAK**
- 10:15** **33-7** SCHNEIDER, HARALD^{1*}, KATHLEEN M. PRYER¹, and RICHARD LUIPIA². ¹*Duke University, Durham, NC*; ²*University of Oklahoma, Norman*. A comparative analysis of structure and function of spores in extant heterosporous ferns (Salviniales).
- 10:30** **33-8** OSBORN, JEFFREY M.^{1*}, GAMAL EL-GHAZALY², and RANESSA L. COOPER³. ¹*Truman State University, Kirksville, Missouri*; ²*Swedish Museum of Natural History, Stockholm, Sweden*; ³*University of Alberta, Edmonton, Canada*. Development of the exineless pollen wall in Callitrichaceae and the evolution of underwater pollination.
- 10:45** **33-9** HORNER, HARRY T. ^{1*}, TERESA CERVANTES MARTINEZ¹, TED HYMOWITZ², A.H.D. BROWN³, and REID G. PALMER⁴. ¹*Iowa State University, Ames*; ²*University of Illinois, Champaign-Urbana*; ³*CSIRO Plant Industry, Canberra, Australia*; ⁴*USDA ARS CICGR, Ames, IA*. A survey of calcium oxalate crystal patterns in leaves of the genus *Glycine* and related taxa.
- 11:00** **33-10** SHOCKEY, KARA M.* , HARRY T. HORNER, and JONATHAN F. WENDEL. *Iowa State University, Ames*. Calcium oxalate crystals in the tribe Gossypieae and the genus *Gossypium* (cotton).
- 11:15** **33-11** DAYANANDAN, P. ^{1*} and J. PONSAMUEL². ¹*Madras Christian College, Tambaram, India*; ²*Dow AgroSciences, Indianapolis IN*. Electron microscopy of terpenoid secreting cells of neem (*Azadirachta indica* A. Juss.).
- 11:30** **33-12** KIM, INSUN. *Keimyung University, Taegu, Korea*. Ultrastructure and immunolocalization of the C4 photosynthetic enzyme in cotyledons and leaves of two *Salsola* species.
- 11:45** **33-13** ZAVALETA-MANCERA, HILDA A.^{1,2*}, IAN SCOTT², and THOMAS HOWARD³. ¹*Universidad Autonoma del Estado de Mexico, Mexico*; ²*University of Wales, Aberystwyth Dyfed UK*; ³*Institute of Grassland and Environmental Research, Aberystwyth Dyfed, UK*. Re-differentiation of senescent *Nicotiana rustica* chloroplasts by cytokinins treatment.

9:00 AM - 11:45 AM
SESSION 34

ACC, 207-Ruidoso

**CONTRIBUTED PAPERS: Paleobotanical Section, BSA –
 Paleozoic and Mesozoic plants**

Presiding: WILSON A. TAYLOR, Department of Biology, University of Wisconsin-Eau Claire, Eau Claire, WI 54702-4004. Tele: (715) 836-3176, E-mail: taylorwa@uwec.edu.

- 9:00** **34-1** AXSMITH, BRIAN J.^{1*}, RUDOLPH SERBET², MICHAEL KRINGS², THOMAS N. TAYLOR², and EDITH L. TAYLOR². ¹ *University of South Alabama, Mobile*; ² *University of Kansas, Lawrence*. New interpretations of the enigmatic Paleozoic plants *Spermopteris* and *Phasmatocycas*.
- 9:15** **34-2** SCHECKLER, STEPHEN E.^{1*}, BRIGITTE MEYER-BERTHAUD², and JEAN GALTIER². ¹ *Virginia Polytechnic Institute & State University, Blacksburg*; ² *Universite Montpellier, France*. Secondary phloem of the Late Devonian progymnosperm tree *Archaeopteris*.
- 9:30** **34-3** CHITALEY, SHYA* and WILMER STOWE. *Cleveland Museum of Natural History, Cleveland, OH*. Spores from within the Late Devonian lycopsid cones of Ohio, U.S.A. and from the matrix around the cones.
- 9:45** **34-4** KLAVINS, SHARON D.*¹, EDITH L. TAYLOR, and THOMAS N. TAYLOR. *University of Kansas, Lawrence, KS*. Anatomy of the ovulate cupules of *Umkomasia* (Corystospermales) from the Triassic of Antarctica.
- 10:00** **BREAK**
- 10:15** **34-5** STOCKEY, RUTH^{1*} and GAR W. ROTHWELL². ¹ *University of Alberta, Edmonton, Alberta, Canada*; ² *Ohio University, Athens*. Permineralized cycad seeds from the Jurassic of British Columbia, Canada.
- 10:30** **34-6** STOCKEY, RUTH^{1*} and GAR W. ROTHWELL². ¹ *University of Alberta, Edmonton, Alberta, Canada*; ² *Ohio University, Athens*. An ovulate *Williamsonia* cone from the Upper Cretaceous of western North America.
- 10:45** **34-7** ROTHWELL, GAR W.^{1*} and RUTH STOCKEY². ¹ *Ohio University, Athens*; ² *University of Alberta, Edmonton, Alberta, Canada*. Systematic characters of ovulate *Cycadeoidea/Bennettites* cones from the Cretaceous of Vancouver and Hornby Islands, British Columbia, Canada.
- 11:00** **34-8** GANDOLFO, MARIA A.*¹, KEVIN C. NIXON, and WILLIAM L. CREPET. *Cornell University, Ithaca, NY*. Fossil flowers with possible nymphaealean affinities.
- 11:15** **34-9** CREPET, WILLIAM L.*¹, KEVIN C. NIXON, and MARIA A. GANDOLFO. *Cornell University, Ithaca, NY*. A Cretaceous Atlantic coastal plain “ericoid” complex.
- 11:30** **34-10** NIXON, KEVIN C.*¹, MARIA A. GANDOLFO, and WILLIAM L. CREPET. *Cornell University, Ithaca, NY*. Origins of Fagaceae: a review of relevant Turonian fossil material from New Jersey.

**9:00 AM - 11:30 AM
SESSION 35**

ACC, 203-Tijeras

**CONTRIBUTED PAPERS: Physiological Section, BSA –
Stress Physiology**

Presiding: PETER F. STRAUB, Biology Program, The Richard Stockton College, Pomona, NJ 08240. Tele: (609) 652-4556, E-mail: pete.straub@stockton.edu.

- 9:00** **35-1** NEILL, SAMUEL O.*, KEVIN S. GOULD, PAUL A. KILMARTIN, KENNETH R. MARKHAM, and KEVIN A. MITCHELL. *University of Auckland, Auckland, New Zealand.* Antioxidant strategies of red versus green leaves.
- 9:15** **35-2** HACKE, UWE G.* and JOHN S. SPERRY. *University of Utah, Salt Lake City.* The threshold for reversal of xylem embolism in *Laurus nobilis*.
- 9:30** **35-3** BELL, HESTER L.* ^{1,2} and JAMES W. O'LEARY¹. ¹*University of Arizona, Tucson, and* ²*Rancho Santa Ana Botanic Garden, Claremont, CA.* Response of *Sporobolus virginicus* (Poaceae) to salinity.
- 9:45** **35-4** STRAUB, PETER F. *Richard Stockton College, Pomona, NJ.* Proline catabolism in *Bradyrhizobium japonicum*: drought effects.
- 10:00** **BREAK**
- 10:30** **35-5** LUTTS, S*, J P MARTINEZ, M BAJJI, and J M KINET. *Catholic University of Louvain, Belgium.* Sodium implication in the response of the halophyte species *Atriplex halimus* L. to various abiotic stresses.
- 10:45** **35-6** RATNAYAKA, H. HARISH* ¹, WILLIAM T. MOLIN², and TRACY M. STERLING¹. ¹*New Mexico State University, Las Cruces, and* ²*USDA-ARS, Stoneville, MS.* Oxidative stress tolerance in cotton and spurred anoda under competition and drought.
- 11:00** **35-7** THORHAUG, ANITRA*¹ and HAROLD WANLESS². ¹*658 NE 70 ST, Miami, FL and* ²*1231 Genoa ST, Coral Gables, FL.* The role of hurricanes, tornados and gale force winds in seagrass distribution in subtropical and tropical nearshore waters.
- 11:15** **35-8** THORHAUG, ANITRA. *658 NE 70 St, Miami, FL.* Test plots of seagrass species affecting long-term survival of restored seagrass.

11:15 AM - 12:00 PM

BUSINESS MEETING AND LUNCHEON: Teaching Section, BSA

ACC, 201-La Cienega

Presiding: HENRI MAURICE, Barat College-Box 618, 700 E. Westleigh Road, Lake Forest, IL 60045. Tele: (847) 604-6365, E-mail: botprof@aol.com.

11:30 AM - 12:30 PM

BUSINESS MEETING AND LUNCHEON: Physiological Section, BSA

ACC, 203-Tijeras

Presiding: PETER F. STRAUB, Biology Program, The Richard Stockton College, Pomona, NJ 08240. Tele: (609) 652-4556, E-mail: pete.straub@stockton.edu.

TUESDAY AFTERNOON, 14 AUGUST

12:30 PM - 2:00 PM
SESSION 36

ACC, SW Exhibition Hall

CONTRIBUTED POSTERS: All Societies –

Posters will be displayed from Monday morning, 13 August through Wednesday afternoon, 15 August. Presenters will be available to field questions and discuss their posters from 12:30 pm to 2:00 pm on Tuesday, 14 August.

CONTRIBUTED POSTERS: ABLs / Bryological and Lichenological Section, BSA –

- 36-1** EVERSMAN, SHARON*, CLIFFORD M. WETMORE, KATHERINE GLEW and JAMES P. BENNETT. *Montana State University, Bozeman*. Lichen ecology in Yellowstone National Park.
- 36-2** DILLMAN, KAREN L.*, LINDA H. GEISER, JIM RILEY and GARY LAURSEN. *Arizona State University, Tempe*. Lichens of the Great Kobuk Sand Dunes of northwestern Alaska.
- 36-3** MORGAN, SARA M. and ROBERT S. EGAN*. *University of Nebraska, Omaha*. Lichens of the ponderosa pine forests of Nebraska.
- 36-4** SCHOENINGER, ROBIN*, THOMAS H. NASH and JACK A. ELIX. *Arizona State University, Tempe*. The chemistry of *Acarospora* subgenus *Xanthothallia* (lichenized ascomycete, Lecanorales) in southwestern North America.
- 36-5** SCHOENINGER, ROBIN, CORINNA GRIES and THOMAS H. NASH*. *Arizona State University, Tempe*. Herbarium databases: creation, maintenance and access via the Internet.
- 36-6** INDOE, KEVIN E. *New York Botanical Garden, Bronx*. The New York Botanical Garden's American bryophyte catalog.
- 36-7** NOBLE, SARAH MARIE* and DAVID K. SMITH. *University of Tennessee, Knoxville*. Floristic and ecological studies of bryophytes in a Southern Appalachian gorge.
- 36-8** SMAW, SHERCODA*, LAFAYETTE FREDERICK and RAYMOND L. PETERSEN. *Howard University, Washington, DC*. The urban moss *Bryum capillare* Hedw.: cyanobacterial and algal associates as biogenic crusts.
- 36-9** HASTINGS, ROXANNE I.* and DONNA M. CHERNIAWSKY. *Provincial Museum of Alberta, Edmonton, Alberta, Canada*. Species separation in the *Grimmia longirostris*-*G. pilifera* (Grimmiaceae) complex in North America.
- 36-10** BELL, NEIL E.* and ANGELA E. NEWTON. *Natural History Museum, London, UK*. Phylogenetic studies of the Rhizogoniaceae (Bryales): unravelling the origins of pleurocarpy.
- 36-11** JONES, NICOLE L.*, SHARON E. BARTHOLOMEW-BEGAN and TATSUWO FURUKI. *West Chester University, West Chester, PA*. A preliminary overview of gemmae morphologies in *Cavicularia densa* Steph.
- 36-12** SYDNEY, CAREY* and D. NICHOLAS McLETCHE. *University of Kentucky, Lexington*. Testing for sex-specific life history traits under field conditions in a dioecious liverwort.

- 36-13** PUTERBAUGH, MARY N. *University of Pittsburgh, Bradford, PA.* Preliminary investigation of the interaction between the liverwort *Frullania eborascensis* and Bdelloid rotifers.
- 36-14** BRAY, JR., JAMES R., ABEL J. KINSER* and BARBARA J. CRANDALL-STOTLER. *Southern Illinois University, Carbondale.* Community structure and spore bank dynamics in the Fossombroniineae of south-central Texas.

CONTRIBUTED POSTERS: AFS / Pteridological Section, BSA –

- 36-15** KORALL, PETRA* and WILSON A. TAYLOR. *Stockholm University, Sweden, and University of Wisconsin-Eau Claire.* Integrating megaspore morphology and molecular phylogeny in *Selaginella*.
- 36-16** PALMIERI, MARIA* and LUCINDA J. SWATZELL. *Southeast Missouri State University, Cape Girardeau.* Presence of VA mycorrhizae in the sporophytes of *Cheilanthes feei* and *Cheilanthes lanosa*.
- 36-17** SWATZELL, LUCINDA J.*, SARAH L. NONDORF, and MARIA PALMIERI. *Southeast Missouri State University, Cape Girardeau.* Effects of light intensity, light quality, and temperature on *Cheilanthes feei* spore germination.

CONTRIBUTED POSTERS: ASPT / IOPB / Systematics Section, BSA –

- 36-18** HEALY, JOHN* and NELSON D. YOUNG. *Trinity University, San Antonio TX.* A new computer program, GapCoder allows inclusion of indels as characters in phylogenetic analysis.
- 36-19** LINDEMUTH, RALF*, NORA WIRTZ, IMKE SCHMITT, and H. THORSTEN LUMBSCH. *Universitaet Essen, Germany.* Evolution of filamentous Ascomycetes inferred from multiple-gene-analyses.
- 36-20** BOGLER, DAVID J.^{1,2*}, ALEXANDRA MARRACCINI¹, and JAVIER FRANCISCO-ORTEGA^{1,2}. ¹*Fairchild Tropical Garden, Miami, FL;* ²*Florida International University, Miami.* Molecular systematic studies of cycads (Cycadales): initial results based on chloroplast DNA gene spacers, ITS rDNA sequences, and DNA fingerprinting.
- 36-21** GONZALEZ, DOLORES* and ANDREW P. VOVIDES. *Instituto de Ecologia, Xalapa Veracruz, Mexico.* Low interspecific divergence in the genus *Ceratozamia* (Zamiaceae) detected with nuclear ribosomal DNA ITS, and chloroplast DNA *trnL-F* non-coding region as indication of recent speciation.
- 36-22** WRIGHT, WESLEY A., MARGARET COX, and CHRISTOPHER S. CAMPBELL.* *University of Maine, Orono.* Internal transcribed spacer 1 (ITS1) in *Picea* (Pinaceae): structure and sequence divergence.
- 36-23** WON, HYOSIG* and SUSANNE S. RENNER. *University of Missouri, St. Louis.* Towards a phylogeny of *Gnetum*: first results from *rbcl*, *Leafy*, and ITS sequences.
- 36-24** PRINCE, LINDA M.* and W. JOHN KRESS. *Smithsonian Institution, Washington, DC.* Species boundaries in *Canna* (Cannaceae): evidence from nuclear ITS DNA sequence data.
- 36-25** BHARATHAN, G.^{1*}, L. RAZ², and P. WILKIN³. ¹*State University of New York, Stony Brook;* ²*New York University, New York;* ³*Royal Botanic Gardens, Kew, United Kingdom.* The true yams, *Dioscorea* (Dioscoreaceae): phylogenetic analysis of chloroplast nucleotide sequences.

- 36-26** RIGGS, ERIN L.* and CAROL A. WILSON. *Portland State University, OR*. A phenetic study of the *Iris hartwegii* complex (Iridaceae) based on RAPD's and morphological data.
- 36-27** GROSS, BRIANA*, KARI ROLLENHAGEN, JAMIE MELLOR, and SUSAN KEPHART. *Willamette University, Salem, OR*. Species boundaries in *Camassia*: analysis of a putative hybrid zone.
- 36-28** ZOMLEFER, WENDY B.^{1*}, NORRIS H. WILLIAMS², W. MARK WHITTEN², and WALTER S. JUDD². ¹*University of Georgia, Athens, GA*; ²*University of Florida, Gainesville*. The genera of Melanthieae (Liliales, Melanthiaceae): circumscription and relationships based on ITS and *trnL-F* sequence data.
- 36-29** CARLSWARD, BARBARA S.* and W. MARK WHITTEN. *University of Florida, Gainesville*. Molecular systematics of leafless Vandeeae (Orchidaceae): an example from tropical America.
- 36-30** BLATTNER, FRANK R. *IPK, Gatersleben, Germany*. Tracing allopolyploid speciation in *Hordeum*.
- 36-31** TORRECILLA, PEDRO*, JOSE ANGEL LOPEZ-RODRIGUEZ, and PILAR CATALAN. *University of Zaragoza, Spain*. Phylogenetic signal of structural characters on *Festuca sensu lato* (Poaceae, Poae).
- 36-32** KIM, SANGTAE*, CHONG-WOOK PARK, and YOUNGBAE SUH. *Seoul National University, Korea*. Taxonomic revision of *Magnolia* section *Maingola* Dandy (Magnoliaceae) and the multivariate analysis of *Magnolia macklottii* complex.
- 36-33** KIM, SANGTAE^{1*}, DOUGLAS, E. SOLTIS², PAMELA, S. SOLTIS², YOUNGBAE SUH¹, and MICHAEL ZANIS³. ¹*Seoul National University, Korea*; ²*University of Florida, Gainesville*; ³*Washington State University, Pullman*. Phylogeny of early-diverging eudicots based on multiple genes: *rbcl*, *atpB*, 18S and 26S rDNA sequences.
- 36-34** LIM, CHAE EUN* and CHONG-WOOK PARK. *Seoul National University, Korea*. Hybridization in *Aconitum* subgenus *Aconitum* (Ranunculaceae) at Mt. Sobaek in Korea inferred from morphology and flavonoid chemistry.
- 36-35** YOO, MI-JEONG* and CHONG-WOOK PARK. *Seoul National University, Korea*. Molecular phylogeny of *Polygonum* sect. *Echinocaulon* (Polygonaceae) based on chloroplast and nuclear DNA sequences.
- 36-36** ARIAS, SALVADOR^{1*}, TERESA TERRAZAS², and KENNETH M. CAMERON³. ¹*Universidad Nacional Autonoma de Mexico, Mexico D.F.*; ²*Colegio de Postgraduados, Montecillo, Estado de Mexico*; ³*The New York Botanical Garden, Bronx*. Phylogeny of *Pachycereus* (Cactaceae) based in molecular data.
- 36-37** CARPENTER, K. J.* and G. L. WEBSTER. *University of California Davis, Davis*. Evolution of pollen diversity in neotropical *Phyllanthus* (Euphorbiaceae).
- 36-38** PARK, SEON-JOO and KI-JOONG KIM.* *Yeungnam University, Korea*. Sectional relationship *Hypericum* (Clusiaceae) based on the molecular data.
- 36-39** PORTER-UTLEY, KRISTEN^{1*}, WALTER JUDD¹, JOHN MACDOUGAL², MARK WHITTEN¹, and NORRIS WILLIAMS¹. ¹*University of Florida, Gainesville*; ²*Missouri Botanical Garden, St. Louis*. Phylogenetic relationships within *Passiflora* L. section *Cieca* Mast. (Passifloraceae) based on morphological and molecular evidence.
- 36-40** WEEKS, ANDREA*, LEAH LARKIN, and BERYL B. SIMPSON. *University of Texas, Austin*. A chloroplast DNA molecular study of the phylogenetic relationships of members of the *Caesalpinia* group (Caesalpinieae: Caesalpinioideae: Fabaceae).

- 36-41** ALEXANDER, J. ANDREW* and AARON LISTON. *Oregon State University, Corvallis*. Tests of recombinant speciation in *Astragalus*.
- 36-42** POLANS, NEIL O.*, JEFFERY A. NELSON, DANA R. KURPIUS, and DAYLE E. SAAR. *Northern Illinois University, DeKalb*. A phylogenetic study of pea.
- 36-43** LEE, SANGTAE*, MEEKYOUNG KANG, and CHUNGHEE LEE. *Sungkyunkwan University, Suwon Korea*. A palynotaxonomic study of the genus *Filipendula* Adans. (Rosaceae).
- 36-44** BUNSAWAT, JIRANAN* and LAWRENCE A. ALICE. *Western Kentucky University, Bowling Green*. Molecular characterization and phylogenetic utility of nrDNA ETS sequences in *Rubus* (Rosaceae).
- 36-45** CLEMENT, WENDY L.^{1*}, LAURA L. FORREST², and SUSAN M. SWENSEN¹. ¹*Ithaca College, Ithaca NY*; ²*Royal Botanic Garden Edinburgh, United Kingdom*. Phylogenetic placement of *Hillebrandia sandwichensis* (Begoniaceae).
- 36-46** CANNON, CHARLES ^{1,2*} and PAUL MANOS¹. ¹*Duke University, Durham, NC*; ²*University of Malaysia, Sarawak, Kota Samarahan*. The use of morphometric shape descriptors in relation to an independent molecular phylogeny: the case of fruit type evolution in Bornean *Lithocarpus* (Fagaceae).
- 36-47** BROWN, GREGORY K.* and DOROTHY E. TUTHILL. *University of Wyoming, Laramie*. Inter-simple sequence repeat (ISSR) variation in three populations of *Gaura neomexicana* ssp. *coloradensis* (Onagraceae).
- 36-48** HALL, PAULA M.*, TIMOTHY K. LOWREY, and DIANE L. MARSHALL. *University of New Mexico, Albuquerque*. Phylogenetic relationship and breeding system evolution in *Callirhoe* (Malvaceae).
- 36-49** SLOTTA, TRACEY A. BODO* and DUNCAN PORTER. *Virginia Polytechnic Institute and State University, Blacksburg*. ITS phylogeny of *Iliamna* (Malvaceae) and related genera.
- 36-50** HU, JER-MING*, NICOLE M. MATUREN, and MICHAEL W. FROHLICH. *University of Michigan, Ann Arbor*. Studies of evolution and development of petaloid bracts in dogwoods (*Cornus*).
- 36-51** LI, JIANHUA^{1,2,3*}, PETER DEL TREDICI¹, SHIXIONG YANG⁴, and MICHAEL J. DONOGHUE⁵. ¹*Arnold Arboretum of Harvard University, Jamaica Plain, MA*; ²*University of New Hampshire, Durham*; ³*University of Maine, Orono*; ⁴*Academia Sinica, Kunming, Yunnan, China*; ⁵*Yale University, New Haven, CT*. Phylogenetic relationships and biogeography of *Stewartia* (Camellioideae, Theaceae) inferred from nuclear ribosomal DNA ITS sequences.
- 36-52** HOLT, KATHERINE^{1*}, LEIGH A. JOHNSON¹, J. MARK PORTER², and JOHN S. GARDNER¹. ¹*Brigham Young University, Provo, UT*; ²*Rancho Santa Ana Botanic Garden, Claremont, CA*. External seed coat morphology of *Gilia* (Polemoniaceae) and segregate genera: comparison and correspondence with phylogenetic relationships.
- 36-53** LI, JIANHUA^{1,2,3*}, JOHN H. ALEXANDER III¹, TOM WARD¹, PETER DEL TREDICI¹, and ROB NICHOLSON⁴. ¹*Arnold Arboretum of Harvard University, Jamaica Plain, MA*; ²*University of New Hampshire, Durham*; ³*University of Maine, Orono*; ⁴*Smith College Botanic Garden, Northampton, MA*. Phylogeny and biogeography of the Empetraceae based on sequences of nuclear and chloroplast genes.
- 36-54** STANFORD, ALICE M.*, LAUREL ROYER, CHARMAINE BELLOT, LOI'Y MUSTAFA, and NACHET WILLIAMS. *University of the Virgin Islands, St. Thomas*. Genetic diversity of a rare Virgin Islands' endemic, *Solanum conocarpum* (Solanaceae).

- 36-55** HUYSMANS, SUZY^{1*}, STEVEN DESSEIN¹, STEVEN JANSEN¹, FREDERIC LENS¹, STEFAN VINCKIER¹, FREDERIC PIESSCHAERT¹, PETRA DE BLOCK², KOEN ES², MARCEL VERHAEGEN², PIET STOFFELEN², ELMAR ROBBRECHT², and ERIK SMETS¹. ¹*Institute of Botany and Microbiology, K.U. Leuven, Belgium*; ²*National Botanic Garden of Belgium, Meise*. Pollen morphological variation in Rubiaceae: a portrait.
- 36-56** CORTES, ROCIO*, PIERO G. DELPRETE, and TIMOTHY J. MOTLEY. *The New York Botanical Garden, Bronx*. Systematics of *Retiniphyllum* (Rubiaceae).
- 36-57** LI, JIANHUA^{1,2,3*}, JOHN H. ALEXANDER III¹, and DONGLIN ZHANG². ¹*Arnold Arboretum of Harvard University, Jamaica Plain, MA*; ²*University of Maine, Orono*; ³*University of New Hampshire, Durham*. The genus *Syringa* (Oleaceae) is paraphyletic: evidence from sequences of nuclear ribosomal DNA ITS and ETS regions.
- 36-58** GROSE, SUSAN O.* and RICHARD G. OLMSTEAD. *University of Washington, Seattle*. Phylogenetic analysis of *Crescentieae* and *Tabebuia* s.l. (Bignoniaceae).
- 36-59** RANDLE, CHRISTOPHER P.* and ANDREA D. WOLFE. *Ohio State University, Columbus*. Molecular evolution of photosynthetic genes in holoparasites *Harveya* Hook. and *Hyobanche* L. (Orobanchaceae).
- 36-60** PYCK, NANCY* and ERIK SMETS. *Institute of Botany and Microbiology, K.U. Leuven, Belgium*. Dipsacales phylogeny: combining chloroplast sequences with morphological evidence.
- 36-61** TRUSTY, JENNIFER L.^{1*}, ARNOLDO SANTOS-GUERRA², TORTSTEN ERIKSSON³, and JAVIER FRANCISCO-ORTEGA¹. ¹*Florida International University, Miami and Fairchild Tropical Garden, Miami FL*; ²*Jardín de Aclimatación de La Orotava, Tenerife, Canary Islands, Spain*; ³*Bergianska Stiftelsen Kungliga Vetenskapsakademien, Stockholm, Sweden*. Biodiversity, conservation and molecular phylogenies in the laurel forest of the Canary Islands: the case of a critically endangered taxon of *Sambucus*.
- 36-62** LEE, BYOUNG-YOON* and CHONG-WOOK PARK. *Seoul National University, Korea*. A phylogeny of family Apiaceae genus *Daucus* derived from morphological characters: preliminary investigations.
- 36-63** VU, NINH VIET^{1*}, GREGORY M. PLUNKETT¹, and PORTER P. LOWRY II². ¹*Virginia Commonwealth University, Richmond*; ²*Missouri Botanical Garden, St. Louis*. Phylogenetic study of Madagascan *Polyscias* and close relatives in the ginseng family (Araliaceae).
- 36-64** ANDRUS, NICOLE. *Florida International University, Miami and Fairchild Tropical Garden, Coral Gables, FL*. Molecular evidence for a potential biogeographical connection between the Canary Islands and the Island of Socotra.
- 36-65** KARAMAN, VESNA* and LOWELL E. URBATSCH. *Louisiana State University, Baton Rouge*. Phylogenetic analysis of *Boltonia* (Astereae, Asteraceae) based on nr ETS and ITS sequence data.
- 36-66** BECK, JAMES B.^{1*}, GUY L. NESOM², PATRICK J. CALIE³, GARY I. BAIRD⁴, RANDY L. SMALL⁵, and EDWARD E. SCHILLING⁵. ¹*Washington University, St. Louis, MO*; ²*Botanical Research Institute of Texas, Fort Worth*; ³*Eastern Kentucky University, Richmond*; ⁴*Brigham Young University, Provo, UT*; ⁵*University of Tennessee, Knoxville*. Overview of subtribe Solidagininae (Asteraceae: Astereae).
- 36-67** KOUKOI, SCOTT R.* and CURTIS CLARK. *California State Polytechnic University, Pomona; Rancho Santa Ana Botanic Garden, Claremont, CA*. Comparative anatomy of the leaves and stems of *Encelia* (Asteraceae: Heliantheae).

CONTRIBUTED POSTERS: Developmental and Structural Section, BSA –

- 36-68** HOU, GUI-CHUAN*, JEFFREY P. HILL, LAURENS H. JR. SMITH, and BECKY A. NIELD. *Idaho State University, Pocatello*. Molecular genetic studies of root development in fern *Ceratopteris richardii*.
- 36-69** HEALY, R.A., C.R. BRONSON, and H.T. HORNER.* *Iowa State University, Ames*. Visualization of the extracellular matrix of the pathogenic fungus *Cochliobolus heterostrophus*.
- 36-70** SKALSKY, JEANNIE* and MANOJ MISTRY. *Texas A&M University, College Station*. Fractal analysis of leaf edges.
- 36-71** STRITTMATTER, LARA* and VIVIAN NEGRON-ORTIZ. *Miami University, Oxford, OH*. *Consolea corallicola* (Cactaceae): a sexually dimorphic species with only one morph remaining?
- 36-72** KIRCHOFF, BRUCE*, TAM LE, ALLYSON PREVETTE, SONJA CAUBLE, ELIZABETH SHELTON, and KIMBERLY HAMLET. *University of North Carolina, Greensboro*. Early floral development in *Musa velutina* (Musaceae).
- 36-73** VOLSKAY, ALLENA R.* and TIMOTHY P. HOLTSFORD. *University of Missouri, Columbia*. Morphogenesis of key floral traits in *Nicotiana* Section *Alatae*.
- 36-74** POSLUSZNY, USHER¹* and JEAN, M. GERRATH². ¹*University of Guelph, Guelph Ontario, Canada*; ²*University of Northern Iowa, Cedar Falls*. Floral morphology and development in *Rhoicissus digitata* (Vitaceae).
- 36-75** JANA, BALARAM¹*, NABARUN GHOSH², A. CHATTERJEE¹, and DON W. SMITH³. ¹*University of Calcutta, India*; ²*West Texas A&M University, Canyon*; and ³*University of North Texas, Denton*. Effect of arsenicum album (arsenious oxide, As₂O₃), a homoeopathic drug as a potential mutagen on *Corchorus olitorius* L. (jute).

CONTRIBUTED POSTERS: Ecological Section, BSA –

- 36-76** CALLAHAN, PRISCILLA H.,* BRUCE HOAGLAND, and PHILLIP T. CRAWFORD. *University of Oklahoma, Norman*. The effects of mesquite (*Prosopis glandulosa*) encroachment on species diversity and composition of a mixed grass prairie.
- 36-77** CARRERO, GLORYVEE,¹* and DUANE KOLTERMAN². ¹*PO Box 3210, Lajas, PR* and ²*University of PR, Mayaguez*. Population ecology of the endangered *Buxus vahlii* Baillon (Buxaceae).
- 36-78** JOHNSON, MONICA L., * DAVID A. TAIT, and LOREEN ALLPHIN. *Brigham Young University, Provo, UT*. Ecological and genetic diversity in *Draba burkei* sp. nov. (Brassicaceae), a critically imperiled taxon.
- 36-79** TIDWELL, LEITH * and MARK BRUNSON. *Utah State University, Logan*. Community-based management of invasive plants: applying social research and education to an ecological problem.
- 36-80** MORRIS, ASHLEY B. *University of Florida, Gainesville*. Assessing the potential for genetic resistance to beech bark disease in *Fagus grandifolia* Ehrh. (Fagaceae).
- 36-81** NORTH, GRETCHEN B.,¹* PIERRE MARTRE², EDWARD G. BOBICH², and PARK S. NOBEL². ¹*Occidental College, Los Angeles, CA* and ²*University of California, Los Angeles*. Roots and rocks:

how soil rockiness affects shoot and root growth, root distribution, and other root properties for two desert species, *Agave deserti* (Agavaceae) and *Pleuraphis rigida* (Poaceae).

- 36-82** YARNES, CHRISTOPHER T.,* and WILLIAM J BOECKLEN. *New Mexico State University, Las Cruces*. Foliar chemistry variation in *Quercus gambelii* Nutt.: bottom-up cascade within a trophic system.
- 36-83** VOLIS, S.,* S. MENDLINGER, and D. WARD. *Ben Gurion University, Beer Sheva, Israel*. Tests for adaptive RAPD and allozyme variation in population genetic structure of wild barley, *Hordeum spontaneum* Koch.
- 36-84** BINGHAM, ROBIN A.,* and NANCY D. COHEN. *Western State College, Gunnison, CO*. Flowering, reproduction, and kleptoparasitism in an extreme southern disjunct population of *Drosera rotundifolia*.
- 36-85** LEVERICH, W. J.,* JESÚS M. DESANTIAGO, and PHUONG JULIE NGUYEN. *Saint Louis University, MO*. Inequality in individual plant reproductive performance.
- 36-86** COOPER, CLIFTON E.,^{1*} SEAN C. THOMAS², and WILLIAM E. WINNER¹. ¹*Oregon State University, Corvallis* and ²*University of Toronto, Canada*. Gas exchange behavior of old-growth conifer foliage in the Pacific Northwest.
- 36-87** ECCLES, CHRIS * and DARREN R. SANDQUIST. *California State University, Fullerton*. Temperature acclimation of photosynthesis in four populations of the desert shrub *Encelia farinosa*.
- 36-88** STOVER, DANIEL B.* and KEITH GARBUTT. *West Virginia University, Morgantown*. Fitness of clonal genotypes of *Juncus effusus* L. in differing nutrient regimes.
- 36-89** WEINIG, CYNTHIA,* and JOHANNA SCHMITT. *Brown University, Providence, RI*. Antagonistic selection in complex environments: adaptive plasticity to UV vs. competition.
- 36-90** KACZOROWSKI, RAINEE,* and TIM HOLTSFORD. *UMC, Columbia, MO*. Are nectar traits associated with pollination syndrome in wild tobaccos (*Nicotiana*, Solanaceae)?
- 36-91** SMITH-HUERTA., NANCY L.,* and M. BARBARA NEMETH. *Miami University, Oxford OH*. Pollen grain deposition, pollen competition, and progeny vigor in a natural population of *Clarkia unguiculata* (Onagraceae).
- 36-92** WIGGAM-HARPER, SHELLY D.,* and CAROLYN J. FERGUSON. *Kansas State University, Manhattan, KS*. Pollination biology of *Phlox divaricata* L. (Polemoniaceae): visitation, pollen threshold, and mating system in a Central Plains population.
- 36-93** BEACH, SHANNON E.,^{1*} JANICE M. COONS¹, HENRY R. OWEN², BRENT L. TODD², and MARY ANN L. SMITH¹. ¹*University of Illinois, Urbana* and ²*Eastern Illinois University, Charleston*. Comparison of seed production and germination in three distinct colonies of *Lesquerella ludoviciana*.

CONTRIBUTED POSTERS: Economic Botany Section, BSA –

- 36-94** DA SILVA, JAIME A.T. *Ereganto Haitsu, Kagawa-ken, Japan*. *Chrysanthemums*: balancing revenue and culture through novel biotechnology.
- 36-95** FAYVUSH, GEORGE. *Institute of Botany, Yerevan, Armenia*. Agrobiodiversity of Armenia.

- 36-96** JOHNSON, SUSANNAH. B. *New Mexico State University, Las Cruces.*. An ethnobotanical study in Tamil Nadu, India, of *Phoenix humilis* and *Borassus flabellifer* (Arecaceae), focusing on their combined use in the construction of brooms.
- 36-97** TAMANYAN, KAMILLA. *Institute of Botany, Yerevan, Armenia.* Sustainable use and conservation of useful plants in Armenia.

CONTRIBUTED POSTERS: Genetics Section, BSA –

- 36-98** BOGDANOVA, ELIZAVETA DMITRIEVNA* and KARINA KHAMIDOVNA MAKHMUDOVA. *Institute of Plant Physiology, Genetics and Bioengineering, Almaty, Kazakhstan.* Mutations with nonstandard spike in wheat (*Triticum aestivum* L.).
- 36-99** BOGDANOVA, ELIZAVETA DMITRIEVNA*; KIRILL L'VOVICH GOSTENKO; and KARINA KHAMIDOVNA MAKHMUDOVA. *Institute of Plant Physiology, Genetics and Bioengineering, Almaty, Kazakhstan.* Breeding of varieties free from gene of hybrid necrosis.
- 36-100** GARDNER, KEITH A.*; STUART J.E. BAIRD; SHANNA E. CARNEY; LOREN H. RIESEBERG. *Indiana University, Bloomington.* A comparison of different molecular and morphological markers for hybrid index estimation in a natural hybrid zone.
- 36-101** HARTER, A.V.*; ALLEN HWANG; and LOREN H. RIESEBERG. *Indiana University, Bloomington.* A microsatellite investigation into the origin(s) of cultivated sunflowers.
- 36-102** HAUBER, DONALD P. *Loyola University, New Orleans, LA.* Synaptonemal complex formation in diploid *Tradescantia ohiensis*.
- 36-103** KHAILENKO, NINA ALEXANDROVNA. *Institute of Plant Physiology, Genetics and Bioengineering, Almaty, Kazakhstan.* Male sterility at interspecific hybrids winter soft wheat at crossing it with species *Triticum kiharae* Dorof. et Migush. and *Triticum dicoccum* Shuebl.
- 36-104** KHAILENKO, NINA ALEXANDROVNA and VLADIMIR ALEKSEEVICH KHAILENKO*. *Institute of Plant Physiology, Genetics and Bioengineering, Almaty, Kazakhstan.* Interspecific crossings in genetics investigations of common wheat.
- 36-105** LEXER, CHRISTIAN*; MARK WELCH; OLIVIER RAYMOND; and LOREN H. RIESEBERG. *Indiana University, Bloomington.* Toward understanding the role of transgressive segregation in adaptation.
- 36-106** LIU, XIANAN^{1*}; EL-SAYED HASSANEIN²; AHMED BALHEIDIN²; MOHAMED EL-DOMYATI²; SHERIF EDRIS²; and WM. VANCE BAIRD¹. ¹*Clemson University, Clemson, SC* and ²*Ain Shams University, Cairo, Egypt.* Cloning and characterization of guanylate kinase from sunflower *Helianthus annuus* L.
- 36-107** SCHWARZBACH, ANDREA E.^{1*}; LISA A. DONOVAN²; DAVID M. ROSENTHAL²; and LOREN H. RIESEBERG³. ¹*Kent State University, OH*, ²*University of Georgia, Athens* and ³*Indiana University, Bloomington.* The role of transgressive segregation in hybrid speciation: an example from sunflowers.
- 36-108** SEGARRA, JOSE GABRIEL* and PILAR CATALAN. *University of Zaragoza, Spain.* Comparative allozyme and RAPD genetic studies on the endemic *Borderea chouardii* and on its congener *B. pyrenaica*.

- 36-109** THORNTON, HANNAH E.^{1,2*}; CYNTHIA LANE²; and JAVIER FRANCISCO-ORTEGA^{1,2}. ¹*Florida International University, Miami* and ²*Fairchild Tropical Garden, Miami, FL*. Genetic variation in fragmented populations of an endangered dune plant: implications for its conservation.
- 36-110** VISION, TODD J.^{1*}; DANIEL G. BROWN²; and STEVEN D. TANKSLEY³. ¹*USDA-ARS Center for Agricultural Bioinformatics, Ithaca, NY*, ²*University of Waterloo* and ³*Cornell University, Ithaca, NY*. Ancient genome duplications in the angiosperms: lessons from *Arabidopsis*.

CONTRIBUTED POSTERS: Paleobotanical Section, BSA –

- 36-111** BOYCE, C. KEVIN^{1*}, ANDREW H. KNOLL¹, GEORGE D. CODY², MARILYN L. FOGEL², and ROBERT M. HAZEN². ¹*Harvard Botanical Museum, Cambridge MA*; ²*Carnegie Institution of Washington., Washington DC*. The evolution of tracheids and lignification in early land plants.
- 36-112** HANSEN, AMANDA, L.* and KATHLEEN, B. PIGG. *Arizona State University, Tempe*. Taxodiaceous conifers from the Middle Miocene Yakima Canyon flora, Washington State, USA.
- 36-113** HENRY, APRIL M.* and KATHLEEN B. PIGG. *Arizona State University, Tempe*. Hamamelidaceous infructescences from the Late Paleocene Almont, North Dakota flora.
- 36-114** MCKOWN, ATHENA D.*, RUTH A. STOCKEY, and CHARLES E. SCHWEGER. *University of Alberta, Edmonton, Alberta, Canada*. A new species of *Pinus*, Subgenus *Pinus*, Subsection *Contortae* based on fossil cones from Ch'ijee's Bluff, Yukon Territory, Canada.
- 36-115** RADTKE, MEGHAN G.^{1*}, KATHLEEN B. PIGG¹, and WESLEY WEHR². ¹*Arizona State University, Tempe*; ²*Burke Museum of Natural History and Culture, University of Washington, Seattle*. Fossil *Corylopsis* and other Hamamelidaceae-like leaves from the Middle Eocene flora of Republic, Washington, USA.
- 36-116** TCHEREPOVA, MARIA* and KATHLEEN B. PIGG. *Arizona State University, Tempe*. Permineralized *Nyssa* (Cornaceae) and additional endocarps of uncertain affinity from the Middle Miocene Yakima Canyon flora, Washington State, USA.
- 36-117** TIDWELL, WILLIAM D.^{1*}, LEITH S. TIDWELL², WALT WRIGHT³, and ULRICH DERNBACH⁴. ¹*Brigham Young University, Provo, UT*; ²*Utah State University, Logan*; ³*Brea, CA*; ⁴*Heppenheim, Germany*. *Tempskya* sp. from Neuquén, Argentina, the first *Tempskya* species reported from the Southern Hemisphere.

CONTRIBUTED POSTER: Phycological Section, BSA –

- 36-118** CHAPMAN, RUSSELL L.^{1*}, JUAN M. LOPEZ-BAUTISTA², SUZANNE FREDERICQ², and DEBRA A. WATERS¹. ¹*Louisiana State University, Baton Rouge*, and ²*University of Louisiana at Lafayette*. The biotech potential of algae colonizing oil rigs in the Gulf of Mexico: risks and rewards.

CONTRIBUTED POSTERS: Physiological Section, BSA –

- 36-119** THYGERSON, TONYA*¹, BRUCE N. SMITH¹, D. TERRANCE BOOTH¹, AND LEE D. HANSEN². ¹*Brigham Young University, Provo, UT* and ²*USDA-ARS, Cheyenne, WY*. Microcalorimetric studies on winterfat, *Eurotia lanata*, metabolism in response to temperature.
- 36-120** WALKER, JILLIAN LEIGH*¹, T. THYGERSON¹, BRUCE SMITH¹, LEE HANSEN¹, R. CRIDDLE¹, and ROSEMARY PENDLETON². ¹*Brigham Young University, Provo, UT*, ²*Forestry Sciences*

Laboratory, Albuquerque, NM. Calorimetric studies of desert soil crust metabolism in response to temperature and water.

- 36-121** MATHESON, TAINA. *Brigham Young University, Provo, UT.* Metabolic adaptation of plants to growth season temperature and temperature range along an altitudinal gradient.
- 36-122** JONES, CLAYTON A. *Brigham Young University, Provo, UT.* Isotope ratio mass spectroscopy: a powerful tool for analyzing the respective contributions of environment and inheritance in plant growth.
- 36-123** LOPEZ-SANTILLAN, JOSE ALBERTO¹, ALFREDO J HUERTA*², and SERGIO CASTRO-NAVA¹. ¹*UAM Agronomía y Ciencias - UAT, CU Victoria, Cd. Victoria, Tam. Mexico* and ²*Miami University, Oxford, OH.* Epicuticular leaf wax load on isogenic lines of sorghum (*Sorghum bicolor* L. Moench) and its contribution to water stress resistance.
- 36-124** MCDERMOTT, MATTHEW and DOUGLAS W. DARNOWSKI*. *Washington College, Chestertown, MD.* Analysis of growth requirements of locally rare bladderworts (*Utricularia* spp.; Lentibulariaceae).

CONTRIBUTED POSTER: Phytochemical Section BSA –

- 36-125** KURCHIL, B. A. *Institute of Plant Physiology and Genetics, Kiev, Ukraine.* (+S)-ABA and (-R)-ABA are the final products from the oxidative cleavage of carotenoids.

1:15 PM - 5:45 PM
SESSION 37

ACC, 205-San Miguel

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
Asteraceae II and Deep Achene: The Compositae Alliance discussion**

Presiding: JOSE L. PANERO, Section of Integrative Biology, University of Texas, Austin, TX 78712. Tele: (512) 232-1990, E-mail: panero@mail.utexas.edu.

- 1:15** **37-1** ANDRUS, NICOLE^{1,2*}, DAVID BOGLER², ALAN TYE³, GERALD GUALA², and JAVIER FRANCISCO-ORTEGA^{1,2}. ¹*Florida International University, Miami*; ²*Fairchild Tropical Garden, Coral Gables, FL*; ³*Charles Darwin Research Station, Santa Cruz, Galapagos Islands, Ecuador.* Preliminary molecular evidence for the origin of *Darwiniothamnus* (Asteraceae).
- 1:30** **37-2** BROUILLET, LUC^{1*}, GERALDINE A. ALLEN², JOHN C. SEMPLE³, and MOTOMI ITO⁴. ¹*Universite de Montreal, Quebec, Canada*; ²*University of Victoria, British Columbia, Canada*; ³*University of Waterloo, Ontario, Canada*; ⁴*University of Tokyo, Japan.* ITS phylogeny of North American asters (Asteraceae: Astereae).
- 1:45** **37-3** BECK, JAMES B.¹, ROBERT F. C. NACZI^{2*}, and PATRICK J. CALIE³. ¹*Washington University, St. Louis, MO*; ²*Northern Kentucky University, Highland Heights*; ³*Eastern Kentucky University, Richmond.* Lectotypification of the endangered species *Solidago shortii* (Asteraceae).
- 2:00** **37-4** BECK, JAMES B.¹, ROBERT F. C. NACZI^{2*}, and PATRICK J. CALIE³. ¹*Washington University, St. Louis, MO*; ²*Northern Kentucky University, Highland Heights*; ³*Eastern Kentucky University, Richmond.* Morphometrics of *Solidago shortii*, an endangered goldenrod from Kentucky (Asteraceae).

- 2:15** 37-5 SCHILLING, EDWARD E.* and PATRICIA B. COX. *University of Tennessee, Knoxville*. Systematic analysis of Liatrinae (Asteraceae).
- 2:30** 37-6 SAAR, DAYLE E. and MELVIN R. DUVALL.* *Northern Illinois University, DeKalb*. Do nuclear and plastid loci in Asteraceae show substantial incongruence? A preliminary intertribal phylogenetic study of Heliantheae s. l.
- 2:45** 37-7 SAAR, DAYLE E.*, NEIL O. POLANS, MELVIN R. DUVALL, and PAUL D. SØRENSEN. *Northern Illinois University, DeKalb*. A phylogenetic analysis of *Dahlia* (Asteraceae).
- 3:00** **BREAK**
- 3:15** 37-8 URBATSCH, LOWELL^{1*}, PATRICIA COX², and RICHARD RUTH¹. ¹*Louisiana State University, Baton Rouge*; ²*University of Tennessee, Knoxville*. Is *Rudbeckia heterophylla* (Asteraceae, Heliantheae) a central Florida endemic of “ancient” hybrid origin?
- 3:30** 37-9 CHAN, RAYMUND*, BRUCE G. BALDWIN, and ROBERT ORNDUFF. *University of California, Berkeley*. Cryptic diversity in the goldfield *Lasthenia californica* sensu lato (Compositae: Heliantheae sensu lato).
- 3:45** 37-10 CRAWFORD, DANIEL J.*, REBECCA T. KIMBALL, and MESFIN TADESSE. *The Ohio State University, Columbus*. Relationships in subtribe Coreopsidinae (Asteraceae: Heliantheae): insights from ITS sequences.
- 4:00** 37-11 PANERO, JOSE L.^{1*}, BRUCE G. BALDWIN², EDWARD E. SCHILLING³, and JENNIFER A. CLEVINGER⁴. ¹*University of Texas, Austin*; ²*University of California, Berkeley*; ³*University of Tennessee, Knoxville*; ⁴*James Madison University, Harrisonburg, VA*. Molecular phylogenetic studies of members of tribes Helenieae, Heliantheae, and Eupatorieae (Asteraceae). 1. Introduction.
- 4:15** 37-12 PANERO, JOSE L.^{1*}, BRUCE G. BALDWIN², EDWARD E. SCHILLING³, and JENNIFER A. CLEVINGER⁴. ¹*University of Texas, Austin*; ²*University of California, Berkeley*; ³*University of Tennessee, Knoxville*; ⁴*James Madison University, Harrisonburg, VA*. Molecular phylogenetic studies of members of tribes Helenieae, Heliantheae, and Eupatorieae (Asteraceae). 2. Tribal/generic relationships.
- 4:30** 37-13 PANERO, JOSE L.^{1*}, BRUCE G. BALDWIN², EDWARD E. SCHILLING³, and JENNIFER A. CLEVINGER⁴. ¹*University of Texas, Austin*; ²*University of California, Berkeley*; ³*University of Tennessee, Knoxville*; ⁴*James Madison University, Harrisonburg, VA*. Molecular phylogenetic studies of members of tribes Helenieae, Heliantheae, and Eupatorieae (Asteraceae). 3. General systematics and proposed taxonomic changes in current classification.
- 4:45** **DISCUSSION** – Deep Achene: The Compositae Alliance.

2:00 PM - 4:30 PM
SESSION 38

ACC, 215-Mesilla

COLLOQUIUM: ASPT –
Evolution, biogeography, and systematics of Begoniaceae

Organized by: SUSAN SWENSEN, Department of Biology, Ithaca College, Ithaca, NY 14850. Tele: (607) 274-3511, E-mail: sswensen@ithaca.edu; and MARK TEBBITT, Brooklyn Botanic Garden, Science Department, 1000 Washington Avenue, Brooklyn, NY 11225. Tele: (718) 623-7319, E-mail: marktobbitt@bbg.org.

Presiding: SUSAN SWENSEN, Ithaca College, Ithaca, NY.

- 2:00** **38-1** SWENSEN, SUSAN. *Ithaca College, Ithaca NY*. Introduction to the Begoniaceae Colloquium.
- 2:15** **38-2** FORREST, LAURA* and PETER M. HOLLINGSWORTH. *Royal Botanic Garden, Edinburgh, United Kingdom*. Phylogeny of *Begonia*.
- 2:30** **38-3** BROUILLET, LUC. *University of Montreal, Quebec, Canada*. Begoniaceae and the Cucurbitales: a morphological phylogenetic analysis.
- 2:45** **38-4** PLANA, VANESSA. *Royal Botanic Garden, Edinburgh, UK*. Morphological and molecular systematics of the Afro-Madagascan fleshy-fruited *Begonia*.
- 3:00** **BREAK**
- 3:15** **38-5** TEBBITT, MARK^{1*}, LAURA L. FORREST², W. SCOTT HOOVER³ and SUSAN SWENSEN⁴. ¹*Brooklyn Botanic Garden, Brooklyn, NY*; ²*Royal Botanic Garden, Edinburgh, United Kingdom*; ³*New England Tropical Conservatory, MA*; ⁴*Ithaca College, Ithaca, NY*. Relationships of fleshy fruited Asiatic *Begonia* (Begoniaceae) based on ITS sequence data and restriction site mapping of PCR amplified chloroplast and mitochondrial fragments.
- 3:30** **38-6** HUGHES, MARK*, PETER M. HOLLINGSWORTH, and TONY MILLER. *Royal Botanic Garden, Edinburgh, UK*. Gene flow and speciation in *Begonia*.
- 3:45** **38-7** SWENSEN, SUSAN^{1*}, WENDY CLEMENT¹, LAURA L. FORREST², and MARK TEBBITT³. ¹*Ithaca College, Ithaca, NY*; ²*Royal Botanic Garden, Edinburgh, UK*; ³*Brooklyn Botanic Garden, NY*. *Hillebrandia sandwichensis*: evolutionary relationships and biogeography.
- 4:00** **38-8** TEBBITT, MARK. *Brooklyn Botanic Garden, NY*. Concluding remarks and discussion.

2:00 PM - 5:00 PM
SESSION 39

ACC, 103-Galisteo

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Commelinid monocots/Hybridization and speciation***

Presiding: DANIEL POTTER, Department of Pomology, 1045 Wickson Hall, University of California, One Shields Avenue, Davis, CA 95616. Tele: (530) 754-6141, E-mail: dpotter@ucdavis.edu.

- 2:00** **39-1** GRAHAM, SEAN W.^{1*}, DONNA CHERNIAWSKY², VINCENT L. BIRON¹, and HARDEEP S. RAI¹. ¹*University of Alberta, Edmonton, Canada*; ²*The Provincial Museum of Alberta, Edmonton, Canada*. Commelinoid monocot phylogeny revisited, using a large chloroplast data set.
- 2:15** **39-2** GARDNER-SILL, C. S. *Georgia Southern Botanical Garden, Statesboro*. Characteristics from living flowers improve classification of *Tillandsia* (Bromeliaceae).
- 2:30** **39-3** SPECHT, CHELSEA D.^{1,2*} and DENNIS W. STEVENSON². ¹*New York University, New York*; ²*New York Botanical Garden, Bronx*. A phylogeny of Costaceae: implications concerning floral morphology.
- 2:45** **39-4** HARDY, CHRISTOPHER R.^{1,2*}, JERROLD I DAVIS¹, ROBERT B. FADEN³, and DENNIS W. STEVENSON^{1,2}. ¹*Cornell University, Ithaca, NY*; ²*New York Botanical Garden, Bronx*; ³*Smithsonian Institution, Washington, DC*. Phylogenetics of *Cochliostema*, *Geogenanthus*, and an undescribed genus (Commelinaceae) using morphology and DNA sequence data from 26S, 5S-NTS, *rbcL*, and *trnL-F* loci.

- 3:00** **39-5** UNWIN, MATTHEW M.^{1,2*}, PAULO TAKEO SANO², and LINDA E. WATSON¹. ¹*Miami University, Oxford, OH*; ²*Universidade de São Paulo, Brazil*. Molecular systematics of the Eriocaulaceae: evidence from chloroplast sequence data.
- 3:15** **39-6** CAMPBELL, LISA M.^{1*}, DENNIS WM. STEVENSON¹, JERROLD I. DAVIS², and CHRISTOPHER R. HARDY¹. ¹*New York Botanical Garden, Bronx*; ²*Cornell University, Ithaca, NY*. Alternative hypotheses for the systematic placement of *Mayaca*.
- 3:30** **BREAK**
- 3:45** **39-7** WARD, JOSEPHINE M.^{1*} and ILSE BREITWIESER². ¹*University of Canterbury, Christchurch, New Zealand*; ²*Landcare Research, Lincoln, New Zealand*. Intergeneric hybrids in New Zealand Gnaphalieae (Compositae).
- 4:00** **39-8** LOWREY, TIMOTHY K.^{1*}, RICHARD WHITKUS², JOY AVRITT¹, and CHRISTOPHER J. QUINN³. ¹*University of New Mexico, Albuquerque*; ²*Sonoma State University, Rohnert Park, CA*; ³*University of New South Wales, Sydney, Australia*. Sex expression, compatibility and crossing relationships in the *Vittadinia* group (Asteraceae).
- 4:15** **39-9** GRIFFITH, M. PATRICK. *Rancho Santa Ana Botanic Garden, Claremont, CA*. Natural interspecific hybridization in *Opuntia* of the Northern Chihuahuan desert region.
- 4:30** **39-10** HARDIG, T. M.^{1*}, PAMELA S. SOLTIS², DOUGLAS E. SOLTIS², and RYAN B. HUDSON¹. ¹*University of Montevallo, Montevallo, AL*; ²*Washington State University, Pullman*. Diploid hybrid speciation in *Ceanothus*: morphomolecular analysis of two putative hybrid species and their proposed parent species.
- 4:45** **39-11** POTTER, DANIEL^{*}, FANGYOU GAO, SCOTT BAGGETT, JAMES R. MCKENNA, and GALE H. MCGRANAHAN. *University of California, Davis*. Defining the sources of Paradox: DNA sequence markers for North American walnut (*Juglans* L.) species and hybrids.

2:00 PM - 4:30 PM
SESSION 40

ACC, 107-Aztec

**CONTRIBUTED PAPERS: Ecological Section, BSA –
*Genetical and physiological ecology***

Presiding: JOSEPH C. COLOSI, Biology Department, DeSales University, 2755 Station Avenue, Center Valley, PA 18034. Tele: (610) 282-1100 x1288, E-mail: jcc0@desales.edu.

- 2:00** **40-1** CHOESIN, DEVI N.^{1*}, SRI AMNAH S.², and H. TAUFIKURAHMAN¹. ¹*Institut Teknologi Bandung, Bandung, Indonesia* and ²*Haluoleo University, Kendari, Indonesia*. Ecological aspects of *Vaccinium varingaefolium* growing in a stressed volcanic environment.
- 2:15** **40-2** COLOSI, JOSEPH C.^{1*}, JAMES J. REILLY², and WILLIAM S. CURRAN³. ¹*DeSales University, Center Valley, PA* ²*Thomas Jefferson University, Philadelphia, PA* and ³*Pennsylvania State University, University Park*. The spread of herbicide resistance in *Chenopodium album*.
- 2:30** **40-3** CULLEY, THERESA M. *University of California, Irvine*. Genetic effects of forest fragmentation in woodlot populations of an understory herb, *Viola pubescens* (Violaceae).
- 2:45** **40-4** DOLAN, REBECCA W.^{1*}, ERIC S. MENGES², and REBECCA YAHR³. ¹*Butler University, Indianapolis, IN* ²*Archbold Biological Station, Lake Placid, FL* and ³*Duke University, Durham, NC*. Genetic variation in *Nolina brittoniana*, an endemic of the central ridges of Florida.

3:00 BREAK

Presiding: P. DAYANANDAN, Department of Botany, Madras Christian College, Tambaram, India 600059. Tele: (91) 044-2377050, E-mail: annedaya@vsnl.com.

3:15 40-5 LINDER, C. RANDAL,^{1*} BRIAN VANDEN HEUVEL¹, and ROBERT B. JACKSON². ¹University of Texas, Austin and ²Duke University, Durham, NC. Making the connection: using DNA fingerprinting to link above- and below-ground plant parts in ecological studies.

3:30 40-6 CARDON, ZOE G.*, LOUISE A LEWIS, and DEBORAH TYSER. *University of Connecticut, Storrs*. Evolutionary physiology of photosynthesis in desert-dwelling green algae.

3:45 40-7 EULISS, KATY W.* and JEFFREY S. CARMICHAEL. *University of North Dakota, Grand Forks*. The effects of selenium accumulation in canola (*Brassica napus*).

4:00 40-8 FIELD, TAYLOR* and N. MICHELE HOLBROOK. *Harvard University, Cambridge, MA*. Functional physiology of *Amborella* and 'ITA' plants.

4:15 40-9 SAMSON, N. P. and P. DAYANANDAN.* *Madras Christian College, Tambaram, India*. Photosynthetic pathways and ecology of Indian grasses.

**2:00 PM - 3:15 PM
SESSION 41**

ACC, 207-Ruidoso

**CONTRIBUTED PAPERS: Paleobotanical Section, BSA –
Phylogeny, ferns, and flowering plants**

Presiding: RUTH A. STOCKEY, Department of Biological Sciences, University of Alberta, Edmonton, Alberta T6G 2E9, Canada. Tele: (780) 492-5518, E-mail: ruth.stockey@ualberta.ca.

2:00 41-1 DOYLE, JAMES A.*, MICHAEL J. SANDERSON, and SUSANA MAGALLÓN. *University of California, Davis*. Integrating fossil and molecular data on the age of angiosperms: effects of fossil age constraints and rate smoothing methods.

2:15 41-2 LUPIA, RICHARD. *University of Oklahoma, Norman*. Megaspore and fern mesofossil floras from the Aptian-Santonian (Cretaceous) of the Atlantic and Gulf Coastal Plains.

2:30 41-3 SMITH, UNA R. *Los Alamos National Laboratory, Los Alamos, NM*. Systematic analysis of fossil fruits placed in the eurosid II clade.

2:45 41-4 DEVORE, MELANIE L.^{1*}, KATHLEEN B. PIGG², and STEPHEN J. MOUTON¹. ¹Georgia College & State University, Milledgeville; ²Arizona State University, Tempe. Permineralized fruit with malvacean affinities from the Late Paleocene Almont Flora, North Dakota.

3:00 41-5 PIGG, K. B.^{1*}, M. L. DEVORE², D. L. DILCHER³, and D. FREILE⁴. ¹Arizona State University, Tempe; ²Georgia College & State University, Milledgeville; ³Florida Museum of Natural History, Gainesville; ⁴Berry College, Mt. Berry, GA. Fagaceous infructescences from the Oligocene Catahoula Formation of Texas.

3:15 41-6 HERENDEEN, PATRICK S.^{1*} and SCOTT WING². ¹George Washington University, Washington DC; ²National Museum of Natural History, Smithsonian Institution, Washington DC. Papilionoid legume fruits and leaves from the Paleocene of northwestern Wyoming.

2:00 PM - 3:30 PM
SESSION D1

ACC, 101-Brazos

DISCUSSION SESSION: Presidents' forum: federal funding for botanical research

Presiding: PATRICIA G. GENSEL, Department of Biology, CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280. Tele: (919) 962-6937, E-mail: pgensel@bio.unc.edu.

Panel members include society representatives and program officers from the National Science Foundation (NSF).

Brent D. Mishler, University of California, Berkeley – ABL
Walter S. Judd, University of Florida, Gainesville – ASPT
Christopher H. Haufler, University of Kansas, Lawrence – AFS
Judy Jernstedt, University of California, Davis – BSA

James E. Rodman – Division of Environmental Biology, NSF
Frank C. Greene – Division of Integrative Biology & Neuroscience, NSF
Judith E. Skog – Division of Biological Infrastructure, NSF

2:30 PM - 4:45 PM
SESSION 42

ACC, 111-Cimarron

**CONTRIBUTED PAPERS: ABLS / Bryological Section, BSA –
*Lichen biology***

Presiding: DIANNE FAHSELT, Department of Plant Sciences, University of Western Ontario, London, Ontario N6A 5B7, Canada. Tele: (519) 661-2111 x86480, E-mail: dfahselt@uwo.ca.

- 2:30** **42-1** PETERSON, ERIC B.* and PETER NEITLICH. *Nevada Natural Heritage Program, Carson City.* Lichen communities, pollution signals, and an issue of scale.
- 2:45** **42-2** ST. CLAIR, SAMUEL B.*, LARRY L. ST. CLAIR, NOLAN F. MANGELSON, DARRELL J. WEBER and ALAN WHALON. *Pennsylvania State University, State College.* Using Cu/Zn ratios in lichens to determine anthropomorphic sources of copper pollution.
- 3:00** **42-3** SAVILLO, ISIDRO. *Iloilo State College of Fisheries, Barotac Nuevo, Philippines.* Growth of lichens on palm trees.
- 3:15** **42-4** LAWREY, JAMES D.*, PAUL DIEDERICH and PAULA T. DePRIEST. *George Mason University, Fairfax, VA.* Genetic differentiation among populations of the widespread lichenicolous fungus *Marchandiomyces corallinus*.
- 3:30** **BREAK**

Presiding: ERIC B. PETERSON, Nevada Natural Heritage Program, 1550 E. College Pkwy #145, Carson City, NV 89706. Tele: (775) 687-4245, E-mail: ecomodeler@yahoo.com.

- 3:45** **42-5** SELVA, STEVEN B. *University of Maine, Fort Kent.* *Coniocybe gracilescens* and *Sphinctrinas* with 2-celled spores.
- 4:00** **42-6** FAHSELT, DIANNE. *University of Western Ontario, London, ON, Canada.* Detection of pigments in specimens of recent and subfossil *Umbilicaria* from north Greenland.

- 4:15** **42-7** PETERSON, ERIC B. *Nevada Natural Heritage Program, Carson City.* Tour of a lichenological black-hole (Nevada).
- 4:30** **42-8** BRODO, IRWIN M. *Canadian Museum of Nature, Ottawa, ON, Canada.* Patterns of distribution for North American lichens.

3:30 PM - 4:30 PM **ACC, 207-Ruidoso**
BUSINESS MEETING: Paleobotanical Section, BSA

Presiding: KATHLEEN PIGG, Department of Plant Biology, Arizona State University, Box 871601, Tempe, AZ 85287-1601. Tele: (480) 965 3154, E-mail: kpigg@asu.edu.

3:30 PM - 4:30 PM **ACC, 209-Pecos**
SESSION D2

DISCUSSION SESSION: A feeling for the organism

Presiding: BRUCE KIRCHOFF, Department of Biology, P. O. Box 26174, University of North Carolina at Greensboro, Greensboro, NC 27402-6174. Tele: (336) 334-4953, E-mail: kirchoff@uncg.edu.

3:30 PM - 4:30 PM **ACC, 201-La Cienega**
SESSION D3

DISCUSSION SESSION: The future of botany at the undergraduate level

Presiding: GORDON E. UNO, Department of Botany and Microbiology, 770 Van Vleet Oval, University of Oklahoma, Norman, OK 73019. Tele: (405) 325-6281, E-mail: guno@ou.edu.

4:30 PM - 5:30 PM **ACC, 113-Dona Ana**
BUSINESS MEETING: BSA

Presiding: PATRICIA G. GENSEL, Department of Biology, CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280. Tele: (919) 962-6937, E-mail: pgensel@bio.unc.edu.

5:00 PM - 6:00 PM **ACC, 111-Cimarron**
BUSINESS MEETING: ABLs

Presiding: ROBERT S. EGAN, Department of Biology, University of Nebraska at Omaha, Omaha, NE 68182-0040. Tele: (402) 554-2491, E-mail: regan@mail.unomaha.edu.

TUESDAY EVENING, 14 AUGUST

6:00 PM - 7:30 PM
SOCIAL: ABL

Hyatt, Enchantment A-D

6:00 PM - 7:00 PM
MIXER: ASPT / IOPB

New Mexico Museum of Natural History

7:00 PM - 10:00 PM
BANQUET: ASPT / IOPB (Ticketed Event)

New Mexico Museum of Natural History

Address of the ASPT President-Elect: THOMAS F. DANIEL, *California Academy of Sciences, San Francisco*.
Botanical heroes.

WEDNESDAY MORNING, 15 AUGUST

7:00 AM - 8:30 AM
MEETING AND LIGHT BREAKFAST: Pacific Section, BSA

Hyatt, Fiesta 1-2

Presiding: DIETER WILKEN, Santa Barbara Botanic Garden, 1212 Mission Canyon Road, Santa Barbara, CA 93105. Tele: (805) 682-4726, E-mail: dwilken@sbbg.org.

7:00 AM - 8:30 AM
MEETING AND LIGHT BREAKFAST: 2002 Education/Outreach Meeting – Planning Committee

Hyatt, Fiesta 3-4

Presiding: JEFFREY M. OSBORN, Division of Science, Truman State University, 100 E. Normal Street, Kirksville, MO 63501. Tele: (660) 785-4017, E-mail: josborn@truman.edu.

8:00 AM – 12:00 PM
SESSION 43

ACC, 206-Ballroom A

CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA – *Euasterids I, Part I*

Presiding: RACHEL A. WILLIAMS, Department of Botany and Plant Pathology, Michigan State University, East Lansing, MI 48824-1312. Tele: (517) 355-4695, E-mail: alan@msu.edu.

- 8:00** **43-1** LYNCH, STEVEN P.^{1*}, LINDA E. WATSON², PETER MEYER¹, BRIAN FARRELL³, and RICHARD OLMSTEAD⁴. ¹*Louisiana State University, Shreveport*; ²*Miami University, Oxford, OH*; ³*Harvard University, Cambridge, MA*; ⁴*University of Washington, Seattle*. Molecular phylogeny of North American *Asclepias* (Asclepiadaceae).
- 8:15** **43-2** FISHBEIN, MARK^{1*}, ROBERTA J. MASON-GAMER¹, DEBORAH J. HOPP¹, ERIN DOUTHIT¹, and STEVEN P. LYNCH². ¹*University of Idaho, Moscow*; ²*Louisiana State University, Shreveport*. Phylogeny of North American *Asclepias* estimated from non-coding chloroplast (*rpl16* intron and *trnC-rpoB* spacer) DNA sequences.
- 8:30** **43-3** PADGETT, DONALD J. and DONALD H. LES*. *Bridgewater State College, Bridgewater, MA*; *University of Connecticut, Storrs*. Preliminary phylogenetic studies in the Menyanthaceae.
- 8:45** **43-4** TAYLOR, DAVID WILLIAM. *University of Michigan, Ann Arbor*. Systematics and phylogeny of *Chione* DC. (Rubiaceae).
- 9:00** **43-5** DELPRETE, PIERO G.* and TIMOTHY J. MOTLEY. *New York Botanical Garden, Bronx*. Molecular systematics of the Chiococceae-Catesbaeeae complex (Rubiaceae): flower and fruit evolution and systematic implications.
- 9:15** **43-6** MOTLEY, TIMOTHY J.* and PIERO G. DELPRETE. *The New York Botanical Garden, Bronx*. Molecular systematics of the Chiococceae-Catesbaeeae complex (Rubiaceae): Phylogeny and biogeography.
- 9:30** **43-7** HELFGOTT, D. MEGAN* and BERYL B. SIMPSON. *University of Idaho, Moscow*; *University of Texas, Austin*. Phylogenetics of *Nemophila* using molecular and morphological data.

- 9:45 43-8** STEFANOVIC, SASA* and RICHARD G. OLMSTEAD. *University of Washington, Seattle*. Molecular systematics of Convolvulaceae inferred from multiple chloroplast loci.
- 10:00 BREAK**
- 10:15 43-9** OLMSTEAD, RICHARD* and DIANE FERGUSON. *University of Washington, Seattle; Louisiana State University, Baton Rouge*. A molecular phylogeny of the Boraginaceae/Hydrophyllaceae.
- 10:30 43-10** GARCIA, VICENTE F.* and RICHARD G. OLMSTEAD. *University of Washington, Seattle*. Phylogenetic relationships of the Australian tribe Anthocercideae (Solanaceae) based on chloroplast DNA sequences.
- 10:45 43-11** BOHS, LYNN. *University of Utah, Salt Lake City*. Phylogeny of the *Cyphomandra* clade of the genus *Solanum* (Solanaceae).
- 11:00 43-12** WHITSON, MARY KATHRYN. *Duke University, Durham, NC*. Untangling *Physalis* (Solanaceae) from the physaloids: two-gene phylogeny vindicates the splitters.
- 11:15 43-13** MUELLER, KAI¹*, THOMAS BORSCH¹, LAURENT LEGENDRE², EBERHARD FISCHER³, STEFAN POREMBSKI⁴ and WILHELM BARTHLOTT¹. ¹*Friedrich-Wilhelms-Universität, Bonn*; ²*University of Western Sydney, Australia*; ³*Institut für Biologie, Universität Koblenz-Landau, Germany*; ⁴*Universität Rostock, Germany*. The evolution of carnivory in the Lamiales: evidence from *matK* and adjacent noncoding regions.
- 11:30 43-14** JOBSON, RICHARD W.^{1,2*} and VICTOR A. ALBERT². ¹*The University of Queensland, Brisbane, Australia*; ²*University of Alabama, Tuscaloosa*. Molecular rates parallel diversification contrasts between carnivorous plant sister lineages in Lentibulariaceae.
- 11:45 43-15** COSKUN, FATIH* and CLIFFORD R. PARKS. *University of North Carolina, Chapel Hill*. Biogeography and phylogeny of the genus *Osmanthus* (Oleaceae): evidence from nuclear ribosomal ITS DNA Sequences.

8:00 AM - 12:00 PM
SESSION 44

ACC, 204-Ballroom B

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
General rosids and eurosids I**

Presiding: C. THOMAS PHILBRICK, Department of Biological and Environmental Sciences, Western Connecticut State University, Danbury, CT 06810. Tele: (203) 837-8773, E-mail: philbrick@wcsu.ctstateu.edu.

- 8:00 44-1** MOODY, MICHAEL L.* and DONALD H. LES. *University of Connecticut, Storrs*. Phylogenetic relationships in Haloragaceae emphasizing the aquatic genus *Myriophyllum*.
- 8:15 44-2** WANNTORP, LIVIA. *Stockholm University, Sweden*. Phylogeny of *Gunnera*.
- 8:30 44-3** PHILBRICK, C. THOMAS^{1*}, ALEJANDRO NOVELO R.² and DONALD H. LES³. ¹*Western Connecticut State University*; ²*Universidad Nacional Autónoma de México, Mexico, D.F.*; ³*University of Connecticut, Storrs*. Taxonomy and systematics of *Podostemum* (Podostemaceae).

- 8:45** **44-4** PHILBRICK, C. THOMAS^{1*}, ALEJANDRO NOVELO R.², ROLF RUTISHAUSER³, and DONALD H. LES⁴. ¹Western Connecticut State University; ²Universidad Nacional Autónoma de México, Mexico D.F.; ³Universität Zürich, Switzerland; ⁴University of Connecticut, Storrs. Phylogeny of New World Riverweeds (Podostemaceae): morphology.
- 9:00** **44-5** VERA-CALETTI, PATRICIA* and TOM WENDT. *Universidad Autónoma Chapingo, Mexico; University of Texas, Austin.* A revision of the genus *Calatola* (Icacinaeae) in Mexico.
- 9:15** **44-6** DAVIS, CHARLES C. *Harvard University, Cambridge, MA.* Madagasikaria (Malpighiaceae): an exciting new discovery from Madagascar, with important implications for floral evolution within Malpighiaceae.
- 9:30** **44-7** DAVIS, CHARLES C.^{1*}, WILLIAM R. ANDERSON², and MICHAEL J. DONOGHUE³. ¹Harvard University, Cambridge, MA; ²University of Michigan, Ann Arbor; ³Yale University, New Haven, CT. Phylogeny of Malpighiaceae: evidence from chloroplast *ndhF* and *trnL-F* nucleotide sequences.
- 9:45** **44-8** WEBSTER, GRADY L.* and KEVIN J. CARPENTER. *University of California, Davis.* Pollen morphological characters as phylogenetic markers in neotropical taxa of *Phyllanthus* (Euphorbiaceae).
- 10:00** **BREAK**
- 10:15** **44-9** HEARN, DAVID JOHN. *University of Arizona, Tucson.* Growth form evolution in *Adenia* and correlations with phytochemistry.
- 10:30** **44-10** ARCHAMBAULT, ANNIE* and ANNE BRUNEAU. *Universite de Montreal, Canada.* How useful is the *LEAFY* gene for the phylogeny reconstruction in the Caesalpinioideae?
- 10:45** **44-11** CHANDLER, GREGORY THOMAS^{1*}, MICHAEL DOUGLAS CRISP², and RANDALL JAMES BAYER³. ¹Virginia Commonwealth University; ²The Australian National University, Canberra; ³Australian National Herbarium, Canberra. Character evolution, toxicity, co-evolution, and relationships in the endemic Australian genus *Gastrolobium* (Fabaceae: Mirbelieae).
- 11:00** **44-12** BADR, ABDELFATTAH^{1,2*}, HANAA H. EL SHAZLY^{1,3}, HADDAD EL RABEY⁴, and LINDA E. WATSON¹. ¹Miami University, Oxford, OH; ²Tanta University, Egypt; ³Ain Shams University, Egypt; ⁴Menoufia University, Egypt. DNA amplified fragment length polymorphisms and the relationships of *Lathyrus* (Fabaceae).
- 11:15** **44-13** YANG, L.^{1*}, K. STEELE¹, and M. LAVIN². ¹California State University, Hayward; ²Montana State University, Bozeman. Phylogenetic relationships of selected genera of subfamily Papilionoideae (Fabaceae), using nucleotide sequences of the nuclear-encoded gibberellin 20-oxidases.
- 11:30** **44-14** MATTHEWS, MERRAN L.^{1*}, PETER K. ENDRESS¹, JÜRIG SCHÖNENBERGER^{1,2}, and ELSE MARIE FRIIS². ¹University of Zürich, Switzerland; ²Swedish Museum of Natural History, Stockholm. Anisophylleaceae and Cunoniaceae: why are their flowers so similar?
- 11:45** **44-15** CROSS, HUGH B.^{1,2*}, RAFAEL LIRA SAADE³, ISELA RODRIGUEZ AREVALO³, and TIMOTHY J. MOTLEY¹. ¹The New York Botanical Garden; ²Columbia University, New York; ³Universidad Nacional Autonoma de Mexico, Mexico D.F. Molecular phylogenetics of the tribe Sicyeae (Cucurbitaceae).

8:20 AM - 12:00 PM
SESSION 45

ACC, 202-Ballroom C

**SYMPOSIUM: ASPT / Systematics Section, BSA –
 Biogeography and phylogeny of Caribbean plants**

Organized by: TIMOTHY MCDOWELL, Department of Biological Sciences, Box 70703, East Tennessee State University, Johnson City, TN 37614. Tele: (423) 439-6925, E-mail: mcdowell@etsu.edu; and PETER W. FRITSCH, Department of Botany, California Academy of Sciences, San Francisco, CA 94118. Tele: (415) 750-7188, E-mail: pfritsch@CalAcademy.org.

Presiding: TIMOTHY MCDOWELL, East Tennessee State University, Johnson City.

- 8:20** **45-1** MCDOWELL, TIMOTHY. *East Tennessee State University, Johnson City.* Opening comments.
- 8:30** **45-2** GRAHAM, ALAN. *Kent State University, Kent, OH.* Geohistory models and paleovegetation of the Caribbean region.
- 9:00** **45-3** LAVIN, MATT^{1*}, MARTIN WOJCIECHOWSKI², ADAM RICHMAN¹, JAY ROTELLA¹, MICHAEL J. SANDERSON², and ANGELA BEYRA MATOS³. ¹*Montana State University, Bozeman*; ²*University of California, Davis*; ³*Ministerio de Ciencia, Tecnologia y Medio Ambiente, Camaguey, Cuba.* Identifying Tertiary radiations of Fabaceae in the Greater Antilles: alternatives to cladistic vicariance analysis.
- 9:15** **45-4** CLARKE, DAVID. *University of North Carolina, Asheville.* Biogeography of *Acacia* subgenus *Acacia* in the Caribbean and neotropics based on ITS nrDNA sequences and cpDNA restriction site mapping.
- 9:30** **45-5** SANTIAGO-VALENTIN, EUGENIO* and RICHARD G. OLMSTEAD. *University of Puerto Rico Botanical Garden, San Juan; University of Washington, Seattle.* Biogeography of the Goetzeoideae (Solanaceae).
- 9:45** **45-6** FRITSCH, PETER W. *California Academy of Sciences, San Francisco.* The historical biogeography of Antillean *Styrax* (Styracaceae).
- 10:00** **BREAK**
- 10:15** **45-7** NEGRÓN-ORTIZ, VIVIAN* and LINDA E. WATSON. *Miami University, Oxford, OH.* Molecular phylogenetics of *Ernodea* and *Erithalis* (Rubiaceae): implications for Caribbean biogeography.
- 10:30** **45-8** MCDOWELL, TIMOTHY. *East Tennessee State University, Johnson City.* *Exostema* biogeography in light of molecular phylogenies and possible polyphyly.
- 10:45** **45-9** HERRERA, PEDRO. *Institute of Ecology and Systematics, Habana, Cuba.* Cuban Asteraceae and their relations with continental species.
- 11:00** **45-10** GRAHAM, SHIRLEY A. *Kent State University, Kent, OH.* Biogeographic patterns of Antillean Lythraceae.
- 11:15** **45-11** RAZ, LAUREN^{1,2*}, JACQUELINE PEREZ CAMACHO³, DENNIS STEVENSON¹, and KENNETH CAMERON¹. ¹*New York Botanical Garden, Bronx*; ²*New York University, New York*; ³*Instituto de Ecología y Sistemática, Habana, Cuba.* Systematics and biogeography of Caribbean wild yams (Dioscoreaceae).

- 11:30 45-12** KELCHNER, SCOT A.^{1,2*}, JUDY G. WEST¹, MIKE C. CRISP², and ROBERT J. CHINNOCK³. ¹Centre for Plant Biodiversity Research, Canberra, Australia; ²Australian National University, Canberra; ³State Herbarium of South Australia, Adelaide. The Caribbean *Bontia daphnoides* and its Australian family Myoporaceae (Lamiales): evidence of an extreme dispersal event from morphological data and *rpl16* intron sequences.
- 11:45 45-13** FRITSCH, PETER W. *California Academy of Sciences, San Francisco*. Discussion and concluding remarks.

8:25 AM - 12:00 PM
SESSION 46

ACC, 66-Picuris

**SYMPOSIUM: Phytochemical Section, BSA; Developmental and Structural Section, BSA -
*Why leaves turn red: the function of anthocyanins in vegetative organs, Part I***

Organized by: DAVID W. LEE, Department of Biological Sciences, Florida International University, Miami, FL 33199. Tele: (305) 348-3111, E-mail: leed@fiu.edu; KEVIN GOULD, School of Biological Sciences, University of Auckland, Private Bag 92019, Auckland, NZ. Tele: (9 3737 599 x7298, E-mail: k.gould@auckland.ac.nz; and JAMES W. WALLACE, Biology Department, Western Carolina University, Cullowhee, NC 28723. Tele: (828) 293-5434, E-mail: wallacej@wpoff.wcu.edu.

Presiding: KEVIN S. GOULD, University of Auckland, Auckland, New Zealand.

- 8:25 46-1** WALLACE, JAMES W. *Western Carolina University, Cullowhee, NC*. Introduction.
- 8:30 46-2** LEE, DAVID W. *Florida International University, Miami, FL*. Anthocyanins in leaves: history, phylogeny and development.
- 9:00 46-3** WINKEL-SHIRLEY, BRENDA. *Virginia Tech University, Blacksburg, VA*. Molecular genetics and control of anthocyanin expression.
- 9:30 46-4** WALBOT, VIRGINIA*; C. DEAN GOODMAN; and SAVITA SHAH, *Stanford University, Stanford, CA*. Translocation of anthocyanin from the cytoplasm to vacuole.
- 10:00 BREAK**
- 10:30 46-5** WINEFIELD, CHRISTOPHER S.*; KEVIN S. GOULD; and KENNETH R. MARKHAM, *New Zealand Institute for Crop and Food Research Ltd., Palmerston North, New Zealand*. Flavonoid sequestration within the vacuolar compartment: a potential role for protein:anthocyanin interactions.
- 11:00 46-6** HACKETT, WESLEY P. *University of California, Davis*. Differential expression and functional significance of anthocyanins in relation to phasic development.
- 11:30 46-7** CHALKER-SCOTT, LINDA K. *University of Washington, Seattle*. Do anthocyanins function as osmoregulators in leaf tissues?

8:30 AM - 12:00 PM
SESSION 47

ACC, 76-Taos

**CONTRIBUTED PAPERS: Ecological Section, BSA –
 Seed ecology and reproductive biology**

Presiding: GREGORY J. ANDERSON, Department of Ecology and Evolutionary Biology, University of Connecticut, U-43, Storrs, CT 06269-3043. Tele: (860) 486-4555, E-mail: gregory.anderson@uconn.edu.

- 8:30** **47-1** ADAMS, CHRISTOPHER A.,^{1*} JERRY M. BASKIN¹, and CAROL C. BASKIN^{1,2}. *University of Kentucky, Lexington*. Comparative seed dormancy in three *Aristolochia* species: a test of two hypotheses on changes in ecological requirements in plant lineages.
- 8:45** **47-2** BASKIN, CAROL C.,^{1*} OLLE ZACKRISSON², and JERRY M. BASKIN². ¹*University of Kentucky, Lexington* and ²*Swedish University of Agricultural Sciences, Umea, Sweden*. Role of warm plus cold stratification in promoting germination of seeds with stony endocarps: *Empetrum hermaphroditum*.
- 9:00** **47-3** TODD, BRENT L.,^{1*} HENRY R. OWEN¹, JANICE M. COONS², and CHRISTINA J. HEISLER¹. ¹*Eastern Illinois University, Charleston* and ²*University of Illinois, Urbana*. Seed germination and seedling development of *Stylisma pickeringii* (Patterson bindweed), an Illinois-endangered sand prairie species.
- 9:15** **47-4** WALCK, JEFFREY L., * and SITI N. HIDAYATI. *Middle Tennessee State University, Murfreesboro*. Seed germination ecology of North American *Heuchera* species (Saxifragaceae): the eastern *H. parviflora* and western *H. cylindrica*.
- 9:30** **47-5** ANDERSON, GREGORY J., * and JAMES D. HILL. *University of Connecticut, Storrs*. Many to flower, few to fruit: the reproductive biology of *Hamamelis virginiana* (Hamamelidaceae).
- 9:45** **47-6** ARMSTRONG, JOSEPH E. *Illinois State University, Normal*. Competition among floral brooding insects and reproductive success in *Anaxagorea crassipetala* (Annonaceae).

10:00 BREAK

Presiding: CHRISTOPHER K. FRAZIER, New Mexico Natural Heritage Program, Department of Biology, University of New Mexico, Albuquerque, NM 87131. Tele: (505) 277-3822 x225, E-mail: cfrazier@unm.edu.

- 10:30** **47-7** BAACK, ERIC J. *University of California, Davis*. Barriers to reproductive success of tetraploid snow buttercups (*Ranunculus adoneus*) due to interference from diploid plants.
- 10:45** **47-8** ENZ, JOHN. *University of Louisville, KY*. Nectar robbers and non-nectar robbers: their visitation rates and their effects on seed set in Virginia Bluebells, *Mertensia virginica* (L.) Pers.
- 11:00** **47-9** FRAZIER, CHRISTOPHER K.,* and TIMOTHY K. LOWREY. *University of New Mexico, Albuquerque*. Pollination and reproductive ecology of three lowland tropical pitcher plants (*Nepenthes*).
- 11:15** **47-10** GEIGER, JOHN H. *Florida International University, Miami*. Pollination and reproduction of *Ruellia succulenta* Small in pine rockland fragments.
- 11:30** **47-11** KOPTUR, SUZANNE. *Florida International University, Miami*. The floral biology and breeding system of *Jacquemontia curtissii*, an endemic morning glory of south Florida pine rocklands.

- 11:45 47-12** KORPELAINEN, HELENA. *University of Helsinki, Finland*. A genetic method to resolve gender before sexual maturity complements investigations on sex ratios in dioecious *Rumex acetosa*.

9:00 AM - 11:45 AM
SESSION 48

ACC, 68/70-Sandia/Santa Ana

SYMPOSIUM: ABLIS / Bryological Section, BSA –
Lichen biodeterioration: progress and problems, Part I

Organized by: LARRY L. ST. CLAIR, Department of Botany and Range Science, Brigham Young University, Provo, UT 84602-0200. Tele: (801) 378-4879, E-mail: larry_stclair@byu.edu; and MARK R. D. SEAWARD, Department of Environmental Science, University of Bradford, Bradford BD7 1DP, UK. Tele: 44-1274-234212.

Presiding: LARRY L. ST. CLAIR, Brigham Young University, Provo, UT.

- 9:00 48-1** ST. CLAIR, LARRY L. *Brigham Young University, Provo, UT*. Introduction.
- 9:15 48-2** SEAWARD, MARK R. D. *University of Bradford, Bradford, UK*. Lichens as subversive agents of biodeterioration.
- 10:00 48-3** KNIGHT, KATHRYN B.* , LARRY L. ST. CLAIR and JOHN S. GARDNER. *Brigham Young University, Provo, UT*. Lichen-mediated degradation of historic and prehistoric panels at El Morro National Monument, New Mexico.
- 10:30 BREAK**
- 10:45 48-4** DANIN, AVINOAM. *Hebrew University, Jerusalem, Israel*. The impact of lithobionts on biodeterioration of desert rocks and the diversity of their micro-habitat communities.
- 11:15 48-5** ROSATO, VILMA GABRIELA. *LEMIT, Buenos Aires, Argentina*. Lichen species growing on mortar and concrete in Buenos Aires Province, Argentina.

9:00 AM - 11:00 AM
SESSION 49

ACC, 54-Cochiti

CONTRIBUTED PAPERS: Developmental and Structural Section, BSA –
Vasculature, wood, and ecological anatomy

Presiding: RANESSA L. COOPER, Department of Biological Sciences, University of Alberta, Edmonton, Alberta T6G 2E9, Canada. Tele: (780) 492-0083, E-mail: rcooper@ualberta.ca.

- 9:00 49-1** PIZZOLATO, THOMPSON D.¹ and MARSHALL D. SUNDBERG^{2,*}. ¹*University of Delaware, Newark*; ²*Emporia State University, Emporia, KS*. Initiation of the vascular system in the shoot of *Zea mays* L (Poaceae). 1) The procambial nodal plexus.
- 9:15 49-2** TOMLINSON, P. BARRY. *Harvard University, Petersham, MA; National Tropical Botanical Garden, Kalaheo, Kauai, HI*. Does *Gnetum* show reaction tissue?
- 9:30 49-3** JANSEN, STEVEN^{1*}, PIETER BAAS², and ERIK SMETS¹. ¹*K.U.Leuven, Leuven, Belgium*; ²*Nationaal Herbarium Nederland, Leiden, The Netherlands*. Vascular pits: a wood anatomical character with strong phylogenetic signals at high taxonomic levels.

- 9:45** **49-4** RENTZ, ERIN D.* and ROBERT W. PATTERSON. *San Francisco State University, San Francisco, CA.* Effects of burning on the anatomical structure of *Corylus cornuta* and *Xerophyllum tenax*, plants commonly used in California aboriginal basketry.
- 10:00** **BREAK**
- 10:15** **49-5** COOPER, RANESSA L.* , SENNAIT A. YOHANNES, and DAVID D. CASS. *University of Alberta, Edmonton, Alberta, Canada.* A structural study of the rare willow, *Salix planifolia* ssp. *tyrrellii*, from the Athabasca sand dunes of northern Alberta.
- 10:30** **49-6** ZARINKAMAR, FATEMEH. *Research Institute of Forests and Rangelands, Tehran, Iran.* Anatomical/ecological studies of rare species in Arasbaran’s protected area in Iran.
- 10:45** **49-7** MCDILL, JOSHUA R.* , ROBERT W. PATTERSON¹, and J. MARK PORTER². ¹*San Francisco State University, CA* and ²*Rancho Santa Ana Botanic Garden, Claremont, CA.* A comparative anatomical study of *Linanthus* and related genera (Polemoniaceae), with implications for their relationships and evolution.

9:00 AM - 12:00 PM
SESSION 50

ACC, 50/78/80-Acoma/Tesuque/Zuni

**CONTRIBUTED PAPERS: Paleobotanical Section, BSA –
Tertiary fossil plants, informal presentations**

Presiding: WILLIAM D. TIDWELL, Department of Botany and Range Science, Brigham Young University, Provo, UT 84602. Tele: (801) 378-3660, E-mail: william_tidwell@byu.edu.

- 9:00** **50-1** HERENDEEN, PATRICK S.* and BONNIE FINE JACOBS². ¹*George Washington University, Washington DC*; ²*Southern Methodist University.* Fossil legumes from the Eocene of Tanzania.
- 9:15** **50-2** MANCHESTER, STEVEN R. *Florida Museum of Natural History, Gainesville.* Leaves and fruits of *Davidia* (Cornales) from the Paleocene of North America.
- 9:30** **50-3** McELWAIN, JENNIFER C. *The Field Museum, Chicago, IL.* A novel climate-independent method for estimating paleo-elevation from fossil plants.
- 10:00** **50-4** JACOBS, BONNIE F.* and PATRICK S. HERENDEEN². ¹*Southern Methodist University, Dallas, TX*; ²*The George Washington University, Washington, DC.* Evidence for dry climate at the Eocene Mahenge site, north-central Tanzania.
- 10:15** **50-5** GROTE, PAUL J.* , CHONGPAN CHONGLAKMANI, and PRAMOOK BENYASUTA. *Suranaree University of Technology, Nakhon Ratchasima, Thailand.* Tertiary floras of Northern Thailand: charcoalified conifer wood.
- 10:30** **BREAK**
- 10:45** **50-6** DILLHOFF, RICHARD M.^{1,2*}, ESTELLA B. LEOPOLD², and STEVEN R. MANCHESTER³. ¹*Evolving Earth Foundation, Sammamish, Washington*; ²*University of Washington, Seattle*; ³*Florida Museum of Natural History, Gainesville.* The McAbee Flora and its relation to the proposed Middle Eocene “Okanogan Highlands” flora of the Pacific Northwest.
- 11:00** **50-7** MYERS, JEFFREY. *Western Oregon University, Monmouth.* Coastal vegetation from the Middle Eocene of San Diego, California.

- 11:15 50-8** BUECHLER, WALTER K.^{1*} and GEORGE W. ARGUS². ¹Boise, ID; ²Merrickville, Ontario, Canada. Is this a willow leaf? - A review of diagnostic traits in modern *Salix* (Salicaceae) for use in fossil identification.
- 11:30 50-9** FIELDS, PATRICK F. *Michigan State University, East Lansing*. A review of the Middle Miocene *Mahonias* of western North America and a key to their species.
- 11:45 INFORMAL PRESENTATIONS**

WEDNESDAY AFTERNOON, 15 AUGUST

12:00 PM - 1:00 PM **Hyatt, Fiesta 1-2**
MEETING AND LUNCHEON: *American Journal of Botany* Editorial Board

Presiding: KARL J. NIKLAS, Department of Plant Biology, Cornell University, Ithaca NY 14853. Tele: (607) 255-8727, E-mail: kjn2@cornell.edu.

12:00 PM - 1:00 PM **Hyatt, Fiesta 3-4**
INFORMATIONAL MEETING AND LIGHT LUNCH: Project Kaleidoscope (PKAL)

Project Kaleidoscope (PKAL) is an informal, national alliance working to strengthen undergraduate learning in mathematics, engineering, and the various fields of science. PKAL has worked with over 850 colleges and universities since 1989 to build learning environments that best serve 21st century students, science, and society. This informational meeting will provide an overview of PKAL's programs, and several PKAL-affiliated faculty will be available to answer questions.

Presiding: STANLEY RICE, Department of Biological Sciences, Southeastern Oklahoma State University, Durant, OK 74701. Tele: (580) 745-2688, E-mail: srice@sosu.edu.

1:00 PM - 3:45 PM **ACC, 68/70-Sandia/Santa Ana**
SESSION 51

SYMPOSIUM: ABLs / Bryological Section, BSA –
Lichen biodeterioration: progress and problems, Part II

Organized by: LARRY L. ST. CLAIR, Department of Botany and Range Science, Brigham Young University, Provo, UT 84602-0200. Tele: (801) 378-4879, E-mail: larry_stclair@byu.edu; and MARK R. D. SEAWARD, Department of Environmental Science, University of Bradford, Bradford BD7 1DP, UK. Tele: 44-1274-234212.

Presiding: MARK R. D. SEAWARD, University of Bradford, Bradford, UK.

- 1:00 51-1** CHIARI, GIACOMO. *Università di Torino, Torino, Italy*. Lichens on sandstone: do they cause damage?
- 1:30 51-2** PIERVITTORI, ROSANNA. *Università di Torino, Torino, Italy*. Lichens and biodeterioration of stoneworks: the Italian experience.
- 2:00 51-3** GINELL, WILLIAM S.* and RAKESH KUMAR. *Getty Conservation Institute, Los Angeles, CA*. Limestone stabilization studies at a Maya site in Belize.

- 2:30 BREAK**
- 2:45 51-4** TRATEBAS, ALICE. *Bureau of Land Management, Newcastle, WY.* Biodeterioration of rock art and issues in site preservation.
- 3:15 51-5** SILVER, CONSTANCE S. *Preservar, Inc., New York, NY.* Conservators confront lichens: a summary history of conservation's efforts to understand and control lichen-induced deterioration of cultural property.

1:00 PM - 4:00 PM
SESSION 52

ACC, 66-Picuris

SYMPOSIUM: Phytochemical Section, BSA; Developmental and Structural Section, BSA -
Why leaves turn red: the function of anthocyanins in vegetative organs, Part II

Organized by: DAVID W. LEE, Department of Biological Sciences, Florida International University, Miami, FL 33199. Tele: (305) 348-3111, E-mail: leed@fiu.edu; KEVIN GOULD, School of Biological Sciences, University of Auckland, Private Bag 92019, Auckland, NZ. Tele: 9 3737 599 x7298, E-mail: k.gould@auckland.ac.nz; and JAMES W. WALLACE, Biology Department, Western Carolina University, Cullowhee, NC 28723. Tele: (828) 293-5434, E-mail: wallacej@wpoff.wcu.edu.

Presiding: DAVID W. LEE, Florida International University, Miami, FL.

- 1:00 52-1** HOLBROOK, N. MICHELLE*; TAYLOR S. FIELD; and DAVID W. LEE. *Harvard University, Cambridge, MA.* Why leaves turn red in autumn: the role of anthocyanins in senescing leaves of red-osier dogwood (*Cornus stolonifera*).
- 1:30 52-2** STARR, GREGORY* and STEVEN F. OBERBAUER. *Florida International University, Miami, FL.* The role of anthocyanins in photosynthesis of arctic evergreens during spring snow melt.
- 2:00 52-3** GOULD, KEVIN S.*; SAMUEL O. NEILL; and THOMAS VOGELMANN. *University of Auckland, Auckland, New Zealand.* A unified explanation for anthocyanins in leaves?
- 2:30 52-4** ZUFALL, REBECCA and MARK D. RAUSHER*. *Duke University, Durham, NC.* Diffuse coevolution and anthocyanin production.
- 3:00 BREAK**
- 3:30 52-5** GOULD, KEVIN S. *University of Auckland, Auckland, New Zealand.* Summary and panel discussion with symposium participants.

1:00 PM - 5:15 PM
SESSION 53

ACC, 206-Ballroom A

CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
Euasterids I, Part II

Presiding: ERIC H. ROALSON, Laboratory of Molecular Systematics, NMNH, MRC-534, Smithsonian Institution, Washington, DC. 20560. Tele: (301) 238-3444 x113, E-mail: eroalson@onyx.si.edu.

- 1:00 53-1** ROALSON, ERIC H.^{1*}, LARRY E. SKOG², and ELIZABETH A. ZIMMER¹. ¹*Smithsonian Institution, Suitland, MD*; ²*Smithsonian Institution, Washington, DC.* Floral diversification and phylogenetic relationships in *Achimenes* (Gesneriaceae).

- 1:15** **53-2** LINDQVIST, CHARLOTTE* and VICTOR A. ALBERT. *The University of Alabama, Tuscaloosa*. A high elevation ancestry for the Usambara Mountains and lowland populations of African violets (*Saintpaulia*, Gesneriaceae).
- 1:30** **53-3** CLARK, JOHN L. *George Washington University, Washington, DC*. Preliminary phylogeny of *Alloplectus* (Gesneriaceae) based on morphology and ITS sequence data.
- 1:45** **53-4** RØNSTED, NINA¹* and MARK W. CHASE². ¹*Royal Danish School of Pharmacy, Copenhagen, Denmark*; ²*Royal Botanic Gardens, Kew, UK*. Phylogenetic relationships within *Plantago* (Plantaginaceae) based on ITS and *trnL* sequence data.
- 2:00** **53-5** HOGGARD, RON¹*, PAUL KORES¹, MIA MOLVRAY¹, GLORIA HOGGARD¹, and DAVID BROUGHTON². ¹*University of Oklahoma, Norman*; ²*The Queen's University of Belfast, Ireland*. Molecular systematics and biogeography of the amphibious genus *Littorella* (Plantaginaceae).
- 2:15** **53-6** CRAWFORD, PHILLIP T* and WAYNE J. ELISENS. *University of Oklahoma, Norman*. Systematics of native North American *Linaria* (Scrophulariaceae).
- 2:30** **53-7** WALLICK, KYLE, WAYNE ELISENS*, PAUL KORES, and MIA MOLVRAY. *University of Oklahoma, Norman*. Phylogenetic analysis of *trnL-F* sequence variation indicates a monophyletic Buddlejaceae and a paraphyletic *Buddleia*.
- 2:45** **53-8** ZJHRA, MICHELLE L. *Keene State College, Keene, NH*. Cauliflory: seeing the flowers for the trees.
- 3:00** **BREAK**
- 3:15** **53-9** MCDADE, LUCINDA A.¹*, THOMAS F. DANIEL², KEVIN BALKWILL³ and ALISSA M. MARTIN⁴. ¹*Academy of Natural Sciences, Philadelphia, PA*; ²*California Academy of Sciences, San Francisco*; ³*University of the Witwatersrand, South Africa*; ⁴*University of Arizona, Tucson*. Delimitation and subdivision of “Justicioids” (Acanthaceae, Justicieae).
- 3:30** **53-10** WILLIAMS, RACHEL A.* and L. ALAN PRATHER. *Michigan State University, East Lansing*. Evolutionary relationships of the Clinopodioid complex and allied genera (Lamiaceae: Nepetoideae) based on ITS sequence data.
- 3:45** **53-11** HUANG, MINGJUAN*, JOHN V. FREUDENSTEIN, and DANIEL J. CRAWFORD. *The Ohio State University, Columbus*. Systematics of *Trichostema* L. (Lamiaceae): evidence from ITS, *ndhF*, and morphology.
- 4:00** **53-12** BEARDSLEY, PAUL M.*, ALAN YEN, and RICHARD G. OLMSTEAD. *University of Washington, Seattle*. Patterns of speciation and the evolution of hummingbird and self-pollination in the *Erythranthe* clade of *Mimulus* (Phrymaceae) as inferred from an AFLP phylogeny.
- 4:15** **53-13** BEARDSLEY, PAUL M.*, STEVE SCHOENIG, and RICHARD G. OLMSTEAD. *University of Washington, Seattle*. Radiation of *Mimulus* (Phrymaceae) in western North America: evolution of polyploidy, woodiness, and pollination syndromes.
- 4:30** **53-14** HAZLE, THOMAS* and JUDITH M. CANNE-HILLIKER. *University of Guelph, Ontario, Canada*. Ontogenetic floral evolution of *Mimulus lewisii* and *M. cardinalis* (formerly Scrophulariaceae, *s.l.*): allometry and morphology.
- 4:45** **53-15** REE, RICHARD. *Harvard University, Cambridge, MA*. Floral diversity and phylogeny of *Pedicularis*.

- 5:00** **53-16** FAN, CHUANZU* and (JENNY) QIU-YUN XIANG. *North Carolina State University, Raleigh.* Systematic affinities of two enigmatic African families, Grubbiaceae and Hydrostachyaceae - Evidence from nuclear 26S rDNA sequence data.

1:00 PM - 5:45 PM
SESSION 54

ACC, 204-Ballroom B

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Eurosids I and eurosids II***

Presiding: RODGER EVANS, Department of Biology, Acadia University, Wolfville, NS, Canada B0P 1X0.
Tele: (902) 585-1710, E-mail: rodger.evans@acadiau.ca.

- 1:00** **54-1** ALICE, LAWRENCE A.* and AMBER HOGART. *Western Kentucky University, Bowling Green.* Phylogeny of *Rubus* (Rosaceae) based on Granule-Bound Starch Synthase I (GBSSI) gene sequences.
- 1:15** **54-2** ZEREGA, NYREE CONARD* and TIMOTHY J. MOTLEY. *The New York Botanical Garden, Bronx.* *Artocarpus* (Moraceae) molecular phylogeny and the systematics and origins of breadfruit, *Artocarpus altilis*.
- 1:30** **54-3** BORTIRI, ESTEBAN^{1*}, SANG-HUN OH¹, FANG-YOU GAO¹, JIANGUO JIANG², SCOTT BAGGETT^{1,3}, ANDREW GRANGER⁴, CLAY WEEKS¹, MEGAN BUCKINGHAM¹, DAN POTTER¹, and DAN E. PARFITT¹. ¹*University of California, Davis*; ²*Southwest Agricultural University, China*; ³*Lehman College, Bronx, NY*; ⁴*South Australian Research and Development Institute (SARDI), Australia.* Phylogenetics of *Prunus* (Rosaceae) as determined by ITS, the chloroplast *trnL-trnF* spacer and *s6pdh*: implications for subgeneric classification, biogeography and evolution of morphology.
- 1:45** **54-4** LI, GUIQIN^{1*} and YINGLIN MU². ¹*Hebei Economic and Trading University, Shijiazhuang China*; ²*Chicago, IL.* Microsporogenesis observation and karyotype analysis of some species in genus *Juglans* L.
- 2:00** **54-5** OH, SANG-HUN* and DANIEL POTTER. *University of California, Davis.* Phylogenetic relationships in tribe Neillieae (Rosaceae) inferred from DNA sequences.
- 2:15** **54-6** EVANS, RODGER C.* and CHRISTOPHER S. CAMPBELL. *Acadia University, Wolfville, Nova Scotia, Canada; University of Maine, Orono.* Phylogenetic insights into the Maloideae (Rosaceae) from the granule-bound starch synthase I (GBSSI) gene.
- 2:30** **54-7** DICKINSON, TIMOTHY A. *Royal Ontario Museum, and University of Toronto, Canada.* What IS Suksdorf's hawthorn?
- 2:45** **54-8** SCHOENENBERGER, JUERG* and ELENA CONTI. *University of Zürich, Switzerland.* Molecular systematics and floral structure of a Western Gondwanan clade of Myrtales.
- 3:00** **BREAK**
- 3:15** **54-9** CLINEBELL II, RICHARD R. and PETER C. HOCH.* *Missouri Botanical Garden, St. Louis.* Pollination of *Gaura villosa* (Onagraceae) by antlions (Neuroptera).
- 3:30** **54-10** PENNEYS, DARIN S.*, WALTER S. JUDD, NORRIS H. WILLIAMS, and W. MARK WHITTEN. *University of Florida, Gainesville.* A cladistic analysis of *Charianthus* (Miconieae: Melastomataceae) using morphological and molecular characters.

- 3:45** **54-11** MICHELANGELI, FABIAN A. *American Museum of Natural History, New York, NY.* Fruit dispersal and character evolution in the Neotropical genus *Tococa* (Melastomataceae).
- 4:00** **54-12** GOODSON, BARBARA E.^{1*}, JAVIER FRANCISCO-ORTEGA², JAVIER FUERTES-AGUILAR³, ARNOLDO SANTOS-GUERRA⁴, and ROBERT K. JANSEN¹. ¹*University of Texas, Austin*; ²*Florida International University and The Fairchild Tropical Garden, Miami*; ³*Real Jardín Botánico, Madrid, Spain*; ⁴*Jardín de Aclimatación de La Orotava, Tenerife, Canary Islands, Spain.* Phylogenetic relationships of endemic species of *Crambe* sect. *Dendrocrambe* (Brassicaceae) in Macaronesia based on chloroplast DNA restriction site data.
- 4:15** **54-13** FAYETTE, KIM* and LEO P. BRUEDERLE. *University of Colorado, Denver.* Morphometric analyses support specific status for *Eutrema penlandii* Rollins (Brassicaceae).
- 4:30** **54-14** WURDACK, KENNETH J.* and JAMES W. HORN. *The New York Botanical Garden, Bronx; Duke University, Durham, NC.* A reevaluation of the affinities of the Tepuianthaceae: molecular and morphological evidence for placement in the Malvales.
- 4:45** **54-15** SMALL, RANDALL L. *University of Tennessee, Knoxville.* Morphological and genetic variation in *Hibiscus* sect. *Muenchhusia* (Malvaceae).
- 5:00** **54-16** CIOFANI, KRISTEN, LYDIA MIRAMONTES, and RICHARD JENSEN*. *Saint Mary's College, Notre Dame, IN.* Morphometric analyses of red maple (*Acer rubrum* L.), silver maple (*Acer saccharinum* L.), and their hybrid (*Acer X freemanii* E. Murray).
- 5:15** **54-17** PELL, SUSAN K.* and LOWELL E. URBATSCH. *Louisiana State University, Baton Rouge.* Tribal relationships and character evolution in the cashew family (Anacardiaceae): inferences from three regions of the chloroplast genome.
- 5:30** **54-18** MORTON, CYNTHIA M.* and MATTHEW GRANT. *Auburn University, AL; University of Reading, UK.* Phylogenetic relationships of Aurantioideae (Rutaceae): a cladistic analysis using the nuclear internal transcribed spacer region.

1:00 PM - 5:15 PM
SESSION 55

ACC, 50/78/80-Acoma/Tesuque/Zuni

**CONTRIBUTED PAPERS: ASPT / IOPB / Systematics Section, BSA –
*Poaceae and Cyperaceae***

Presiding: J. TRAVIS COLUMBUS, Rancho Santa Ana Botanic Garden, 1500 N. College Avenue, Claremont, CA 91711. Tele: (909) 625-8767, E-mail: j.travis.columbus@cgu.edu.

- 1:00** **55-1** SANCHEZ-KEN, J. GABRIEL*, ROBERT H. MARCH, and LYNN G. CLARK. *Iowa State University, Ames.* Evolution of the mesophyll in the grasses (Poaceae).
- 1:15** **55-2** MARCH, ROBERT H. and LYNN G. CLARK*. *Iowa State University, Ames.* Fusoid cells in bamboos and basal grasses (Poaceae): source of enhanced enlightenment?
- 1:30** **55-3** GUALA, GERALD*, DAVID BOGLER, JAMES SADLE, and JAVIER FRANCISCO ORTEGA. *Fairchild Tropical Garden and Florida International University, Miami.* Polyphyly in the Brazilian bamboo genus *Apoclada* (Poaceae: Bambusoideae).
- 1:45** **55-4** CATALAN, PILAR*, PEDRO TORRECILLA, and JOSE ANGEL LOPEZ-RODRIGUEZ. *University of Zaragoza, Spain.* A reclassification of within-Poaceae-groups based on molecular evidence.

- 2:00** 55-5 GILLESPIE, LYNN J. and ROBERT J. SORENG*. *Canadian Museum of Nature, Ottawa; Smithsonian Institution, Washington, DC.* A phylogenetic analysis of *Poa* (Poaceae) based on cpDNA restriction site data: DNA variation versus morphological divergence.
- 2:15** 55-6 GILLESPIE, LYNN J.^{1*}, SAOOD OMER¹, and ROBERT J. SORENG². ¹*Canadian Museum of Nature, Ottawa; 2*Smithsonian Institution, Washington, DC. Chloroplast DNA restriction site variation in North American *Poa* section *Poa*.
- 2:30** 55-7 CONSAUL, LAURIE L.* and LYNN J. GILLESPIE. *Canadian Museum of Nature, Ottawa.* Preliminary morphological and molecular analyses on alkali grasses (*Puccinellia*, Poaceae) in the Canadian arctic archipelago.
- 2:45** 55-8 BARBER, JANET C.^{1*}, LILIANA M. GIUSSANI², and ELIZABETH A. KELLOGG¹. ¹*University of Missouri, St. Louis; 2*Instituto de Botánica Darwinion, San Isidro, Argentina. Phylogeny of Poaceae subfamily Panicoideae based on sequences of phytochrome B, a low-copy nuclear gene.
- 3:00** **BREAK**
- 3:15** 55-9 DUVALL, MELVIN R.¹, JEFFREY D. NOLL^{2*}, and ALEXANDRA H. MINN¹. ¹*Northern Illinois University, DeKalb; 2*South Dakota State University, Brookings. Phylogenetics of Paniceae (Poaceae).
- 3:30** 55-10 CERROS-TLATILPA, ROSA* and J. TRAVIS COLUMBUS. *Rancho Santa Ana Botanic Garden, Claremont, CA.* Phylogenetics of *Aristida* (Gramineae) based on internal transcribed spacer sequences (nrDNA).
- 3:45** 55-11 BOYKIN, LAURA*, TIMOTHY LOWREY, and WILLIAM POCKMAN. *University of New Mexico, Albuquerque.* Ecology and evolution of Orcuttieae (Poaceae): an endangered vernal pool grass.
- 4:00** 55-12 PETERSON, PAUL M.^{1*}, J. TRAVIS COLUMBUS², ROSA CERROS TLATILPA², and MICHAEL S. KINNEY². ¹*Smithsonian Institution, Washington, DC; 2*Rancho Santa Ana Botanic Garden, Claremont, CA. Phylogenetics of *Muhlenbergia* and relatives (Poaceae: Chloridoideae) based on internal transcribed spacer region sequences (nrDNA).
- 4:15** 55-13 COLUMBUS, J. TRAVIS* and ERIC H. ROALSON. *Rancho Santa Ana Botanic Garden, Claremont, CA.* Phylogenetics of *Hilaria* and *Pleuraphis* (Gramineae: Chloridoideae).
- 4:30** 55-14 SIQUEIROS-DELGADO, MARIA ELENA* and J. TRAVIS COLUMBUS. *Rancho Santa Ana Botanic Garden, Claremont, CA.* Evolution of the *Bouteloua curtispindula* complex (Gramineae: Chloridoideae) based on molecular data.
- 4:45** 55-15 YOUNG, LAURA*, PAUL KORES, and MIA MOLVRAJ. *University of Oklahoma, Norman.* Phylogenetic analysis of *Schoenoplectus* (Cyperaceae) using ITS sequence data.
- 5:00** 55-16 YELTON, SHARON* and ROBERT F. NACZI. *Harvard University, Cambridge, MA; Northern Kentucky University, Highland Heights.* Sectional circumscription and relationships of gynecandrous *Carex* subgenus *Vignea* (Cyperaceae) based on morphology.

1:00 PM - 4:00 PM
SESSION 56

ACC, 76-Taos

CONTRIBUTED PAPERS: Ecological Section, BSA –
Mostly reproductive biology

Presiding: LEAH L. LARKIN, Section of Integrative Biology, University of Texas at Austin, Austin, TX 78712. Tele: (512) 471-3878, E-mail: leah-perle@mail.utexas.edu.

- 1:00** **56-1** LADOUX, TASHA* and ELIZABETH A. FRIAR. *Rancho Santa Ana Botanic Garden, Claremont, CA.* Self-incompatibility in *Ipomopsis tenuifolia* (Polemoniaceae).
- 1:15** **56-2** LARKIN, LEAH L.,^{1*} JOHN L. NEFF², and BERYL B. IMPSON¹. ¹*University of Texas at Austin* and ²*Central Texas Melittological Insitute, Austin.* Evolution of floral specificity in a group of andrenid bees.
- 1:30** **56-3** LARSON, KATHERINE C. *University of Central Arkansas, Conway.* Lack of pollinators limits fruit set in the exotic *Lonicera japonica*.
- 1:45** **56-4** MILLER, JILL S. *University of Colorado, Boulder.* Floral morphometrics and the evolution of sexual dimorphism in *Lycium* (Solanaceae).
- 2:00** **56-5** MOREHOUSE, SARAH and STEVEN B. CARROLL.* *Truman State University, Kirksville, MO.* Effect on pollinator behavior of a flower-color polymorphism in *Viola pedata*.
- 2:15** **56-6** SHANER, MARIEKEN G. M.,* and DIANE L. MARSHALL. *University of New Mexico, Albuquerque.* Under how wide a set of conditions will nonrandom mating occur in *Raphanus sativus*?
- 2:30** **BREAK**

Presiding: LEAH L. LARKIN, Section of Integrative Biology, University of Texas at Austin, Austin, TX 78712. Tele: (512) 471-3878, E-mail: leah-perle@mail.utexas.edu.

- 2:45** **56-7** SKAGGS, DALE,* HEATHER SWEET, and JOHANNE BRUNET. *Oregon State University, Corvallis.* The impact of plant architecture on selfing rate in *Aquilegia coerulea* (Ranunculaceae).
- 3:00** **56-8** SUDLER, K. NICOLE. *University of Kentucky, Lexington.* Phenotypic selection on sexual reproduction vs. clonal expansion in five populations of *Viola blanda*.
- 3:30** **56-9** BAGGS, JOANNE E.* and JOYCE MASCHINSKI. *The Arboretum at Flagstaff, AZ.* Detecting morphological and growth rate differences of a confusing *Purshia* complex using a common garden study.

WEDNESDAY

1:15 PM - 6:00 PM
SESSION 57

ACC, 202-Ballroom C

**SYMPOSIUM: Developmental and Structural Section, BSA / IAWA –
*Structural botany in systematics: a symposium in memory of William C. Dickison***

Organized by: DENNIS W. STEVENSON and KENNETH M. CAMERON, The New York Botanical Garden, Bronx, NY 10458. Tele: (718) 817-8179, E-mail: dws@nybg.org, and kcameron@nybg.org.

Presiding: DENNIS W. STEVENSON, The New York Botanical Garden, Bronx.

- 1:15** **57-1** GENSEL, PATRICIA G. *The University of North Carolina, Chapel Hill.* Opening remarks on Bill Dickison's life and contribution to botanical science.
- 1:30** **57-2** CAMERON, KENNETH M. *The New York Botanical Garden, Bronx.* On the phylogenetic position of the New Caledonian endemic families Strausbergeriaceae, Oncothecaceae, and Paracryphiaceae: a comparison of molecules and wood anatomy.
- 2:00** **57-3** RUDALL, PAULA J. *The Royal Botanical Gardens, Kew, UK.* Floral morphology of Asparagales: unique structures and iterative evolutionary themes.
- 2:30** **57-4** BEHNKE, H.-DIETMAR. *University of Heidelberg, Germany.* Sieve-element plastids and evolution of monocotyledons - with emphasis on Melanthiaceae sensu lato and Aristolochiaceae-Asaroideae, a putative dicotyledon sister group.
- 3:00** **57-5** ENDRESS, PETER K. *The University of Zurich, Zurich, Switzerland.* Flower morphology and angiosperm systematics in the molecular era.
- 3:30** **BREAK**
- 3:45** **57-6** WHEELER, ELISABETH A. *North Carolina State University, Raleigh.* Dicotyledonous woods: the fossil record.
- 4:15** **57-7** KEATING, RICHARD C. *Southern Illinois University, Edwardsville.* Comparative anatomy and specialization of leaf structure in Araceae and Acoraceae.
- 4:45** **57-8** TERRAZAS-SALGADO, TERESA. *National University of Mexico, Mexico City, Mexico.* Comparative stem anatomy in the subfamily Cactoideae-Cactaceae.
- 5:15** **57-9** MUSSELMAN, LYTTON J. *Old Dominion University, Norfolk, VA.* Surface features of quillwort (*Isoetes*, Isoetaceae, Lycophyta).
- 5:45** **57-10** STEVENSON, DENNIS W. *The New York Botanical Garden, Bronx.* Concluding remarks.

3:30 PM - 4:30 PM
SESSION D4

ACC, 60/62-Nambe/Navajo

DISCUSSION SESSION: Why botany?

Presiding: DONALD R. KAPLAN, Department of Plant and Microbial Biology, 111 Koshland Hall #3102, University of California, Berkeley, Berkeley, CA 94720-3102. Tele: (510) 642-4187, E-mail: kaplandr@nature.berkeley.edu.

3:30 PM - 4:30 PM
SESSION D5

ACC, 52-Apache

DISCUSSION SESSION: Scientific publishing in an electronic age

Presiding: VICTORIA C. HOLLOWELL, Missouri Botanical Garden, MBG Press, P. O. Box 299, St. Louis, MO 63166-0299. Tele: (314) 577-0862, E-mail: victoria.hollowell@mobot.org.

4:00 PM - 4:45 PM

BUSINESS MEETING: Ecological Section, BSA

ACC, 76-Taos

Presiding: MASSIMO PIGLIUCCI, Departments of Botany and of Ecology & Evolutionary Biology, University of Tennessee, Knoxville, TN 37996-1100. Tele: (865) 974-6221, E-mail: pigliucci@utk.edu.

4:30 PM - 5:45 PM

BUSINESS MEETING: IOPB

ACC, 66-Picuris

Presiding: KONRAD BACHMANN, Institut für Pflanzengenetik und Kulturpflanzenforschung, IPK Gatersleben, D-06466 Gatersleben, Germany. Tele: +49-39482-5465, E-Mail: bachmann@ipk-gatersleben.de.

4:30 PM - 5:30 PM

RECEPTION: Anthocyanin Symposium Speakers

ACC, 56/58-Isleta/Jemez

WEDNESDAY EVENING, 15 AUGUST

6:00 PM - 7:00 PM
MIXER: BSA

Hyatt, Sendero Lobby

7:00 PM - 10:00 PM
BANQUET: BSA

Hyatt, Sendero Ballroom

Address of the BSA President-elect: JUDY JERNSTEDT. *University of California, Davis*. With apologies to Euell Gibbons: stalking the wild *Welwitschia*.

WEDNESDAY

THURSDAY, 16 AUGUST

8:00 AM - 9:30 PM

MEETING: BSA Executive Committee

Hyatt, Fiesta 1

Presiding: JUDY JERNSTEDT, Department of Agronomy & Range Science, University of California-Davis, Davis, CA 95616-8515. Tele: (530) 752-7166, Email: jjernstedt@ucdavis.edu.

8:00 AM - 5:00 PM

MEETING: Deep Time Research Coordination Network

Hyatt, Fiesta 3

The Deep Time Research Coordination Network is an alliance that facilitates research at the interface of paleobotany, geology, and systematics/phylogenetics. This meeting is open by reservation only, please contact the organizer if you are interested in reserving a place (Doug Soltis; dsoltis@mail.wsu.edu). Other organizers include: Pam Soltis (soltis@wsu.edu), David Dilcher (dilcher@flmnh.ufl.edu), and Pat Herenden (herenden@gwis2.circ.gwu.edu).

Presiding: DOUGLAS E. SOLTIS, Department of Botany and the Genetics Institute, University of Florida, Gainesville, FL 32611. E-mail: dsoltis@mail.wsu.edu.

8:00 AM - 5:00 PM

MEETING: Deep Gene Research Coordination Network

Hyatt, Fiesta 4

The Deep Gene Research Coordination Network is an alliance that focuses on integrating plant phylogenetics and plant genomics. This meeting is open by reservation only, please contact the organizer if you are interested in reserving a place (Brent Mishler; bmishler@socrates.berkeley.edu).

Presiding: BRENT D. MISHLER, University of California-Berkeley, University and Jepson Herbaria, 1001 Valley Life Sciences Bldg # 2465, Berkeley, CA 94720-2465. Tele: (510) 642-6810, E-mail: bmishler@socrates.berkeley.edu.

9:30 AM - 5:00 PM

MEETING: BSA Strategic Planning Group

Hyatt, Fiesta 1

Presiding: PATRICIA G. GENSEL, Department of Biology, CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280. Tele: (919) 962-6937, E-mail: pgensel@bio.unc.edu.

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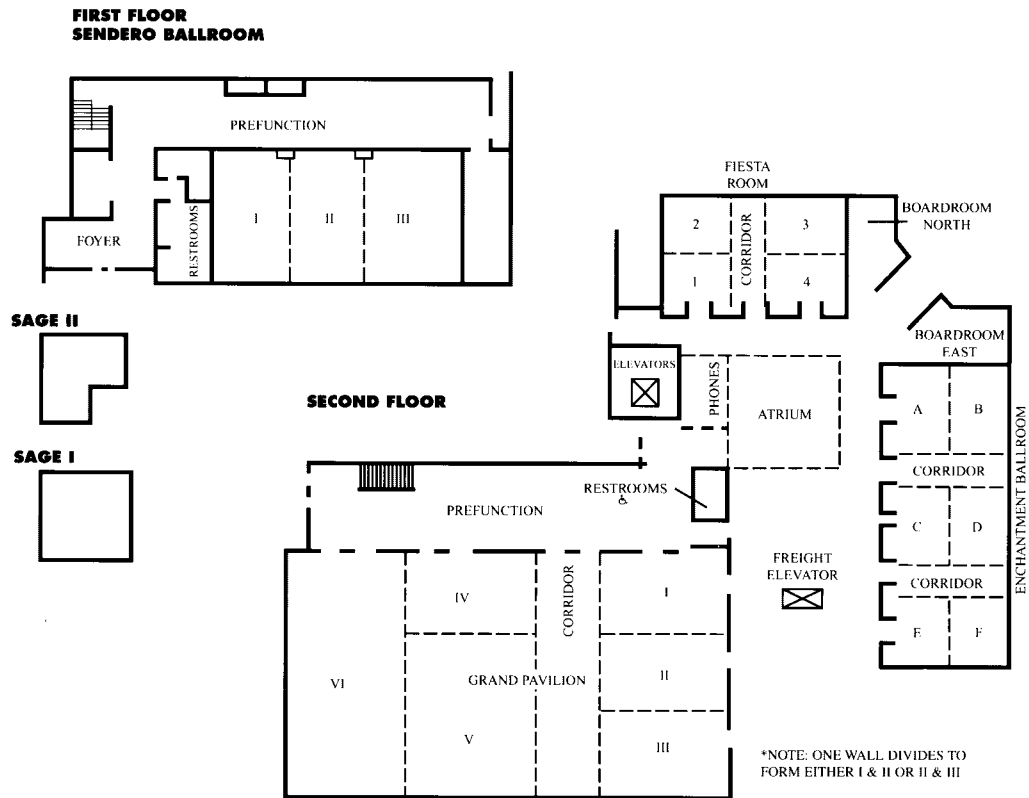
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