

Curriculum Vitae

JAMES MARK PORTER

Address: Rancho Santa Ana Botanic Garden
1500 College Avenue
Claremont, California 91711-3101
Telephone: Office (RSABG)- (909) 625-8767 ext. 229
FAX: (909) 626-7670
Email: J.Mark.Porter@cgu.edu
Webpage: <http://www.rsabg.org/faculty?catid=147:articles&id=152:j-mark-porter>

Education

University of Arizona, Department of Ecology and Evolutionary Biology; Aug. 1987-1993; Ph.D. degree, August 1993.

Fort Lewis College, Durango, Colorado; Jan. 1985- May 1987; Major: Biology; BS. degree (Summa Cum Laude), April, 1987.

Professional Experience

Associate Professor of Botany and Researcher. Rancho Santa Ana Botanic Garden and Claremont Graduate University. Courses taught: Quantitative Phylogenetics, Field Botany, Advances in Phylogenetics Seminar, Quantitative Morphology (Morphometrics), Families of Flowering Plants, Molecular Evolution, and Plant Diversity and Evolution. Sept. 1, 1993 to present. Acting Chair of the Program in Botany 1993-1995; 2004-2006.

Teaching Associate. University of Arizona, Department of Ecology and Evolutionary Biology: Plant Diversity and Evolution, Systematic Botany, Natural History of the Southwest, Environmental Biology, General Biology, and Human Anatomy and Physiology.

Research Assistant. University of Arizona, Department of Ecology and Evolutionary Biology: Under the direction of Dr. Michael Donoghue: ontogenetic patterns in *Viburnum* fruit, Jan.- May 1988; chloroplast DNA variation in *Nolina*, Jan.- Aug. 1989; sequencing of the nrDNA ITS region of *Polemoniaceae*, May 1992- Aug. 1992. Under the direction of Dr. Mary Kay O'Rourke: air-borne pollen in Tucson, May- Aug. 1988; variation in pollen morphology of Subgenus *Cylindropuntia* (*Opuntia*), July- Sept. 1990.

Field Biologist, Consultant. Ecosphere Environmental Services, Farmington, New Mexico; 1983-1991: Documentation, study design, and analysis of flora, fauna, endangered and threatened plant and animal resources; biological assessments.

Field naturalist, Ohio Historical Society, Cedar Bog State Memorial, Urbana, Ohio; June -Sept. 1983: Conducted tours of a natural area, trail and grounds maintenance, special programs (prairie plants, rare plants).

Awards and Scholarships

1994. George R. Cooley Award. American Society of Plant Taxonomists.
1987. University of Arizona Continuing Student Scholarship.
1987. Ft. Lewis College, John F. Reed, Outstanding Biologist Award
1986. Ft. Lewis College Outstanding Junior Biologist Award.
1985. Ft. Lewis College Continuing Student Scholarship.

Professional Societies

American Society of Plant Taxonomists, member since 1989.
American Society of Systematic Biologists, member since 1987.
Botanical Society of America, Systematics Section Chair 1998-2002.
Cactus and Succulent Society (USA), member since 2000.
Southern California Botanists, member, Editor of *Crossosoma* 1996, President 1996, Vice President 2017, Board of Directors 2010 to present.
California Botanical Society, member, Second Vice President 1995; and Editorial Board of *Madroño*, 1995–2000.
Editorial Board of *Aliso*, 1993 to present.

Publications

- Johnson, L. A., and J. M. Porter. 2017. Fates of angiosperm species following long-distance dispersal: Examples from American amphitropical Polemoniaceae. *American Journal of Botany* **104**: 1729-1744. <https://doi.org/10.3732/ajb.1700183>
- Maya-Lastra, C. A., J. M. Porter and V. W. Steinmann. 2017. Evolutionary history and taxonomy of the *Euphorbia polycarpa* complex (*Euphorbia* subg. *Chamaesyce* sect. *Anisophyllum*, Euphorbiaceae). *Systematic Botany* **42**: 257–270. <https://doi.org/10.1600/036364417X695565>
- Baker, M. A., and J. M. Porter. 2016. The use of multivariate analyses of morphological characters and DNA analyses for assessing the taxonomic ranking of rare plant taxa: an example comparing populations of *Echinomastus erectocentrus* var. *acunensis* with those of its relatives *E. erectocentrus* var. *erectocentrus* and *E. johnsonii*. In: *Endangered Species: Threats, Conservation and Future Research* Nova Science Publishers, Inc. Hauppauge, NY.
- Felger, R. S., S. Rutman, and J. M. Porter. 2016. Ajo Peak to Tinajas Altas: Flora of Southwestern Arizona. Part 18. Eudicots: Polemoniaceae – Phlox Family. *Phytoneuron* 2016-35: 1–24. Published 11 May 2016. ISSN 2153 733X.

Porter J. M., and R. Patterson. 2015. A fistful of Polemoniaceae: new names and combinations. *Aliso* **32**: 55–88.

Goettsch, B., C. Hilton-Taylor, G. Cruz-Piñón, J.P. Duffy, A. Frances, H.M. Hernández, R. Inger, C. Pollock, J. Schipper, M. Superina, N.P. Taylor, M. Tognelli, A.M. Abba, S. Arias, H.J. Arreola-Nava, M.A. Baker, R.T. Bárcenas, D. Barrios, P. Braun, C.A. Butterworth, A. Búrquez, F. Caceres, M. Chazaro-Basañez, R. Corral-Díaz, M. del Valle Perea, P.H. Demaio, W.A. Duarte de Barros, R. Durán, L.F. Yancas, R.S. Felger, B. Fitz-Maurice, W.A. Fitz-Maurice, G. Gann, C. Gómez-Hinostrosa, L.R. Gonzales-Torres, M.P. Griffith, P.C. Guerrero, B. Hammel, K.D. Heil, J.G. Hernández-Oria, M. Hoffmann, M.I. Ishihara, R. Kiesling, J. Larocca, J.L. León-de la Luz, C.R. Loaiza S., M. Lowry, M.C. Machado, L.C. Majure, J.G. Martínez Ávalos, C. Martorell, J. Maschinski, E. Méndez, R.A. Mittermeier, J.M. Nassar, V. Negrón-Ortiz, L.J. Oakley, P. Ortega-Baes, A.B. Pin Ferreira, D.J. Pinkava, **J.M. Porter**, R. Puente-Martinez, J.R. Gamarra, P.S. Pérez, E. Sánchez Martínez, M. Smith, J.M. Sotomayor M. del C., S.N. Stuart, J.L. Tapia Muñoz, T. Terrazas, M. Terry, M. Trevisson, T. Valverde, T.R. Van Devender, M.E. Véliz-Pérez, H.E. Walter, S.A. Wyatt, D. Zappi, J.A. Zavala-Hurtado and K.J. Gaston. 2015. High proportion of cactus species threatened with extinction. *Nature Plants* **1**, Article number: 15142. DOI: 10.1038/NPLANTS.2015.142

Porter, J. M. 2013. *Chimaphila* Pursh., pp. 496–497; *Moneses* Salisb., pp. 497–498; *Orthilla* Raf., pp. 498–499; Phrymaceae Schaur, pp. 706–709; Polemoniaceae Juss., pp. 816–835; *Pyrola* L. pp. 499–501 in: K.D. Heil, S.L. O’Kane, L.M. Reeves and A. Clifford, *Flora of the Four Corners Region*, Missouri Botanical Garden Press, St. Louis, MO 1098 pp.

Porter, J. M., and K. D. Heil. 2013. Orobanchaceae Vent. (excluding *Castilleja* and *Orobanche*), pp.687–700; Plantaginaceae Juss. (excluding *Callitriche*, *Hippuris*, *Penstemon* and *Plantago*), pp 709–731 in: K.D. Heil, S.L. O’Kane, L.M. Reeves and A. Clifford, *Flora of the Four Corners Region*, Missouri Botanical Garden Press, St. Louis, MO 1098 pp.

Heil, K. D., and J. M. Porter. 2013. Cactaceae Juss., pp. 387–397 in: K.D. Heil, S.L. O’Kane, L.M. Reeves and A. Clifford, *Flora of the Four Corners Region*, Missouri Botanical Garden Press, St. Louis, MO 1098 pp.

Emshwiller, E, K. D. Heil and J. M. Porter. 2013. Oxalidaceae R. Br., pp. 700–701 in: K.D. Heil, S.L. O’Kane, L.M. Reeves and A. Clifford, *Flora of the Four Corners Region*, Missouri Botanical Garden Press, St. Louis, MO 1098 pp.

Porter, J.M., J. Cruse-Sanders, L. Prince, and R. Lauri. 2012. Species status of *Sclerocactus brevispinus*, *S. wetlandicus*, and *S. glaucus*: Inferences from morphology, chloroplast DNA sequences and AFLP markers. *Aliso* **30**: 69–83.

- Porter, J.M. 2012. *Aliciella* Brand. Pp. 1037–1038; *Gilia* Ruiz & Pav. Pp. 1043–1052; *Linanthus* Benth. Pp. 1058–1060; *Sclerocactus* Britt. & Rose. Pp. 586–588 in: The Jepson Manual: Vascular Plants of California, Second Edition, University of California Press, Berkeley.
- Porter, J. M. 2011. Two new *Aliciella* species and a new subspecies in *Ipomopsis* (Polemoniaceae) from the western United States of America. *Phytotaxa* **15**: 15–25
- Porter, J. M., L. A. Johnson, and D. Wilken. 2010. Phylogenetics and evolution of *Ipomopsis* (Polemoniaceae): inferences from chloroplast *trnL-F* and nuclear ribosomal ITS DNA sequences. *Systematic Botany* **35**: 181–200.
- Porter, J. M., and V. W. Steinmann. 2009. Two new *Loeselia* (Polemoniaceae) species from Michoacán, Mexico. *Systematic Botany* **34**: 730–736.
- Griffith, M. P., and J. M. Porter. 2009. Phylogeny of Opuntioideae (Cactaceae). *International Journal of Plant Sciences* **170**: 107–116.
- Porter, J. M., and L. A. Prather. 2007. *Cantua dendritica* (Polemoniaceae) a new species from Peru, and two new *Cantua* names. *Aliso* **24**: 31–35.
- Columbus, J. T., E. A. Friar, J. M. Porter, L. M. Prince, and M. G. Simpson (eds.). 2007. Monocots: Comparative Biology and Evolution—Poales. *Aliso* **23**: 1–682.
- Friar, E. A., L. M. Prince, E. H. Roalson, M. E. McGlaughlin, J. M. Cruse-Sanders, S. J. De Groot and J. M. Porter. 2006. Ecological speciation in the east Maui-endemic *Dubautia* (Asteraceae) species. *Evolution*, **60**: 1777–1792.
- Columbus, J. T., E. A. Friar, J. M. Porter, L. M. Prince, and M. G. Simpson (eds.). 2006. Monocots: Comparative Biology and Evolution—Excluding Poales. *Aliso* **22**: 1–735.
- Porter, J. M., and N. Fraga. 2006. A quantitative analysis of pollen variation in two Southern California species of *Helianthus* (Asteraceae). *Crossosoma* 31: 1–12.
- Wilken, D., and J. M. Porter. 2005. Vascular plants of Arizona: Polemoniaceae, Phlox family. *Arizona Botanist* **1**: 1–37.
- Johnson, L. A., K. H. Huish, and J. M. Porter. 2004. Seed surface sculpturing and its systematic significance in *Gilia* (Polemoniaceae) and segregate genera. *International Journal of Plant Sciences* **165**: 153-172.
- Heil, K. D. and J. M. Porter. 2004 *Sclerocactus*. pp. 197-206, In: Flora of North America Editorial Committee, eds. Flora of North America North of Mexico. vol. 4. New York and Oxford.

- Heil, K. D. and J. M. Porter. 2004 *Pediocactus*. pp. 211-216, In: Flora of North America Editorial Committee, eds. Flora of North America North of Mexico. vol. 4. New York and Oxford.
- Griffith, M. P. and J. M. Porter. 2003. Back to basics: a simple method of DNA extraction for mucilaginous cacti. *Bradleya* 21: 126-128.
- Fraga, N. S., and J. M. Porter. 2003. Noteworthy collection, California—*Saltugilia latimerii* Weese & Johnson (Polemoniaceae). *Madroño* 50: 313.
- Steinmann, V.W. and J.M. Porter. 2002. Phylogenetic relationships in Euphorbieae (Euphorbiaceae) based on ITS and *ndhF* sequence data. *Ann. Missouri Bot. Gard.* 89: 453-490.
- Heil, K. D. and J. M. Porter. 2001. Vascular plants of Arizona: Cactaceae Part 5. *Pediocactus* Britt. & J. N. Rose and *Sclerocactus* Britt. & J. N. Rose. *J. Ariz.-Nev. Acad. Sci.* 33: 9–18.
- Columbus, J. T., H. L. Bell, R. Cerros-Tlatilpa, M. P. Griffith, & J. M. Porter. 2001. *Schaffnerella* rediscovered! (Gramineae, Chloridoideae). *Aliso* 20: 45–50.
- Allan, G. J., and J. M. Porter. 2000. Tribal delimitation and phylogenetic relationships of Loteae and Coronilleae (Faboideae: Fabaceae) with special reference to *Lotus*: evidence from nuclear ribosomal ITS sequences. *Syst. Bot.* 87: 1871–1881.
- Porter, J. M. and L. A. Johnson. 2000. A phylogenetic classification of Polemoniaceae. *Aliso* 19: 55-91.
- Porter, J. M., M. Kinney, and K. D. Heil. 2000. Relationships between *Sclerocactus* and *Toumeyia* (Cactaceae) based in chloroplast *trnL-F* sequences. *Haseltonia* 7: 8–23.
- Morrell, P. L., J. M. Porter and E. A. Friar. 2000. Intercontinental dispersal: the origin of the widespread South American plant species *Gilia laciniata* (Polemoniaceae) from a rare California and Oregon coastal endemic. *Plant Syst. Evol.* 13–32.
- Columbus, J.T., M.S. Kinney, M. E. Siqueros D., and J. M. Porter. 2000. Phylogenetics of *Bouteloua* and relatives (Gramineae: Chloridoideae): Cladistic parsimony analyses of internal transcribed spacer (nrDNA) and *trnL-F* (cpDNA) sequences. In S. W. L. Jacobs and J. Everett [eds.] Proceedings of the *Second International Conference on the Comparative Biology of the Monocotyledons* and the *Third International Symposium on Grass Systematics and Evolution*. Vol. 2 Grass systematics and evolution. CSIRO Publ., Victoria, Australia.
- Boyd, S., and J. M. Porter. 2000. Noteworthy collection—California: *Eriastrum hooveri* (Polemoniaceae). *Madroño* 46: 215–216.

- Porter, J. M. and L. A. Johnson 1998. Phylogenetic relationships of Polemoniaceae: inferences from mitochondrial *nad1b* intron sequences. *Aliso* 17: 159–190.
- Porter, J. M. 1998. *Aliciella*, a recircumscribed genus of Polemoniaceae. *Aliso* 17: 23–46.
- Porter, J. M. 1998. Nomenclatural changes in Polemoniaceae. *Aliso* 17: 83–85.
- Spencer, S. C. and J. M. Porter. 1997. Evolutionary diversification and adaptation to novel environments in *Navarretia* (Polemoniaceae). *Syst. Bot.* 22: 649–668.
- Porter, J. M. 1997. Introduction (Twelfth Annual Southwestern Botanical Systematics Symposium, The Linnean Hierarchy: Past, Present, and Future). *Aliso* 15: 79–80.
- Porter, J. M. 1996. Phylogeny of *Polemoniaceae* based on nuclear ribosomal internal transcribed spacer DNA sequences. *Aliso* 15: 57–77.
- Anderson, J. L., J. M. Porter, and M. K. Debacon. 1996. Is *Hymenoxys helenoides* (Rydb.) Kkll. a species or a hybrid? Morphological and molecular evidence. pp. 113–124 In: J. Maschinski, H. D. Hammond and L. Holter tech. eds., Southwestern rare and endangered plants: Proceedings of the Second conference. 1995 September 11–14, Flagstaff, AZ. Gen. Tech. Rep. RM-GTR-283. Ft. Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 328 pp.
- Baldwin, B. G., M. J. Sanderson, J. M. Porter, M. F. Wojciechowski, C. S. Campbell, and M. J. Donoghue. 1995. The ITS region of nuclear ribosomal DNA: a valuable source of evidence on angiosperm phylogeny. *Annals Missouri Bot. Gard.* 82: 247–277.
- Heil, K. D. and J. M. Porter. 1994. *Sclerocactus*: A revision. *Haseltonia* 2: 20–46.
- Heil, K. D. and J. M. Porter. 1994. Book review: The Genus *Sclerocactus* Revised (Magnificent Fascinating Natural Wonder). *Cactus and Succulent Journal* 66: 10.
- Anderson, J. and J. M. Porter. 1994. A new species of *Astragalus* from southwestern Colorado and its phylogenetic relationships. *Syst. Bot.* 19: 116–125.
- Sanderson, M. J., B. G. Baldwin, G. Bharathan, C. S. Campbell, C. von Dohlen, D. Ferguson, J. M. Porter, M. F. Wojciechowski, and M. J. Donoghue. 1993. The growth of phylogenetic information and the need for a phylogenetic data base. *Syst. Biol.* 42: 562–568.
- Heil, K. D., J. M. Porter, R. Fleming, and W. Romme. 1993. Vascular Flora and Vegetation of Capitol Reef National Park, Utah. Technical Report NPS/ NAUCARE/ NRTR-93/01. National Park Service, Cooperative Park Studies Unit, Northern Arizona University. 82 p.

Romme, W. H., K. D. Heil, J. M. Porter and R. Fleming. 1993. Plant Communities of Capitol Reef National Park, Utah. Technical Report NPS/ NAUCARE/ NRTR-93/02. National Park Service, Cooperative Park Studies Unit, Northern Arizona University. 39 p.

Porter, J. M. and L. Floyd-Hanna. 1993. A phylogenetic approach to natural historical and demographic explanations of rarity of *Gilia formosa*. pp. 236–248 In: R. Sivinski and K. Lightfoot eds., Proceedings of the Southwestern rare and endangered plant conference. Miscellaneous publication No. 2 New Mexico Forestry and Resources Conservation Division, Energy, Minerals and Natural Resources Department, Santa Fe, New Mexico. 390 pp.

Heil, K. D., J. M. Porter, R. Fleming and W. Romme. 1993. Rare plant diversity between Capitol Reef National Park and Canyonlands, Arches National Parks and Bridges National Monument of southeastern Utah. pp. 78–102 In: R. Sivinski and K. Lightfoot eds., Proceedings of the Southwestern rare and endangered plant conference. Miscellaneous publication No. 2 New Mexico Forestry and Resources Conservation Division, Energy, Minerals and Natural Resources Department, Santa Fe, New Mexico. 390 pp.

Heil, K. D., J. M. Porter and S. L. Welsh. 1989. A new species of *Asclepias* (Asclepiadaceae) from northwestern New Mexico. *Great Basin Naturalist* 49: 100–103.

Manuscripts Under Review

Lara Cabrera, S.I., J.M. Porter & V.W. Steinmann. 2016. The dissolution of *Salvia s.l.* (Kicking the hornet's nest): the resurrection of *Lasemia* and *Ramona*. *Phytotaxon*, submitted.

Bell, D.S. and J.M. Porter. 2016. A new subspecies of *Linanthus maculatus* from the Jacumba Mountains. *Crossosoma* submitted.

Porter J. M., and L.M. Prince. 2016. Phylogenetic and genetic relationships within *Astragalus* sect. *Inflati*, subsect. *Proriferi*: Position of Peirson's milkvetch. *Aliso*, accepted pending revisions.

Professional Papers

Porter, J. M., N. S. Fraga and T. Stoughton. 2013. Report on genetic analyses of Sneed pincushion cactus. Prepared for Gulf South Research Corporation. 8081 GSRI Ave., Baton Rouge, LA.

Porter J. M., and L.M. Prince. 2011. Report on the evidence supporting generic and species circumscriptions in the genus *Sclerocactus* with recommendations for a

biologically justified taxonomy that will be stable into the future, and biological assessments of species of concern. Report to Division of Scientific Authority, United States Fish and Wildlife Service, International Affairs, Arlington, Virginia. Unpublished report. 295 pp.

Porter J.M., J. Cruse-Sanders, L. Prince, and R. Lauri. 2008. An assessment of genetic relationships among *Sclerocactus brevispinus*, *S. wetlandicus*, and *S. glaucus*. Report to U.S. Fish and Wildlife Service. Mesa, Colorado. Unpublished report.

Porter J. M., and L.M. Prince. 2007. Phylogenetic and Genetic Relationships Within *Astragalus* sect. *Inflati*, subsect. *Proriferi*: Position of Peirson's Milkvetch. Report to the California Department of Game and Fish, Sacramento, California. Unpublished report.

Porter, J. M. 2003. Natural History of Peirson's Milkvetch—Progress Report 4: June 1 2003. Report to the California Department of Game and Fish, Sacramento, California. Unpublished report.

Porter, J. M. 2002. Phylogenetic analysis of chloroplast *trnL-F* DNA sequences in *Pediocactus* (Cactaceae), with special reference to *P. peeblesianus*. Report to the Bureau of Land Management, Phoenix, Arizona. Unpublished report.

Porter, J. M. 2002. Natural history of Peirson's Milkvetch—Progress Report 3: March 1 2003. Report to the California Department of Game and Fish, Sacramento, California. Unpublished report.

Porter, J. M. 2002. Natural History of Peirson's Milkvetch—Progress Report 2: December 1 2002. Report to the California Department of Game and Fish, Sacramento, California. Unpublished report.

Porter, J. M. 2002. Natural History of Peirson's Milkvetch—Progress Report 1: September 1 2002. Report to the California Department of Game and Fish, Sacramento, California. Unpublished report.

Porter, J. M. and K. D. Heil. 1994. Status of *Gilia caespitosa* A. Gray. Report to the Bureau of Land Management and US Forest Service, Richfield Districts. Unpublished report.

Porter, J. M. and K. D. Heil. 1994. Status of *Gilia tenuis* Smith & Neese. Report to the Bureau of Land Management and US Forest Service, Richfield District. Unpublished report.

Porter, J. M. and K. D. Heil. 1990. Status report for *Lupinus crassus* Payson. U. S. Fish and Wildlife Service, Endangered Species Office, Grand Junction, Colorado. Unpublished report.

Porter, J. M. and K. D. Heil. 1990. Status report for *Astragalus microcymbus* Barneby. U. S. Fish and Wildlife Service, Endangered Species Office, Grand Junction, Colorado. Unpublished report.

Heil, K. D. and J. M. Porter. 1990. Status report for *Braya humilis* (Meyer) Robinson subsp. *ventosa* Rollins. U. S. Fish and Wildlife Service, Endangered Species Office, Grand Junction, Colorado. Unpublished report.

Smith, F., K. D. Heil, and J. M. Porter. 1990. Status report for *Ranunculus acris* L. var. *aestivalis* (Benson) Welsh. U. S. Fish and Wildlife Service, Endangered Species Office, Grand Junction, Colorado. Unpublished report.

Heil, K. D. and J. M. Porter. 1987. The taxonomic status of *Sclerocactus glaucus*. U. S. Fish and Wildlife Service, Endangered Species Office, Grand Junction, Colorado. Unpublished report.

Heil, K. D. and J. M. Porter. 1985. Distribution and habitat of *Sclerocactus mesae-verdae* on B.L.M. lands, San Juan County, New Mexico. U.S.D.I. Bureau of Land Management, Farmington, New Mexico. Unpublished report.

Heil, K. D. and J. M. Porter. 1985. Distribution and habitat of *Pediocactus knowltonii* on B.L.M. lands, San Juan County, New Mexico. U.S.D.I. Bureau of Land Management, Farmington, New Mexico. Unpublished report.

Heil, K. D., S. Brack and J. M. Porter. 1985. Rare and sensitive cacti of Big Bend National Park. U. S. National Park Service, Big Bend National Park, Texas. Unpublished report.

Papers Presented

Porter, J. M. and F. Cellular. 2017. Into the tropics: origin and diversification of *Loeselia* (Polemoniaceae). Presented by Carrie Kiel. Botany 2017. Fort Worth, Texas.

Porter J. M. 8–9 March 2013. Native salvias of North America. Presented at The *Salvia* Summit, Huntington Botanical Garden.

Porter J. M. 9–13 July 2011. Phylogeny of *Loeselia* (Polemoniaceae): diversification of a self-compatible lineage. Botany 2011: ASPT/BSA. St. Louis, Missouri.

Porter J. M., and L. M. Prince. January 17–19 2009. Peirson's Milkvetch (*Astragalus peirsonii*, Fabaceae): Conservation in light of improved biological understanding. CNPS 2009 Conservation Conference: Strategies and Solutions, California Native Plant Society.

- Prince, L. M., and J. M. Porter. July 7-11, 2007. Phylogenetic position of Peirson's Milkvetch within *Astragalus* section *Inflati*, subsection *Proriferi*. Botany 2007: ASPT/BSA. Botany and Plant Biology. Chicago, Illinois.
- Bell, H. L., J. M. Porter, and J. T. Columbus. 28 July-2 August 2006. Patterns of molecular evolution in *ndhF*: observations from Chloridoideae (Poaceae). Botany 2006: ASPT/BSA. University of California, Chico, CA. Botany 2006 Abstracts, published by Botanical Society of America.
- Johnson, L. A., C. Ferguson, R. Patterson, J. M. Porter, A. Prather, and D. Wilken. 28 July-2 August 2006. From its roots to its shoots: insights into the diversification patterns and processes of the phlox family (Polemoniaceae). Symposium—Evolution of Ericales: Recent insights using both morphology and molecules. Botany 2006: ASPT/BSA. University of California, Chico, CA. Botany 2006. Abstracts, published by Botanical Society of America.
- Porter, J. M. and T. Anderson. August 2-5, 2004. Reticulate history of *Ipomopsis* (Polemoniaceae): a Bayesian approach to network analysis. Botany 2004: ASPT/BSA. Snowbird, Utah. Botany 2004 Abstracts, published by Botanical Society of America.
- Porter, J. M., S. Hobbs and O. Mistretta. August 2-5, 2004. Natural history of Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*). Botany 2004: ASPT/BSA. Snowbird, Utah. Botany 2004 Abstracts, published by Botanical Society of America.
- Porter, J. M. and K. D. Heil. March 22-25, 2004. Two new endemic members of Polemoniaceae from the Four Corners Region. Fourth Southwestern Rare and Endangered Plant Conference, New Mexico State University, Las Cruces, New Mexico.
- Porter, J. M., S. Hobbs, O. Mistretta, and K. D. Heil. March 22-25, 2004. Reproductive ecology of Peirson's milkvetch (*Astragalus magdalenae* var. *peirsonii*). Fourth Southwestern Rare and Endangered Plant Conference, New Mexico State University, Las Cruces, New Mexico
- Johnson, L. A., K. H. Huish, and J. M. Porter. August 12–16, 2001. External seed coat morphology of *Gilia* (Polemoniaceae) and segregate genera: a comparison and correspondance with phylogenetic relationships. Albuquerque, New Mexico. Botany 2001 Abstracts, published by Botanical Society of America
- McDill, J., R. W. Patterson, and J.M. Porter. August 12–16, 2001. A comparative anatomical study of *Linanthus* and related genera (Polemoniaceae), with implications for their relationships and evolution. Albuquerque, New Mexico. Botany 2001 Abstracts, published by Botanical Society of America, ©2001

- Porter, J. M. and L. A. Johnson. August 6–9, 2000. Age of diversification in Polemoniaceae. Portland, Oregon. Botany 2000 Abstracts, published by Botanical Society of America.
- Porter, J. M. June 17, 2000. Difficulties in determinations: species, phylogenetics, and conservation. Symposium Celebrating the 50th Anniversary of the Jepson Herbarium. University of California, Berkeley, California
- Porter, J. M., and J. T. Columbus. October 24, 1999. Modern systematics: complications for the conservation of plant resources. Southern California Botanists Annual Symposium, California State University, Fullerton, California.
- Porter, J. M. August 3–6, 1999. The impact of phylogenetic nomenclature upon herbarium management. Symposium on the impact of phylogenetic nomenclature. IBC/AIBS St. Louis, Missouri.
- Porter, J. M. August 2–5, 1998. The importance of living and preserved collections for broad and synthetic systematic research at botanical gardens: examples from Polemoniaceae. AIBS, Baltimore, Maryland.
- Porter, J. M. and L. A. Johnson. August 2–5, 1998. Serving two masters: applying principals of phylogenetic nomenclature under constraints imposed by the ICBN. AIBS, Baltimore, Maryland.
- Tommerup, M. and J. M. Porter. August 2–5, 1998. Evolution of the heterostylous syndrome in *Aliciella* (Polemoniaceae). AIBS, Baltimore, Maryland.
- Friar, E. A. and J. M. Porter. June 14–18, 1997. A tale of three genes: nucleotide substitution rate from non-coding sequences of three genomes. Annual meeting of the Society for the Study of Evolution. Boulder, Colorado.
- Porter, J. M. and L. A. Johnson. Evolution and Phylogeny of Polemoniaceae. 13th Annual Southwestern Botanical Symposium. Rancho Santa Ana Botanic Garden, May 26–27, 1997.
- Tommerup, M. and J. M. Porter. August 5–8 1996. The trouble with tetraploids. AIBS, Seattle, Washington.
- Spencer, S. C. and J. M. Porter. August 5–8 1996. The evolution of serpentine and vernal pool tolerance in *Navarretia* (Polemoniaceae). AIBS, Seattle, Washington.
- Anderson, J. L., J. M. Porter, and M. K. Debacon. September 11–14, 1995. Is *Hymenoxys helenoides* (Rydb.) Ckll. a species or a hybrid? Morphological and molecular evidence. Southwestern rare and endangered plants: Second conference. Flagstaff, AZ.

- Porter, J. M. and L. A. Johnson. August 6–9 1995. Generation time and the rate of nucleotide substitution in Polemoniaceae. AIBS, San Diego, California.
- Tommerup, M. and J. M. Porter. August 6–9 1995. The phylogenetic relationships of *Gilia heterostyla* with respect to the small-flowered annual clade within *Gilia* section *Giliandra*. AIBS, San Diego, California.
- Johnson, L. A., D. E. Soltis, P. S. Soltis, and J. M. Porter. August 6–9 1995. Molecular phylogenetic inferences in Polemoniaceae: testing congruence between plastid matK and nuclear rDNA gene trees. AIBS, San Diego, California.
- Porter, J. M. August 4–8 1994. Evolution of pollination mechanisms in *Gilia* sect. *Giliandra* (Polemoniaceae). AIBS, Knoxville, Tenn.
- Allen, G. & J. M. Porter. August 4–8 1994. Phylogenetic relationships of a new species of Brassicaceae: inferences from nrITS sequence data. AIBS, Knoxville, Tenn.
- Baldwin, B., C. S. Campbell, J. M. Porter, M. J. Sanderson, M. F. Wojciechowski, and M. J. Donoghue. August 1–5 1993. Utility of nuclear ribosomal DNA ITS sequences in phylogenetic analyses of angiosperms. AIBS, Ames, Iowa.
- Porter, J. M. August 1–5 1993. Phylogeny of Polemoniaceae based on nuclear ribosomal internal transcribed spacer sequences. AIBS, Ames, Iowa.
- Porter, J. M. and L. Floyd-Hanna. March 29–April 3, 1992. A phylogenetic approach to the analysis of causes of rarity: *Gilia formosa*. Southwestern Threatened and Endangered Species Conference, Santa Fe, New Mexico.
- Heil, K. and J. M. Porter. March 29–April 3, 1992. Patterns of endemism in the southeastern Utah National Parks (Arches, Canyonlands, Capitol Reef National Parks and Natural Bridges National Monument). Southwestern Threatened and Endangered Species Conference, Santa Fe, New Mexico.
- Heil, K., J. M. Porter and W. Romme. November 14–18, 1988. Flora and Vegetation of Capitol Reef National Park. The George Wright Society, Fifth Triennial Conference on Research in the National Parks. Tucson, Arizona.

Collaborators and Other Affiliations

(i) Collaborators

Gerard J. Allan, Northern Arizona University
Ana M. Anton, Universidad Nacional de Córdoba, Argentina
J. Travis Columbus, Rancho Santa Ana Botanic Garden
Elizabeth A. Friar, Rancho Santa Ana Botanic Garden
Kenneth D. Heil, San Juan College, Farmington, NM
Leigh A. Johnson, Brigham Young University, Provo, Utah

Peter. L. Morrell, University of California, Riverside
L. Alan Prather, Michigan State University, East Lansing

(ii) Graduate and Post Doctoral Advisors

Michael J. Donoghue, Yale University (Ph. D. advisor)

(iii) Dissertation/Thesis Advisor and Postgraduate-Scholar Sponsor

Dr. Gerard J. Allan (M.S. 1995; Ph.D., 1999), Northern Arizona State University, (thesis advisor, dissertation)
Dr. James Bauml (Ph.D., 1994) Senior Biologist, Los Angeles County Arboretum, Los Angeles, CA (dissertation advisor)
Julie A. Greene (M.S., 1995), Reserve Ecologist, Lake Mathews Reserve, Riverside, CA, (thesis advisor)
Sandra Fastow (M.S., 1996) status unknown (thesis advisor)
Dr. Junzhu Qiu (Ph.D., 1997), City of Hope Hospital, Los Angeles, (dissertation advisor)
Dr. Megan M. Tommerup (Ph.D., 2001), California State University, Fullerton, CA, (dissertation advisor)
Dr. Victor W. Steinmann (Ph.D., 2001), Autonomous University of Queretaro, Santiago de Queretaro, Queretaro, Mexico, (dissertation advisor)
Dr. Rashmi Pant (Ph.D., 2000), California Institute of Technology, Pasadena, (dissertation advisor)
Michael A. Honer (M.S., 2003), Biological consultant (thesis advisor)
Dr. Sarah De Groot (M.S., 2005; Ph.D 2012), Rancho Santa Ana Botanic Garden (thesis and dissertation advisor)
Dr. Michael Patrick Griffith (Ph.D., 2005), Director, Montgomery Botanical Center, Miami, FL (dissertation advisor)
Dr. Gary Kovnat (Ph.D, 2007), Los Angeles City College, Los Angeles, CA, (dissertation advisor)
Dr. Robert Lauri (Ph.D 2009), San Diego State University, San Diego California (dissertation advisor)
Stephen Dreher (M.S. 2014), status unknown (dissertation advisor)
Forrest Freund (M.S. 2015), University of California Berkeley (thesis advisor)
Dr. Thomas Stoughton (Ph.D, 2016) University of New Hampshire (dissertation advisor)
Joy England (M.S., 2017) Rancho Santa Ana Botanic Garden (thesis advisor)
Dr. Sandra Namoff (Ph.D, 2017), Chaffey College, Rancho Cucamonga, CA and Alkemist Labs, Costa Mesa, CA (dissertation advisor)
Dr. Nicholas Jensen (Ph.D, 2018), California Native Plant Society (dissertation advisor)
Keir Morse (Ph.D. student) Claremont Graduate University (dissertation advisor)
Dr. Leigh A. Johnson, Brigham Young University, Provo, Utah (postdoctoral sponsor)
Dr. Graciela Dos Santos, AMP Incorporated, Cupertino, CA, (postdoctoral sponsor)

Total students supervised: 20

Departmental Seminars

California State Polytechnic University Pomona
California State University Northridge
Fort Lewis College
Harvey Mudd College
Pomona College
Rancho Santa Ana Botanic Garden
San Francisco State University
San Diego State University
University of Arizona
University of California Berkeley
University of California Fullerton
University of California Riverside
University of Colorado
University of Washington
University of Wyoming

Reviews Solicited

Aliso
American Journal of Botany
Annals of the Missouri Botanic Garden
Australian Journal of Botany
Botanical Review
Cactus and Succulent Journal (USA)
Evolution
Madroño
Molecular Phylogenetics and Evolution
Protoplasma
Systematic Botany

Grants

2011. National Science Foundation (PI). REVSYS: Relationships, Diversification, and Monographic study of the Poorly-known *Loeselia* Clade (Polemoniaceae). \$251,704.00
2010. Division of Scientific Authority, United States Fish and Wildlife Service, International Affairs, Arlington, Virginia. Evidence supporting generic and species circumscriptions in the genus *Sclerocactus* with recommendations for a biologically justified taxonomy that will be stable into the future, and biological assessments of species of concern. \$17,000.00.
2006. California Department of Fish and Game/ U.S. Fish and Wildlife. Genetic variation and breeding system of Peirson's Milkvetch. \$28,000.00.

2005. U.S. Fish and Wildlife Service, Region 6. AFLP variation among *Sclerocactus brevispinus*, *S. glaucus*, and *S. wetlandicus*. \$35,000.00
2003. Dudek and Associates/Newhall Ranch. Micromorphology of pollen of *Helianthus nuttallii* and *H. californicus*. \$4,500.00.
2002. California Department of Fish and Game/ U.S. Fish and Wildlife. Natural history of Peirson's Milkvetch. \$72,000.00.
2001. W. M. Keck Foundation. Data Integration and Synthesis Initiative (DASI): Adaptive evolution in *Dubautia* (co-principal investigator with Clement Hamilton, Elizabeth A. Friar and J. Travis Columbus). \$896,930.00.
2000. Bureau of Land Management, Phoenix District, Arizona. Chloroplast haplotype variation in *Pediocactus* with special reference to *Pediocactus peeblesianus*. \$5,000.00.
2000. National Science Foundation (co-principal investigator with Elizabeth A. Friar and J. Travis Columbus), Equipment grant: ABI 377 Automated DNA Sequencer. \$104,643.
2000. Cactus and Succulent Society (USA). Chloroplast DNA variation and relationships among species of *Sclerocactus* (Cactaceae). \$2,000.
1998. Bureau of Land Management, Richfield District, Utah. Chloroplast haplotypes of *Pediocactus winkleri* and *P. despainii*. \$ 4,000.00.
1996. Bureau of Reclamation. Field Studies of Spreading *Navarretia* (*Navarretia fossalis*) [Polemoniaceae]. \$25,000.00.
1995. National Science Foundation. Phylogenetic Analyses of the "Long-lived Gilia" Clade (Polemoniaceae). \$184, 423.00.
1994. Department of Energy: Nevada Test Site. Evolution of heterostyly in *Gilia nyensis*. \$3,000.00.
1994. Catalina Conservancy. Parentage of *Lynothamnus floribundus* seedlings. \$6,000.00.
1994. Bureau of Land Management, Vernal District, Utah. Genetic structure of *Astragalus equisolensis*. \$ 6,000.00.
1990. American Society of Plant Taxonomists. Graduate Student Research Grant. \$500.00.

1986-1989. (with K. Heil and W. Romme) Flora, community structure, and distribution of rare plant resources in Capitol Reef National Park, Utah. U. S. National Park Service. \$70,000.00.

1983-85. (with K. Heil) Distribution and habitat of *Pediocactus knowltonii* and *Sclerocactus mesae-verdae* on B.L.M. lands, San Juan County, New Mexico. U.S.D.I. Bureau of Land Management, Farmington, New Mexico. \$2,000.00.

1986. (with K. Heil) The taxonomic status of *Sclerocactus glaucus*. U. S. Fish and Wildlife Service, Endangered Species Office, Grand Junction, Colorado. \$6,000.00

1983. Herbarium collections of plants associated with *Astragalus humillimus*. U.S.D.I. Bureau of Land Management, Farmington, New Mexico. \$500.00

Research in Progress

Treatments of genera *Aliciella*, *Dayia*, *Gilia*, *Giliastrum* and *Loeselia* (Polemoniaceae); *Salvia* (Lamiaceae). Flora of North America Project. Oxford University Press. In prep.

Polemoniaceae flora of the Baja California and Baja California Sur (Mexico). In prep.

Professional Interests and Goals

Theory and application of methods of phylogenetic estimation; Phylogeny, evolution and patterns of speciation in Polemoniaceae and Cactaceae; Evolution of land plants; Distribution, population dynamics and preservation of rare, threatened, endangered and/or endemic plant species; Philosophy of science.

Research Interests

I am a vascular plant systematist with broad interests in evolutionary biology and reproductive ecology, and a special emphasis on quantitative phylogenetics. Indeed, most of my research has a strong phylogenetic component. I have been involved in research focusing upon systematics, classification, evolution of pollination mechanisms, and quantitative change in corolla morphology, conservation, and floristics. Much of my recent research has concentrated on the Phlox family, Polemoniaceae. These studies have included comparative DNA sequence (e.g., nuclear ribosomal internal transcribed spacer, *GapC*, *tpi*, *chas*, chloroplast *trnL* intron, *trnL-trnF* intergenic spacer [IGS], *trnS-trnG* IGS, *ndhF-trnL* region, and mitochondrial *nad1* intron), comparative morphological, palynological, and anatomical investigations, as well as pollination surveys. More recently, I have been employing hybseq methods to sample nuclear genes. These comparative studies have been used to test hypotheses concerning evolution of pollination mechanisms and breeding systems, and hypotheses concerning the age and diversification of Polemoniaceae. This research has resulted in a new classification of the family, revision of *Aliciella*, revised classification of *Ipomopsis* (including phylogeny and

age estimates), and a broad-scaled comparative and monographic study of *Loeselia* (in progress).

In addition to the Phlox family, I have continued research in the Cactus family, in collaboration with Jennifer Cruse Sanders, Marc Baker, Charlie Butterworth and Kenneth D. Heil. Our studies have centered on two cold-hardy genera of western United States, *Sclerocactus* and *Pediocactus*, and have included taxonomic, comparative morphological and DNA investigations. These studies have been used to address conservation issues, surrounding the rare members of *Sclerocactus* and *Pediocactus*.

It is my desire to integrate traditional systematic approaches (comparative anatomy, morphology, cytology, etc) and more modern methods (comparative DNA sequence, microsatellite and/or other genetic data) and bring these to bear on issues of adaptation, under the umbrella of common ancestry and phylogeny.