

J. RYAN STEWART

Department of Plant and Wildlife Sciences
4105 Life Sciences Building
Brigham Young University Provo, Utah 84602

Tel: +1.801.422.7984
E-mail: rstewart@byu.edu

EDUCATION

2005 Ph.D., Horticulture, Iowa State University, Ames, Iowa
2001 M.S., Plant Sciences, Utah State University, Logan, Utah
1999 B.S., Agricultural Systems Technology (major), Korean (minor), Business (minor),
Utah State University, Logan, Utah

PROFESSIONAL EXPERIENCE

2018-present Professor, Dept. of Plant and Wildlife Sciences, Brigham Young University
2011-2018 Associate Professor (awarded equivalent of tenure in 2017), Dept. of Plant and
Wildlife Sciences, Brigham Young University
2017-2017 Visiting Associate Professor, Field Science Center for Northern Biosphere,
Hokkaido University, Sapporo, Japan
2011-2011 Associate Professor (awarded tenure), Dept. of Crop Sciences, University of
Illinois
2009-2011 Assistant Professor, Dept. of Crop Sciences, University of Illinois
2005-2009 Assistant Professor, Dept. of Natural Resources and Environmental Sciences,
University of Illinois

AWARDS

University of Illinois, College of Agricultural, Consumer and Environmental Sciences Global
Academy Scholar, 2006
University of Illinois, College of Agricultural, Consumer and Environmental Sciences Global
Academy Fellow, 2007
University of Illinois Center for Teaching Excellence Teacher Scholar, 2010
Visiting Associate Professor Fellowship, Hokkaido University, Sapporo, Japan, 2017

PUBLICATIONS

Manuscripts nearing submission

1. Poore, C., P. Park, S. Boudreaux, M. McGhie, T.J. Tsinnijinnie, D.L. Allen, T. Black, R. Shorty, J. Ben, B. Neztosie, B. Litson, A. Villanueva-Morales, and **J.R. Stewart**. Seed germination patterns of *Yucca* species important to the Diné people in the Four Corners region of the USA. To be submitted to *PLOS ONE*.
2. Ortiz, H.C., P. Park, J.A. Huber, A. Villanueva Morales, S. Florence, N. Mena, B. Rencher, and **J.R. Stewart**. *Agave sensu stricto* does not engage in facultative crassulacean acid metabolism (CAM). To be submitted to the *Journal of Experimental Botany*.
3. Anderson, B. *, L. Wallace, M. Carpenter*, A. Villanueva, and **J.R. Stewart**. SNP-based genetic diversity and structure of *Agave utahensis*. To be submitted to *Molecular Ecology*.
4. Stoker, J.D. *, J.B. Boyer*, A. Villanueva, and **J.R. Stewart**. Characterization of seed germination patterns in *Agave*: comparisons of generalized linear mixed model, linear model, and survival analysis. To be submitted to *New Phytologist*.

Manuscripts under peer review

1. Howlett, D.S., J. Inouye, Y. Toma, M. Saito, D.K. Lee, H. Wang, T. Yamada, A. Nishiwaki, and **J.R. Stewart**. Source and accumulation of soil carbon along a catena toposequence over 12,000 years in three semi-natural *Miscanthus sinensis* grasslands in Japan. *Catena* Accepted upon revision.

Published in refereed journals

1. Brown, A.J., P.S. Allen, G.V. Jolley, and **J.R. Stewart**. 2019. The downward trend in post-secondary horticulture programs between 1997 and 2017. *HortTechnology* <https://doi.org/10.21273/HORTTECH04251-18>.
Contribution: Helped write paper, edited paper
Role: Co-author
2. Kar, S., N. Zhang, T. Nakashima, A. Villanueva-Morales, **J.R. Stewart**, E.J. Sacks, Y. Terajima, and T. Yamada. 2019. *Saccharum* × *Miscanthus* intergeneric hybrids (miscanes) exhibit greater chilling tolerance of C₄ photosynthesis and post-chilling recovery than sugarcane (*Saccharum spp.* hybrids). *Global Change Biology Bioenergy* doi.org/10.1111/gcbb.12632.
Contribution: Helped write paper, edited paper
Role: Co-author
2. Dong, H., S.V. Green, A. Nishiwaki, T. Yamada, **J.R. Stewart**, M. Deuter, and E.J. Sacks. 2018. Winter hardiness of *Miscanthus* (I): Overwintering ability and yield of new *Miscanthus xgiganteus* genotypes in Illinois and Arkansas. *Global Change Biology Bioenergy* doi.org/10.1111/gcbb.12588.
Contribution: Helped write paper, edited paper
Role: Co-author
3. Brumfield, R.G., L.B. Kenny, A.J. DeVincentis, A.K. Koeser, S. Verlinden, A.J. Both, G. Bi, S.T. Lovell, and **J.R. Stewart**. 2018. Analysis of economic and social costs of growing *Petunia xhybrida* in a greenhouse production system using alternative containers. *HortScience* 53:1179-1185.
Contribution: Helped design project, helped write paper, edited paper
Role: Senior author
4. Bergsten, S.J.†, A.K. Koeser, and **J.R. Stewart**. 2016. Evaluation of the impacts of salinity on productivity and nutrient levels of *Agave* species with agricultural potential in semi-arid regions. *HortScience* 51:1-6.
Contribution: Helped design project, helped write paper, edited paper, mentored M.S. student (SJB)
Role: Senior author with graduate student (SJB)
5. Toma, Y., T. Yamada, F.G. Fernandez, A. Nishiwaki, R. Hatano, and **J.R. Stewart**. 2016. Evaluation of greenhouse gas emissions in a *Miscanthus sinensis* dominated semi-natural grassland in Kumamoto, Japan. *Soil Science and Plant Nutrition* 62:80-89

Contribution: Helped conceive project, secured grant funding, collected and analyzed field data, mentored postdoc (YT), helped write paper, edited paper
Role: Senior author with postdoc (YT)

6. **Stewart, J.R.** 2015. *Agave* as a model CAM crop system for a warming and drying world. *Frontiers in Plant Science* doi: 10.3389/fpls.2015.00684.
Contribution: Responsible for all aspects of this review paper
Role: Senior author
7. Yang, Xiaohan, J.C. Cushman, A.M. Borland, E.J. Edwards, S.D. Wullschleger, G.A. Tuskan, N.A. Owen, H. Griffiths, J.A.C. Smith, H.C. De Paoli, D.J. Weston, R. Cottingham, J. Hartwell, S.C. Davis, K. Silvera, R. Ming, K. Schlauch, P. Abraham, **J.R. Stewart**, H.B. Guo, R. Albion, J. Ha, S.D. Lim, B.W.M. Wone, W.C. Yim, T. Garcia, J.A. Mayer, J. Petereit, S.S. Nair, E. Casey, R.L. Hettich, J. Ceusters, P. Ranjan, K.J. Palla, H. Yin, C. Reyes-Garcia, J.L. Andrade, L. Freschi, J.D. Beltran, L.V. Dever, S.F. Boxall, J. Waller, J. Davies, P. Bupphada, N. Kadu, K. Winter, R.F. Sage, C.N. Aguilar, J. Schmutz, J. Jenkins, and J.A.M. Holtum. 2015. A roadmap for research on crassulacean acid metabolism (CAM) to enhance sustainable food and bioenergy production in a hotter, drier world. *New Phytologist* 207:491-504.
Contribution: Helped conceive idea, wrote one section of paper, edited paper
Role: Co-author
8. Sun, Y., G. Niu, A. Koeser†, G. Bi, V. Anderson, K. Jacobsen, R. Conneway, S. Verlinden, **R. Stewart**, and S.T. Lovell. 2015. Impact of biocontainers on plant performance and container decomposition in the landscape. *HortTechnology* 25:63-70.
Contribution: Concept development, secured grant funding, edited paper
Role: Co-author
9. Evans, M.R., A. Koeser†, G. Bi, S. Nambuthiri, R. Geneve, S.T. Lovell, and **J.R. Stewart**. 2015. Impact of biocontainers with and without shuttle trays on water use in the production of a containerized ornamental greenhouse crop. *HortTechnology* 25:35-41.
Contribution: Helped conceive project, secured grant funding, edited paper
Role: Senior author (with graduate student (AK) who was not lead author)
10. Conneway, R., S. Verlinden, A.K. Koeser†, M. Evans, R. Schnelle, V. Anderson, and **J.R. Stewart**. 2015. Use of alternative containers for long- and short-term greenhouse crop production. *HortTechnology* 25:26-34.
Contribution: Helped conceive project, secured grant funding, edited paper
Role: Senior author (with graduate student (AKK) who was not lead author)
11. Brumfield, R.G., A.J. DeVincentis, X. Wang, R.T. Fernandez, S. Nambuthiri, R.L. Geneve, A.K. Koeser†, G. Bi, T. Li, Y. Sun, G. Niu, D. Cochran, A. Fulcher, and **J.R. Stewart**. 2015. Economics of utilizing alternative containers in ornamental crop production systems. *HortTechnology* 25:17-25.
Contribution: Helped conceive project, secured grant funding, edited paper
Role: Senior author (with graduate student (AKK) who was not lead author)

12. Clark, L.V., **J.R. Stewart**, A. Nishiwaki, Y. Toma, J.B. Kjeldsen, U. Jorgensen, H. Zhao, J. Peng, J.H. Yoo, K. Heo, C.Y. Yu, T. Yamada, and E.J. Sacks. 2015. Genetic structure of *Miscanthus sinensis* and *Miscanthus sacchariflorus* in Japan indicates a gradient of bidirectional but asymmetric introgression. *Journal of Experimental Botany* 66:4213-4225.
Contribution: Helped conceive project, secured grant funding, collected samples, edited paper
Role: Co-author

13. Nadir, M., A. Tanaka, S. Kuwabara, H. Matuura, T. Yamada, **J.R. Stewart**, and A. Nishiwaki. 2014. Comparison of relative DNA content estimated using DAPI and PI-FCM in *Miscanthus sinensis*, *Miscanthus sacchariflorus*, and their hybrids. *日本暖地畜産学会報 (Journal of Warm Regional Society of Animal Science)* 57:53-57.
Contribution: Helped conceive project, secured grant funding, collected samples, edited paper
Role: Co-author

14. Nadir, M., A. Tanaka, S. Kuwahara, H. Matsuura, T. Yamada, **J.R. Stewart**, and A. Nishiwaki. 2014. Variation of DNA contents in *Miscanthus sinensis* and *Miscanthus sacchariflorus* in Japan. *日本暖地畜産学会報 (Journal of Warm Regional Society of Animal Science)* 57:147-152.
Contribution: Helped conceive project, secured grant funding, collected samples, edited paper
Role: Co-author

15. Dwiyantri, M.S., **J.R. Stewart**, and T. Yamada. 2014. Forages for feedstocks of biorefineries in temperate environments: review of lignin research in bioenergy crops and some insight into *Miscanthus* studies. *Crop and Pasture Science* 65:1199-1206.
Contribution: Helped conceive project, secured grant funding, collected samples, edited paper, mentored postdoc (MSD)
Role: Co-author

16. Dwiyantri, M.S., **J.R. Stewart**, A. Nishiwaki, and T. Yamada. 2014. Natural variation in *Miscanthus sinensis* seed germination under low temperatures. *Grassland Science* 60:194-198.
Contribution: Helped conceive project, secured grant funding, collected samples, helped write paper, edited paper, mentored postdoc (MSD)
Role: Co-author

17. Głowacka, K., L.V. Clark, S. Adhikari, J. Peng, **J.R. Stewart**, A. Nishiwaki, T. Yamada, U. Jørgensen, T.R. Hodkinson, J. Gifford, J.A. Juvik, and E.J. Sacks. 2014. Genetic variation in *Miscanthus* × *giganteus* and the importance of estimating genetic distance thresholds for differentiating clones. *Global Change Biology Bioenergy* 7:386-404.
Contribution: Helped conceive project, secured grant funding, collected samples, edited paper
Role: Co-author

18. Byers, C.*, P.J. Maughan, J. Clouse*, and **J.R. Stewart**. 2014. Microsatellite primers in *Agave utahensis* (Asparagaceae), a keystone species in the Mojave Desert and Colorado Plateau. *Applications in Plant Sciences* 2:1400047.
Contribution: Conceived project, secured funding, collected samples, helped analyze data, helped write paper, edited paper, mentored undergraduate students (CB, JC)
Role: Senior author with undergraduate students (CB and JC)

19. Bergsten, S.J.† and **J.R. Stewart**. 2014. Measurement of the influence of low water availability on the productivity of *Agave weberi*, cultivated under controlled irrigation. *Canadian Journal of Plant Science* 94:439-444.
Contribution: Helped conceive project, secured funding, helped with data collection and analysis, helped write paper, edited paper, mentored M.S. student (SJB)
Role: Senior author with graduate student (SJB)

20. Koeser, A.K.†, S.T. Lovell, A.C. Petri, R.G. Brumfield, and **J.R. Stewart**. 2014. Biocontainer use in *Petunia x hybrida* greenhouse production: a cradle-to-gate carbon footprint assessment of secondary impacts. *HortScience* 49:265-271. (*Winner of the 2015 AmericanHort Alex Laurie Award*)
Contribution: Helped conceive project, secured grant funding, helped with data collection and analysis, helped write paper, edited paper, mentored PhD student (AKK)
Role: Senior author with graduate student (AKK)

21. Toma, Y., J. Clifton-Brown, S. Sugiyama, M. Nakaboh, R. Hatano, F. G. Fernandez, **J. R. Stewart**, A. Nishiwaki, and T. Yamada. 2013. Soil carbon stocks and carbon sequestration rates in seminatural grassland in Aso region, Kumamoto, Southern Japan. *Global Change Biology* 19:1676-1687.
Contribution: Helped conceive project, secured grant funding, helped with data collection and analysis, helped write paper, edited paper, mentored postdoc (YT)
Role: Co-author

22. Koeser, A.K.†, S. T. Lovell, M.R. Evans, and **J.R. Stewart**. 2013. Biocontainer water use in short-term greenhouse crop production. *HortTechnology* 23:215-219.
Contribution: Helped conceive project, secured grant funding, helped with data collection and analysis, helped write paper, edited paper, mentored PhD student (AKK)
Role: Senior author with graduate student (AKK)

23. Howlett, D.S., Y. Toma, H. Wang, S. Sugiyama, T. Yamada, A. Nishiwaki, F. Fernández, and **J.R. Stewart**. 2013. Soil carbon source and accumulation over 12,000 years in a semi-natural *Miscanthus sinensis* grassland in southern Japan. *Catena* 104:127-135.
Contribution: Helped conceive project, secured grant funding, helped with data analysis, helped write paper, edited paper, mentored postdocs (DSH, YT)
Role: Senior author with postdoc (DSH)

24. Dwiyantri, M.S., A. Rudolph, K. Swaminathan, A. Nishiwaki, Y. Shimono, S. Kuwabara, H. Matuura, M. Nadir, S. Moose, **J.R. Stewart**, and T. Yamada. 2013. Genetic analysis of

- putative triploid *Miscanthus* hybrids and tetraploid *M. sacchariflorus* collected from sympatric populations of Kushima, Japan. *BioEnergy Research* 6:486-493.
Contribution: Helped conceive project, secured grant funding, helped write paper, edited paper, mentored postdoc (MSD)
Role: Co-author
25. Matlaga, D. P., L. D. Quinn, A. S. Davis, and **J. R. Stewart**. 2012. Light response of native and introduced *Miscanthus sinensis* seedlings. *Invasive Plant Science and Management* 5:363-374.
Contribution: Helped conceive project, secured grant funding, helped write paper, edited paper, mentored postdoc (LDQ)
Role: Senior author
26. Quinn, L. D., T. M. Culley, and **J. R. Stewart**. 2012. Genetic comparison of introduced and native populations of *Miscanthus sinensis* (Poaceae), a potential bioenergy crop. *Grassland Science* 58:101-111.
Contribution: Conceived project, secured grant funding, helped write paper, edited paper, mentored postdoc (LDQ)
Role: Senior author with postdoc (LDQ)
27. Quinn, L.D., **J.R. Stewart**, T. Yamada, Y. Toma, M. Saito, K. Shimoda, and F.G. Fernández. 2012. Environmental tolerances of *Miscanthus sinensis* in invasive and native populations. *BioEnergy Research* 5:139-148.
Contribution: Helped conceive project, secured grant funding, helped write paper, edited paper, mentored postdocs (LDQ, YT)
Role: Co-author
28. Toma, Y., K. Armstrong, **J.R. Stewart**, T. Yamada, A. Nishiwaki, and F.G. Fernández. 2012. Carbon sequestration in soil in a semi-natural *Miscanthus sinensis* grassland and *Cryptomeria japonica* forest plantation in Aso, Kumamoto, Japan. *Global Change Biology Bioenergy* 4:566-575.
Contribution: Conceived project, secured grant funding, helped analyze data, helped write paper, edited paper, mentored postdoc (YT)
Role: Co-author
29. Bayer, A.L.† and **J.R. Stewart**. 2011. Prospects for conservation of an endemic woody species native to Florida, *Chionanthus pygmaeus* (pygmy fringetree), through seed and vegetative propagation. *Native Plants Journal* 12:62-69.
Contribution: Helped conceive project, secured funding, helped analyze data, helped write paper, edited paper, mentored M.S. student (ALB)
Role: Senior author with graduate student (ALB)
30. Fedewa, C.A.† and **J.R. Stewart**. 2011. Field establishment of little bluestem and prairie dropseed under managed conditions. *Native Plants Journal* 12:111-117.
Contribution: Helped conceive project, secured funding, helped analyze data, helped write paper, edited paper, mentored M.S. student (CAF)

Role: Senior author with graduate student (CAF)

31. Quinn, L.D., D.P. Matlaga, **J.R. Stewart**, and A.S. Davis. 2011. Empirical evidence of long-distance dispersal in *Miscanthus sinensis* and *Miscanthus x giganteus*. *Invasive Plant Science and Management* 4:142-150.
Contribution: Helped conceive project, secured grant funding, helped write paper, edited paper
Role: Co-author

32. Nishiwaki, A., A. Mizuguti, S. Kuwabara, Y. Toma, G. Ishigaki, T. Miyashita, T. Yamada, H. Matuura*, S. Yamaguchi, A.L. Rayburn, R. Akashi, and **J.R. Stewart**. 2011. Discovery of natural *Miscanthus* (Poaceae) triploid plants in sympatric populations of *Miscanthus sacchariflorus* and *Miscanthus sinensis* in southern Japan. *American Journal of Botany* 98:154-159.
Contribution: Conceived project, secured grant funding, primarily wrote the paper, analyzed data, edited paper
Role: Senior author

33. Toma, Y., F.G. Fernández, S. Sato, M. Izumi, R. Hatano, T. Yamada, A. Nishiwaki, G. Bollero, and **J.R. Stewart**. 2011. Carbon budget and methane and nitrous oxide emissions over the growing season in a *Miscanthus sinensis* grassland in Tomakomai, Hokkaido, Japan. *Global Change Biology Bioenergy* 3:116-134.
Contribution: Helped conceive project, secured grant funding, helped analyze data, helped write paper, edited paper, mentored postdoc (YT)
Role: Senior author

34. Quinn, L.D., D.J. Allen, and **J.R. Stewart**. 2010. Invasiveness potential of *Miscanthus sinensis*: implications for bioenergy production in the U.S. *Global Change Biology Bioenergy* 2:310-320.
Contribution: Helped conceive idea for paper, secured grant funding, helped write paper, edited paper, mentored postdoc (LDQ)
Role: Senior author with postdoc (LDQ)

35. **Stewart, J.R.** and I. McGary*. 2010. Brief exposure to boiling water combined with cold-moist stratification enhances seed germination of New Jersey tea. *HortScience* 20:623-625.
Contribution: Conceived project, secured funding, helped collect data, helped write paper, edited paper, mentored undergraduate student (IM)
Role: Senior author with undergraduate student (IM)

36. Toma, Y., F.G. Fernández, A. Nishiwaki, T. Yamada, G. Bollero, and **J.R. Stewart**. 2010. Aboveground plant biomass, carbon, and nitrogen dynamics before and after burning in a seminatural grassland of *Miscanthus sinensis* in Kumamoto, Japan. *Global Change Biology Bioenergy* 2:52-62.
Contribution: Helped conceive project, secured grant funding, helped collect data, helped write paper, edited paper, mentored postdoc (YT)
Role: Senior author with postdoc (YT)

37. Culley, T.M. and **J.R. Stewart**. 2010. Microsatellite primers in *Rhamnus cathartica* (Rhamnaceae) and applicability in related taxa to assess hybridization events. *American Journal of Botany* 97:e7-e9.
Contribution: Helped conceive project, helped collect data, helped analyze data, helped write paper, edited paper
Role: Co-author
38. Wang, J.-S., **J.R. Stewart**, S.A. Khan, J.O. Dawson. 2010. Elevated amino sugar nitrogen concentrations in soils: a potential method for assessing N fertility enhancement by actinorhizal plants. *Symbiosis* 50:71-76.
Contribution: Analyzed data, primarily wrote paper
Role: Co-author
39. **Stewart, J.R.**, Y. Toma, F.G. Fernández, T. Yamada, A. Nishiwaki, and G. Bollero. 2009. The ecology and agronomy of *Miscanthus sinensis*, a species important to bioenergy crop development, in its native range in Japan: a review. *Global Change Biology Bioenergy* 1:126- 153.
Contribution: Conceived idea for paper, secured grant funding, primarily wrote paper, edited paper
Role: Senior author
40. Fedewa, C.A.† and **J.R. Stewart**. 2009. Seed germination characteristics of prairie dropseed (*Sporobolus heterolepis*). *Natural Areas Journal* 29:188-192.
Contribution: Conceived project, secured funding, helped analyze data, helped write paper, edited paper, mentored M.S. student (CAF)
Role: Senior author with graduate student (CAF)
41. Koeser, A.K.†, **J.R. Stewart**, G.A. Bollero, D.G. Bullock, and D.K. Struve. 2009. Impacts of handling and transport on the growth and survival of balled-and-burlapped trees. *HortScience* 44:1-6.
Contribution: Conceived project, secured funding, helped collect data, helped analyze data, helped write paper, edited paper, mentored M.S. student (AKK)
Role: Senior author with graduate student (AKK)
42. **Stewart, J.R.**, G.J. Kennedy, R.D. Landes, and J.O. Dawson. 2008. Foliar-nitrogen and phosphorus resorption patterns differ among nitrogen-fixing and non-fixing temperate-deciduous trees and shrubs. *International Journal of Plant Sciences* 169:495-502.
Contribution: Analyzed data, primarily wrote paper, edited paper
Role: Senior author
43. Kurylo, J.S., K.S. Knight, **J.R. Stewart**, and A.G. Endress. 2007. *Rhamnus cathartica*: native and naturalized distribution and habitat preferences. *Journal of the Torrey Botanical Society* 134:420-430.
Contribution: Helped conceive project, helped write paper, edited paper
Role: Co-author

44. **Stewart, J.R.**, R.D. Landes, A.K. Koeser†, and A.L. Pettay*. 2007. Net photosynthesis and growth of three novel woody species under water stress: *Calycanthus occidentalis*, *Fraxinus anomala*, and *Pinckneya pubens*. *HortScience* 42:1341-1345.
Contribution: Conceived project, helped collect data, helped analyze data, helped write paper, edited paper, mentored M.S. student (AKK) and undergraduate student (ALP)
Role: Senior author with graduate student (AKK) and undergraduate student (ALP)
45. Knight, K.S., J.S. Kurylo, A. Endress, **J.R. Stewart**, and P.B. Reich. 2007. Ecology and ecosystem impacts of common buckthorn (*Rhamnus cathartica*): a review. *Biological Invasions* 9:925-937.
Contribution: Helped conceive idea for paper, helped write paper, edited paper
Role: Co-author
46. **Stewart, J.R.** and W.R. Graves. 2006. Photosynthesis, growth, carbon allocation, and fruit load of *Frangula caroliniana* and *Rhamnus cathartica*. *International Journal of Plant Sciences* 167:1161-1168.
Contribution: PhD dissertation manuscript, conceived project, collected samples, collected and analyzed data, wrote the paper
Role: Senior author
47. **Stewart, J.R.**, W.R. Graves, and R.D. Landes. 2006. Cold hardiness and vernal budbreak of *Rhamnus caroliniana* and the invasive *Rhamnus cathartica*. *Journal of the American Society for Horticultural Science* 131:345-351.
Contribution: PhD dissertation manuscript, conceived project, collected samples, collected and analyzed data, wrote the paper
Role: Senior author
48. **Stewart, J.R.** and W.R. Graves. 2005. Seed germination of *Rhamnus caroliniana*: implications for ecology and horticulture. *HortScience* 40:767-770.
Contribution: PhD dissertation paper, conceived project, collected samples, collected and analyzed data, wrote the paper
Role: Senior author
49. **Stewart, J.R.**, R. Kjelgren, P.G. Johnson, and M.R. Kuhns. 2005. Growth and water relations of littleleaf linden trees established in irrigated buffalograss and Kentucky bluegrass. *HortScience* 40:1529-1533.
Contribution: MS thesis paper, conceived project, collected samples, collected and analyzed data, wrote the paper
Role: Senior author
50. **Stewart, J.R.** and W.R. Graves. 2004. Photosynthesis and growth of *Rhamnus caroliniana* during drought and flooding: comparisons to the invasive *Rhamnus cathartica*. *HortScience* 39:1278-1282.
Contribution: PhD dissertation paper, conceived project, collected samples, collected and analyzed data, wrote the paper
Role: Senior author

51. **Stewart, J.R.**, R. Kjelgren, P.G. Johnson, and M.R. Kuhns. 2004. Soil-water-use characteristics of precision-irrigated buffalograss and Kentucky bluegrass. *Applied Turfgrass Science* doi:10.1094/ATS-2004-1118-01-RS.
Contribution: MS thesis paper, conceived project, collected samples, collected and analyzed data, wrote the paper
Role: Senior author

* indicates undergraduate student co-author

† indicates graduate student co-author

Published in non-refereed proceedings and books

1. **Stewart, J.R.** 2005. The phylogenetics and stress tolerance of *Rhamnus cathartica* L. p. 37-41. In L. Skinner (ed.) Proceedings: symposium on the biology, ecology, and management of garlic mustard (*Alliaria petiolata*) and European buckthorn (*Rhamnus cathartica*). 17-18 March 2005. University of Minnesota, St. Paul. USDA Forest Service Publication FHTET-2005-09.
2. Sacks, E.J., J.A. Juvik, Q. Lin, **J.R. Stewart**, and T. Yamada. 2013. The gene pool of *Miscanthus* species and its improvement. In: Genomics of the Saccharinae (ed. A. Paterson). Springer New York.
3. Dwiyantri, M.S., **J.R. Stewart**, and T. Yamada. 2013. Germplasm resources of *Miscanthus* and their application in breeding. In: Bioenergy feedstocks: breeding and genetics (eds. M. Saha, H.S. Bhandari, and J.C. Bouton). Wiley-Blackwell, Hoboken, NJ.

RESEARCH SUPPORT

Extramural grants awarded since arriving at BYU = \$1,671,953

Total amount awarded to program of J.R. Stewart since arriving at BYU = \$607,150

Career total extramural grants awarded = \$3,176,494

Career total amount awarded to program of J.R. Stewart = \$1,761,305

Intramural grants awarded since arriving at BYU = \$46,288

Total intramural grants awarded = \$48,888

Extramural funding

1. **Stewart, J.R.** and W.R. Graves. Evaluation of *Fraxinus anomala* (single-leaf ash) as a potential nursery plant. Landscape Plant Development Center. 2004-2005. \$1,000.
2. **Stewart, J.R.** Is transplanted tree mortality due to mechanical damage or to desiccation during transport? Tree Research and Education Endowment Fund. 2006-2007. \$7,500.
3. Bolmgren, K. and **J.R. Stewart**. Why haven't Californian *Rhamnus* L. and *Frangula* Mill. (Rhamnaceae) colonized the tropics? A comparative study of leaf traits, growth rate, and fecundity. Lawrence R. Heckard Endowment Fund

- of the Jepson Herbarium (University of California, Berkeley). 2007. \$2,600.
4. **Stewart, J.R.** Go East, young tree. Assessing the suitability in Illinois landscapes of four tree species native to the western United States based on drought tolerance and cold hardiness. Illinois Arborists Association. 2007-2011. \$5,000.
 5. **Stewart, J.R.**, F.G. Fernández, G.A. Bollero, T. Yamada, and A. Nishiwaki. Germplasm collection, nutrient cycling, cold hardiness, photosynthetic capacity, and flowering phenology of *Miscanthus sacchariflorus*, *Miscanthus sinensis*, and their natural hybrids in native stands ranging from central to northern Japan. Energy Biosciences Institute. 2008-2010. \$1,008,441 (\$658,055 to Stewart).
 6. **Stewart, J.R.** Consequences and impacts of wire basket retention and removal on establishment and root morphology of a shallow-rooted and a deep-rooted tree species. Tree Research and Education Endowment Fund. 2010-2013. \$10,000.
 7. **Stewart, J.R.**, T. Yamada, and A. Nishiwaki. Maximizing opportunities of *Miscanthus* in Japan: expansion of germplasm collection; natural hybrid detection and collection; and carbon sequestration in soils developed under *Miscanthus*. Energy Biosciences Institute. 2011-2012. \$470,000.
 8. **Stewart, J.R.**, R.T. Fernandez, S.T. Lovell, R. Geneve, G. Bi, G. Niu, M. Evans, S. Verlinden, and R. Brumfield. 2011-2013. Impact and social acceptance of selected sustainable practices in ornamental crop production. USDA Specialty Crops Research Initiative. 2011-2013. \$1,233,617 (\$168,814 to J.R. Stewart).
 9. **Stewart, J.R.** Enhancing suburban landscapes of Utah with uncommon, stress-tolerant fruit trees with ornamental potential: pawpaw (*Asimina triloba*) and American persimmon (*Diospyros virginiana*). USDA Specialty Crop Block Grant. 2011-2012. \$14,500.
 10. Litson, B., **J.R. Stewart**, and R. St. Hilaire. Seeking food and energy sustainability with succulent plant species in the high desert of the Navajo Nation. U.S. Department of Agriculture. 2012-2014. \$199,982 (\$39,982 to J.R. Stewart)
 11. **Stewart, J.R.** Reaping economic and ecological benefits from growing stress-tolerant succulents as food crops for flourishing ethnic and specialty-food markets in Utah: Evaluation of the productivity of *Agave* and *Opuntia* grown for agave nectar, nopales, and cactus pear. USDA Specialty Crop Block Grant. 2014-2016. \$15,133.
 12. **Stewart, J.R.**, P.S. Allen, and R.L. Johnson. Tree nursery and propagation beds to enhance growth and survival of ornamental trees and prioritized native plant materials at the U.S. Army Dugway Proving Ground. U.S. Department of Defense. 2014-2015. \$140,597.

13. **Stewart, J.R.** Evaluation of the performance of spineless cactus (*Opuntia ficus-indica*) pawpaw (*Asimina triloba*), and American persimmon (*Diospyros virginiana*) as potential crops for the Intermountain West. 2014. Donation from Dr. Doug Heiner. \$16,000.
14. **Stewart, J.R.** Evaluation of the performance of pawpaw (*Asimina triloba*) and American persimmon (*Diospyros virginiana*) as potential crops for the Intermountain West. Garabedian Foundation. 2015. \$6,000.
15. Litson, B., **J.R. Stewart**, O. Pike, and R. St. Hilaire. Weaving a complete picture of a traditional Diné food and fiber crop: characterization of the nutritional and fiber properties of *Yucca* species native to the Navajo Nation. U.S. Department of Agriculture. 2015-2017. \$220,000 (\$32,999 to J.R. Stewart)
16. **Stewart, J.R.** and P. Park. Development of the technology to improve the color quality in succulent plants. National Institute of Horticultural and Herbal Science, Rural Development Administration of South Korea. 2016-2018. \$140,000.
17. **Stewart, J.R.** Spineless cactus (*Opuntia ellisiana*): a promising specialty crop for ethnic- and health-food markets in Utah. USDA Specialty Block Crop Grant. 2017-2019. \$30,000.
18. **Stewart, J.R.** Propagation of heritage red oak. Utah Transit Authority. 2017. \$3,125.

Intramural funding

1. Pettay, A. and **J.R. Stewart**. College of Agricultural, Consumer, and Environmental Sciences Undergraduate Research Scholarship Program. Seasonal effects of soybean aphid (*Aphis glycines* Matsumura) herbivory and development on the physiology of common buckthorn (*Rhamnus cathartica* L.). 2006- 2007. \$1,000.
2. **Stewart, J.R.** College of Agricultural, Consumer and Environmental Sciences Teaching Enhancement Grant Program. 2010-2011. \$1,600.
3. **Stewart, J.R.** An online plant ID tool for all seasons: Overcoming winter-season obstacles for students to improve their identification of ornamental herbaceous plants in PWS 210. College of Life Sciences Teaching Enhancement Grant. 2012. \$3,288.
4. **Stewart, J.R.** and L. Allphin. The role of fire-induced disturbance on the fitness of a keystone plant species, *Agave utahensis*, native to the Mojave Desert and Colorado Plateau. John Topham and Susan Redd Butler BYU Faculty Research Award. 2012-2013. \$3,000.
5. **Stewart, J.R.**, J. Maughan, and S. Petersen. Cultivating an undergraduate mentoring research environment by characterizing the population genetics, reproduction biology, and native distribution of a putative keystone species, *Agave utahensis*

(Utah agave), in the Mojave Desert and Colorado Plateau. BYU Mentoring Enhancement Grant. 2013-2015. \$20,000.

6. **Stewart, J.R.** Unleashing the power of undergraduates to unravel the impacts of water relations and CO₂ levels on the photosynthetic plasticity of *Agave* sensu lato species: a group of desert succulents important to natural and human systems. BYU Mentoring Enhancement Grant. 2015-2017. \$20,000.

INVITED SEMINARS

1. University of Florida, Department of Environmental Horticulture. 2004.
2. Purdue University, Department of Horticulture and Landscape Architecture. 2004.
3. University of Illinois, Department of Natural Resources and Environmental Sciences. 2005.
4. University of Minnesota, St. Paul. 2005. The phylogenetics and stress tolerance of *Rhamnus cathartica* L. Biology, ecology, and management of garlic mustard and European buckthorn.
5. National Horticulture Research Institute of the Rural Development Administration, Suwon, South Korea. 2006. The ornamental and invasive traits of the *Rhamnus* and *Frangula* genera (Rhamnaceae): Implications for ecology and horticulture.
6. College of Applied Life Sciences of Cheju National University, Cheju, South Korea. 2006. The *Rhamnus* and *Frangula* genera (Rhamnaceae) as model systems in ecology and horticulture. (*Presented the seminar in the Korean language.*)
7. College of Life Sciences and Biotechnology of Korea University, Seoul, South Korea. 2006. Horticulture at the University of Illinois. (*Presented the seminar in the Korean language.*)
8. College of Medicine of the Autonomous University of San Luis Potosí, México. 2006. Exploration of the connection between horticulture and invasive plants and its implications for ecology and policy.
9. University of Illinois Academy for Extension Excellence, Champaign, Illinois. 2007. ACES Global Academy: My experiences as an Academy Scholar.
10. Department of Crop Sciences, University of Illinois. 2007. The *Rhamnus* L. s.l. genus and its relationship to North American agriculture – an amazing tale of a tree, a legume, and an aphid.
11. Department of Horticulture, University of Minnesota. 2007. A horticulturist's view of invasive plant ecology: Can you have your cake and eat it, too?
12. Field Science Center, Hokkaido University. 2008. Development of cellulosic fuels.
13. Field Science Center, Hokkaido University. 2008. *Miscanthus* as potential biofuel crop: Overview of research at the University of Illinois.
14. Field Science Center, Hokkaido University. 2009. Basics of biofuels.
15. Field Science Center, Hokkaido University. 2010. *Miscanthus* as a potential bioenergy crop – what we've learned over the past couple of years.
16. Department of Plants, Soils, and Climate, Utah State University. 2011. Maximizing opportunities of *Miscanthus* in Japan: the native ecology and agronomy of a potential bioenergy crop.
17. Diné Environmental Institute, Diné College. 2012. East versus West: Ecology of two potential bioenergy crops, *Miscanthus* and *Agave*, in two opposing native environments

- (temperate grasslands in Japan and semi-arid deserts in the U.S. Southwest).
18. Diné College, Department of Science and Physical Education, Navajo Nation. 2014.
 19. Cactus and Succulent Research Institute, Gyeonggido Province Agricultural Research and Extension Services, Goyang, South Korea. 2016. Exploring the possibility of photosynthetic plasticity in *Agave*, an agriculturally important group of succulent plants for semi-arid regions. (*Presented the seminar in the Korean language.*)
 20. National Institute of Horticultural and Herbal Science, Rural Development Administration, Cheonju, South Korea. 2016. Exploring the possibility of photosynthetic plasticity in *Agave*, an agriculturally important group of succulent plants for semi-arid regions. (*Presented the seminar in the Korean language.*)
 21. IX International Congress on Cactus Pear and Cochineal – CAM crops for a hotter and drier world, Coquimbo, Chile. 26 March 2017. Exploring the possibility of photosynthetic plasticity in *Agave sensu lato*.
 22. Field Science Center, Hokkaido University. 27 June 2017. Overview of study-abroad opportunities in the United States.
 23. Tomakomai Forest Research Field Station, Hokkaido University. 28 July 2017. CAM succulent plants as sustainable crops.
 24. Hokkaido University Sustainability Week Conference – How can ancient agricultural practices in Japan and the USA inform modern agriculture sustainability?. 8 August 2017. *Agave*, a drought-tolerant succulent crop, enabled ancient tribes to survive and could allow modern economies to thrive in the semi-arid southwestern U.S.
 25. National Institute of Horticultural and Herbal Science, Rural Development Administration, Cheonju, South Korea. 13 September 2017. *Agave*, a drought-tolerant succulent crop, enabled ancient tribes to survive and could allow modern economies to thrive in the semi-arid southwestern U.S.
 26. Graduate School of Global Food Resources, Hokkaido University. 10 November 2017. Identification and selection of drought-tolerant accessions of *Miscanthus*, a high-yielding bioenergy crop from across its native range in Asia using a novel automatic irrigation system.
 27. Field Science Center, Hokkaido University. 16 May 2018. Amazing agaves, cool cacti, and other spectacular succulents – an overview of CAM plant research in the Stewart Lab.

PRESENTATIONS

1. **Stewart, J.R.**, R.K. Kjelgren, and P.G. Johnson. 2000. Effect of precision irrigation on little-leaf linden planted in buffalograss and Kentucky bluegrass. International Annual Meeting the Agronomy, Crop Science, and Soil Science Societies of America. p. 119. *In* Agronomy abstracts. ASA, Madison, WI.
2. **Stewart, J.R.** and R. Kjelgren. 2000. Detecting incipient water stress in buffalograss and Kentucky bluegrass through foliage temperature using low-cost infrared sensors. Annual meeting of the American Society for Horticultural Science. HortScience 35:467.
3. Kjelgren, R. and **R. Stewart**. 2001. Poplar sap flow measured by thermal dissipation probes as compared to load cells. Annual meeting of the American Society for Horticultural Science. HortScience 36:551.
4. **Stewart, J.R.** and W.R. Graves. 2002. Photosynthesis and growth of Carolina buckthorn (*Rhamnus caroliniana* Walter) during drought and flooding: Comparisons to the invasive common buckthorn (*Rhamnus cathartica* L.). p. 461.

- In Proceeding of the 26th International Horticultural Congress.*
5. **Stewart, J.R.** and W.R. Graves. 2004. Photosynthesis, growth, and water-use efficiency of Carolina buckthorn: Comparisons to the invasive common buckthorn. Annual meeting of the American Society for Horticultural Science. HortScience 39:883.
 6. **Stewart, J.R.** and W.R. Graves. 2004. Seed recalcitrance of Carolina buckthorn: Implications for ecology and horticulture. Annual meeting of the American Society for Horticultural Science. HortScience 39:787.
 7. **Stewart, J.R.**, W.R. Graves, and R.D. Landes. 2005. Cold hardiness and budbreak of two buckthorn species. Annual meeting of the American Society for Horticultural Science. HortScience 40:1130.
 8. **Stewart, J.R.** and W.R. Graves. 2006. Geographical pattern of genetic variation in Carolina buckthorn (*Frangula caroliniana*, Rhamnaceae) as determined by amplified fragment length polymorphism analysis. p. 7. *In Proceeding of the 27th International Horticulture Congress.*
 9. **Stewart, J.R.** and R.D. Landes. 2007. Ecophysiological performance of three novel woody species under water stress: *Calycanthus occidentalis*, *Fraxinus anomala*, and *Pinckneya pubens*. Annual meeting of the American Society for Horticultural Science. HortScience 42:899.
 10. Toma, Y., F.G. Fernández, **R. Stewart**, R. Hatano, G.A. Bollero, S. Sato, M. Izumi, and T. Yamada. 2009. Evaluation of a carbon budget in a natural *Miscanthus sinensis* grassland in central Hokkaido, Japan. In: Agronomy Abstracts. CD-ROM. ASA, Madison, WI.
 11. Quinn, L.D. and **J.R. Stewart**. 2010. Assessing the invasiveness of *Miscanthus sinensis*, a potential bioenergy crop. Annual meeting of the Ecological Society of America.
 12. Eads, A.† and **J.R. Stewart**. 2010. Seed propagation of *Chionanthus pygmaeus* (pygmy fringetree), a rare woody species native to Florida. Annual Conference of the American Society for Horticultural Science.
 13. Still, S.M.† and **J.R. Stewart**. 2010. Impacts of soil-moisture stress on growth of cultivars of *Miscanthus sinensis*, a species important to bioenergy crop development. Annual Conference of the American Society for Horticultural Science.
 14. Toma, Y., K. Armstrong, F.G. Fernández, T. Yamada, G. Bollero, A. Nishiwaki, and **J.R. Stewart**. 2010. Long-term carbon sequestration in a *Miscanthus sinensis* grassland and Japanese cedar (*Cryptomeria japonica*) plantation in Aso, Japan. Annual meeting of the American Society of Agronomy.
 15. Dwiyantri, M.S., A. Nishiwaki, **J.R. Stewart**, and T. Yamada. 2012. Comparison of expression level of lignin biosynthesis genes of new triploid hybrids of *Miscanthus sinensis* and *M. sacchariflorus*. Plant and Animal Genome XX Conference.
 16. Clark, L.V., T. Yamada, **J.R. Stewart**, and E.J. Sacks. 2012. Genetic diversity and population structure of *Miscanthus* in Japan. Third Pan American Congress on Plants and Bioenergy.
 17. Nadir, M., A. Tanaka, S. Kuwabara, T. Yamada, H. Matuura, **J.R. Stewart**, R. Akashi, and A. Nishiwaki. 2012. Restricted gene flow between *Miscanthus sinensis* and *Miscanthus sacchariflorus* in Japan. Annual meeting of the Japanese Society of Grassland Science.

18. Niu, G., G. Bi, A. Koeser†, V. Anderson, R. Conneway, S. Verlinden, R. Schnelle, and **R. Stewart**. 2012. Impact of biopots on plant performance and pot degradation in landscapes. Annual Conference of the American Society for Horticultural Science.
19. Conneway, R., A. Koeser†, V. Anderson, M.R. Evans, R.A. Schnelle, **J.R. Stewart**, and S. Verlinden. 2012. Use of biocontainers for short- and long-term greenhouse production. Annual Conference of the American Society for Horticultural Science.
20. Dwiyanti, M.S., A. Nishiwaki, **J.R. Stewart**, and T. Yamada. 2012. Isolation and comparison of lignin biosynthesis genes between *Miscanthus sinensis* and *M. sacchariflorus*. Annual Meeting of the Japanese Society of Breeding.
21. Koeser, A.K.†, G. Bi, M. Evans, R. Geneve, K. Jacobsen, S. Nambuthiri, **J. R. Stewart**, and S. T. Lovell. 2013. Use of plastic trays to reduce irrigation demand of biocontainers. Annual meeting of the American Society for Horticultural Science.
22. Koeser, A.K.†, R. Brumfield, S. T. Lovell, and **J. R. Stewart**. 2013. Biocontainer Use in *Petunia xhybrida* greenhouse production – a cradle-to-gate carbon footprint assessment of secondary impacts. Annual meeting of the American Society for Horticultural Science.
23. Bergsten, S.J.† and **J.R. Stewart**. 2013. Evaluation of the effects of low water availability and salinity on the productivity of a potential bioenergy crop, *Agave*, in the U.S. Intermountain West. Annual meeting of the Society for Economic Botany.
24. **Stewart, J.R.**, S. Bergsten†, W. Archibald*, R. Smith*, J. Clouse*, and P.J. Maughan. 2013. The ecology and agronomy of *Agave utahensis*, a putative keystone species in the Mojave Desert and Colorado Plateau. Annual meeting of the Society for Economic Botany.
25. Howlett, D.S., J. Inouye, Y. Toma, M. Saito, D.K. Lee, H. Wang, T. Yamada, A. Nishiwaki, and **J.R. Stewart**. 2013. Accumulation of soil carbon over 12,000 years in three *Miscanthus* grasslands in Japan. Annual meeting of the Soil Science Society of America.
26. Byers, C.*, J. Clouse*, P.J. Maughan, and J.R. Stewart. 2014. Using microsatellite markers to characterize genetic diversity of Utah agave and its subspecies. Utah Conference on Undergraduate Research, Brigham Young University.
27. Pearce, A.* and R. Stewart. 2014. Predicting species distribution of *Agave utahensis* using MaxEnt. Phase one: developing a climate envelope. Utah Conference on Undergraduate Research, Brigham Young University.
28. Huber, J.A.† and **J.R. Stewart**. 2014. Facultative CAM: Does water availability influence photosynthetic mode shifting in *Agave utahensis*? 34th New Phytologist symposium – systems biology and ecology of CAM plants.
29. Huber, J.A.† and **J.R. Stewart**. 2015. Facultative crassulacean acid metabolism: does water availability influence photosynthetic-mode shifting in *Agave*? Botany 2015, Edmonton, Alberta, Canada. (*Winner of the LI-COR Award for the best presentation in the Physiological Ecology Section*).
30. Anderson, B.*, M. Evans*, L. Wallace, J. Clouse*, P.J. Maughan, and **J.R. Stewart**. SNP-based genetic diversity and structure of *Agave utahensis*. Botany 2016, Savannah, Georgia.
31. Poore, R.C.*, M. McGhie*, S. Boudreaux*, A. Villanueva-Morales, and J.R. Stewart. 2016. Variation in dormancy and water potential requirements of *Yucca L.*

- seeds. Utah Conference on Undergraduate Research, University of Utah.
32. Huber, J.A.†, A. Villanueva, and **J.R. Stewart**. Exploring the possibility of photosynthetic plasticity in *Agave sensu lato*. Botany 2016, Savannah, Georgia.

* indicates undergraduate student co-author

† indicates graduate student co-author

MENTORING

Postdoctoral research associates (4)

1. Yo Toma, Ph.D. (Hokkaido University, Japan). 2008-2011. Current position: Associate professor, Faculty of Agriculture, Ehime University, Matsuyama, Japan.
2. Lauren Quinn, Ph.D. (University of California, Riverside). 2009-2011. Current position: Technical editor, Illinois Sustainable Technology Center, University of Illinois at Urbana-Champaign.
3. David Howlett, Ph.D. (University of Florida). 2011-2013. Current position: USAID Foreign Service Environment Officer, Washington, D.C.
4. Maria Dwiyantri, Ph.D. (Hokkaido University, Japan). 2011-2013. Current position: Assistant Professor, Faculty of Agriculture, Hokkaido University, Sapporo, Japan.

Graduate students (10)

1. Chad Fedewa. M.S. 2008. University of Illinois. Current position: Wildlife Biologist, Michigan Department of Natural Resources.
2. Andrew Koeser. M.S. 2008. University of Illinois. Current position: Assistant Professor, Department of Environmental Horticulture, University of Florida.
3. Amanda Eads Bayer. M.S. 2010. University of Illinois. Current position: Assistant Professor, School of Agriculture, University of Massachusetts, Amherst.
4. Steven Still. M.S. 2010. University of Illinois. Current position: Assistant Professor, School of Agriculture, Murray State University, Murray, Kentucky.
5. Stacy Munroe. M.S. 2010. University of Illinois. Current position: Environmental project manager, City of Chicago.
6. Pamela Schneider. M.S. 2010. University of Illinois.
7. Andrew Koeser. Ph.D. 2013. University of Illinois. Current position: Assistant Professor, Department of Environmental Horticulture, University of Florida.
8. Bergsten, Steven. M.S. 2013. Brigham Young University. Current position: Research associate, AgraServ, Idaho Falls, Idaho.
9. John Huber. M.S. 2013-2016. Brigham Young University.
10. Hector Ortiz. Ph.D. 2015-present. Brigham Young University.

Undergraduate students (30)

1. Blake Anderson. 2014-2016. Population genetics of *Agave utahensis*.
2. Westen Archibald. 2013-2015. Pollination biology and seed hydrothermal time of *Agave utahensis*. Current position: Entomologist for the U.S. Navy.
3. Stephanie Boudreaux. 2015-present. Navajo Nation *Yucca* project. Presented a research poster at Utah Conference on Undergraduate Research, 2016.
4. Charlee Byers Abboud. 2013-2014. Population genetics and micropropagation of *Agave utahensis*. Lead author on a peer-reviewed paper. Presented a research poster at Utah

- Conference on Undergraduate Research, 2014. Current position: M.D. student at Pacific Northwest University.
5. Emily Bogdan. 2013-2014. *Agave utahensis* seed fate study.
 6. Justin Boyer. 2013-2016. Seed hydrothermal time of *Agave utahensis*. Current position: PhD student at Princeton University in quantitative and computational biology program.
 7. James Chandler. 2013-2014. Pawpaw and persimmon project, common garden study of native succulents.
 8. Matthew Evans. 2014-2016. Population genetics of *Agave utahensis*.
 9. Stephen Florence. 2015-2017. Succulent plant research. Awarded a BYU ORCA undergraduate research grant in 2017 for “Characterizing endophyte interactions that enhance tolerance of water stress and disease in economically important succulent crops, *Agave* and *Yucca*”. Current position: Undergraduate student at Utah Valley University.
 10. Angela Grimes. 2014-2015. Dugway Proving Ground vegetation center.
 11. Clayton Hooper. 2017-present. Anthocyanin expression in succulent plant species.
 12. Wesley Hunter. 2012. Secondary products of *Agave*.
 13. Tyson Jergensen. 2013. Navajo Nation succulent project.
 14. Christian Kennedy. 2016-present. Succulent plant research (native plants and Korean secondary pigment project). Awarded a BYU ORCA undergraduate research grant in 2017 for “Polyethylene high tunnels and nitrogen fertilization potentially increase survival and yield of *Opuntia* (cactus pear, nopal) species in Utah.
 15. Eric Lenhart. 2016-present. Influence of rock piles on *Agave* ecophysiology.
 16. Megan McGhie. 2015-2017. Navajo Nation *Yucca* project. Presented a research poster at Utah Conference on Undergraduate Research, 2016. Current position: PhD student in bioinformatics at University of California, Los Angeles.
 17. Cali McMurtrey. 2012. Salt tolerance levels of *Agave* species.
 18. Nicolas Mena. 2015-present. Crop physiology of *Opuntia* species. Awarded a BYU ORCA undergraduate research grant in 2017 for “Polyethylene high tunnels and nitrogen fertilization potentially increase survival and yield of *Opuntia* (cactus pear, nopal) species in Utah”.
 19. Jonathan Mok. 2013-2014. Ecophysiology of *Miscanthus sinensis*. Current position: Law student, University of Alabama.
 20. Harrison Nichols. 2017-present. Influence of rock piles on *Agave* ecophysiology.
 21. Austin Pearce. 2013-2014. Mapping of native distribution of *Agave utahensis* using GIS tools. Presented research at Utah Conference on Undergraduate Research. Current position: M.S. student, Department of Plant and Wildlife Sciences, Brigham Young University.
 22. Claire Poore. 2015-present. Navajo Nation *Yucca* project. Presented a research poster at Utah Conference on Undergraduate Research, 2016. Awarded a BYU ORCA undergraduate research grant in 2017 for “Characterizing endophyte interactions that enhance tolerance of water stress and disease in economically important succulent crops, *Agave* and *Yucca*”.
 23. Neil Reed. 2013-2016. *Agave* ecophysiology.
 24. Benjamin Rencher. 2015-2016. Crop physiology of *Opuntia* species.
 25. Tysum Ruchti. 2014-2015. *Agave* photosynthetic-mode shifting.

26. Yui Shen. 2012-2014. Salt tolerance levels of *Agave* species and photosynthetic patterns in *Agave utahensis*.
27. Rebekah Smith. 2013. Taxonomy of *Agave* species.
28. Jacob Stoker. 2014-2015. Seed biology of *Agave* species. Current position: Medical student at California Northstate University.
29. Ryan Williams. 2011-2012. *Agave* horticulture.
30. Meng Zhang. 2013. Salt tolerance levels of *Agave* species.

High school students (1)

1. Euiyoung Kim. 2017-present. Anthocyanin expression in succulent species.

ORCA Undergraduate Research Grant Recipients (4)

1. Stephen Florence. 2017. Characterizing endophyte interactions that enhance tolerance of water stress and disease in economically important succulent crops, *Agave* and *Yucca*.
2. Christian Kennedy. 2017. Polyethylene high tunnels and nitrogen fertilization potentially increase survival and yield of *Opuntia* (cactus pear, nopal) species in Utah.
3. Nicolas Mena. 2017. Polyethylene high tunnels and nitrogen fertilization potentially increase survival and yield of *Opuntia* (cactus pear, nopal) species in Utah.
4. Claire Poore. 2017. Characterizing endophyte interactions that enhance tolerance of water stress and disease in economically important succulent crops, *Agave* and *Yucca*.

CITIZENSHIP

Editorial service

Associate Editor of On-line Material, 27th International Horticulture Congress, Korean Society for Horticultural Science, Seoul, Korea. 2005-2006.

Editorial Board Member and Reviewer of the Journal of the Korean Society for Horticultural Science. 2005-2007.

Consulting Editor, *HortScience*. 2010-2012.

Associate Editor, *Applications in Plant Sciences*. 2015-present.

Professional committees and service

Chair, Ornamentals/Landscape and Turf Working Group of the American Society for Horticultural Science. 2009-2010.

Scholarship Committee of the American Society for Horticultural Science. 2007-2010.

Program co-director of Physiological Section of the Botanical Society of America. 2015-present.

Organizing Committee for CAM 2018: Biology of CAM Plants, Desert Botanic Garden, Phoenix, Arizona, April 2018. 2016-present.

Institutional committees and service

Steering Committee of the Center for Advanced Studies 2007-2008 Interdisciplinary Initiative, Science and Technology in the Pacific Century. University of Illinois. 2006-2008.

Plant Care Advisory Committee. University of Illinois. 2006-2011.

Departmental Seminar Committee. Department of Natural Resources and

Environmental Sciences. University of Illinois. 2005-2007.
 Graduate Admissions and Policy Committee. Department of Natural Resources and Environmental Sciences University of Illinois. 2007-2009.
 Horticulture Curriculum Revision Committee. Department of Natural Resources and Environmental Sciences University of Illinois. 2007-2009.
 Website Committee. Department of Natural Resources and Environmental Sciences. University of Illinois. 2007-2009.
 Horticulture Program Vision Subcommittee. Department of Natural Resources and Environmental Sciences. University of Illinois. 2008.
 Horticulture Program Scholarship Committee. Department of Natural Resources and Environmental Sciences. University of Illinois. 2008-2009.
 Web Resources Committee. Department of Crop Sciences. University of Illinois. 2009-2011.
 Teaching Committee. Department of Crop Sciences. University of Illinois. 2009-2011.
 Chair, Greenhouse, Gardens, and Field Plots Committee. Department of Plant and Wildlife Sciences. Brigham Young University. 2011-present.
 Curriculum Committee. Department of Plant and Wildlife Sciences. Brigham Young University. 2015-present.
 College of Life Sciences Research Committee. Brigham Young University. 2011-present.

Symposium organized

American Society for Horticultural Science annual meeting, Orlando, Florida. 2008.
 Impacts of invasive plants on the horticulture industry in the biosecurity age.

Hokkaido University Sustainability Weeks. How can ancient agricultural practices in Japan and the USA inform modern agricultural sustainability? 8 August 2017.
 Hokkaido University, Sapporo, Japan.

Referee

Ad hoc manuscript reviewer for *Journal of the American Society for Horticultural Science*, *HortScience*, *Scientia Horticulturae*, *Native Plants Journal*, *Forest Ecology and Management*, *PLoS ONE*, *Global Change Biology Bioenergy*, *BioEnergy Research*, *Fundamental and Applied Limnology*.