

Dr. Sara Fuentes-Soriano

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ANIMAL AND RANGE SCIENCES
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Education

Ph.D.-Biology, in Plant Systematics, Ecology, and Evolution, University of Missouri-Saint Louis (UMSL), 2010.

Major: Plant Systematics and Evolution

Dissertation Title: Phylogenetics, morphology, and genomic evolution in Physarieae (Brassicaceae)

M.S.-Biology, in Plant Systematics, Ecology, and Evolution, University of Missouri-Saint Louis (UMSL), 2002.

Major: Plant Systematics

Dissertation Title: A systematic revision of the genus *Pennellia* in North America

M.S.-Biology, in Electron Microscopy, Autonomous National University of Mexico (UNAM), 1998.

Major: Biological Sciences

Dissertation Title: The ultrastructural morphology of *Phaseolus* (Fabaceae)

B.S.-Biology, Autonomous National University of Mexico (UNAM), 1995.

Major: Botany

Dissertation Title: A flora of the family Brassicaceae in gypsum and saline soils of Mexico

Employment History

Professional

- 2017–present New Mexico State University Herbaria Director and Curator, Assistant Professor, Department of Animal & Range Sciences (ANRS), College of Agriculture, Consumer, and Environmental Sciences (ACES). New Mexico State University. Las Cruces, New Mexico.
- 2015–2016 United States Department of Agriculture (USDA) Post-Doctoral Fellow, Prairie View-Texas A&M University. Project: Sweet Potato genomics and breeding. Prairie View, Texas.
Mentor: Ming Gao.
- 2012–2015 USDA-National Institute of Food and Agriculture Post-Doctoral Fellow, Indiana University. Project: *De novo* transcript assembly and annotation of the Loblolly pine reference transcriptome. Bloomington, Indiana.
Mentor: Keithanne Mockaitis.
- 2011–2012 Scientific Editor, Missouri Botanical Garden Press. St. Louis, Missouri.
Supervisor: Victoria Hollowell
- 2010–2011 Missouri Botanical Garden Post-Doctoral Fellow. Project: Flora of Mesoamerica.
Mentors: Gerrit Davidse & Robert Magill. St. Louis, Missouri.
- 1994–2000 Lab Manager & Head Technician. Electron Microscopy Lab, Institute of Biology - UNAM (IBUNAM).
Supervisors: Head Researcher in turn.
- 1993–1994 Research Assistant, IBUNAM. Project: Flora of Tamaulipas.
Mentor: Francisco González Medrano.
- 1992–1993 Research Assistant, IBUNAM. Project: Monograph of the genus *Atriplex* (Chenopodiaceae).

Museum Curatorial experience

- 2017 Physical relocation of NMCR herbarium, including (March 2017)
- 2017–present Collection director and manager, NMSU Herbaria (NMC and NMCR). Prepare, identify, repair, database and digitize specimens, with specimen. Responsible for incoming and outgoing loans and exchanges. Negotiate MOUs with federal agencies. Proposal writing for research and infrastructure upgrades. Train and supervise herbarium assistants. Organize and lead outreach activities.
- 2017–present Build new database within Specify 6 and 7 for over 120,000 specimen records and associated high-resolution specimen images. data being uploaded to the relational databases Maiitsoh (File maker Pro), Access and Specify 6 and 7. Data sharing via Southwest Environmental Information Network (SEINet) web portal, (<http://swbiodiversity.org/seinet/index.php>).
- 2017–present Webmaster of NMC and NMCR herbaria. Duties include: redesigning and updating webpage (<http://aces.nmsu.edu/herbarium/index.html>).
- 2017–present Herbaria exhibit preparation. Select thematically appropriate specimens and other collection objects and provide exhibit text for public displays.
- 2017–present Organizing outreach activities at NMSU herbaria and off-campus. Organized and led public outreach events on topics including herbaria, plant diversity, poisonous plants, rare plants, etc.
- 1993 Student Herbarium Assistant for National Herbarium Mexico (MEXU), UNAM.
- 1994–present Collected and curated hundreds of vascular plants from Mexico and the USA. Mentor: Hilda Flores-Olvera.

Professional Memberships

- Native Plant Society of New Mexico (Las Cruces, Otero, El Paso, Gila Chapters). (January 2017 - Present).
- Society for the Advancement of Chicanos/Hispanics and Native Americans in Sciences. (January 2017 - Present).
- Society for the Preservation of Natural History Collections. (January 2017 - Present).
- Society of Herbarium Curators. (January 2017 - Present).
- Society of Rangeland Management. (January 2017 - Present).
- International Association for Plant Taxonomy. (January 2005 - Present).
- American Society of Plant Taxonomists. (January 2003 - Present).
- Botanical Society of America. (January 2003 - Present).

Development Activities Attended

- Seminar/Workshop, "Cultural diversity across the curriculum," Teaching Academy, NMSU, Las Cruces, New Mexico, US. (October 25, 2018).
- Conference Attendance, "Society for the Preservation of Natural History Collections." (September 25, 2018 - October 1, 2018).

Seminar/Workshop, "Corporate and Foundation Relations (CFR) office resources," Teaching Academy, NMSU, Las Cruces, Ne, US. (September 20, 2018).

Seminar/Workshop, "Research and Extension Experiences for Undergraduates - FY2018 Informational," USDA National Institute of Food and Agriculture, Las Cruces, New Mexico, US. (May 23, 2018).

Seminar/Workshop, "Why impactful reporting matters and how to do it better," ACES, NMSU, Las Cruces, NM, US. (May 21, 2018).

Short Course, "Strategic Planning for Herbaria," iDigbio and Society of Herbarium Curators, Tallahassee, FL, US. (April 6, 2018 - May 18, 2018).

Seminar/Workshop, "Excel at teaching - twelve steps to help student learn!," Teaching Academy, NMSU, Las Cruces, New Mexico, USA. (May 16, 2018).

Seminar/Workshop, "College-Track Faculty Promotion," Teaching Academy, NMSU, Las Cruces, New Mexico, USA. (April 19, 2018).

Seminar/Workshop, "Strategies for Developing Competitive Proposals," Teaching Academy, NMSU, Las Cruces, New Mexico, USA. (January 24, 2018).

TEACHING

Teaching Experience

New Mexico State University

RGSC 406, RANGELAND TEAM COMPETITION, 1 course.

RGSC 448, PROBLEMS, 2 courses.

RGSC 598, SPCL RES PROGRAMS, 1 course.

Outside New Mexico State University

- 2015–2016 Mentoring of undergraduate student in plant transcriptomic analysis - Abhinav Srivastava, Gene marker discovery and origins of sweet potato by analyzing transcriptomic data. Cooperative. Agricultural Research Center, College of Agriculture and Human Sciences. Prairie View A&M, Prairie View, Texas.
- 2015–present Mentoring of visiting Scholar - Brenda Barcelos (Ph.D. candidate) in transcriptomic analysis. Project: Goat testis transcriptomics. Goat Center, Prairie View A&M, Prairie View, Texas.
- 2015–present Mentoring of five undergraduate students in transcriptomic analysis. One of the undergraduate students, Jessica Lewis won 2nd place for the best student paper, and honorable mention at the Undergraduate Research Symposium iRISE-UP for presentation and scientific merit of her undergraduate research. CARC, Prairie View A&M, Prairie View, Texas.
- 2013–2014 Mentoring of two undergraduate students in transcriptomic analysis. Department of Biology. Indiana University. Bloomington, Indiana.
- 1993–1994 Mentoring of five undergraduate students in museum curatorial techniques. National Herbarium (MEXU), UNAM, Mexico.

Non-Credit Instruction

2018. Guest Lecture, Range Sciences - RGSC 316, 23 participants.

- 2018. Guest Lecture, CAMP, 7 participants.
- 2018. Herbarium undergraduate student volunteer, 2018 NMSU Herbaria workshop to train undergraduate student volunteers, 3 participants.
- 2018. Guest Lecture, Plant and Environmental Sciences - Agro 100G (Prof. R. Goss)., 21 participants.
- 2018. Guest Lecture, Arts and Sciences - BIOL 313 (Prof. D. Bailey), 25 participants.
- 2018. Guest Lecture, Plant and Environmental Sciences - Agro 100G (Prof. R. Goss)., 60 participants.
- 2017 - 2018. Workshop, Animal and Range Science - NMSU Plant ID Team, 5 participants.
- 2017 Medicinal Plants Workshop - RISE-College Assistant Migrant Program (CAMP) at NMSU: Herbarium curatorial techniques and data management undergraduate student training – Rosalba Marquez-Balderama and Anahi Elias (Summer 2017).
- 2017 Special Research Program: Plant Collections Management, RGSC 598. Provide training to graduate and undergraduate students on herbarium curatorial techniques, data management, and data analysis, NMSU (Spring 2017).
- 2017 Guess lecture Spring semester. Biodiversity literacy and best practices in herbarium curatorial techniques. Plant and Environmental Sciences (PES), NMSU.
- 2017 Guess lecture Spring semester. Phylogenetics and classification of grasses. ANRS, NMSU.
- 2014 Genomics in July: An Introduction to Computing for Genomic Discovery and Analysis using NGS Data. Department of Biology and National Center for Genome Analysis Support, Indiana University.
- 2007–2008 Human Anatomy Course, Discussion section and laboratory leader, University of Missouri-Saint Louis.
- 2005–2006 General Biology Course, Discussion section and laboratory leader, University of Missouri-Saint Louis.

Directed Student Learning

- Internship Advisor, "Preparation of a plant Checklist from the Organ Desert Mountains National Park." (August 15, 2018 - Present).
Advised: Chloe Gemoets
- Internship Advisor. (January 2018 - Present).
Advised: Trystan Harlpold
- Internship Advisor, "Mentor of Inter from the Natural Resource Career Track program." (September 1, 2018 - November 26, 2018).
Advised: Xavier Lovato
- Internship Advisor, "Historical Ecology." (January 2018 - April 2018).
Advised: Mitchell Manford

Supervised Research, "I Seed What You Did There...Exploring the NMC Herbarium and the Seeds of Success Program." (January 2018 - April 2018).
Advised: Chloe Battista

RESEARCH

Published Intellectual Contributions

- 2016 Sánchez-Del Pino I., **S. Fuentes-Soriano**, K. Z. Solis-Fernández, R. Pool, & R. Alfaro. The metareticulate pollen morphology of *Alternanthera* Forssk. (Gomphrenoideae, Amaranthaceae) and its taxonomic implications. *Grana*: <http://dx.doi.org/10.1080/00173134.2015.1120774>.
- 2015 Al-Shehbaz, I. & **S. Fuentes-Soriano**. Brassicaceae. In *Flora Mesoamericana*. G. M. Davidse, M. Sousa S., and S. Knapp (eds.). *Missouri Botanical Garden Press*, Missouri, USA.
- 2014 Neale D. B., J. L. Wegrzyn, K. A. Stevens, A. V. Zimin, D. Puiu, M. W. Crepeau, C. Cardeno, M. Koriabine, A. E. Holtz-Morris, J. D. Liechty, P. J. Martínez-García, H. A. Vasquez-Gross, B. Y. Lin, J. J. Zieve, W. M. Dougherty, **S. Fuentes-Soriano**, L.-S. Wu, D. Gilbert, G. Marçais, M. Roberts, C. Holt, M. Yandell, J. M. Davis, K. E. Smith, J. F. D. Dean, W. W. Lorenz, R. W. Whetten, R. Sederoff, N. Wheeler, P. E. McGuire, D. Main, C. A Loopstra, K. Mockaitis, P. J. deJong, J. A. Yorke, S. L. Salzberg, & C. H. Langley. Decoding the massive genome of loblolly pine using haploid DNA and novel assembly strategies. *Genome Biology* 15: R59. <http://genomebiology.com/2014/15/3/R59>.
- 2013 **Fuentes-Soriano, S.** & I. Al-Shehbaz. Phylogenetic relationships of mustards with multiaperturate pollen (Tribe Physarieae, Brassicaceae) based on chloroplast *ndhF*: implications for morphological diversification. *Systematic Botany* 38(1): 178-191.
- 2012 C. Parra & **S. Fuentes-Soriano**. Brassicaceae. In *Flora de Antioquía: Catalogo de las plantas vasculares. Vol II. Listado de las plantas vasculares del Departamento de Antioquía*. A. Idárraga Piedrahíta, R. del C. Carmen Ortíz, R. Callejas Posada, and M. Merello (eds.). Ed. D'Vinni, Bogota, Colombia. Pp. 358-360.
- 2010 **Fuentes-Soriano, S.** Phylogenetics, morphology, and genomic evolution in Physarieae (Brassicaceae). *Ph.D. dissertation*. University of Missouri-Saint Louis, Saint Louis.
- 2010 **Fuentes-Soriano, S.** & I. Al-Shehbaz. *Pennellia* Nieuwland. Pp. 559–561 in *Flora of North America*, North of Mexico, Volume 7: Magnoliophyta: Salicaceae to Brassicaceae. *Flora of North America* Editorial Committee. Oxford University Press, New York, USA.
- 2010 Torres-Colin, L., **S. Fuentes-Soriano**, & A. Delgado. Estudio palinológico del género *Macroptilium* (Benth.) Urb. (Leguminosae) en México y Central América. *Acta Botánica Mexicana* 91: 51–69.
- 2007 Bures P., P. Marda, I. Hralova, **S. Fuentes-Soriano**, M. Lysak, R. Epka, K. Helanova, O. Rotreklova, J. Prochazkova, L. Uradniek, & J. Krova. Correlation between GC content and genome size in plants. *Cytometry* 71A (9): 764.
- 2006 Flores-Olvera, H., **S. Fuentes-Soriano**, & E. Martínez Hernández. Pollen morphology and systematics of Atripliceae (Chenopodiaceae). *Grana* 20: 175–194.
- 2004 **Fuentes-Soriano, S.** A taxonomic revision of *Penellia* (Brassicaceae). *Harvard Papers in Botany* 8: 173–202.
- 2002 **Fuentes-Soriano, S.** A taxonomic revision of *Penellia* (Brassicaceae). *M.S. thesis*. University of Missouri-Saint Louis, Saint Louis.
- 1999 Rico, M. de L., M. Sousa S. & **S. Fuentes-Soriano**. *Guinetia*: a new genus in the tribe Ingeae (Leguminosae: Mimosoideae) from Mexico. *Kew Bulletin* 54: 979–981.

- 1998 **Fuentes-Soriano, S.** Estructura y morfología de granos de polen del género *Phaseolus* (Fabaceae: Phaseolinae). *M.S. in Electron Microscopy*. UNAM, Mexico.
- 1998 **Fuentes-Soriano, S.**, P. Ramos-Godínez, E. Sánchez-Espindola & A. Delgado-Salinas. Exine ultrastructure from *Phaseolus* L. pollen grains (Leguminosae, Phaseolinae). *Electron Microscopy Symposium II*, Mexico. 4: 91–92.
- 1998 Y. Bizuet-Flores, **S. Fuentes-Soriano**, & M. Balcazar-Lara. Scanning Electron Microscopy contributions in the analysis of internal and external morphology for numerical taxonomy of butterflies. *Electron Microscopy Symposium II*, Mexico. 4: 53–54.
- 1995 **S. Fuentes-Soriano**. La familia Cruciferae en suelos salinos y yesosos de Mexico: flora y diversidad. *B.S. thesis*. UNAM, Mexico.

Conference Proceedings

- 2018 Fuentes-Soriano, S., Prihodko, L., Rogers, Z., Manford, M. (2018). In Biodiversity Information Science and Standards. Gail Kampmeier and James Macklin (Ed.), *Shining a New Light on Elmer Ottis Wooton's Legacy Herbarium and Historical Archive: an Exercise to Increase Student Participation while Promoting Public Engagement* (vol. 2, pp. e25783). online: Biodiversity Information Science and Standards.
- 2017 Barcelos B., **S. Fuentes-Soriano**, J. Watts, F. Williams, F. R. B. Ribeiro, W. B. Foxworth, L. C. Nuti, G. R. Newton, & S. K. Lewis. P3046 Gene expression in developing goat testes: Sequencing, assembly and identification of caprine spermatogenesis transcriptome. *Journal of Animal Science* doi:10.2527/jas2016.94supplement475a.
- 2017 Watts J., B. Barcelos, **S. Fuentes-Soriano**, F. Williams, F. B. Ribeiro, W. B. Foxworth, L. C. Nuti, G. R. Newton, & S. K. Lewis. Identification of a Caprine Spermatogenesis Transcriptome. *Annual Biomedical Research Conference for Minority Students conference*. Phoenix, AZ.
- 2017 Barcelos B., J. Watts, **S. Fuentes-Soriano**, F. Williams, F. B. Ribeiro, W. B. Foxworth, L. C. Nuti, G. R. Newton, & S. K. Lewis. Gene Expression in Developing Goat Testes: Sequencing, Assembly and Identification of Caprine Spermatogenesis Transcriptome. *50th Society for the Study of Reproduction*. Washington, D.C.

Presentations Given

- Lovatos, X. E. (Presenter), **Fuentes-Soriano, S.**, Herbal allies from a Bioregional Perspective, "Cochiti Pueblo Way of Appreciating Plant Uses and Life," Native Plant Society, Las Cruces Chapter, Biology Annex. (November 17, 2018).
- Ramirez, S. (Presenter), **Fuentes-Soriano, S.**, Herbal allies from a Bioregional Perspective, "The Power of Natives: Healing Plants of Southwestern New Mexico," Native Plant Society, Las Cruces Chapter, Biology Annex, NMSU. (November 17, 2018).
- Fuentes-Soriano, S.** (Presenter), Prihodko, L. (Presenter), Manford, M., Rogers, Z. (Presenter), Society for the Preservation of Natural History Collections, "Shining a New Light on Elmer Ottis Wooton's Legacy Herbarium and Historical Archive: an Exercise to Increase Student Participation while Promoting Public Engagement," SPNHC & TDWG, Dunedin, New Zealand. (September 26, 2018).
- Manford, M. (Presenter), **Fuentes-Soriano, S.** (Presenter), Prihodko, L. (Presenter), Undergraduate Research and Creative Arts Symposium, "An historical-ecological framework for evaluating environmental change: Retracing the steps of pioneering Botanist Elmer Wooton and his botanical journey through the biomes of the Organ Mountains," New Mexico State University. (April 27, 2018).

- Battista, C., **Fuentes-Soriano, S.** (Presenter), Undergraduate Research and Creative Arts Symposium, "I Seed What You Did There – Exploring the Seeds of Success Program in the NMC Herbarium," New Mexico State University. (April 27, 2018).
- Fuentes-Soriano, S.** (Leader), Prihodko, L. (Leader), Manford, M. (Presenter), Discover the College of ACES Open House, "Comparative Botany at Bishop's Cap, Organ Mountains," College of Agricultural, Consumer and Environmental Sciences, Las Cruces, NM. (April 14, 2018).
- Fuentes-Soriano, S.** (Presenter), Prihodko, L. (Presenter), Manford, M. (Other), 17th Annual University Research Council (URC) Faculty Research & Creative Fair, "Retracing the steps of Elmer Wooton and his botanical journey through the biomes of the Organ Mountains: An historical-ecological framework for evaluating environmental change," NMSU, Las Cruces, NM. (April 4, 2018).
- Fuentes-Soriano, S.**, Native Plant Society of New Mexico (Gila chapter), "The intriguing and wonderful natural history of uncommon Southwestern Mustards," Native Plant Society of New Mexico (Gila chapter), Western New Mexico University Silver City, NM. (January 19, 2018).
- Srivastava, A., **S. Fuentes-Soriano**, & M. Gao. Gene marker discovery and origins of sweet potato by analyzing transcriptomic data. *13th Annual Pathways Student Symposium*. Prairie View A&M University. Prairie View, TX. (2016)
- Barcelos B., **S. Fuentes-Soriano**, J. Watts, F. Williams, F. R. B. Ribeiro, W. Foxworth, L. C. Nuti, G. R. Newton, & S. K. Lewis. Transcriptional profile during acquisition of spermatogenesis function in the goat testes. *Annual Meeting of the Texas Genetics Society*. Houston, TX. (2016)
- Barcelos B., **S. Fuentes-Soriano**, J. Watts, F. Williams, F. R. B. Ribeiro, W. Foxworth, L. C. Nuti, G. R. Newton & S. K. Lewis. Gene expression in developing goat testes: sequencing, assembly and identification of caprine spermatogenesis transcriptome. *35th International Society for Animal Genetics conference*. Salt Lake City, UT. (2016)
- Watts J., F. Williams, Barcelos B., **S. Fuentes-Soriano**, F. R. B. Ribeiro, W. Foxworth, L. C. Nuti, G. R. Newton, & S. K. Lewis. The identification of molecular biomarkers for improving goat fertility using genomic tools. *Undergraduate Research Symposium iRISE-UP*. Prairie View, TX. (2016)
- Wu L.-S., C. Loopstra, **S. Fuentes-Soriano**, D. Gilbert, & K. Mockaitis. *De novo* transcript assembly and comparisons of software used in building the Loblolly pine references Transcriptome. *XXIII Plant and Animal Genome international conference*. San Diego, CA.(2015)
- S. Fuentes-Soriano**. Invited speaker. Morphological and evolutionary studies of pollen types employing different microscopy techniques: Scanning Electron Microscopy, Transmission Electron Microscopy and Laser Confocal Microscopy. *1st National Colloquium: La microscopía, una herramienta útil para la identificación de micro y nano estructuras en biomateriales*. CEPOBRI-IPN, Yauhtepec Morelos, Mexico. (2014)
- Sanchez del Pino I. & **S. Fuentes-Soriano**. The metareticulate pollen morphology of *Alternanthera Forssk.* (Gomphrenoidea, Amaranthaceae) and its phylogenetic and taxonomic implications. *Botany 2014*. Boise, ID. (2014)
- Fuentes-Soriano S.** Exploring highly diversified gene families in the conifers. *Workshop: Genomics in July: An Introduction to Computing for Genomic Discovery and Analysis using*

- NGS Data. Indiana University, Department of Biology and National Center for Genome Analysis Support, Bloomington, IN. (2014)
- Fuentes-Soriano S.** & S. Sankaranarayanan. Blast protocols and other tools for sequence alignments. *Workshop: Genomics in July: An Introduction to Computing for Genomic Discovery and Analysis using NGS Data*. Indiana University, Department of Biology and National Center for Genome Analysis Support. Bloomington, IN. (2014)
- Mockaitis K., L-S. Wu, **S. Fuentes-Soriano**, C. Loopstra, & Don Gilbert. Gene expression in *Pinus taeda*, the largest reference genome to date: sequencing, assembly and classification of the loblolly pine transcriptome. *15th Annual Advances in Genome Biology and Technology meeting*. Marco Island, FL. (2014)
- Mockaitis K., L-S. Wu, C. Loopstra, **S. Fuentes-Soriano**, & Don Gilbert. Gene Expression in Conifers Revealed on a Comprehensive Scale: Sequencing, Assembly and Classification of the Loblolly Pine Transcriptome. *Plant and Animal Genome XXII International conference*. San Diego, CA. (2014)
- Fuentes-Soriano, S.**, C. Loopstra, & K. Mockaitis. Phylogenetic analysis and diversity of the MADS-box gene family in loblolly pine (*Pinus taeda*). *XXII Plant and Animal Genome international conference*. San Diego CA, USA. (2014)
- Fuentes-Soriano, S.**, C. Loopstra, J. Wegrzyn, & K. Mockaitis. Building references for functional genomics of conifer development: deep sequencing and comparative gene expression in reproductive tissues and seeds of loblolly pine. *XXI Plant and Animal Genome international conference*. San Diego, CA.(2013)
- Fuentes-Soriano, S.** Patterns of trait evolution within the tribe Physarieae (Brassicaceae): changes in morphology. *Botany 2011*. Saint Louis, MO. (2011)
- Celis Pacheco, M. & **S. Fuentes-Soriano**. Evolution of pollen morphology in Tigridaeae (Iridaceae) in a new molecular phylogenetic context. *Botany 2011*. Saint Louis, MO. (2011)
- Ortíz R. C. & **S. Fuentes-Soriano**. Evaluating the phylogenetic signal and mode of evolution of continuous traits in Menispermaceae (Ranunculales): an example using endocarp size. *Botany 2011*. Saint Louis, MO. (2011)
- Fuentes-Soriano, S.** & P. Bures. Phylogeny, chromosome number and genome size evolution in Physarieae. *Botany 2008*. Vancouver, Canada. (2008)
- Bures, P., P. Marda, I. Hralova, K. Helanova, **S. Fuentes-Soriano** & P. Jana. Is GC-content correlated with genome size in plants? *Plant Genome Horizons: Vistas and Visions*. Kew, England. (2007)
- Bures P., P. Marda, I. Hralova, **S. Fuentes-Soriano**, M. Lysak, R. Epka, K. Helanova, O. Rotreklova, J. Prochazkova, L. Uradni & J. Krova. GC Content in plant genomes. *Analytical Cytometry IV meeting*. Brno, Czech Republic. (2007)

Contracts, Grants and Sponsored Research

Sponsored Research

Fuentes-Soriano, S. (Co-Principal), Jenks, K. (Co-Principal), Johnson, E. R. (Co-Principal), Buenemann, M. (Co-Principal), Bailey, D. (Co-Principal), Amato, J. M. (Co-Principal), Brown, C. P. (Co-Principal), Houde, P. (Co-Principal), Alexander, R. T. (Principal), "BLM New Mexico, Resource Management Planning Support for Organ Mountains Desert Peaks and

Prehistoric Trackways National Monuments," Sponsored by US Department of Interior/Bureau of Land Management, Federal, \$97,000.00. (September 19, 2017 - September 18, 2022).

Fuentes-Soriano, S. (Principal), Pietrasiak, N. (Co-Principal), Ganguli, A. C. (Co-Principal), Bailey, D. (Co-Principal), "Consolidating, Modernizing and Harnessing the Full Potential of Two Herbaria Collections at New Mexico State University," Sponsored by National Science Foundation, Other, \$430,000.00. (April 1, 2018 - March 31, 2021).

Intellectual Contributions in Submission

Refereed Journal Articles

Fuentes-Soriano, S., Gao, M., Mockaitis, K., Sanders, S., Cao, Q., Yang, X., Lu, G. The hexaploid Sweetpotato (*Ipomoea Batatas* (L.) Lam.) is not a true type to either Auto- or allopolyploid. *Euphytica*.

Research Currently in Progress

"Building the NMSU plant biocrust reference collection" (On-Going). (November 2017 - Present). The first repository of photosynthetic organisms of the bio crust from Desert Environments from the Southern Western USA is being physically and digitally prepared by the NMSU herbaria and Dr. Pietrasiak. Data is already being used in the preparation and submission of scientific manuscripts and the discovery of new species

"Building the NSMU weed plant reference collection" (On-Going). (November 1, 2017 - Present). Preparation of museum quality specimens for Extension Weed Specialist group. Materials will be used to engage participants attending training sessions and offered outreach activities conducted by Extension Weed specialist Dr. Leslie Beck and collaborators.

"Developing an Historical-Ecological Geospatial Framework for Evaluating Environmental Change in the Organ Mountains" (On-Going). (September 2017 - Present). Elmer Ottis Wooton was a pioneering botanist in the Southwestern United States and Professor at the New Mexico College of Agriculture and Mechanical Arts (the predecessor of NMSU) from 1888 - 1911. Wooton's legacy includes the plant collection used for the first Flora of New Mexico (Wooton & Standley 1915), early understanding of the botany and management of the northern Chihuahuan desert, and extensive field notes, photographs, vegetation sketches on his travels in the region, all of which are archived and available for further research at NMSU. Since Wooton first conducted his botanical surveys, however, Southwestern landscapes have changed dramatically in response to land use change, drought and changing climate. The major changes have been well-documented at the lower elevations neighboring Las Cruces (e.g. on the College Ranch and Jornada Experimental Range), but changes in the high-elevation "sky islands" of the Organ Mountains, where Wooton also spent considerable time, are much less well known. This research seeks to explore how the Organ Mountains have changed and use new data collections and modern analysis techniques with the historical data to understand past changes and predict future change in the Organ Mountains and similar sky-islands across the US southwest.

"Refreshing the on-line presence of the NMSU herbaria: website redesign" (On-Going). (August 14, 2017 - Present). The information and work of New Mexico State University Biology Herbarium (NMC) has long been promoted on-line through its website. The merging of the Range herbarium to the NMC museum has opened the opportunity to enhance the old website and for the first time, since its creation (ca. 40 yrs.), to bring an electronic image of the NMSU Range herbarium. It is expected that the modernized herbaria website will more efficiently promote the information

of our two important museum plant collection, increase engagement among educators, researchers, and the community in general.

"Geospatial database of resource inventory and monitoring of the Organ Mountains-Desert Peaks and Prehistoric Trackways National Monuments" (On-Going). (June 8, 2017 - Present).
I am contributing the paleontological data for the development of a geospatial database that will facilitate standardized resource inventory and monitoring on the Organ Mountains-Desert Peaks and Prehistoric Trackways National Monuments for the Bureau of Land Management, in collaboration with others in the Geology, Geography, Biology, Sociology and Anthropology departments at NMSU.

"Development of a modernized and comprehensive Biodiversity informatics infrastructure for the NMSU herbaria" (On-Going). (February 2017 - Present).
The PI NMSU Director and Herbarium curator has established a partnership with NMSU botanical professionals and ACES IT since February to December of 2017 to develop Private Cloud Computing, Specialized Application Development (i.e., Database Migration), and Content Management Support. The PI and ACES-IT personnel have invested together more than 100 hrs per month to execute these tasks. ACES-IT in addition has been provided Server Implementation Support and PC support through the year.

"Consolidating, modernizing and harnessing the full potential of two herbaria collections at New Mexico State University" (On-Going). (January 2, 2017 - Present).
Herbarium infrastructure that documents and publicly disseminates historical and contemporary information on the State's flora is underdeveloped compared to other similarly diverse states research efforts are made to better manage, distribute information on, and promote the growth and availability of critical New Mexico collections

SERVICE

Department Service

Committee Member, Go Bond Range Sciences Committee. (March 2017 - Present).

Committee Member, ANRS committee events. (February 2017 - Present).

Committee Member, Range Sciences Department Committee. (February 2017 - Present).

Committee Member, NMSU Collections Committee. (January 2017 - Present).

Professional Service

Reviewer, Journal Article, Annals of the Missouri Botanical Garden Journal, Saint Louis, MO. (January 2011 - Present).

Reviewer, Journal Article, Applications in Plant Sciences Journal, Saint Louis, MO. (January 2011 - Present).

Reviewer, Journal Article, NOVON Journal, Saint Louis, Missouri. (January 2011 - Present).

Reviewer, Journal Article, Journal of the Botanical Research Institute of Texas, Fort Worth, Texas. (January 2010 - Present).