

Curriculum Vitae

Lucas J. Heintzman, Ph.D.

Professional Email: ljhlandscapeecology@gmail.com

Education:

Ph.D., Biology, Texas Tech University, 2019

Advisor: Dr. Nancy E. McIntyre

Dissertation Title: Past, Present, and Future Landscape Changes in the Southern Great Plains: Effects of Urbanization and Energy Extraction on the Playa Network

Graduate Certificate:

Geographic Information Science and Technology, Texas Tech University, 2019

M.S. Biology, Texas Tech University, 2013

Advisor: Dr. Nancy E. McIntyre

Thesis Title: Examination of Polycyclic Aromatic Hydrocarbons in an Urban Stormwater System and Bioaccumulation in Odonata

B.S. *Cum Laude*, Biology, University of South Dakota, 2010

Advisor: Dr. Hugh Britten

Undergraduate Research: Restoration ecology of the federally endangered Hine's Emerald Dragonfly (*Somatochlora hineana*) in Illinois, Michigan, and Wisconsin

Academic & Professional Positions:

2020 – Present ORISE/SCINet Postdoctoral Researcher & Affiliate Staff,
USDA-ARS, New Mexico State University

2011- 2019 Teaching Assistant,
Department of Biological Sciences, Texas Tech University

2016- 2018 Research Assistant,
Department of Biological Sciences, Texas Tech University

Su. 2015 Research Technician,
The Institute of Environmental and Human Health, Texas Tech University

2011 Production Assistant,
3M Company, Aberdeen, South Dakota

2008-2010 Field Technician,
Department of Biology, University of South Dakota

2007-2008 Laboratory Technician,
Department of Biology, University of South Dakota

Publications:

Refereed Articles- In print

Heintzman, L. J. and N. E. McIntyre. 2021. Assessment of playa wetland network connectivity for amphibians of the south-central Great Plains (USA) using graph-theoretical, least-cost path, and landscape resistance modelling. *Landscape Ecology* 36: 1-19.

Heintzman, L. J., E. S. Auerbach, D. H. Kilborn, S. M. Starr, K. R. Mulligan, L. S. Barbato, and N. E. McIntyre. 2020. Identifying areas of wetland and wind turbine overlap in the south-central Great Plains of North America. *Landscape Ecology* 35: 1995-2020.

Heintzman, L. J., and N. E. McIntyre. 2019. Quantifying the effects of projected urban growth on connectivity among wetlands in the Great Plains (USA). *Landscape and Urban Planning* 186: 1-12.

McIntyre, N. E., S. D. Collins, **L. J. Heintzman**, S. M. Starr, and N. van Gestel. 2018. The challenge of assaying landscape connectivity in a changing world: A 27-year case study in the southern Great Plains (USA) playa network. *Ecological Indicators* 91: 607-616.

Carr, D. L., E. E. Smith, A. Thiyagarajah, M. Cromie, C. Crumly, A. Davis, M. Dong, C. Garcia, **L. J. Heintzman**, T. Hopper, K. Kouth, K. Morris, A. Ruehlen, P. Snodgrass, K. Vaughn, and J. A. Carr. 2018. Assessment of gonadal and thyroid histology in Gulf killifish (*Fundulus grandis*) from Barataria Bay Louisiana one year after the Deepwater Horizon oil spill. *Ecotoxicology and Environmental Safety* 154: 245-254.

Heintzman, L. J., S.M. Starr, K.R. Mulligan, L. S. Barbato, and N.E. McIntyre. 2017. Using satellite imagery to examine the relationship between surface-water dynamics of the salt lakes of western Texas and Ogallala Aquifer depletion. *Wetlands*. DOI:10.1007/s13157-017-0940-2.

Starr, S. M., **L. J. Heintzman**, K. R. Mulligan, L. S. Barbato, and N. E. McIntyre. 2016. Using remotely sensed imagery to document how land use drives turbidity of playa waters in Texas. *Remote Sensing* 8:192. DOI: 10.3390/rs8030192.

Heintzman, L. J., T. A. Anderson, D. L. Carr, and N. E. McIntyre. 2015. Local and landscape influences on PAH contamination in urban stormwater. *Landscape and Urban Planning* 142: 29-37.

Collins, S. D., **L. J. Heintzman**, S. M. Starr, C. K. Wright, G. M. Henebry, and N. E. McIntyre. 2014. Hydrological dynamics of temporary wetlands in the southern Great Plains as a function of surrounding land use. *Journal of Arid Environments* 109:6-14. DOI: 10.1016/j.jaridenv.2014.05.006.

Ruiz, L. J., N. N. Parikh, **L. J. Heintzman**, S. D. Collins, S. M. Starr, C. K. Wright, G. M. Henebry, N. van Gestel, and N. E. McIntyre. 2014. Dynamic connectivity of temporary wetlands in the southern Great Plains. *Landscape Ecology* 29:507-516. DOI: 10.1007/s10980-013-9980-z.

Refereed Articles- In review

Schilder, L. J., **L. J. Heintzman**, N. E. McIntyre, S. Harryman, C. A. Hagen, R. Martin, C. W. Boal, and B. A. Grisham. 2021. Structural and functional landscape connectivity for Lesser Prairie-Chickens in the Sand Shinnery Oak Prairie Ecoregion of the Southern High Plains. Submitted to *Journal of Wildlife Management and Wildlife Monographs*.

Professional Experience:

Geospatial Technologies

Experienced in database design, management, and analysis with geographic information systems
ArcGIS 10.X, and extensions – Spatial Analyst, 3D Analyst & Model Builder

Experience in advanced geoprocessing techniques and geoprocessing tool development

Experienced in the development and maintenance of geospatial datasets and geospatial databases

Experienced in use of satellite remote sensing and digital image processing
ArcGIS 10.X, ENVI, ERDAS

Experienced in use and collection of hand-held GPS data

Computer Knowledge

Experienced in the use of Microsoft Office software
Access, Excel, PowerPoint, Word, Outlook

Experienced in the use of statistical programs
Program [R], FragStats, SAS

Experienced in the development and application of Machine Learning (ML) and Artificial Intelligence (AI)

Teaching Experience- Texas Tech University

BIOL 1113 Environmental Problems Laboratory (Teaching Assistant, undergraduate level)

BIOL 1113 Environmental Problems Laboratory (Lab Coordinator, undergraduate level)

BIOL 1403 Biology I Laboratory (Teaching Assistant, undergraduate level)

BIOL 1402 Biology of Animals Laboratory (Teaching Assistant, undergraduate level)

BIOL 4330 Landscape Ecology (Teaching Assistant, undergraduate level)

BIOL 5330 Advanced Landscape Ecology (Teaching Assistant, graduate level)

ZOOL 2404 Human Anatomy and Physiology II (Teaching Assistant, undergraduate level)

Mentoring Experience- Texas Tech University

NSF-PRISM

Niki Parikh: Fall 2012 – Spring 2013

Luiz Ruiz: Fall 2012 – Spring 2013

Rebecca Owens: Fall 2013 – Spring 2014

Keegan Gossett: Fall 2014 – Spring 2015

Caroline Claassen: Fall 2015 – Spring 2016

Undergraduate Teaching Assistants

Sabiha Armin: BIOL 1402

Field Work & Analytical Laboratory Experience

Conducted extensive scientific collection of aquatic invertebrates and water samples across a wide range of protected and unprotected wetlands in Arizona, Illinois, Michigan, New Mexico, Texas, and Wisconsin.

Contributed extensively to captive rearing program of the federally endangered Hine's Emerald Dragonfly (*Somatochlora hineana*) and was director of adult specimen capture and sampling protocols, additionally assisted with behavior studies, habitat restoration/creation programs, and aided with DNA extraction protocols for federally mandated management planning.

Demonstrated experience assaying tissue and water contamination rates using gas chromatography and mass spectrophotometry.

Knowledgeable of UAS operational requirements and mission planning.

Professional Presentations

* = presenter

***Heintzman, L.J.**, D. P.C. Peters, H. Savoy, and G. Ramirez. 2021. Examining multi-scale dynamics of drylands amid multi-year wet and dry periods using imagery. Ecological Society of America Vital Connections in Ecology, Online, 5 August 2021.

***Heintzman, L.J.**, D. P.C. Peters, H. Savoy, and G. Ramirez. 2021. Examining multi-scale dynamics of drylands amid multi-year wet and dry periods using imagery. University of South Dakota Spring 2021 Seminar Series, Online (Vermillion, SD), 26 April 2021.

***Heintzman, L.J.**, D. P.C. Peters, H. Savoy, and G. Ramirez. 2021. Examining multi-scale dynamics of drylands amid multi-year wet and dry periods using imagery. International Association of Landscape Ecologists – North America Annual Meeting, Online (Reno, NV), 12 April – 15 April 2021.

***Heintzman, L.J.**, D. P.C. Peters, H. Savoy, and G. Ramirez. 2021. Examining multi-scale dynamics of drylands amid multi-year wet and dry periods using imagery. Pennsylvania State University Biodiversity Conference: Mainstreaming Biodiversity in the Decade of Action, Online (University Park, PA), 13 January – 24 March 2021.

*Schilder, L.J., **L.J. Heintzman**, N.E. McIntyre, S. Harryman, C.A. Hagen, R. Martin, C.W. Boal, and B.A. Grisham. 2020. Landscape connectivity for Lesser Prairie-chickens on the Southern High Plains of Texas and New Mexico. Texas Chapter of The Wildlife Society, Corpus Christi, TX, 13-15 February 2020.

***Heintzman, L. J.**, van Gestel, N., and N. E. McIntyre. 2019. Assessment of historical changes in hydrology as a function of surrounding surface well features in the Texas playa wetland region using Landsat imagery. US-IALE 2019, Fort Collins, CO, 9 April 2019.

Schilder, L. J., **Heintzman, L. J.**, N. E. McIntyre, S. Harryman, C. A. Hagen, R. Martin, C. Portillo-Quitero, C. W. Boal, and *B. A. Grisham. 2018. Landscape connectivity for Lesser Prairie-Chickens on the Southern High Plains of Texas and New Mexico. 14th International Grouse Symposium, Logan, UT, 26 September 2018.

***Heintzman, L. J.**, and N. E. McIntyre. 2018. Amphibian amblings amid arid-land agriculture: Wetland connectivity and species dispersal in the Great Plains using least-cost path and landscape resistance modelling. US-IALE, Chicago, IL, 11 April 2018.

*Starr, S. M., **L.J. Heintzman**, L. S. Barbato, K. R. Mulligan, and N. E. McIntyre. 2016. Using remotely sensed imagery to document how land use drives turbidity of playa waters in Texas. US-IALE, Asheville, NC, 6 April 2016.

***Heintzman, L. J.**, S. M. Starr, C. L. Claassen, L. S. Barbato, K. R. Mulligan, and N. E. McIntyre. 2016. Poster: Patterns of surface water dynamics in salt playas of Texas over a 27-year span. US-IALE, Asheville, NC, 4 April 2016.

*Starr, S. M., **L. J. Heintzman**, K. R. Mulligan, L. S. Barbato, and N. E. McIntyre. 2016. Poster: Using remotely sensed imagery to document how land use drives turbidity of playa waters in Texas. TTABSS, Lubbock, TX, 1 April 2016.

*Claassen, C. L., **L. J. Heintzman**, S. M. Starr, and N. E. McIntyre. 2016. Poster: Surface-water dynamics of salt playas in Texas over a 27-year span. TTABSS, Lubbock, TX 1 April 2016.

*Claasreen, C. L., **L. J. Heintzman**, S. M. Starr, and N. E. McIntyre. 2016. Poster: Surface-water dynamics of salt playas in Texas over a 27-year span. Undergraduate Research Conference, Lubbock, TX, 29-30 March 2016.

***Heintzman, L. J.**, and N. E. McIntyre. 2015. Poster: Urbanization of playa wetlands in the Southern High Plains: Present and future patterns under four growth and climate scenarios. World Congress of the International Association for Landscape Ecology, Portland, OR, 5-10 July 2015.

Carr, D.L.*, Smith, E. E., Thiyagarajah, A., Davis, A., Dong, M., Garcia, C., **Heintzman, L.**, Vaughn, K., Snodgrass P., Carr, J. A.. 2015. Poster: Assessment of testicular histology in male Gulf killifish from Barataria Bay Louisiana one year after the Deep Water Horizon oil spill. North American Society for Comparative Endocrinology, Ottawa, Ontario, Canada, 21-25 June 2015.

***Heintzman, L. J.**, and N. E. McIntyre. 2015. Poster: Urbanization of playa wetlands in the Southern High Plains: Present and future patterns under four growth and climate scenarios. Texas Tech Annual Biological Sciences Symposium, Lubbock, TX, 10-11 April 2015.

***Heintzman, L. J.**, and N. E. McIntyre. 2014. Urbanization of playa wetlands in the Southern High Plains: Present and future patterns under four growth scenarios. Texas Tech Annual Biological Sciences Symposium, Lubbock, TX, 28-29 March 2014

Parikh, N. N., L. J. Ruiz, **L. J. Heintzman**, S. D. Collins, S. M. Starr, and N.E. McIntyre*. 2013. Poster: Using graph theory to quantify dynamic connectivity of temporary wetlands in the southern Great Plains. Annual meeting of the Ecological Society of America, Minneapolis, MN, 4-9 August 2013.

Parikh, N. N., L. J. Ruiz, **L. J. Heintzman**, S. D. Collins, S. M. Starr, and N. E. McIntyre. 2013. Poster: Dynamic connectivity of temporary wetlands. Texas Tech University Undergraduate Research Conference, Lubbock, TX, 22-25 April 2013.

Collins, S. D., **L. J. Heintzman**, S. M. Starr*, and N. E. McIntyre. 2013. Poster: The hydrological dynamics of temporary wetlands in the southern Great Plains as a function of surrounding land use. Annual meeting of the U.S. Chapter of the International Association for Landscape Ecology, Austin, TX, 14-18 April 2013.

***Heintzman, L. J.**, S. M. Starr, S. D. Collins, T. A. Anderson, and N. E. McIntyre. 2013. Examination of polycyclic aromatic hydrocarbons in an urban stormwater system and bioaccumulation in Odonata. Annual meeting of the U.S. Chapter of the International Association for Landscape Ecology, Austin, TX, 14-18 April 2013.

Parikh, N. N., L. J. Ruiz, **L. J. Heintzman**, S. D. Collins, S. M. Starr, and N. E. McIntyre. 2013. Poster: Dynamic connectivity of temporary wetlands. Annual meeting of the U.S. Chapter of the International Association for Landscape Ecology, Austin, TX, 14-18 April 2013.

***Heintzman, L. J.**, S. M. Starr, S. D. Collins, T. A. Anderson, and N.E. McIntyre. 2013. Examination of polycyclic aromatic hydrocarbons in an urban stormwater system and bioaccumulation in Odonata. Texas Tech Annual Biological Sciences Symposium, Lubbock, TX, 21-23 March 2013.

***Heintzman, L. J.**, and N. E. McIntyre. 2012. Examination of polycyclic aromatic hydrocarbons in an urban stormwater system and their teratogenic effects on Odonata. Texas Tech Annual Biological Sciences Symposium, Lubbock, TX. **Award: Best Presentation, Proposals Category.**

Research and Travel Funding:

Graduate Level: Grants, Scholarships, and Fellowships

2017-2018	Texas Tech University Water Conservation Research Scholarship (\$1,000)
2017	Texas Tech University Graduate Student Research Support Award (\$1,000)
2016	Texas Tech Graduate School Travel Grant (\$450)
2016	US-IALE Sponsored Student Travel Award (\$500)
2016-2018	Elo and Olga Urbanovsky Research Assistantship (\$15,000/yr. for 3 years)
2013-2018	Texas Tech University President Doctoral Teaching Excellence Award (\$604/yr.)
2011-2015	Grants-In-Aid Award (\$750) TTUAB Travel Grant (\$350) Texas Tech Graduate School Travel Grant (\$300) Grants-In-Aid Award (\$750) TTUAB Travel Grant (\$350) Texas Tech Graduate School Travel Grant (\$300)

Professional Memberships:

International Association for Landscape Ecology, North American Chapter
Diversity, Equality, Inclusion Committee Member
Golden Key International Honor Society
Geospatial Working Group – USDA-ARS
UAS Working Group – USDA-ARS
Catastrophes Working Group – USDA-ARS
Ecological Society of America

Manuscript Reviews:

Landscape and Urban Planning: 2
Ecological Engineering: 1
PeerJ: 1
Environmental Sustainability: 2
Land: 2

References:

Dr. Debra Peters
Acting Chief Science Information Officer and Research Ecologist
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deb.peters@usda.gov
Telephone #: (575) 646-2777

Dr. Nancy McIntyre
Professor of Biology
Department of Biological Sciences, Texas Tech University
nancy.mintyre@ttu.edu
Telephone #: (806) 834-7977

Dr. Kevin Mulligan
Chair and Associate Professor of Geography
Department of Geosciences, Texas Tech University
kevin.mulligan@ttu.edu
Telephone #: (806) 742-2466 ext. 243

Dr. Daniel Dawson
Computational Toxicologist
US Environmental Protection Agency
dawson.daniel@epa.gov
Telephone #: (919) 541-5662