

AARON J. DEJOIA

Soil and Ecological Solutions, LLC
16379 Corkbark Terr
Monument, CO 80132

Fields of Competence

- Soil Fertility
- Soil and Water Chemistry
- Nutrient Management
- Water, Soil, Plant Interactions
- Saline/Sodic Soil Relations
- Agronomy
- NPDES Permitting
- Agronomic Land-Use
- Soil Characterizations
- Reclamation

Education

- **M.S. Agronomy (Soil Fertility)** – Kansas State University, Manhattan, KS. Emphasis in soil nutrient movement using GIS and GPS technologies. Thesis topic: Corn response to nitrogen at various locations within a field.
- **B.S. Agriculture** – Kansas State University, Manhattan, KS. Emphasis in agronomy (soil and water science).
- **Secondary Degree Natural Resource and Environmental Science** – Kansas State University, Manhattan, KS.

Professional Summary

Aaron DeJoia is a board Certified Professional Soil Scientist (#33232), Certified Professional Agronomist (#33232), Certified Crop Advisor (#33232), and a North Dakota Professional Soil Classifier (#72) with 20+ years of experience as a soil science consultant for both international and domestic clients. He currently works as a soil science/agronomy consultant providing permitting, operational, agronomy and salinity remediation assistance to varying clients in both the private and public sectors. Mr. DeJoia has served on many national committees National Soils Certification Board and Soil Science Society of America Board of Directors. Aaron is currently has served as the Chairman for Council of Soil Science Examiners. Mr. DeJoia was also the March, Soils Support Agriculture” International Year of Soil Chairman for the Soil Science Society of America.

Mr. DeJoia’s technical strengths are in soil science, nutrient management, water resources, reclamation, and agronomy. Mr. DeJoia’s specific technical experience includes reclamation, crop and nutrient management plans, facility water management strategies to manage nutrient and salinity impacts, agronomic land-use, wastewater land application, nutrient cycling, and soil chemistry. He has particular expertise in the reclamation of pipeline ROWs, oil and gas facilities, and solar farms throughout the United States. Mr. DeJoia has assisted in agronomy and soil science related projects throughout the United States from Connecticut to Hawaii.

As a technical writer, Mr. DeJoia has been involved in the preparation of several articles, permitting documents, proposals, and refereed journal articles. He has prepared numerous technical project reports for public review. Mr. DeJoia has prepared and presented technical presentations at events including: North Central Extension - Industry Soil Fertility Conference, American Society of Agronomy Annual Meetings, Reclamation Conferences, and multiple Oil and Gas Industrial Conferences discussing the importance of soils in regard to reclamation activities. In addition, Mr. DeJoia was instrumental in establishing the National Reclamation Summit where science and construction professionals meet to exchange best practices.

Representative Projects

- **Expert Witness Condemnation Proceedings, Spire STL Pipeline, Illinois.** Provided expert reports and testimony for condemnation proceedings regarding the STL Pipeline in Illinois. Provided testimony in regards to crop growth and development, soil fertility, soil compaction, soil mixing and yield impacts.
- **Expert Witness County Sitting Board, Geronimo, Lee County, IL.** Provided expert testimony on reclamation and agricultural considerations for a proposed solar facility in Lee County, IL. Discussed the benefits of solar facility vegetation management for surrounding agriculture and water quality based on native grass plantings.
- **Expert Witness State Land Board, Obsidian, Lake County, OR.** Provided expert testimony on reclamation in sandy and arid terrain on the eastern portion of the Cascade Mountains in Lake County Oregon. Discussed the reclamation potential soils and reclamation strategies required for areas with limited natural precipitation and high wind. Prepared written and oral testimony as required.
- **Expert Witness Agricultural Permitting Support and Public Services Commission Hearings, Mark Twain Transmission, Missouri.** Assisted the permitting team in preparation of permit documents to address potential agricultural issues throughout the project. Provided written expert surrebuttal testimony for Missouri Public Services Commission hearings.
- **Agricultural Permitting Support and Public Utilities Hearings, Dakota Access Pipeline, South Dakota, Iowa, and Illinois.** Assisted the permitting team in preparation of permit documents to address potential agricultural and environmental issues throughout the project. Provided written expert rebuttal testimony for South Dakota Public Utility Commission hearings. Met with state agencies to identify potential agricultural issues throughout the alignment and provided technical insights on best management for construction practices.
- **Agricultural Permitting Support and Iowa Utilities Board Hearings, Midwest Carbon Express Pipeline, Iowa.** Assisted the permitting team in preparation of permit documents to address potential agricultural and environmental issues throughout the project. Provided written expert rebuttal testimony for Iowa Utilities Board public hearing.
- **Prime Farmland Expert Witness, New Horizon Mine, Colorado.** Provided expert witness consulting services for lawsuit involving prime farmland in Southwestern Colorado. Expert witness testimony included evaluation of soil chemical and physical properties and their impacts on returning crop growth to 100 percent yield. Expert witness work involved deposition, opposing witness depositional support, and trial testimony.
- **Topsoil Depth Determinations, Midwest Carbon Express Pipeline, Iowa.** Developed and implemented a soil sampling program to determine topsoil depths for proper soil salvage operations to promote agricultural reclamation success. The topsoil depth determination included taking reviewing greater than 600 miles throughout Iowa and multiple geomorphic landscapes for topsoil depth determinations.
- **Topsoil Depth Determinations, Elk Creek Pipeline, Kansas, Colorado, Wyoming, and Montana.** Developed and implemented a soil sampling program to determine topsoil depths for proper soil salvage operations to promote agricultural reclamation success. The topsoil depth determination included taking reviewing greater than 1,000 miles through 4 states and multiple eco-zones for topsoil depth determinations.
- **ROW Restoration and Agronomic Technical Support, Bison Pipeline, Wyoming, Montana, and North Dakota.** Provided technical support for agronomic, soil and reclamation problems on a 300-mile pipeline. The pipeline crossed three states with varying soils and transected both range and row crop agricultural areas. Developed seed mixtures to both stabilize and reclaim the disturbed ROW.

- **Pipeline Reclamation Expert Witness, KinderMorgan, Indiana.** Provided expert consulting services to KinderMorgan lawyers to determine impacts associated with the installation of a 42-inch pipeline across agricultural lands. Primary complaint was increased compaction due to construction during wet weather. Provided lawyers with an expert report that displayed and interpreted associated soil physiochemical properties at the subject site.
- **Pipeline Reclamation Expert Consultant, Confidential Client, Illinois.** Provided expert consulting services for agricultural land in Illinois. Issues reviewed as an expert consultant included topsoil salvage, rocks, subsoil mixing, and soil compaction during ROW construction. Collected and analyzed soil compaction data for specific tracts to determine if soil compaction would hinder reclamation as the project continued. Provided expert consulting reports to legal to in preparation for further legal proceedings.
- **Pipeline Operations Expert Witness, Alliance Pipeline, Iowa.** Provided expert witness on pipeline in Northern Iowa where the plaintiffs were alleging that the operations of the pipeline was negatively effecting crop growth and development 15 years post construction. Key impacts that were questioned was crop yield monitoring, pipeline/soil heating and general soil tilth.
- **Agricultural Permitting Support and Public Utilities Hearings, Dakota Access Pipeline, South Dakota, Iowa, and Illinois.** Assisted the permitting team in preparation of permit documents to address potential agricultural and environmental issues throughout the project. Provided written expert rebuttal testimony for South Dakota Public Utility Commission hearings. Met with state agencies to identify potential agricultural issues throughout the alignment and provided technical insights on best management for construction practices.
- **Soil Carbon Sequestration, Bighorn Solar, Colorado.** Conducted soil testing and analysis of a 1,500 acre solar farm to determine soil carbon stocks. Prepared report documenting soil carbon stock and potential for carbon sequestration in rehabilitated short-grass prairie under solar arrays in arid regions.
- **Solar Facility Revegetation Support, Various Clients, United States.** Provided technical review and implemented revegetation strategies on over 20,000 acres of solar facilities throughout the United States. Solar facilities ranged in size from 140 acres to 4,000 acres for both pre- and post-construction applications. Solar facilities have been located in areas ranging from California to Connecticut.
- **Solar Facility Reclamation Planning and Topsoil Evaluations, Various Clients, United States.** Prepared vegetation management plans for large utility-scale solar facilities. Plans included seed mix preparation, soil amendment recommendations, and seeding strategies. When desired soil topsoil evaluations were conducted to determine topsoil depths that should be stripped prior to grading activities.
- **Smooth Bromegrass Salinity Tolerance Literature Review, Williams Production, Wyoming** Conducted a literature review of smooth bromegrass salinity tolerance for submittal to the USDA Soil Salinity Laboratory. During review of smooth brome grass salinity tolerance an error was discovered that incorrectly identified smooth bromegrass as slightly tolerant instead of moderately tolerant. This incorrect labeling of smooth bromegrass salinity tolerance threatened the client's NPDES permit. A white paper was developed and delivered to the head of the USDA salinity laboratory and within 24 hours of receipt the salinity tolerance of smooth bromegrass was officially changed to moderately tolerant.
- **Desktop Feasibility Analysis of CBM Produced Water Irrigation, Various Clients, Domestic and International.** Reviewed and analyzed published soil survey and topographical data to estimate CBNG produced water salinity impacts on soil tilth. Implemented GIS data to prepare surface maps showing extent of various soil properties that would impact project feasibility. Prepared reports outlining the scientific and economic feasibility for the use of high salinity and sodic water for irrigation.
- **Topsoil Mixing Evaluation Expert Consultant, Dakota Access Pipeline, Iowa.** Conducted a review of the soils along the right-of way to determine topsoil depths and potential mixing of topsoil and subsoil through the subject properties. Post-construction data was reviewed in conjunction with the pre-

construction data to determine if any mixing of soil horizons was performed during construction activities. Provided expert opinion based on the data collected to the lawyers to assist in the settlement process.

- **Agricultural Inspections, Dakota Access Pipeline, Illinois, Iowa, South Dakota, and North Dakota.** Implemented and managed an agricultural inspection program for a 1,200 mile pipeline through four states. Ensured that the state specific agricultural impact agreements were implemented correctly and that construction was conducted efficiently and within the guidelines identified in the agreements.
- **Topsoil Depth Determinations, Dakota Access Pipeline, Illinois, Iowa, and South Dakota.** Developed and implemented a soil sampling program to determine topsoil depths for proper soil salvage operations to promote agricultural reclamation success. The topsoil depth determination included taking reviewing greater than 2,000 soil cores for topsoil determinations.
- **Bore Pit Reclamation Study, Alliance Pipeline, Iowa.** Conducted in-depth data collection and analyses on selected property tracts on the Alliance Pipeline. Created recommendations to alleviate poor crop production in areas of previous borehole locations.
- **Prime Farmland Evaluation, New Horizon Mine, Colorado.** Performed soils evaluation to determine the reclamation potential of prime farmland in western Colorado. Provided technical soil assistance in preparation of potential legal issues and worked with state and federal agencies to manage future regulatory obstacles.
- **Problem Tract Consulting, TransCanada, North Dakota.** Reviewed agronomy issues associated with the installation of the Keystone pipeline in northern North Dakota. Prepared report documenting field findings and provided solutions to remedy the identified problems
- **Salinity Analysis and Soils Assessment, Red River Valley Expansion Project, WBI Energy, North Dakota and Minnesota.** Physically determined topsoil depths and measured apparent soil conductivity using electromagnetic technology on a 39-mile ROW in North Dakota and Minnesota. Topsoil and electromagnetic data were analyzed and a report was prepared to assist in the development of the FERC Resource 7 report.
- **Agricultural and Land Reclamation Support, Williams, Pennsylvania.** Developed the Agricultural Construction and Monitoring Plan for the 180-mile Atlantic Sunrise project that runs through central Pennsylvania. Worked with Pennsylvania State University, NRCS, and other agencies to ensure that the plan would return agricultural land to full production in a timely fashion. The plan was submitted to the FERC for review and will be implemented during the construction and monitoring phase of the project.
- **Colorado Department of Transportation - Innovative Reclamation Techniques Research:** Performed literature review of CDOT, other DOT, and university reclamation strategies to determine the most effective reclamation practices currently in use. Upon completion of the literature review developed field quality control and forensic studies to determine SOP procedures being implemented and past historical success. Literature review and field studies are being used to improve reclamation techniques throughout CDOT and to update statewide revegetation methodology and specifications.
- **Colorado Department of Transportation - Revegetation Methodology and Soil Resource Suitability Specification Development:** Assembled previous literature from DOT revegetation research project to assist in the revision of the CDOT Standard Specifications for Road and Bridge Construction and for incorporation into the revegetation Sections 207 and 212 of the specifications. This information aims to improve revegetation efforts and to expedite revegetation success and stormwater permit release on CDOT construction projects statewide.
- **Colorado Department of Transportation - Reclamation Training:** Worked with the Colorado Department of Transportation (CDOT) to develop training modules for Project Engineers, Landscape Architects and other environmental professionals. Training modules included both technical aspects of drastically disturbed land reclamation and the implementation of techniques in the field.

- **ROW Restoration Analysis, Westech, Helena, Montana.** Reviewed soils conditions for approximately 300 miles in Kansas of pipeline ROW to determine compaction mitigation feasibility once construction was completed. Prepared report for company and governmental agencies based on the desktop analysis performed.
- **Pipeline Post-Construction Monitoring and Construction, KinderMorgan, Nebraska, Kansas, and Missouri.** Managed all post construction monitoring and construction for approximately 350 miles of right-of-way. Monitoring included storm water, vegetation, and general right-of-way conditions. Performed project management for approximately 20 construction, seeding, and storm water BMP installation crews.
- **Eldorado Park - Topsoil Suitability Assessment, Town of Superior (Boulder County), Colorado – 2016:** Supervised and provided soil science applications on a topsoil suitability assessment for use of recycled topsoil during sod lawn establishment at the Eldorado Community Park. Assisted in topsoil preparation, soil amendment, and soil improvement recommendations for maximizing plant growth and vegetation sustainability. Oversaw the development of a soil-matrix design that would support the desired turf grass, while maximizing water drainage and reducing drying times for resident enjoyment. The topsoil suitability assessment provided cost savings to the community by reducing topsoil import and soil amendment requirements while also decreasing the frequency of irrigation needs.
- **Topsoil Salvage Planning and Reclamation Planning, ONEOK, North Dakota.** Developed and implemented a program to physically determine topsoil depths and create eco-zone specific reclamation plans to improve reclamation success for pipelines throughout the Williston Basin in North Dakota.
- **Soil Assessment and Irrigation and Crop Management Plans, Strathmore Resources, New Mexico.** Prepared and submitted a soils assessment and Irrigation Crop Management Plan to assist in the permitting of underground Uranium mine in New Mexico. Performed of 3,000 acres of Order 1 soil survey assessment to potential use land application as a water management tool.
- **Oil and Gas Disturbance Reclamation, Shell USA, Colorado.** Developed reclamation prescriptions for disturbances associated with oil and gas development. Reclamation prescription included soil salvage planning and reclamation prescriptions intended to enhance reclamation success. Reclamation plans included agronomic principles including tillage, fertilization, and seeding prescriptions.
- **Weed Management Plan Preparations, Devon Energy, Wamsutter, Wyoming.** Prepared a weed management plan for Devon's operations in the Wamsutter area for BLM approval. Weed management plan included specific protocols for noxious and invasive weeds along with appropriate monitoring protocols.

Professional Employment History

- 2021 to Present Owner Soil and Ecological Solutions, LLC. Monument CO
- 2010 to 2012 and 2013 to 2021. Director. Duraroot, LLC. Colorado Springs, CO
Previously Key Agricultural Services Inc.
- 2013. Senior Project Manager. EPG. Colorado Springs, CO
- 2006 to 2010. Principal Soil Scientist. KC Harvey, Inc. Bozeman, Montana
- 2003 to 2006. Principal Soil Scientist and Partner. KC Harvey, LLC. and DeJoia Consulting Bozeman, Montana.
- 2003 to 2006. Owner. DeJoia Consulting, Inc. Bozeman, Montana
- 2001 to 2003. Project Soil Scientist. Cascade Earth Sciences. Spokane, Washington.

- 2000 to 2001. Project Soil Scientist. Land Profile, Inc. Yakima, Washington.

Publications

- Duncan, M.M. and A.J. DeJoia, 2011. Topsoil Loss: Evaluating Agronomic Characteristics of Surface Soils on a Pipeline Right-of-Way. American Society of Reclamation Annual Conference, Bismarck, ND
- Cameron, D.P., K.C. Harvey and A.J. DeJoia. 2009. CBNG Produced Water Reservoir Reclamation Strategies in the Powder River Basin of Wyoming. 16th International Petroleum Environmental Conference. Houston TX.
- Norvell, K.L., K.C. Harvey, D.E. Brown, A.J. DeJoia, and A. J. Bembenek. 2009. Land Application of Coalbed Methane Produced Water: Changes in Soil Chemistry through Time. American Society of Reclamation Annual Conference, Billings, MT
- Harvey, K.C., D.E. Brown, A.J. DeJoia, and A.J. Bembenek. 2007. Managed Irrigation with Coalbed Natural Gas Produced Water: Science-based Planning, Design, Operation, Monitoring and Closure. *In* 2007 Annual Meeting Abstracts SSSA, Madison, WI
- Harvey, K.C., D.E. Brown, and A.J. DeJoia. 2005. Managed Irrigation for the beneficial use of coalbed natural gas produced water in the Powder River Basin. 12th Annual International Petroleum Environmental Conference. Houston TX.
- Schmidt, J.P., A.J. DeJoia, R.B. Ferguson, R.K. Taylor, R.K. Young, and J.L. Havlin. 2002. Corn yield response to nitrogen at multiple in-field locations. *Agronomy Journal* 94:798-806.
- DeJoia, A. J. 2001. Corn Response to Nitrogen at Various Locations within a field. Kansas State University, Masters Thesis.
- DeJoia, A.J., J.P. Schmidt, R.K. Young, and R.K. Taylor. 1999. Small-plot corn experiment to determine N recommendations for site-specific agriculture. 1999 Kansas Fertilizer Research Report. Kansas State University, Manhattan.
- DeJoia, A.J., J.P. Schmidt, R.K. Young, and R.K. Taylor. 1999. Corn yield responses at several locations within a field. p. 250. *In* 1999 Annual Meeting Abstracts. ASA, Madison , WI.
- DeJoia, A.J., R.K. Young, J.P. Schmidt, and R.K. Taylor. 1998. Nitrogen management in irrigated corn using remotely-sensed imagery and small-plot experiments. *In* Proceedings of the 28th North Central Extension - Industry Soil Fertility Conference, St. Louis, MO. 11-12 November, 1998

Additional Information

- **Member:** Soil Science Society of America and Agronomy Society of America
- **Member:** Council of Soil Science Examiners
- **Past-Member:** Soil Science Society of America Board of Directors
- **Past Chair:** Soil Science Society of America – Irrrometer Professional Soil Scientist Award
- **Past Chair:** Soil Science Certification Committee, and member of ethics committee
- **Past Chair:** 2015 International Year of Soil March Theme “Soils Support Agriculture” for SSSA
- **2020 Presidential Award:** Soil Science of America Presidential Award recognizing contributions to the soil science community