

2010 State NMJAS Paper Competition Winner

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Formulating Trends of Nematode Distributions Based on the Modified Baermann Funnel Extractions and Using the Four Corners Nematode from Soil Samples collected in San Juan County of New Mexico: Providing a Guide for Environmental Management during Site Restoration Projects

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Abstract: There are over 20,000 gas wells in the Four Corners Area of New Mexico. When a gas well comes to end-of-life, energy companies must reclaim the abandoned well sites and access roads. Reclamation involves re-contouring, restoring topsoil, and re-establishing native vegetation. Reestablishing plant biodiversity quickly is desired and minimizes soil erosion, protects surface water and provides forage for animals. It typically takes two to five years to re-vegetate a site if the soil conditions are favorable. Nematodes have been shown to be an effective indicator of soil ecosystem health. The purpose of this third-year project is to identify the desired nematode distributions that would indicate a healthy soil ecosystem and successful reclamation. Sixty samples were collected from three geographic areas in San Juan County, NM. Status of site disturbance, soil conditions, and plant community were analyzed. A modified Baermann-Funnel extraction method and the Four Corner Nematode Key (Lane, 2008) was used to screen each sample. The data indicates that nematode distributions associated with particular plant communities are dependent on geographic areas. The trends can be used as an effective indicator of soil ecosystem health. A Four Corners guide for reclamation management is in-development. More samples next year will help complete the guide.