# Pharmacoenvironmentology- Developing a Baseline for PPCP Contaminant Levels at the Monte Vista Wildlife Refuge (MVWR)

Fischer, Hannah

The field work showed that my hypothesis was correct the water quality testing did show the presence of PPCP's within the system of waterways known as the Monte Vista Wildlife Refuge. There are three key factors that promote their presence: • close proximity to the city of Monte Vista. • numerous agricultural operations (including a fish farm) surrounding the refuge. • all the water that flows into the refuge comes from the Rio Grande River. The dissolved solids test taken from a separate set of grab samples at the Monte Vista Wildlife Refuge in August and tested at the Bureau of Reclamation Lab in Alamosa, Colorado, detected the following metals aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, vanadium, zinc, boron, calcium, dissolved iron, lithium, magnesium, potassium, silica, sodium. Though only barium, vanadium, calcium, dissolved iron, magnesium and sodium were above their maximum contamination levels (MCL). My results support the samples that were taken by US Fish and Wildlife staff earlier in 2014 even with these spikes, the water quality is very good. The testing for the PPCP's was able to detect Atrazine, Caffeine, Carbamazepine, Cotinine, DEET, Gemfibrozil, Lamotrigine, Metformin, Methylparaben, Thiabendazole. Though PPCP'S have a relatively short half-life once they are exposed to UV light, if their concentrations continue to be supplied at a steady rate through the waters in the system, this makes their presence continuous and allowing for further and stronger concentrations to build up.

**Awards Won:**