



# SWES Colloquium Series 2014-2015

Department of Soil, Water and Environmental Science

## *Birds, rodents, cattle, and salad, oh my! Zoonotic pathogen risks associated with the livestock: wildlife interface near leafy green produce fields in the desert southwest*

The desert southwest is home to some of the most productive soil in the United States for growing leafy green produce. Neighboring some of these agricultural fields are concentrated animal feeding operations (CAFOs) where it is well documented that cattle shed a number of enteric zoonotic pathogens in their feces. There is concern that these pathogens can be transferred to nearby produce fields by wildlife where they may contaminate the crops and ultimately cause human illness. In order to determine if rodents and birds carry enteric zoonotic pathogens from CAFOs to nearby produce fields, we tested cattle, wild bird, and wild rodent fecal samples for *Salmonella*, *Escherichia coli* O157 (*E. coli* O157), and non-O157 shiga toxin-producing *Escherichia coli* (STEC), all of which have been implicated in outbreaks of human foodborne illness.

From July 2013 to July 2014, we tested samples at CAFOs in southern California and Arizona from 600 cattle, 224 birds, and 46 rodents. Our preliminary findings revealed that cattle were actively shedding all 3 pathogens during our sampling. In addition, we found that 3.6% of wild birds at CAFOs were actively shedding non-O157 STEC, and 24.6% of wild birds and 10.9% of wild rodents were actively shedding *Salmonella* during our testing. We also found a variety of seasonal differences related to active shedding of pathogens that coincide with the leafy green growing and harvesting season. In the next step of our research, *Salmonella* and non-O157 STEC isolates will be subtyped to determine if wildlife and cattle share genetically related strains of these pathogens, and if wildlife are capable of transferring them to nearby leafy green produce fields.

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**Monday, September 15, 2014 -- 3:00pm**

**Marley 230**

Refreshments at 2:45



School of Earth and Environmental Sciences



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