

Grant Title: Building an ecological and hydrological monitoring network in the upper Middle Yuba River Watershed at English Meadow

Funding Agency: Nevada Irrigation District

PI: Kevin Cornwell



This grant work installed a series of groundwater piezometers in the English Meadow, instrumented them with groundwater pressure transducers to evaluate groundwater flux throughout the water year, installed several game cameras to assess the flow conditions in the Middle Yuba River channel throughout the water year and is building a groundwater model of the meadow aquifer system. These efforts provide data to better understand groundwater – surface water interactions in the Meadow and how the Meadow may respond to future changes in the water supply.

This work has also used drone technology to measure sediment transport conditions in select reaches of the Middle Fork Yuba River (MFY) channel along English Meadow. Specifically, a camera equipped unmanned drone was flown over a section of the MFY and took a series of aerial photographs over two different times (summer – 2017 and summer – 2018). These photographs will be used to create two different digital elevation models that will be assessed for sediment movement in the MFY over time.

This work is ongoing as the Nevada Irrigation District considers restoration action in English Meadow. To date, Instrumentation has been installed, geologic assessment of subsurface conditions rendered, data collected and downloaded across two water years, drone flights have been flown and data collected and presentations of findings have been presented to the funding organization.

This year's field efforts will utilize groundwater and geologic data to construct a groundwater model of the English Meadow which should mimic and ultimately predict the Meadow's response to changes in surface and subsurface water conditions. This insight will be useful as restoration strategies are considered for this Meadow.

To date several (2 undergraduates and one graduate students) CSUS Geology students (2 undergraduates and one graduate students) have been active on this site performing all tasks necessary to accomplish the goals of the grant work.