# Research at Los Osos: **Arthropods as the Missing Link to Understanding the Ecological Impact of an Invasive Plant, *Brassica tournefortii*** (2013-2016)

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Sahara Mustard, *Brassica tournefortii* Gouan, is a noxious invasive annual plant in southwestern U.S. deserts. *B. tournefortii* is rapidly spreading across southern California. In the ecological communities it invades, Sahara Mustard is known to decrease the diversity and abundance of native plant and vertebrate species. However the mechanism driving these declines has not been thoroughly resolved. Without this knowledge, control efforts bear the unnecessary risk of secondary negative impacts on other conservation targets. To gain insights into the impacts of *B. tournefortii* on native desert plant and invertebrate species, Sarah has initiated a study at Oasis de Los Osos Natural Reserve, which contains waterfalls and a perennial stream and is part of the Colorado Desert, the northernmost, driest, and hottest region of the Sonoran Desert.

In the study area, Sarah set up 12 transects each 100 m apart along the length of Lamb's Creek, an ephemeral stream. Within each transect, there are 5 plots set at 0, 4, 8, 16, and 32 m4m from the stream edge. At each plot, pitfall and pan traps are used to sample the arthropod diversity present. The plant community is surveyed by percent cover of each species within 0.25 $m^2$ quadrats at each plot. Plots are sampled regularly throughout the winter and spring. Arthropods that are captured in pitfall and pan traps are transported to UC Riverside. On campus, researchers in the Daugherty lab identify the specimens to the order and family levels.

As a result of her research, Sarah will clarify the mechanisms by which an invasive plant impacts neighboring plants and animals through identifying the arthropod populations that are most vulnerable to invasion by *B. tournefortii*. The results from this project will help us to devise appropriate management strategies to preserve the integrity and health of ecological communities.