

Research at Oasis de los Osos: *Bioassessment sampling at Oasis de los Osos*

Andrew Rehn, California Department of Fish and Wildlife



As part of a team of researchers from California Department of Fish and Wildlife, Andrew Rehn has been collecting samples of benthic macroinvertebrates and algae in Lamb's Creek from spring 2014 to spring 2015. In addition to the bioassessment, the team deployed in-stream pressure loggers that continuously measure water depth and these will be in place until 2016. Together, the biotic and abiotic factors will help to



determine the relationship between the community of benthic macroinvertebrates and stream flow in intermittent and desert streams. The work at Los Osos is part of two larger joint efforts by the California Department of Fish and Wildlife. The first, the Reference Condition Monitoring Program, is a statewide project that targets and samples high-quality streams across California to serve as reference sites for biological, physical, and chemical conditions where human disturbance is absent or minimal. Lamb's Creek represents a rare example of a pristine riparian zone, a desert oasis, surrounded by desert scrub typical of the Colorado Desert.

The second project, a joint effort with the Colorado River and San Diego Regional Water Quality Control Boards, evaluates the effectiveness of bioassessment methods currently used for perennial streams for their use on intermittent and desert streams. To improve their accuracy, existing biological indices are being evaluated using macroinvertebrate and algae data from 35 non-perennial and desert stream sites, including Lamb's Creek.



Although data are still being analyzed, we now know that there are at least thirty-nine different species of benthic macroinvertebrates in the 2014 samples from Lamb's Creek. Based on the California Stream Condition Index (CSCI), a new statewide biological index that translates complex data about benthic macroinvertebrates found in a stream into an overall measure of stream health, streams with CSCI scores ≥ 0.92 are considered to have intact ecological structure and function. With a CSCI of 0.95, Lamb's Creek appears to be in extraordinarily good condition.

Next steps in this work will be to include the algae data (11 different species were found in Lamb's Creek) as a second ecological indicator and an analyses of bioassessment results in relation to continuous stream flow data. The watershed of Lamb's Creek in the Oasis de los Osos Reserve represents a unique ecological niche in the network of regional and statewide reference sites and contributes integral benchmark data to help improve our assessment and protection of desert freshwater resources. More information on this project can be obtained from Dr. Andrew Rehn with the California Dept. of Fish and Wildlife (andy.rehn@wildlife.ca.gov).