

***Muilla clevelandii* (San Diego Goldenstar)**

Introduction

The MSCP Biological Monitoring Plan (1996) specifies East Elliot and Del Mar Mesa as *Muilla clevelandii* (San Diego Golden-Stars) monitoring locations within the City of San Diego. Much of East Elliot has not yet been preserved; the *M. clevelandii* in this area will be monitored once acquisition is complete or nearly complete. The Otay Lakes population has been monitored since 2001 when it was identified via City-wide rare plant surveys as one of the largest populations on City land.

Results

Site	Lead Monitor/s	Date	Method*	Result
Otay Lakes	Greer/Johnson	April 7, 2005	Belt Transect,	Density = 11.59/m ²
		April 26, 2005	GPS	Est Pop = 3,904,505

* Please see the *City of San Diego MSCP Rare Plant Monitoring: Field Monitoring Methods* manual for a full description of plant monitoring methods and locations.

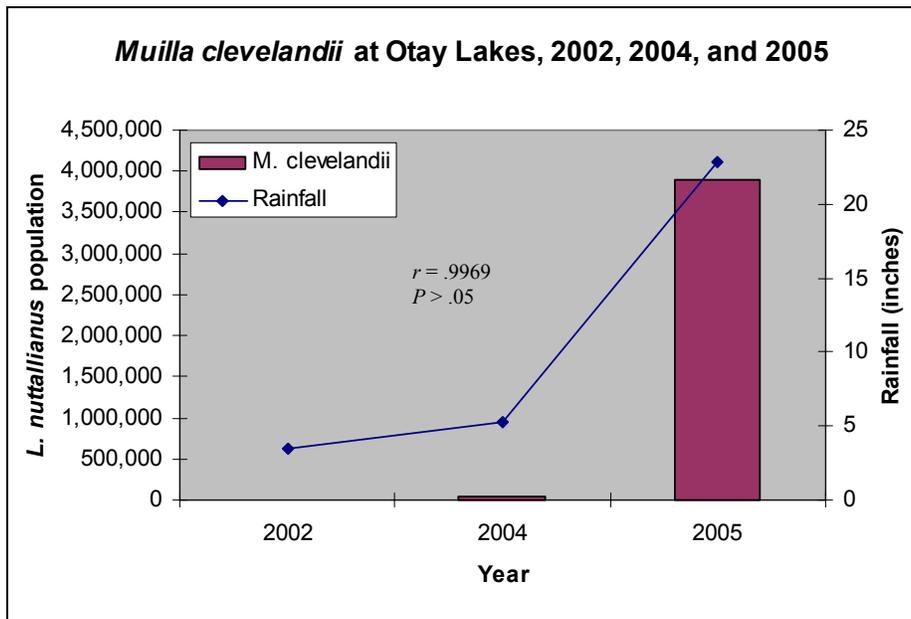
Analysis

The Otay Lakes Golden-Star populations from 2002, 2004 and 2005 were examined and correlated with water year rainfall using Microsoft Excel. The population appears to be affected by rainfall levels, however, the correlation was not statistically significant ($r = 0.99969$, $p > 0.05$; Figure 1). Because there were only three observation years that could be included in the analysis, the test had only one degree of freedom, thus the r value, or correlation, would have had to have been *over* 99 percent (.999) to prove statistically significant. Thus, analyses with more data points (years) would be likely to show a statistically significant positive correlation.

Management Recommendations

The Otay Lakes *Muilla clevelandii* population and surrounding habitat is in relatively good condition, but does have some non-native species within the population, primarily non-native grasses such as *Bromus madritensis* ssp *rubens*, *Bromus hordeaceus*, and *Avena barbata*. Other non-natives in the area include *Centaurea melitensis* and *Sonchus oleraceus*. All of these should be controlled in the area. A proposal has been submitted through the Transnet EMP Funding program for vernal pool management throughout the City and would include dethatching around the Otay Lakes vernal pools, which would include the *Muilla clevelandii* population area.

Figure 13. *Muilla clevelandii* at Otay Lakes and Annual Rainfall, 2002, 2004 and 2005



Notes: 1) All rainfall data are from San Diego County Water Authority; data collected at Lindbergh Field (<http://www.sdcwa.org/manage/rainfall-lindbergh.phtml>). 2) Additional statistical analyses, such as confidence intervals, etc., are being performed by MSCP plant monitoring scientific advisors and will be used in revisions to the plant monitoring program.

Otay Lakes, April 7, 2005



Overview of *Muilla clevelandii* habitat/monitoring area, facing north



Muilla clevelandii intermixed with *Sisyrinchium bellum* and grasses, facing northwest