Dudleya variegata (Variegated Dudleya)

Introduction

The MSCP Biological Monitoring Plan (1996) specifies Marron Valley and East Elliot/Fanita as *Dudleya variegata* monitoring locations within the City of San Diego or owned by the City of San Diego. Much of East Elliot has not yet been preserved; the *D. variegata* in this area will be monitored once acquisition is complete or nearly complete. The Otay Lakes, Mission Trails, and Spring Canyon (among others) populations have also been monitored since 2001 when they were identified via City-wide rare plant surveys.

Results

Site	Lead Monitor/s	Date	Method*	Result
Marron Valley	Johnson	April 12, 2005	Census, GPS	7,973 Plants; 803 m²
Mission Trails	Mike Kelly, Fred Kramer	June 1, 2005 June 4, 2005	Census	2,878 Plants
Otay Lakes	Johnson	May 12, 2005 June 2, 2005	Belt Transect	0.23 Plants /m²; Est Pop = 45,377
Spring Canyon	Johnson	June 10, 2005	Census, GPS	2,996 Plants; 150 m²

* 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

Plant populations from Otay Lakes and Mission Trails Regional Park were examined and correlated with water year rainfall using Microsoft Excel. Both show a general trend toward a positive correlation; however, the correlation was not statistically significant ($r = 0.9627$; $P > 0.05$ for Otay Lakes and $r = 0.81116$; $P > 0.05$ for Mission Trails; Figures 6 and 7). Because there were only three and five observations, respectively, though, degrees of freedom were very low. Analyses with more data points (years) may in fact show a statistically significant positive correlation.

Figure 6. *Dudleya variegata* at Otay Lakes and Annual Rainfall, 2003-2005

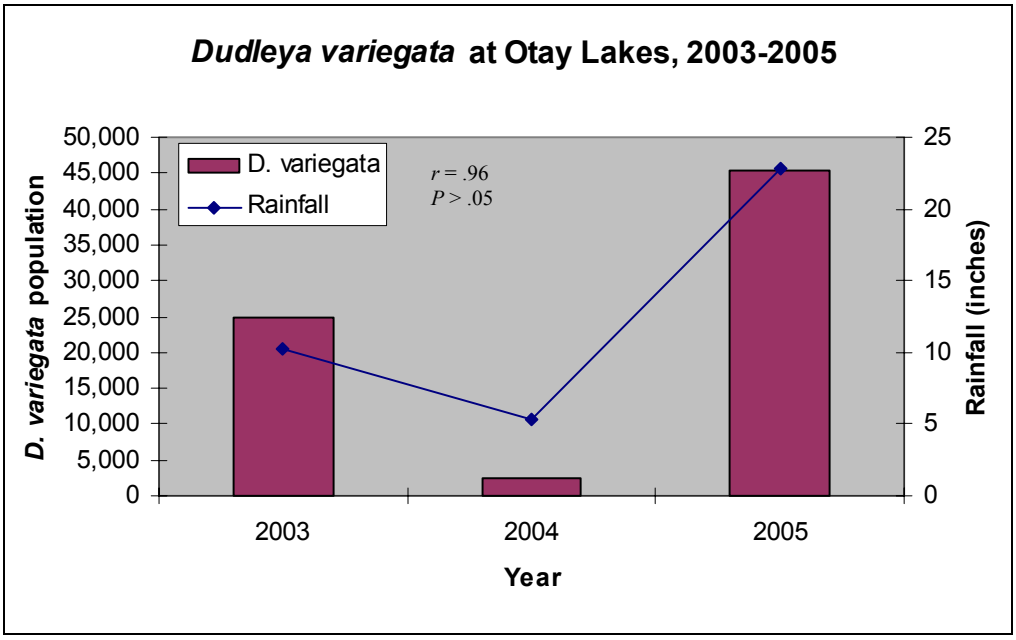
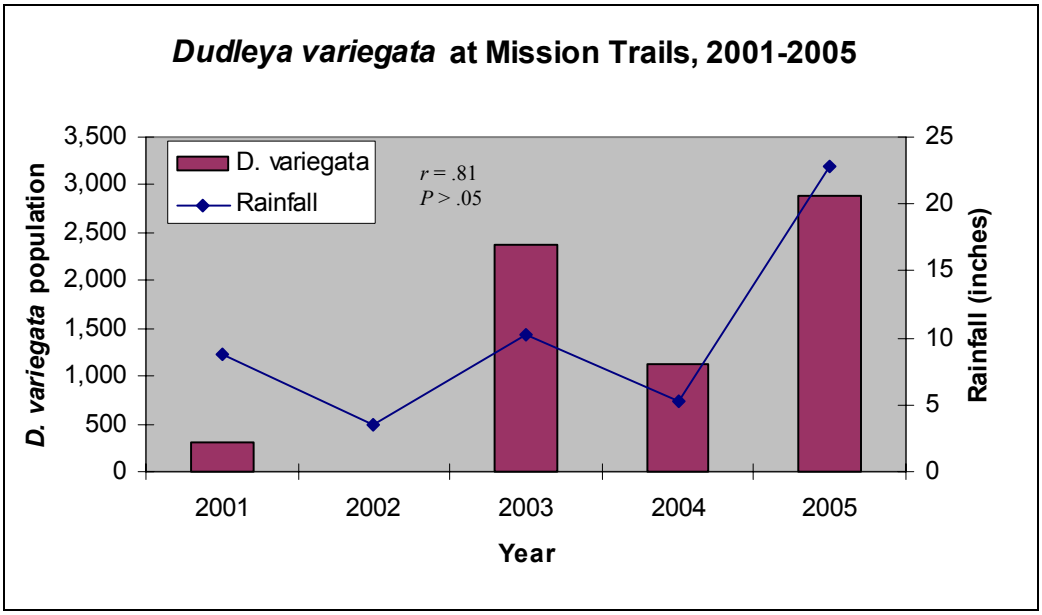


Figure 7. *Dudleya variegata* at Mission Trails and Annual Rainfall, 2001-2005



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.

Management Recommendations

Marron Valley

The Marron Valley site has several non-native species within the population, primarily non-native grasses such as *Bromus* sp. and *Avena barbata*. These should be controlled in the area.

Mission Trails Park

The Mission Trails *D. variegata* population also has several non-native species within the population, including *Centaurea melitensis* and *Avena barbata*. These should be controlled in the area.

Otay Lakes

The Otay Lakes site has some non-native species within the population, primarily non-native grasses such as *Bromus madritensis* ssp *rubens*, *Bromus hordeaceus*, *Avena barbata*. Other non-natives in the area include *Centaurea melitensis* and *Sonchus oleraceus*. All of these should be controlled in the area.

Spring Canyon

The Spring Canyon site also supports some non-native species, primarily *Avena barbata*. The larger issue on this entire mesa is illegal goat grazing by the adjacent landowner. This issue was forwarded to the City Attorney's office in 2004; however, no resolution has occurred to our knowledge.

2005 Population

2003 Population

Approximate Survey Area

Dudleya variegata

Marron Valley

Survey Date: April 12th, 2005

Source: M. Johnson, B. Miller, J. Atha, C. Cibit

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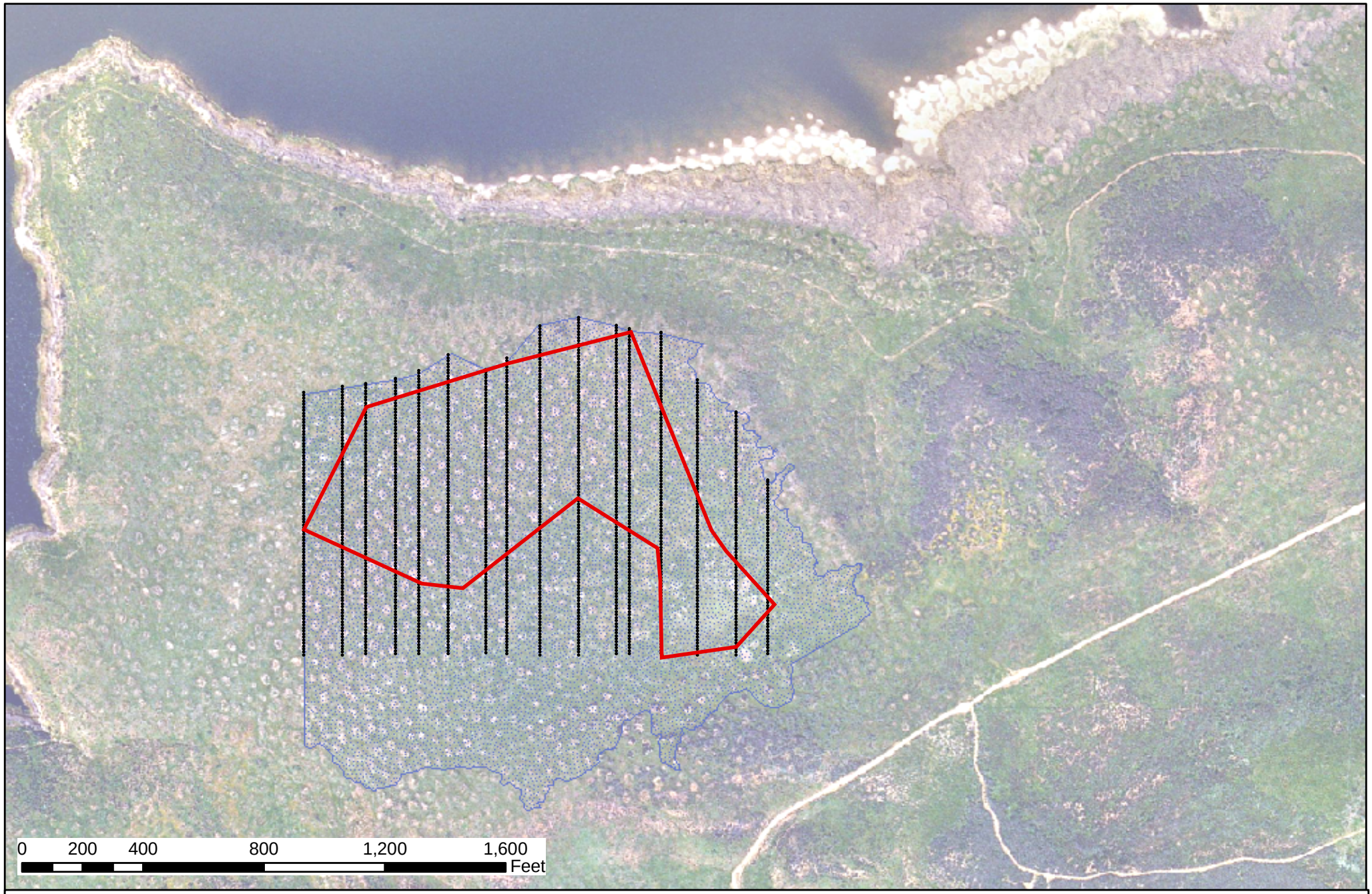

Approximate 2005 Population*

2003 Population

Permanent Transects

* Based on transect locations only; population not remapped in 2005.

Dudleya variegata

Otay Lakes Site

Survey Dates: May 12th and June 2nd, 2005

Source: B. Miller, M. Johnson, J. Garcia, C. Kinkade, L. Hierl, K. Syverson, R. Rodriguez, C. Cibit

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Otay Lakes, May 12, 2005

Transect 2, facing north

Dudleya variegata

Spring Canyon, June 10, 2005

Mesa top *D. variegata* monitoring sight

Dudleya variegata, interspersed with taller *Deinandra fasciculata*