

**City of San Diego  
Multiple Species Conservation Program**

**Summary of Monitoring Results for  
*Lotus nuttallianus***

**April 2002**

## **Introduction**

Nuttall's lotus (*Lotus nuttallianus*) is a sensitive plant species only found in coastal areas in San Diego. This plant has become increasingly rare as development has progressed in coastal areas. This plant is an annual herb that typically blooms between March and June.

Monitoring for this plant occurred in the Mission Bay area and was conducted on April 16, 2002 by Holly Cheong, Brett Williams, Jeanne Krosch, Chad Kane, and Jim Harry. The methodology and results of the monitoring are detailed below. The goal of the effort was to continue long-term monitoring of Nuttall's lotus under the Multiple Species Conservation Program (MSCP).

## **Methodology**

Monitoring for this species was conducted in accordance with the Biological Monitoring Plan for the Multiple Species Conservation Program, dated January 25, 1996. Previous surveys around Mission Bay were conducted by Gary Suttle in 1998. MSCP staff conducted additional surveys in 2000 and 2001. In 2000, it was determined that 4 of the 9 sites documented by Gary Suttle had been developed or the populations had otherwise disappeared. One additional population not documented in 1998 was also discovered in 2000. The 2001 and 2002 surveys were conducted on the five remaining sites documented in the 1998 and 2000 surveys plus the one new site located in the 2000 surveys. The location of each survey site was determined by field level surveys and then depicted on aerial photographs. These areas were first photographed and then all plants present were counted.

## **Results and Conclusions**

In 2002, MSCP staff counted a total of 210 individuals with 87 flowering adults, and 123 non-flowering adults. In 2001, 594 individuals were counted (Note: These totals do not include the least tern nesting site). The record low rainfall for the year may account for the decrease in population size from 2001. A description of each site and the number of individuals found, if any, is given below.

### Site 1 East of Sea World Drive, West of Interstate 5

According to the 1998 survey conducted by Gary Suttle, this site had several thousand individuals. During the 2000 survey, only 130 juveniles were counted on-site and during the 2001 survey, 399 individuals were documented on-site. Of the 399 individuals, 200 were juvenile plants, 58 were adult flowering plants, and 141 were adult non-flowering plants. Most of these plants were found underneath what appeared to be last season's growth. In 2002, 57 individuals were counted.

Ice plant (*Carpobrotus* spp.) occurs on about 30% of the site. Within the 30%, ice plant makes up 100% of the cover. If the ice plant infestation is recent, this may account for the significantly lower numbers of Nuttall's lotus found on-site. Wild radish (*Raphanus sativa*) was also found

on-site and was not documented in previous year. The wild radish occurs on about 40% of the site and within the 40%, the radish makes up 100% of the cover.

Also, this site is not protected from off-road vehicle use. Tire tracks and dumping was found on-site in many locations. This may also account for loss of Nuttall's lotus. It should also be noted that this site occurs on a former landfill site. Therefore, the stability of this population from year to year may be affected by the former use of this site. Low rainfall in recent years could also have affected plant numbers on-site.

#### Site 2 Hospitality Point, Volleyball Court

Over 200 plants were documented on this site in 1998. In 2000, only 34 flowering adults and 6 non-flowering adults could be located. In 2001, 224 plants were located; 84 juveniles, 71 flowering adults, and 69 non-flowering adults. In 2002, only 30 flowering adults and 15 non-flowering adults were located on site. These plants occur next to a volleyball court in an area planted with palm trees and other landscape plants. The proximity of the volleyball court may result in trampling of the plant, however, the area has been fenced since the 2001 surveys and it did not appear that there was a great deal of trampling in the area. Extremely low rainfall during the 2001-2002 season could have affected the population on site.

#### Site 3 Rip Rap South of Hospitality Point

Plant numbers for this site were not estimated in 1998. In 2000, 57 flowering adults and 7 non-flowering adults were found within the riprap along Mission Bay. In 2001, 8 flowering adults, 5 non-flowering adults, and 30 juveniles were documented. In 2002, 11 flowering adults and 10 non-flowering adults were found. Threats to the plants may include trampling by fishermen and limited growing area due to the riprap.

#### Site 4 Mariner's Point, Least Tern Nesting Site

Plant numbers for this site were also not estimated in 1998, although the plants are described as thriving. In order to minimize disturbance to the least tern nesting site, a small area was surveyed and the total amount of Nuttall's lotus was then estimated based on the total area of the site. In 2000, approximately 1269 flowering adults were found in this area. In 2001, approximately 1582 flowering adults, 664 non-flowering adults, and 459 juveniles were documented on-site. In 2002, approximately 2473 flowering and 618 non-flowering plants were estimated to be on-site. The 2002 survey may reflect a more accurate account of the population since a Global Positioning System was used to measure the survey area which was determined to be 2,722 square feet.

#### Site 5 Mission Beach School, North Parking Lot, North Fence

A previously undocumented population of Nuttall's lotus was found in the north parking lot of the school in 2000. Four flowering individuals were growing out of a crack between the parking

lot and the sidewalk of the adjacent residential development. These individuals were located under an oleander bush.

When the site was revisited in 2001, it appeared that the lotus, along with the oleander bush, had been cleared during construction of a sidewalk. However, in July 2002 it was observed that an individual had grown back from the clearing.

#### Site 6 East of South Shores

Approximately 500+ individuals of Nuttall's lotus were documented on this site in 1998. In 2000, 146 juvenile plants were found on-site. In 2001, 17 juveniles could be found on-site. In 2002, no individuals were found on site. Approximately 70% of the site was covered in ice plant. Chrysanthemum and wild radish were also found in great numbers on-site in 2002. Although this site is across the street (Sea World Drive) from Site 1, there was not much evidence to suggest that recent off-road vehicle use, dumping, or the former landfill use on-site is affecting the Nuttall's Lotus on-site. And although there was one encampment observed in 2002, MSCP staff believes that similar to Site 1, the Nuttall's lotus on this site may be adversely affected by the ice plant, especially if this ice plant infestation is recent.

#### **Recommendations**

In general, if additional populations of Nuttall's lotus are found within City of San Diego limits, surveys should be conducted in those areas. The Tijuana River Estuary, Silver Strand, and other historic populations should be checked for Nuttall's lotus. Also, coordination with other jurisdictions may help determine the regional status of this plant species.

Many different site-specific measures can be implemented in order to enhance protection of Nuttall's lotus. Recommendations for site-specific measures are given below.

#### Site 1 East of Sea World Drive West of Interstate 5

Monitoring of this site should be continued. If possible, the site should be fenced to prevent off-road vehicle use and dumping. Removal of ice plant and other exotics on-site should also be explored.

#### Site 2 Hospitality Point Volleyball Court

Monitoring of this site should be continued and protection measures put in place if it appears that the population is declining. Additional fencing or other protective measures may be necessary if trampling of plants becomes an issue in the future.

#### Site 3 Rip Rap South of Hospitality Point

Monitoring of this site should be continued and a Global Positioning System should be used to map the extent of the population to determine if the population is declining or if annual variation

in population size and structure is a significant factor in the reduced numbers counted in 2001 and 2002. Fencing or other protective measures may be necessary if trampling of plants becomes an issue in the future. Placing sand on the rip rap in order to increase the growing area of the plant is not recommended since the plant species appears to naturally grow up from under the rip rap and would only result in burying the plant.

#### Site 4 Mariner's Point Least Tern Nesting Site

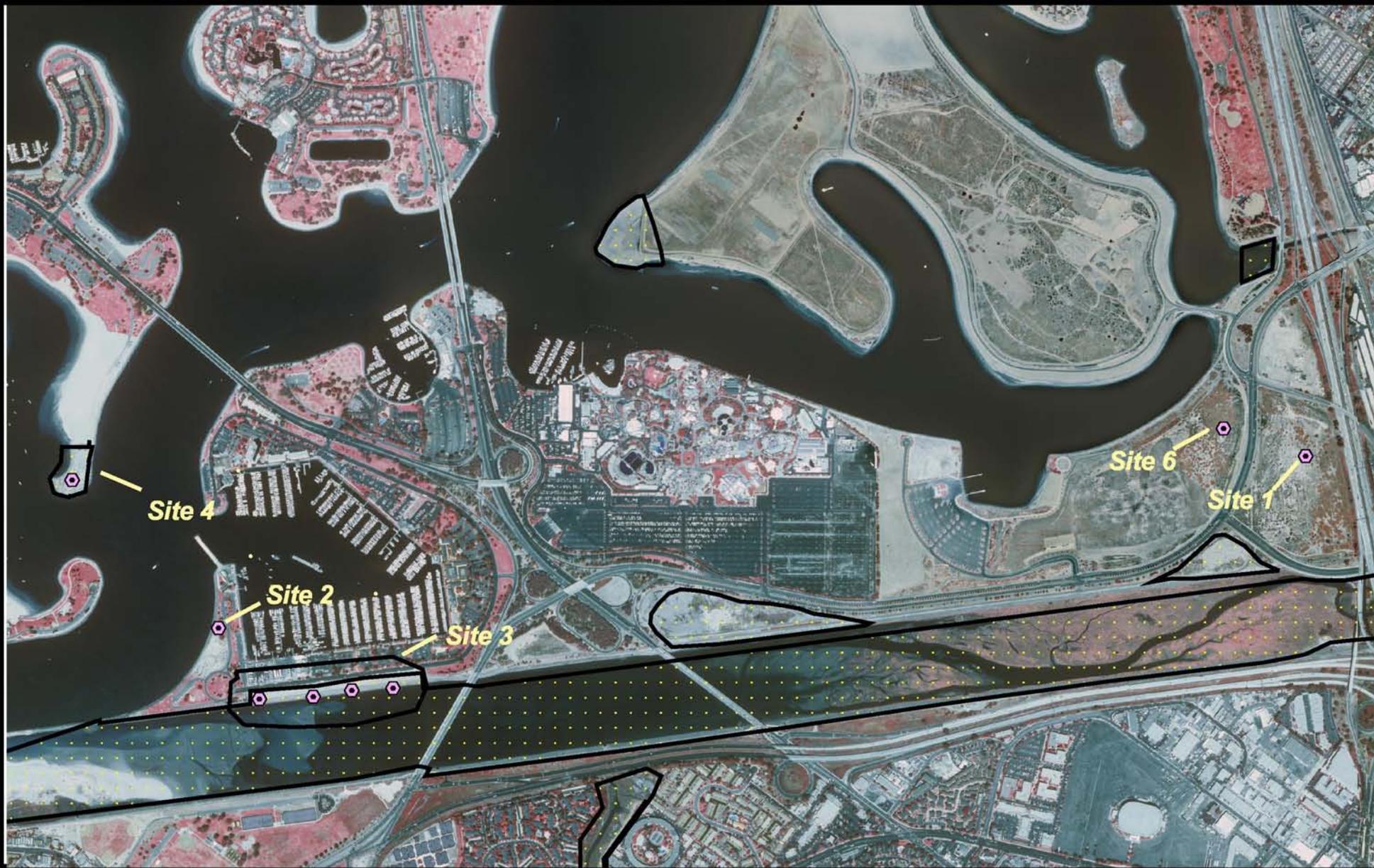
Because this population is thriving, intensive monitoring for this species is not recommended as it disturbs least terns during their nesting season. Instead, visual verification or presence/absence surveys of the species should occur from outside the fenced area to verify that the plant is still thriving. Protection measures implemented for the least tern such as fencing and berms should adequately protect this population.

#### Site 5 Mission Beach School, North Parking Lot North Fence

Although there is only one plant remaining, continued presence/absence surveying is recommended. While the individual plant may never render a viable population, it may be useful in the future for propagation or transplantation.

#### Site 6 East of South Shores

Monitoring of this site should be continued to see if the population will return or if it is due to the lack of precipitation. Removal of ice plant and other exotics on-site should also be explored.



⬡ Survey Sites

⬡ MHPA



# Mission Bay

## *Lotus nuttallianus*

Survey Date: 4-16-02

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