

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

**Summary of Monitoring Results for
*Acanthomintha ilicifolia***

April 2003

Introduction

San Diego thornmint (*Acanthomintha ilicifolia*) is an endangered plant species found in clay soils within the County of San Diego. It is an annual herb that blooms between April and June.

Surveys were conducted by City staff on April 23, 2003 at Otay Lakes (see attached map). Surveys were also conducted by Friends of Los Peñasquitos Canyon Preserve (Mike Kelly and other volunteers) at Mission Trails Regional Park, Sabre Springs, Black Mountain, and Peñasquitos Canyon. Monitoring reports for the volunteer survey effort are attached.

The methodology and results of the monitoring are detailed below. The goal of the effort was to continue long-term monitoring of San Diego thornmint under the Multiple Species Conservation Program (MSCP).

McMillan Biological Consulting conducted baseline surveys in May 2001 for the Otay Lakes population. Previous surveys have been conducted by MSCP staff, Mike Kelly, and other volunteers in Sabre Springs, Black Mountain, and Peñasquitos Canyon. Additional surveys in Peñasquitos Canyon and Sabre Springs were also conducted by Ogden Environmental (1993).

Methodology

Monitoring for this species was conducted in accordance with the Biological Monitoring Plan for the Multiple Species Conservation Program (Monitoring Plan), dated January 25, 1996. The location of each sampling site was determined by field level surveys and then depicted on aerial photographs. All plants present were counted (census). Flowering adult plants were counted separately from non-flowering adult plants. Large patches were separated into sections by string in order to avoid double counting. The population was mapped using a Global Positioning System (GPS).

Results

Sixty-one flowering individuals were documented within the Otay Lakes San Diego thornmint population. Non-flowering individuals were not observed.

Recommendations

If additional populations of San Diego thornmint are found within City of San Diego limits, surveys should be conducted in those areas. The Monitoring Plan identifies populations of San Diego thornmint in Lake Hodges. Surveys should be conducted to determine presence or absence of the plant. If the plant is found, comprehensive surveys should be completed. San Diego thornmint has also been identified outside of the City of San Diego jurisdiction on McGinty Mountain, Viejas Mountain, Jamul Mountains, and within Sycamore Canyon. Coordination with other jurisdictions may help determine the regional status of this plant species.

Counting every individual was very time consuming and labor intensive for the larger populations located at Peñasquitos Canyon, Black Mountain Ranch, and Sabre Springs. In order to facilitate counting these populations in the future, permanent transects should be installed. One m² quadrats would then be placed along the transect and all individuals within the quadrat could be counted. The population size could then be estimated from number of individuals counted within the quadrats.

Exotic plant species in population habitat areas may pose a major threat to San Diego thornmint. Invasive exotics, such as wild oat and tecolote, may outcompete San Diego thornmint. Although it does not appear that San Diego thornmint populations have declined based on surveys conducted by Mike Kelly and Ogden Environmental in previous years, techniques should be developed to remove the exotic plant species without harming the adjacent San Diego thornmint plants. In response to these concerns, the City of San Diego has applied for a grant to remove weeds from San Diego thornmint populations. If the grant is received, weed removal methods will be explored at that time.

Cattle have been removed from Otay Lakes, however, cows from adjacent properties continue to invade the site. Trampling of the San Diego thornmint by cows may account for the low numbers on-site. The Water Department is currently pursuing additional fencing for the Otay Lakes area in order to keep the cows on adjacent lands off of City property.

References

- McMillan Biological Consulting and Conservation Biology Institute. 2001 MSCP Rare Plant Survey and Monitoring Report. 2001.
- Ogden Environmental. September 1993. Fourth Annual Report for the Westview Planned Residential Development San Diego Thornmint (*Acanthomintha ilicifolia*) Biological Mitigation Plan.

Acanthomintha Surveys 2001:
Peñasquitos Canyon, Black Mountain Ranch, Sabre Springs

July 23, 2001

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Summary (see below for details on each location)

1 Peñasquitos Canyon.

Survey dates: 5/9/2001 and 5/13/2001

Surveyors: Mike Kelly, Pat Watkins, Joellen Kassebaum

Survey methods: census and quadrat sampling. Plants were counted as individuals if the stems were clearly separated at ground surface with angles not seeming to originated from a common underground stem.

Total # of plants counted in 4 historic patches of one meta-population:

508 Blooming, 63 Non-blooming = 601

2 Black Mountain Ranch northwest grassland

Survey dates: 5/13/2001

Surveyors: Mike Kelly, Carrie Schneider, Rob Hutsel

Survey methods: census. Plants were counted as individuals if the stems were clearly separated at ground surface with angles not seeming to originated from a common underground stem.

Total # of plants censused:

770 Blooming, 7 Non-blooming = 777

3 Sabre Springs

Survey dates: 5/23/2001 and 5/28/2001

Surveyors: Mike Kelly, Cindy Burrascano, Rob Hutsel, Marilyn Kolendar

Survey methods: census. Plants were counted as individuals if the stems were clearly separated at ground surface with angles not seeming to originated from a common underground stem.

Total # of plants censused:

2,830 Blooming, 2 Non-blooming = 2,832

General comment: Individual plants tended to be bigger than 1999 or 2000, with some reach heights of 8 inches, occasionally more. Multi branching was common, although there were still good numbers of apparently late germinating short single-stemmed plants with a single flower.

Details and Notes

Peñasquitos Canyon Detail and Notes

Patch #1 had 0 thornmints; Patch #2 had 51 Blooming, 16 Non-blooming; Patch #3 had 15 Blooming, 7 Non-blooming; Patch #4 had 442 Blooming, 40 Non-blooming for a grand total of 601 plants.

Only 1 plant, included in above total, was found in any of Ogden's old quadrats.

Quadrats. For the first time, the Friends established 2 quadrats in the Peñasquitos Populations. Each quadrat is 1m x 1m square. One was placed in Patch #2 and had 31 plants in it. The second was placed in Patch #4 and had 54 plants in it.

As previously mapped, a utility road bisects what was probably a historically, patchy, but relatively contiguous population. A split rail fence, initially made of harvested eucalyptus poles, was erected to stop off-road vehicles, horses, bikers, and pedestrians from straying into the thornmint — as had occurred pre-fence. Patches #1, 2, and 3 all occur on the downslope slide of the utility road, south and west of the fence and curving road, while Patch #4 is the only one uphill and north and east of the same road and fence.

Threat assessment: Overall low threat

Fencing installed by Eagle Scout years ago needs a few rail replacements. Tocolote (*Centaurea melitensis*) and oats (*Avena* spp.) are present, but as in the past, remain thin in comparison to their numbers in soils not as heavy in their clay content. Of the two weeds, the Tocolote, based on experience, is the more aggressive on clay soils. Artichoke thistle (*Cynara cardunculus*) has been absent for 4-5 years since being initially controlled by the Friends team.

Management Recommendations:

1. Gather seed from Patch #4 spring of 2002 and sow this seed into Patch #1 to attempt to reestablish plants there. A set quantity of seed, perhaps 50, should be collected from many different plants and lightly "scratched" into the soil after the first rain of the 2002 winter season. Recruitment of seed is probably less likely to occur in the same time frame as it would have pre-road, since the road becomes a barren barrier to certain types of movement.
2. Repair the fence. Senior Ranger Bill Lawrence has put it on the maintenance project list for this summer.
3. Winter 2002 Begin controlling the Tocolote. The surrounding matrix is a high quality Coastal sage scrub, making it feasible to knock out a weed such as Tocolote with several years work. This weed threat is light enough for the

Friends' volunteers to do the control effort.

2 Black Mountain Ranch

Total Count for previously surveyed population: 741 Blooming, 4 Non-blooming = 745. Add in new population found nearby of 25 Blooming and the grand total rises to 770.

New patch was discovered 30 yards to the east of the previously surveyed population. The newest patch occurs just east of the old dirt road through the site (north-south on the hill). Site is approximately 3 meters x 3 meters. We put rebar at the four corners, along with blue flags. We counted 25 plants, included in the total above. This new patch had not been observed in the 3-4 previous years of surveys and weed control efforts in that very area. There also had been cattle on the property until fall 2000. Intensive weed control has either uncovered a patch hidden by weeds in previous years or released long-term seed from competitive pressures and permitted germination and development.

Threat assessment: moderate to High

There was evidence of off-road vehicle from the adjacent property coming down from the hill above on a dirt road that bisects the grassland. Hoofprints from horses also were found in the grassland.

This area had heavy infestations of Artichoke thistle in past years. After 3-4 years of weed control the thistle was in very small numbers. Other weeds, including Tocolote and mustard (*Brassica nigra*) were being partially controlled by cattle. The cattle were removed in fall 2000 because development on the project broke ground. Spring 2001 saw an explosion of both mustard and tocolote. The Friends and CNPS went in 4 weekends in a row to spray the weeds, especially the mustard, tocolote and remaining artichokes. In addition, weed control was continued over about 1/2 mile of Luzardi Creek, a boundary of the grasslands. In addition, the Friends also began control efforts on weeds in about 5 adjacent acres where artichoke cover exceeds 50%. This land will become future MSCP open space.

Although the weed threat will continue to be high for several years, these grasslands have great restoration potential. The grassland with the thornmint has only small numbers of nasella, but lots of forbs and annual wildflowers. With cattle off, good blooms in 2001 of *Allium haematociton*., *Sisyrinchium bellum*, *Dichelostemma capitatum*, *Calachortus splendens*, *Bloomeria crocea*, *Chaenactis glabriuscula* var. *glabriuscula* (Yellow pincushion flower), *Chorizanthe fimbriata* (Fringed spineflower), *Lupinus bicolor*, *Achillea millefolium* var. *millefolium* (Golden yarrow). Good quality CSS surrounds 90% of this grasslands.

The previously surveyed population on the portion of the grassland west of the dirt road is delineated with rebar and flags. Our surveyors found generic, pink, "Hydroscape" flags in several locations, each next to Thorn mint. Each flag had a circled number on it, presumably the thorn mint count for some diameter circle (?) around the flag. A number of flags seemed to be perimeter flags. Whoever surveyed seemed to be sampling, since a number of large patches had no flags in them. We added several flags, blue in color in several of the bigger patches and put similarly circled numbers on the flag. Our diameter was 3 foot around the flag.

Our Friends' perimeter, established 4 years ago, starts farther to the south by 20 - 25 meters than whoever was doing this other survey, to capture the southern most patch (4 plants this year) and southern boundary.

Management recommendations

1. Work with the Black Mountain Ranch property owner (unless the City receives the land in fee title in the interim) (Taylor Woodrow) and the adjacent property owner (?) on the hill above the grassland to fence off the dirt road and place signage prohibiting entry. Also place signage on the 2 access points from Luzardi Creek below the site. Fencing may not be necessary here since access, including by the horses seems to be limited to uphill to date.
2. Mount an aggressive effort to control the weeds in the thornmint grassland, beginning after the first soaking rains that germinate the mustard (typically the first up).
3. Establish quadrats for sampling spring 2002. We don't recommend flagging such as we and whoever surveyed this year have used in the past. Problem with our and others flags is that they fade completely in 3-4 years, making them difficult to find and the count on them impossible to read. Our flags from 3 & 4 years ago were faded thusly. However, as a point of reference to count the plants within a certain diameter, they would probably work at 3 - 4 year intervals. However, some would be lost, bent down into invisibility, etc. by weather, trampling. Rebar is probably a better choice.

3. Sabre springs

Patch #1, on the slope, 2,375 Blooming plants. This patch approximately 28m x 16.5 m.

Patch #2, on the flat north of Patch #1, 350 Blooming plants. Patch approximately 11.4m x 9.0m

Patch #3, east of Patch #2, 103 Blooming, 2 Non-blooming. Patch approximately 5.6m x 10.3m.

Quadrats exist in all 3 patches, but we have yet to positively identify the Consulting Company that installed and surveyed them.

Convolvulus simulans is found in Patch #1 (Morning glory, bind-weed)

Threat assessment: very High.

Unlike Black Mountain and Peñasquitos sites, the Sabre Springs site is well protected by berms, boulders and fencing installed after the site was bulldozed by Pardee many years before. Weeds are a severe threat, especially Tocolote, mustard, Italian thistle, oats and bromes. Artichoke thistle has been eradicated from the site by 6-7 years of treatment by the Friends. Many of these other weeds have also been controlled to a lesser extent in the upslope Patch #1 in the last 2 years. These weeds are much denser than at the other two sites, especially in the flat portions of the site which do not seem to be of the same heavy clay found up on the slope patch.

Management Recommendations

1. Mount an aggressive effort to control the weeds in the thornmint grassland, beginning after the first soaking rains that germinate the mustard (typically the first up). The area is surrounded by good quality chaparral for most of its perimeter and will lend itself to easy maintenance after 2-3 years of intensive control efforts.
2. Identify the owner of the data taken from the existing quadrats and obtain this data. Future surveys could sample these patches using the existing quadrats. We have a lead on the company involved and are pursuing this.

Report submitted by Mike Kelly, conservation chair
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Thornmint Report 2003

Sabre Springs

Eastern most patch (on the flat)		
Outside transect	632	
Inside transect	42	
Subtotal	674	
Western most patch (on the flat)		
Outside transect	2,035	
Inside transect	349	
Subtotal	2,384	
Southern most patch (on the slope)		
Outside transect (25')	15,686	
Inside transect (25')	977	
Subtotal	16,663	
Grand total SS		19,721

Black Mountain Ranch

Upper transect		
Inside transect	14	
Middle transect		
Inside transect	68	
Lower transect		
Inside transect	21	
Total outside all transects	383	
Grand total for BMR		486

Mission Trails

Low (southern) transect		
Inside transect	75	
Outside transect	16	
Subtotal southern	91	
High (northern) transect		
Inside transect	196	
Outside transect	9	
Subtotal northern	205	
Grand total MT		296

Peñasquitos Canyon Preserve

Patch #1 (most western, south/west side of road)	0	
Patch #2 (next east, south/west side of road)	145	
Patch #3 (eastern most, south/west side of road)	100	
Patch #4 (northern most, north side of road)	481	
Quadrant (1m ²), included in Patch #4 total	(58)	
Grand total PQ		726

Sabre Springs transects and census done by Cindy Burrascano, Mike Kelly, Erik Jensen, Rita Delapa, Mel Howe May 10 & May 1

Black Mountain Ranch transects and census done by Mike Kelly, Mel Howe, Erik Jensen, April 24.

Mission Trails transects and census done by Cindy Burrascano, Mike Kelly, Mel Howe, Erik Jensen on April 3 & 4/16

(“Rob’s Patch” (included in Outside) 20) of BMR.



Population Area



MHPA

Otay Lakes

Acanthomintha ilicifolia

Survey Date: 4-24-03



Source: H. Cheong, J. Atha,
M. Johnson