

# Project: Mission Blue

## August – February 2013 Report

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### Overview

Project: Mission Blue is a progressive plan using adaptive management practices to combat the continual decline of Mission blue butterflies due to the loss of lupine patches and the decrease of lupine diversity. This project is a collaboration between the National Park Service, The Golden Gate National Parks Conservancy and the California Garden Clubs Incorporated. While this project will work to save the endangered butterfly it will also meet secondary goals such as furthering an interest in gardening and plant nurseries and promoting environmental awareness and community engagement. To understand more about the project and what we have done please see the 2011 and 2012 reports.

This is the beginning of the third year of Project: Mission Blue. The first year of the project was dedicated to getting all of the participating bodies on board and setting up the necessary procedures. The second year was dedicated to growing more lupines, increasing education, and establishing monitoring practices. In 2012 we more than doubled the amount of lupines grown and increased our education to the community about Project: Mission Blue. While monitoring has already started it will not be until spring of 2013 that plants will be mature enough and monitoring information will be substantial enough that we will begin to see the impacts of this project.

It is with a great sense of accomplishment that we present to you the 2013 Project: Mission Blue Report.

### Lupines in the Nursery

By August of 2012 all of this year's lupine seeds had been collected. They were immediately planted and held in the nurseries to grow. While the seed germination rate was low, once the seeds germinated their survivorship in the nursery was high. This does not mean however that it was easy to keep them alive.

The varied colored lupines (*Lupinus variicolor*) were the easiest to grow and were grown at Oceana Native Plant Nursery. This nursery is connected to a high school and the work at the nursery is done in participation with the high school students. No problems were observed with the varied color lupines and they grew big and healthy in the pots. Some of the lupines even started to flower.

The summer lupines (*Lupinus formosa*) are harder to grow and for that reason were kept at the Marin Headlands Native Plant Nursery where they could be tended more carefully. These lupines initially started growing well, but as the roots filled the pots some plants started to have root rot. In December our first winter storm came to the bay area. By this time the summer lupines were looking good. They had been moved out of the green house and into the shade house to be "hardened off" also known as to acclimatizing. When the winter rain storms came the lupines began to lose their leaves and many had appeared to die. The lupines were then brought back into the greenhouse. The lupines that we had thought to have died in the storm started to grow leaves again. The loss of the lupine leaves could have occurred because of the storm's damage to the

plants, although no other plant at the nursery was affected by the storm. This could also have happened, Price Sheppy believes, because the storm triggered the plants adaptation of seasonal dormancy.

In nature the lupines normally start to grow in the spring time just after the winter rains and when the ground is still wet. They grow until the ground dries out by late spring and then the lupines lose their leaves and go dormant. At the nursery we start to grow the lupines in July when they naturally would not grow. We do this because we find better success with seed germination if the seeds are planted immediately after collection and before they can develop a hard shell coat. This is also done so the lupine plants will be mature enough to out-plant into the park in the winter time. We normally out-plant in the winter to use the natural rainfall to water the plants. This is also the time when most native plants in the bay area are growing.

In the future we may try planting the lupines earlier in the season before the roots have a chance to get root rot and before the winter storms come. This may give the lupines time to revive from the transplant shock of being planted out in the field before the winter rains come and trigger their dormancy.

Here is a chart that shows the amount of seeds collected in 2012 and the amount of seeds that germinated. Also in this chart is listed the number of plants that survived to be planted in the national park in winter of 2013.

Tracking Lupine Amounts 2012-2013

Species	Planting Site	# Seeds	# Germinated	# Planted
Lupinus formosa	Wolfback Ridge	503	208	175
Lupinus formosa	Milagra Ridge	158	63	40
Lupinus variicolor	Milagra Ridge	393	262	223
Total		1054	533	438

Figure 1.

The following chart shows the germination rate of the seeds and the survivorship rates of the germinated plants that survived to be planted in the park 5 months later.

Lupine Survivorship Rates 2012-2013

Species	Planting Site	Seed Survivorship	Germination Survivorship
Lupinus formosa	Wolfback Ridge	41%	84%
Lupinus formosa	Milagra Ridge	39%	63%
Lupinus variicolor	Milagra Ridge	66%	85%
Total		50%	82%

Figure 2.

It will not be until we do survivorship counts in March of the lupines planted that we will begin to get a sense of our success.

## Community Engagement

The Golden Gate National Parks Conservancy believes that it is not enough to simply restore and save our parklands. If the communities that surround these parks do not care for them then the parks will ultimately become irrelevant and fade away. It is through engagement and education of our communities that we can inspire future generations to carry on the legacies of the national parks and to conserve the wilderness for tomorrow. This is a belief that the California Garden Clubs Inc. also holds to be true. It is with this in mind that we perform our work.

Through the past years of this project we have engaged the community in many ways. One of the ways that has been the most beneficial and rewarding is through the park's internship program. In this program college age youth have dedicated a year of their lives to volunteer in the parks. Though this year long internship staff can more deeply educate, inspire, and launch these young adults into conservation careers. It is also through their dedicated and tireless work that this project can continue.

Engagement also occurs on other levels. This year Annika Wildenradt from University High School in San Francisco helped Project: Mission Blue as part of her senior community service learning project. Annika came to a two hour Mission blue butterfly training to learn all about the butterfly and the lupine host plant. She then came out into the park to participate in and learn about habitat restoration. Annika visited the Park Stewardship office and learned about all of the behind the scene work staff do After all of this learning Annika lead a volunteer day of her own with 29 volunteers, including students from Taylor Middle School. During her Milagra Ridge volunteer day 148 lupines were planted. Annika talked to the students about the Mission blue butterfly and the restoration efforts, and how the work is helping the butterfly. It was a great project for Annika and all of the volunteers who participated.

Two environmental science classes from Oceana High School also came out and planted lupines. This project was meaningful for them because their school is right next the Mission blue butterfly habitat. These classes planted 75 lupines at Milagra Ridge.

These are just two examples of community groups that have come out and helped Milagra Ridge, and do not make up the entire list of people that the Golden Gate National Parks Conservancy engages to help grow and maintain these important Mission blue butterfly sites. We have and will always continue to work with community to reach our important work of saving this endangered species.

Below is a list of community groups and volunteers that have worked to plant the lupines. This does not count the volunteer hours used to grow the plants or the hours used to pull the invasive plants that threaten lupine habitat. The monetary value of the volunteer hours was set by the Independent Sector, a national nonprofit organization the Golden Gate National Parks Conservancy uses to measure the value of volunteer work in our parks.

## Community Groups Planting Lupines

Date	Volunteer Groups	Location	Youth Volunteers	Adult Volunteers	Total Volunteers	Event Hours	Total Hours	*Value (\$21.79)
12/11/2012	Park Interns	Wolfback Ridge	0	3	3	3	9	196.11
12/13/2012	Oceana High School	Milagra Ridge	25	1	26	2	52	1133.08
12/13/2012	Oceana High School	Milagra Ridge	30	1	31	2	62	1350.98
1/5/2013	Community Members	Wolfback Ridge	0	5	5	3	15	326.85
1/18/2013	Park Interns	Wolfback Ridge	0	4	4	2	8	174.32
2/2/2013	Taylor Middle School	Milagra Ridge	16	2	18	3	54	1176.66
2/2/2013	Community Members	Milagra Ridge	3	4	7	3	21	457.59
<b>Total</b>			<b>74</b>	<b>17</b>	<b>91</b>	<b>15</b>	<b>212</b>	<b>\$4,815.59</b>

\*According to Independent Sector

Figure 3.

## Donations

California Garden Clubs Incorporated has raised money for this project through many means. Since the program has started CGCI has given out 72 Mission blue butterfly pins for groups or people who have donated over \$100. We have received donations from 54 individuals, 21 clubs, 4 districts, a butterfly association, and from a Senior Center Garden Club at a Seniors Center (who had a plant sale and donated all their earnings to Project: Mission Blue).

CGCI's Donations	
Date	Amount
11/15/2010	\$200.00
7/30/2011	\$1,500.00
10/12/2011	\$100.00
11/7/2011	\$200.00
1/15/2012	\$1,500.00
6/13/2012	\$2,000.00
3/15/2013	\$2,000.00
<b>TOTAL</b>	<b>\$7,500.00</b>

## Conclusion

In May of 2012 the Urban Wildlands Group created a report for the National Park called *Status and Variability of Mission Blue Butterfly Populations at Milagra Ridge, Marin Headlands, and Oakwood Valley*. In this document it states recovery actions needed to help the recovery of the Mission blue butterfly. In this plan they recommend “Increasing lupine biodiversity to build a more resilient and pathogen-resistant ecosystem”(pg 37). This is exactly what the Project: Mission Blue aims to do, and this work would not be possible without the generous contributions of the California Garden Club Inc.

If you would like to learn more about Project: Mission Blue, or help out please contact Price Sheppy at [psheppy@parksconservancy.org](mailto:psheppy@parksconservancy.org) or call 1-415-561-3073.

In addition, all aspects of Project: Mission Blue will be photo monitored. An online photo database has been created for CGCI to stay updated with project activities. Contact Price Sheppy for permission to access photos.