

Prescribed Fire to Help the Endangered Mission Blue Butterfly



A mission blue butterfly on lupine

Listed as an endangered species in 1976, the mission blue butterfly is now only found at a few sites in Marin, San Francisco, and San Mateo Counties—many of which are on federal, state, and local park land.

These small butterflies lay their eggs on just three species of lupine that are the sole food source for mission blue caterpillars. Most adults stay within 50 meters (164 feet) of the patch of lupine where they first emerged. Because they do not travel far, areas of mission blue habitat need to be relatively close for the butterflies to be able to find lupines, nectar plants, and mates.

Patches of lupine grow dotted among coastal grasslands, favoring sites that have been recently disturbed. In the past, periodic fires and Tule elk grazing kept shrubs and trees from taking over these grasslands and provided the disturbance needed to stimulate lupine seeds to germinate. Fire suppression and the loss of elk have potentially contributed to declines in both the quality and quantity of lupine habitat.

This fall, the National Park Service and Golden Gate National Parks Conservancy will partner on an innovative project to restore mission blue butterfly habitat by using controlled burns and vegetation removal to create disturbance similar to that historically provided by wildfires and elk.

A mix of coastal scrub and grassland habitats in the Marin Headlands



The National Park Service and Parks Conservancy are considering this new approach after expending a great deal of effort trying to grow lupines in the field and in the nursery, but having only very limited success because of seed loss to insects and rodents, fungal pathogens, and inconsistent rainfall.

A small wildfire at Fort Baker in 2004 provided just the inspiration that park managers needed in their struggle to find another way to help the mission blue. Not only did many lupines survive the fire, but so did some of the mission blue butterfly caterpillars living on them. Most importantly, new lupines sprouted up in areas that burned in much greater numbers than in places where there had been no fire.



Firefighters use a 1 x 1 meter burn box to conduct a prescribed fire in the Presidio



A burned lupine from the 2004 Fort Baker fire

Based on the results of the Fort Baker fire, park managers are trying out a new approach to lupine restoration. Highly trained professionals from the Golden Gate Fire Management Program will use 2.5 x 2.5 meter metal “burn boxes” to produce effects similar to a wildfire in a safe and controlled way.

Treatment sites within existing mission blue butterfly habitat in the Marin Headlands west of Highway 101 and at Milagra Ridge near Pacifica were chosen because they have lupines but few or no mission blue butterflies, are easily accessible to fire crews, and have comparable habitat and landscape characteristics. Burns will take place between August and September 2010, with the exact date based on when weather conditions allow for safe burning and good smoke dispersion.

Follow up monitoring in the burned areas and similar sites where vegetation has been removed and the soil has been scraped will allow park managers to determine which kind of disturbance is more effective in promoting lupine regrowth. If successful, these techniques can be used in the future as management tools that substitute for the ways wildfire and grazing historically maintained lupines and the mission blue butterflies that depend on them.

For more information on the mission blue butterfly see: <http://www.fws.gov/endangered/>, then search for the mission blue butterfly by name.

Details about the prescribed burn can be found at: <http://www.nps.gov/goga/fire>.
