

Guided Nature Walk, Mission Blue Butterfly Focus

Adult butterflies aren't necessary to conduct this walk, but identification and knowledge of a lupine plant's location, as well as having a spot with a view of surrounding human presence is worked into this walk. Images of the butterfly and its lifecycle can also be used as a visual aid.

Theme: The Endangered Mission Blue Butterfly depends on multiple relationships in order to thrive.

Introduction

- Introduction of the location, acknowledgement of Ohlone traditional lands
- Why PBC would be doing an event that isn't beach/ocean related
- Personal history/involvement at PBC
- How every year an "Earth Honoree" is selected to guide our programming and the Mission Blue Butterfly (MBB) is the choice for 2022
- Plan for the hike (length, physical demands)
- Restroom needs/locations

Preliminary Discussion

- Questions I would ask at our first stop:
 - Has anyone seen a MBB before?
 - Yes, what do you remember about its appearance, what colors?
 - No, what colors are we looking for? Do males and females have the same color?

Discussion "1" Mission Blue Basics

- Do you think Male and females look the same? No? So how many color variations in their wings would there be?
 - Two

- Put up two fingers, put them together, that's roughly how big they are. The width of the butterfly is about the width of two adult fingers.
- While male mission blue butterflies have the signature sky-blue coloring on their wings, females are harder to spot because of their more muted, burlap-brown coloration.

Discussion “2” Lupine (Stop when a lupine plant is present, if possible)

- Ask: Does anyone know what plant we have here?
 - Silver Lupine, go ahead just inspect, look at the leaves of the silver lupine, go ahead and touch the leaves.
 - What does it feel like?
- The MBB has a close relationship with the lupine. It relies on the lupine at all stages of its life, for events like: egg depositing, MBB goes into diapause for 8-9 months in the plant's leaf litter, and is the main food source as a caterpillar.
- Discuss Life Cycle
- Potential Discussion:
 - Evolutionary history of such a close relationship between these two species, what would happen if the lupine population was compromised.
- Discuss the lupine fungal pathogen that came through the silver lupine population twice in recent history.

Discussion “3” Ant Relationship

- Transition: We just heard how the lupine may be compromised at times, which can negatively affect the caterpillar life stage. Thankfully, another relationship with a totally different organism helps out our butterfly.
- As a caterpillar, MBB has a mutualistic relationship with a native ant species.
- Explain that the ants provide protection to the defenseless caterpillar in exchange they produce a sugary secretion that recruits ants, known as “honeydew,” this would be classified as a mutualistic relationship
- Pose a few questions to your group. For example, what's a relationship in nature, or your own life that includes another species, or someone else in order to overcome an obstacle? How do you think this ant and caterpillar relationship evolved? What adaptations exist to make this relationship work?

Discussion “4” Human Relationship (Spot with a view)

- So we have talked about how MBB interacts with the lupine plants, the mutualistic relationship with ant species, but what about its relationship with us humans?
- Let's take in the view here:
 - If we take a moment to close our eyes, or stare at the ground if balance is not your strong suit, imagine what this park and the surrounding area would have looked like 50 years ago, 200 years ago, or 1,000 years ago?
 - As you went back in time, the roads, the houses and the physical evidence of human presence would have decreased.
 - You may have come to the conclusion: "wow what a nice place to live". Humans like to live where the MBB lives.
 - Thinking of the present day, what are some examples of negative effects that humans have had on the MBB? A: habitat destruction, human caused fires, pavement of roads, introduction of invasive species, etc.
 - Talk about this history of the butterfly getting federally listed under the Endangered Species Act, local actions to protect, reference the story of Billie and Lady Blue.
 - So while human intervention has aided in protecting the MBB from extinction, it's humans who are largely responsible for their threatened status.
 - Ask Questions like: Would this butterfly survive if this mountain wasn't protected?

Discussion "5" Wrap Up (Finale/End of the hike)

- Before we finish, who would like to share what they learned about the different relationships the MBB has with fellow organisms?
- What's something you can do today or this week that would help the MBB and the other organisms within this ecosystem? (Action Items)
 - Potential answers:
 - Volunteer with the park or at home to pull weeds and plant native plants
 - Donate to programs
 - Stay on Trails
 - Don't pick wildflowers
 - Advocate and share knowledge
 - Vote and submit public comments on relevant legislation
- Thank participation & stay around for questions

Reference Material

- [NPS Brochure](#), contains useful information about Milagra Ridge
- [Translocation Project Information](#) at Milagra Ridge, GGNRA
- [General Translocation Project Information](#), Golden Gate National Parks Conservancy