

Vernal Pools: A Seasonal Treat

Vernal pools may reveal their special beauty suddenly or slowly over time. These pools are a seasonal feature of the table mountains, the San Joaquin and Sacramento Valleys and coastal terraces of California. Vernal pools are fed by rain alone in shallow depressions in the earth. They are lined with an impermeable layer [like basalt or hardpan] which prevents seepage. These pools dry up slowly through water evaporation. They are only found in a few other regions worldwide that share a similar Mediterranean climate and terrain. It is estimated that up to 90% of the vernal pools in central California are gone due to development.

The first view of a vernal pool in the spring can be breathtaking with the unique flower displays forming in and around the pool. The flower show continues to evolve with successive visits: as the water dries, new plants and flowers emerge. Some of the flowers found in and around the Table Mountain vernal pools include goldfields, vernal pool checkerbloom, meadowfoam, popcorn flowers, downingia, white tipped clover, dwarf cliff sedum, and many others.

Vernal pools also contain many invertebrate animals, although these are more challenging to spot. All are small and some are microscopic! Some common inhabitants of California vernal pools include the vernal pool fairy shrimp, tadpole shrimp, seed shrimp and clam shrimp. When the pool is full it may attract other visitors such as duck and egrets.

Vernal pools are well adapted to a “boom and bust” cycle of cold and wet weather in the winter to baking hot drought in the summer. Both flora and fauna are specialized to survive this extended dry period either as seeds, eggs or cysts. There are 4 sequential phases in the vernal pool ecosystem:

1. Wetting phase: Germination begins;
2. Aquatic phase: Water plants and animals reawaken and grow;
3. Drying phase: Water slowly evaporates; flowers bloom; specialist bees pollinate; seeds, eggs and cysts settle into the mud;
4. Drought phase: Seeds, eggs and cysts are dormant;

While vernal pools have many specialized survival adaptations, they are vulnerable to degradation by physical destruction [land development, agricultural leveling] , invasion of non-native plants and animals, and changing weather patterns.

The Sierra Foothill Conservancy has several vernal pools on its property and works to conserve the integrity of this special ecosystem. You are welcome to learn more about these pools and visit during guided hikes each winter and spring. Hope to see you next spring!

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