VERNAL POOLS:
An Endangered Aquatic Resource in California

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What are Vernal Pools?

- Seasonally flooded depressions on soils with an impermeable layer
- Periodic or continuous ponding during wet season
- Desiccation during the dry season
- Drastic seasonal change from wet to dry
- Rainfall quite variable from year to year

Vernal Pool Complex

Where are Vernal Pools Found?

- Central Valley – alluvial formations
- Inner Coast Ranges – alluvial formations in inland valleys
- Southern California – coastal marine terraces
- Modoc Plateau and Northeastern Sacramento Valley – volcanic mudflows

Vernal Pool Regions

Vernal Pool Plants & Animals

- Must be able to tolerate the wide range of hydrologic conditions

- Or complete their life cycles in the short time when the pool provides a suitable environment

Vernal Pool Plants & Animals

- Regional and localized endemic plants
- ~200 plant species restricted to or closely associated with pools
- Animal species have specialized life histories
- Large proportion of sensitive species
- High percentage of native species

Vernal Pool Plants

Downningia
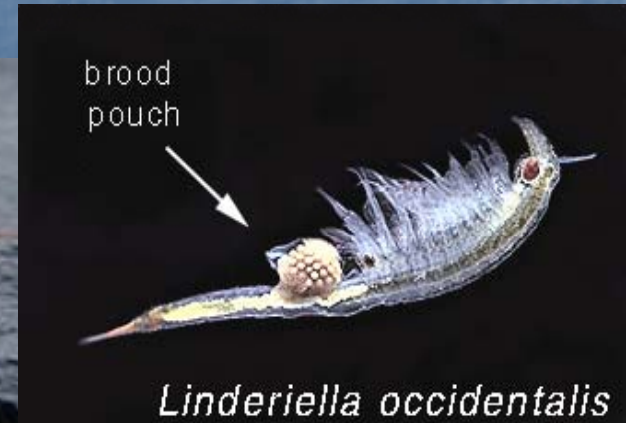
Lasthenia   (Goldfields)

Limnanthes (Meadowfoam)

Blennosperma

Vernal Pool Animals
Aquatic Invertebrates

Linderiella occidentalis

Vernal Pool Animals
Amphibians

Vernal Pool Animals
Solitary Bees

Solitary Bees Life Cycle

Solitary Bees Life Cycle

Vernal Pool Threats

- Vernal Pool Habitat Loss - ~90%
- Urbanization
- Agriculture – deep ripping and leveling

Conservation Strategy

- Landscape Level Preserves
- Include Surrounding Watershed Areas
- Preserves Represent Diversity of Pool Types

- Vernal Pool Forum

Regulatory Tools

- CWA Section 404 – permitting & enforcement
- CWA Section 401 Certification
- Mitigation Banks

Vernal Pool Website:

VernalPools.Org

- California Vernal Pools – 111,000 hits on Google
- VernalPools.Org provides links to:
    - Conservation
    - Mitigation
    - Publications
    - Places to See
    - Animal & Plants