ECOSYSTEM

SAN LUIS VALLEY

NATURAL ENVIRONMENT

HIGH ELEVATION, LOW PRECIPITATION

Aquifer Storage at Risk

The clay layers in which water is stored become compacted when the artesian pressure is reduced by dwindling storage. The Rio Grande Decision Support System (RGDSS), included in the District Court, Water Division 3 ruling Case No. 2004 CW 24, paragraph 216 states, “Once compaction occurs it is irreversible. There is a significant potential for aquitard compaction of the clays in the confined aquifer if confined aquifer artesian pressure levels are drawn-down below the previous lows. The aquitard compaction is slow but irreversible and results in a corresponding irreversible subsidence of the overlying land.” The RGDSS explains, “In effect the water is squeezed out of the pore spaces in the aquitard, and the remaining pore space is reduced by the rearrangement of the clay particles. This process results in the permanent loss of aquifer storage capacity.”

Northern San Luis Valley

View of the northern San Luis Valley. Valley View Hot Springs in the foreground; the San Juan foothills across the valley floor.

Contrast

Irrigated Potato Field

Dry Field

Orient Land Trust

Geothermal hot springs heated deep in the earth along the Sangre de Cristo fault zone and rising to the surface dependent on the confined aquifer and its artesian pressure. Valley floor elevation about 8,000 feet. Top Pond elevation about 9,000 ft.

Natural swimming and soaking pools

Rare plants, insects, snails that rely on the hot springs ecosystem

Rare Giant Helleborine Orchid (Epipactis gigantea)
(Wikipedia photo)

One of the few populations of Fireflies in Colorado

Microhydroelectric generation that provides clean, carbon free electricity for the hot springs resort

Stream, riparian area, and two acre reservoir provides habitat for two threatened species of fish created in partnership with Natural Resources Conservation Service, Colorado Parks and Wildlife, and U.S. Fish and Wildlife Service. The Rio Grande Chub, aboriginal to this stream, and the Rio Grande Sucker, imported for this protection project.

Reservoir at Everson Ranch, OLT

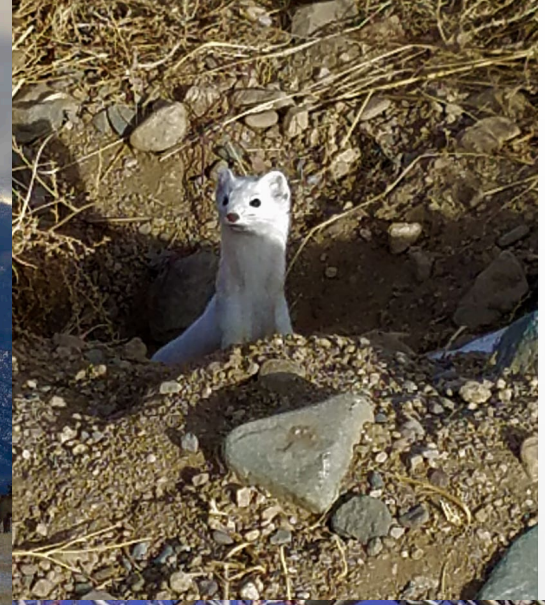
Hayfields irrigated with the water remaining from the two mile stream. Some of this surface irrigation water returns to the unconfined aquifer.

Orient Mine

Historic mine that provides summer habitat for migratory bat colony. Bats feed primarily on insects found in farmer's fields.

Bat Outflight

Largest colony of Mexican Free-tail bats in Colorado. Normal population is about 250,000



Wildlife Habitat

Partnerships and Community

- Conservation easement with The Nature Conservancy (about 1300 acres) protecting Orient Land Trust properties from development and human impacts
- Conservation easement with Colorado Parks and Wildlife (CPW) monitors over 300 acres. Protects the Orient Mine from degradation and human impacts
- OLT is a designated Colorado Natural Areas Program area
- Cooperative agreements with two other hot springs. All three hot springs have a combined revenue in excess of $5 million per year
- OLT has a membership of nearly 4,000 people that come from all over the world
- Welcomes scientists and researchers studying geology, bats, flora, insects, fauna, history, fish, and the micro-environment
- OLT participates as a site for the Colorado College student orientation program