

## June 18, 2014 Vernal Pool Site Visit Summary

**Attendees:** Jason Clinch, consultant; Juddson Parsons, Landowner; Cam Patterson, consultant; Jim Thraikill, U. S. Fish and Wildlife Service (Service); Greg Swenson, consultant; Sam Friedman, Service; Craig Tuss, Rogue Valley Council of Governments (RVCOG); Craig Harper, Southern Oregon Land Conservancy (SOLC); Marilyn Rice, landowner; Keith Perchemlides, The Nature Conservancy (TNC); Paul Benton, Oregon Department of Transportation (ODOT); Marcia Wineteer, U. S. Bureau of Land Management (BLM); Dan Roelofs BLM; Randy White, Jackson Soil and Water Conservation District (SWCD).

On June 18, 2014, Keith Perchemlides of TNC and Paul Benton of ODOT led a Vernal Pool Information Network (VPIN) site tour of the ODOT Vernal Pool Mitigation and Conservation Bank (VPMCB). The tour was attended by staff from the Service, RVCOG, BLM, SOLC, private contractors working on local vernal pools sites, and neighboring landowners. The tour focused on three recent restoration actions: prescribed burning, oak thinning, and restoration of vernal pools.



Photo of the tour group at the ODOT bank site. Photo taken by Keith Perchemlides, TNC.



Photo of Paul Benton (ODOT) talking with tour group regarding the prescribed burn preparations at the ODOT Vernal Pool Conservation Bank. Burn area and piped irrigation canal is in the immediate background. Note manhole cover to left of Paul Benton. Photo taken by Craig Harper.

### **Management on the ODOT Conservation Bank**

*Paul Benton from ODOT, Keith Perchemlides from TNC and Cam Paterson of GeoCascade provided information regarding the conservation bank.*

#### **Overview and history**

- ODOT purchased the 80-acre VPMCB parcel as a mitigation/conservation bank in 2007. The bank is compensatory mitigation for loss of vernal pool wetlands within Jackson, Josephine and Douglas Counties of Oregon. ODOT manages the site to achieve ecological-performance based mitigation credits.
- Ownership of the property has been transferred to TNC to ensure long-term ecological stewardship.
- The property had been grazed through 2007 when purchased by ODOT.
- The parcel has vernal pool and oak woodland/savanna habitat as well as a swale/draw that runs through the middle of the parcel from east to west.
- Restoration actions since 2008 include:
  - Targeted vegetation management to remove specific non-native invasives from the area (e.g. yellow star thistle, curly dock, blackberry).
  - Thinning of oak savanna and woodland to restore open stand conditions.
  - The piping of an irrigation canal through a portion of the property and subsequent restoration of ~50 vernal pools affected by the canal.
  - Mowing of a portion of the area adjacent to the swale for weed control.
  - Seeding of ESA-listed *Lomatium* and *Limnanthes* in selected vernal pool areas.
  - Inoculation of pools with ESA-listed *Branchinecta lynchi* by soil transfer.
- ODOT monitors the area as part of the banking instrument requirements. Results of monitoring determine credit release as well as compliance with compensatory mitigation obligations.



Photo from 2011 during installation of pipeline. Note orange paint line denoting top of duripan layer. The manhole is the same one that appears in the previous picture with Paul Benton. Photo taken by Craig Tuss.

ODOT and TNC are collaborating on adaptive vernal pool, oak, and prairie restoration on the VPMCB using innovative tools and methods. In interrelated projects, they are: using thinning, prescribed fire, and seeding to restore open oak woodland, savanna, and native grassland communities; re-introducing rare and listed species through sowing and soil-inoculum transfer; increasing seed of native and listed species through grow-out of wild-harvested stock; and using LiDAR topographic data, historic aerial photos, and soil-pit sampling to guide earth-moving topographic/hydrologic restoration.

This work is funded by wetland mitigation and seeks to fulfill ODOT's obligation to offset transportation system impacts while meeting TNC objectives for strategic habitat conservation and the Service's recovery goals for vernal pool ecosystems. An interagency team from the Service, Oregon Department of State Lands (DSL) and Army Corps of Engineers (Corps) provides review. Monitoring shows positive initial results from restoration: return of hydrologic and wetland habitat function, increases in native species cover and diversity, and successful establishment of two federally endangered plants, Cook's desert parsley (*Lomatium cookii*) and large-flowered woolly meadowfoam (*Limnanthes pumila* ssp. *grandiflora*), and a threatened invertebrate, the vernal pool fairy shrimp (*Branchinecta lynchi*).

**Prescribed burn:** ODOT contracted with Greyback Forestry to complete a 143-acre prescribed burn through oak and prairie habitat. Burn objectives were to remove accumulations of grass and oak leaf litter, kill invasive grasses and their seed, and prepare a seedbed for follow-up sowing of native grasses and forbs. Greyback completed construction of a full-perimeter fire line and 50-foot wide blackline burn on the unit's southern boundary, but the main burn was cancelled due to high-risk weather conditions. A fall burn is now planned. Paul discussed the logistics and planning of setting-up a prescribed burn; challenges of cost, safety, liability, and limited opportunities. The group discussed the role of prescribed

fire in restoration, its limitations relative to mitigation timelines, and possible alternative or complementary treatments such as mowing, grazing, and herbicide. We reviewed the burn objectives as a group and walked the burned blackline to informally assess fire effects on-site.

**Vernal pool restoration:** In 2011-2012, ODOT, TNC and consultant Cam Patterson worked together to complete topographic restoration of approximately 11 acres of mounded vernal pool landscape on the VPMCB. Prior leveling and construction of an active irrigation ditch through the area caused heavily impacted hydrology and loss of vernal pool habitat and function. Restoration goals were to restore the extent, connectivity, and hydrologic function of impacted vernal pools, and pipe the irrigation ditch; the project also provided an opportunity to restore native herbaceous cover. ODOT, TNC, and Patterson carefully planned and implemented the restoration using analysis of high-resolution LiDAR topography, detailed site-interpretation, intact areas as reference, and interpretation of soils to guide the removal of fill soil from vernal pool basins and re-shaping of upland mounds. ODOT engineers designed a buried siphoning pipe to transport irrigation water across the property below the restored habitat; a special blend of concrete was developed to repair the breached duripan essential to vernal pool hydrology. Earth-moving work was completed by Houshour Construction and ODOT equipment operators working closely with the restoration planners. Following re-contouring, the entire area was sown with habitat-specific native seed mixes, special plots were sown with *Lomatium cookii* seed, and *Branchinecta lynchi* egg-containing soil inoculum was transferred into pools with no prior detections.

Our post-restoration topographic analysis and monitoring show strong initial success from the work: a major increase in the area (30%) and hydrologic function (inundation depth and duration) of vernal pools, strong increase in native cover (>30%) and decrease in invasive cover (~15%) in vernal pools, establishment of 1000s of *Lomatium cookii* seedlings, and an impressive increase in *Branchinecta lynchi* occupancy (more than 60% increase by basin count or area) and abundance. Restoration was not as effective for upland mound vegetation with only minimal gain for native cover accompanied by a counterproductive rise in invasive cover.

The group discussed challenges and tools for restoring native-dominated herbaceous communities in prairie and oak uplands, identifying a lack of knowledge and uncertainty on effective methods as a major limitation for local work. There is a need for the VPIN to play an active role in supporting the development for effective and resource-efficient methods for restoration of native herbaceous communities associated with vernal pools in the Rogue Valley.

**Oak restoration:** From 2010-2011 TNC and ODOT worked with Black Oak Restoration to complete 50 acres of thinning treatment in overly-dense oak woodland and savanna, primarily Oregon white oak (*Quercus garryana*). Historically, fire thinned-out seedlings and maintained open stand structures where oak trees developed large open grown forms valuable to wildlife. Fire exclusion has allowed for in-fill of young oaks, creating dense stands and increasing competitive stress on larger legacy trees that can lower fire-resilience and survival. Increased evapotranspiration in denser oak stands may negatively impact vernal pool hydrology and habitat by shortening inundation periods and filling pools with excess oak litter. Thinning treatments targeted small-diameter oak in-fill and retained all large trees, reducing trees per acre by approximately 60 percent but only lowering canopy cover by about 15 percent. Thinning was varied in intensity and worked with existing stand composition to enhance structural diversity and promote a mosaic of habitat conditions. Contractors removed more than 90 percent of the felled logs as donated firewood, and pile-burned limbs and small-diameter stems. Re-sprouting of oak stumps has been a persistent maintenance challenge; ODOT is experimenting with mechanical stump grinding with encouraging results.

**Future VPIN Site Visits**

In July 2014, The Service provided funding (\$5,000) to RVCOG to convene several more VPIN site visits. RVCOG also has applied for education and outreach funding (\$2,500) from the Jackson Soil and Water Conservation District to augment the Service funding for the site visits. This funding, along with in-kind staff time from RVCOG (\$500) and TNC (\$600) will allow the VPIN to continue site visits and landowner outreach into the fall of 2015.

Future tours that are being scheduled include:

- The Parson's parcel (Wood House) October 2014.
- The TNC's Rogue River Plains or Whetstone Savanna Preserves in early 2015.
- The VPMCB in early 2015.
- J. Herbert Stone Nursery in March 2015.
- Table Rocks (BLM) in late spring 2015.