

RESTORATION: Success could be replicated elsewhere

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For an arid climate and flood plain once dry and barren, the earth showed signs of successful restoration, the result of years of hard work and patience.

On August 9 *The Nugget* was invited on a private tour of the Whychus Canyon Preserve to observe renowned scientist and geomorphologist Dr. Colin Thorne and his team of 15 students studying the restorative progress and condition of the creek. Along with Houston, Brad Chalfant, executive director of the Deschutes Land Trust, partnered in describing the progress and procedures of restoring the historical Whychus Creek on the six-mile stretch of water.

Dr. Thorne, a professor at the University of Nottingham, and his team spent 10 days studying the Whychus' progress and observing the restorative efforts. A leading expert in fluvial geomorphology — the study of form and function and how water affects landscapes — Thorne frequently works on major rivers around the world including the Danube, Mekong, Mississippi, and waterways in New Zealand.

Joining Thorne were 15 early career students from both the University of Nottingham and Portland State University. The majority of the students come from the United Kingdom, with two from China and one originating from the Ukraine. All were invited to Sisters for an opportunity to gain experience, develop skills, and build their resumes.

Whychus Creek provided a canvas for students and members of the Deschutes Land Trust and Upper Deschutes Watershed Council to learn from Thorne and establish steps forward as the process of restoration continues. "It's absolutely critical we take stock of the condition of our rivers and streams and do what we can to restore to have the resilience we need," Chalfant said.

Whychus Creek has seen a number of changes over the years as the Council and Land Trust began restoring it. From purchasing riverfront property and restoring lands, the Whychus has served as a testing ground for repairing what earlier settlers created.

A Troubled Creek

Generations before played a crucial role in the condition of Whychus Creek which led to the need of restoration. In the late 1940s and early '50s, homesteaders redirected the

creek in an act of overaggressive flood prevention and for grazing purposes — which led to altering the natural flood plain by channelization. The result was a dramatic loss of wildlife habitat and essential river biodiversity.

Coniferous ponderosa slowly replaced old-growth cottonwoods as the land began to dry up, and what used to be fertile land slowly lost its ability to hold river wildlife. During the early years, before channelization took effect, Whychus Creek was known to hold some of Oregon's steelhead and salmon populations. Today's Whychus pales in comparison to the old habitat.

Calculating the age of current ponderosas in the river basin, scientists are able to determine the approximate period when the river was redirected and the habitat began to change.

But there's no question how channelization greatly contributed to the downfall of Whychus Creek. The oversimplification of geographically changing the natural flow affected a system far greater than just the fish.

Restorative Efforts

In October 2016, the Deschutes Land Trust and Upper Deschutes Watershed Council began a collaborative effort to restore the natural elements of the creek. Engineers, scientists, and ecologists designed and constructed a new path for the river to flow that would return the natural habitat and the river's natural ecology to a similar state before early channelization. Utilizing old snags and strategically placing obstacles, they were able to design a new riverbed. By

redirecting the water into old flood plains, it would nurture a habitat back to life.

For the entire Deschutes River Basin, including the stretches of Whychus Creek, water quantity and quality have remained issues, Chalfant explained. The effects on wildlife and the river system began to create a cascading effect that was detrimental to fish populations downstream and beyond.

But fish weren't the only wildlife to be effected. Essential microbacterium found in the water and on water surfaces needed to be restored in order for those fish to survive, and everything from the leaves of cottonwoods and the birds in them played a role.

"What we are trying to do is restore habitat for a diversity of species," he said. "It's really focused on the ecological integrity and the function of this habitat."

Houston said that beavers once populated the area and have only since made a return after restorative efforts were made in the Camp Polk Preserve area. He's hoping similar returns will be seen at the Canyon Preserve site as well.

Looking at the Canyon Preserve, both Chalfant and Houston remain optimistic that the return of cottonwoods and the decay of ponderosas show progressive healing. Although the restoration is in its early phases, the Whychus has taken a dramatic turn for the better since its initial restoration in 2016.

Ecology Helps Economy

Restoring the Whychus means more than the regrowth of cottonwoods and return of wildlife; a walk

along the newly formed shores reveals greener trees and dense vegetation, but it don't show the greater impact on people.

The influx of water volume since restoration also plays a critical role in the effects of irrigation. For farms downstream, the Whychus provides life and function to farmland and farmers' economy.

Thorne explained, a restored habitat provides far more than just the sustenance

for a single life form, but also a benefit for a whole system. From fish to irrigation, simply restoring the way of nature can provide greater benefits for the economy.

"You can't neglect ecology for economy," he said. "They play hand in hand, benefiting one another."

Playing a role in community involvement as well, the Whychus has served as an

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