

Beaver Fever

How Spokane's Lands Council is Deploying Nature's Dam Builder to Help Save Water



by Paul K. Haeder

IT'S PRETTY COMPELLING TO HEAR that a Spokane-generated and managed program is catching the notice of scientists and state agency environmental wonks. That is what is happening with a local relocation program called the Beaver Project. This is a story about nature re-invigorating the land that humanity has so deftly razed, dredged, paved over and cemented in.

"I hope people agree to look to nature for low cost and low impact solutions to manage our environment," says Amanda Parrish, one of the Beaver Project's aficionados and leaders. She's had a direct hand in putting those sentiments directly to work in remote forests and soggy riparian areas in our neck of the woods.

Parrish, along with legions of other twenty-something people, seem to be adherents to two apropos axioms representative of this century,

aka, The Twenty-something Century—one generation's commodity can become another generation's environmental mitigation tool or, one generation's solution becomes another's problems.

Case in point: Tens of millions of North American buffalo were slaughtered by white men and millions by Indians throughout the 1800s. It took less than half a century to almost wipe out every wild buffalo. The climate changed, and the presence of several million horses and more cattle on the plains threw foraging competition into overdrive.

Hundreds of species of flora and fauna disappeared. Indian culture changed (or was decimated) as did the grassland ecosystems with the extermination and over-harvesting of that large species, the American bison, once numbering in the tens of millions.

Now go back to pre-Columbian America, and multiply that buffalo number by 15 or 20 for a much smaller species, averaging 28 to 70 pounds, compared to the bison's 990 to 2,200 pound range: More than 200 million of these emblematic critters literally transformed meadows out of forests in what is now the United States. They are the wetlands builders, and in that engineering feat, organic material built up in thousands of valleys. The checkerboard of meadows throughout woodlands habitats was the byproduct of this one species' geo-engineering finesse.

The winter snow pack that melted into spring runoff was stored in the ground and also controlled in slow moving creeks all because of this furry animal.

That was before British, French and other "explorers" came to this continent and found a replacement for their nearly extinct European version of the American species—*Castor fiber*, an animal in huge numbers across the European continent until the beginning of the 17th Century.

Their pelts, or hides, and the felting from the fur, and many more parts of the animal, were exploited, a "resource exploitation" going all the way back to the 12th Century, in Constantinople.

For the United States, and the Pacific Northwest—thanks in part to one innovative restoration and relocation program, called the Beaver Project (or Beaver Solution)—*Castor canadensis*—the North American beaver—might once again play a role in shaping our country's ecological future. In one sense the beaver might be one of our best fighters against the one-two punch of sprawl and climate change. We'll get to that cause and effect relationship in a moment.

Today, the North American beaver is making a comeback of sorts, and for decades now, they've been labeled everything from the most industrious of creatures, to nuisances, pests, all the way to being regarded as remarkable shapers of land and controllers of parts of the overall hydrological cycle. For decades scientists and environmentalists have been espous-

ing the natural and low-impact benefits of beavers introduced in areas to help shape and control water.

We've collectively forgotten that beaver wetlands once shot life into now arid rangelands of the West. Think of it this way—the total land area of the contiguous United States is 2.96 million square miles. And since the European landing and subsequent Westward Ho Diaspora, the beaver population of the United States has dropped to ten million.

With 90 percent of the animal's number reduced, so were the dams they constructed. This near extirpation caused the first major shift in the country's water cycle. Let's follow the numbers—if each of those pre-Columbian beavers had built a measly acre of wetlands, then an area of more than 300,000 square miles—a tenth of total land area of the country—was once beaver-built wetland from sea to shining sea.

Maybe a subtitle to this beaver story should be: "A Beaver Solution for an Age of Sprawl, Population Growth, Climate Change."

"I envision a West where beavers are once more abundant, making our waterways the diverse, heterogeneous systems they are meant to be," wrote Parrish in her work, *The Diary of a Beaver Trapper* as part of *The Beaver Chronicles*, which is housed on the Lands Council's website and printed newsletters.

The 24-year-old Parrish, who grew up in San Diego, ended up in Spokane two years ago, with a degree in environmental sciences from University of San Francisco, to try her hand as an AmeriCorps volunteer attached to the Land's Council, the well-established Spokane-based environmental group dubbed TLC for short.

Now she's leading the effort of live-trapping beaver families, tending to them temporarily in her South Hill yard where she fusses over mothers, fathers and their young with water and fresh cut alder and aspen branches while waiting to get an entire family unit reunited to then be "relocated" to a stream on land at four relocation sites outside of Republic, Chewelah, Newport and Valley.

For TLC, the beaver might indeed assist the



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He's not just cute; this beaver may be the answer to water conservation.



Lands Council employees and Beaver Project's support team help relocate beavers.

non-profit environmental organization—established in 1984 as the Inland Empire Public Lands Council, by Dr. John Osborne—move forward an agenda that includes forest and wildlife habitat restoration and climate change mitigation.

“For me, it’s always surprising how a whole new tool to protect the environment comes about,” says Mike Petersen, the executive director of the Lands Council. He’s been with TLC going on 19 years, from first throwing in as a half-time field organizer, then as fulltime forest watch director and now eight years as executive director.

For Petersen, who has a masters in mechanical engineering from his native Colorado and four years under his belt as a U.S. Navy veteran, the beaver represents efficiency, elegant scaling of a natural solution to man-made problems, and economic incentive to manage and restore land through low-cost and low-impact means. Let’s call this “the natural way” to save water and save money.

“The beaver represents this integration of all the river restoration planting of trees and brush we’ve done at the Lands Council over the years,” says Petersen, emphasizing that from a pedestrian point of view, the beaver should be considered “an inexpensive tool to reconnect streams as part of a working floodplain.”

The Coeur d’Alene Forest District is dealing with major sedimentation problems in Lake Coeur d’Alene coming from an out-of-sync floodplain.

“Beavers are considerably inexpensive when you compare the costs of transplanting a family, say for a thousand or two thousand dollars, versus any mechanical structure solution costing in the tens of thousands of dollars,” he says.

The beaver is more than some iconic animal symbol on Oregon’s state flag or the stuffed Chinese-made toy you get in the airport gift shop. The North American beaver is a linchpin of sorts for that area of ecology called “the edge,” the bountiful and dynamic zone where natural communities meet. In Basic Ecology 101, beaver behavior is broached to illustrate the power of their keystone species status: where beavers build dams, wetlands spread behind them, providing home and food for hundreds of species, from transitory ducks to moose, from fish to frogs.

They actually clear pines and other trees to encourage the growth of the bushes and shrubs they like to eat. With that comes the panoply of flora and fauna. The vegetarian beaver facilitated the birth of fish species throughout the North American continent. Some call this co-evolution, and others refer to it as cooperative relationship.

As an example, if you see a blue heron in the sky, think, “beaver gnawing alder and aspens and damming up creeks and streams for the bird’s very existence.”

For Petersen and the Beaver Project’s main support team, Floridian Joe Cannon, the project’s senior ecologist, and Parrish, project director, the potential for getting some of Washington State’s hydrographic profile back on track rests with the beaver, representing an elegant and obvious “tool” to reverse the trend of lower and summer groundwater levels.

Forget that TLC’s two-year old “beaver project” might be the nexus between environmentalists seeking wild land restoration through battles ranging from outreach, education, lobbying and litigating, which all takes time and money, and the pragmatist politician or developer looking for ways to lower the cost of building and maybe re-imagining human habitat—the city or suburb.

Quite simply, Cannon, Parrish and Petersen attest the

state's 6,000 miles of river and creek systems could be managed by beavers and humans, saving us hundreds of millions of dollars to fund mammoth and expensive concrete dam and reservoir projects.

Castor canadensis builds dams, unlike its European cousin, *Castor fiber*. There is a deeper story to that engineering wonder: behind the dam, water slowly backs up and covers the land. Then comes the more photogenic community of insects, animals and plants, transforming that thin blanket of water into a place of wonder.

American writer, Annie Dillard, wrote about "the edge," as have other writers less well known. I remember spending hours in the White Mountains of Arizona with a small scuba tank and fins, mask and flippers looking at every nook and cranny under the beaver pond. Believe me, it's a riot of teeming life. Ecologically, wetlands are an ecotone—a transition between two highly dynamic, diverse communities. While studying this ecotone, the Biology 101 student will observe organisms native to each overlapping community as well as organisms endemic to the ecotone itself.

It's called the "edge effect" characterized by increased diversity and density at those community junctions. It's what makes wetlands so productive of life.

The beaver's role in this system is to build dams that in turn create wetlands. The beaver with its incisors and tireless industriousness literally creates life by increasing the edge between dry land and water.

Here's what humorist James Thurber wrote more than 50 years ago about modern "man" using the beaver as a gauge:

"One has but to observe a community of beavers at work in a stream to understand the loss in his sagacity, balance, co-operation, competence and purpose which Man has suffered since he rose up on his hind legs. He began to chatter and he developed Reason, Thought, and Imagination, qualities which would get the smartest group of rabbits or orioles in the world into inextricable trouble overnight."

When I visited Joe and Amanda the week



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And they're off!! A family of beavers are relocated into waters where they will not just reside, but also help reinvigorate the land.

before Christmas, in their Saranac (part of the Community Building complex, 25 W. Main) office, they were prepping to head up to Newport for some winter beaver observation, on property owned by TLC's own Debbie Boswell and her husband. Parrish, Cannon and others relocated a beaver family on this private land, along a section of the two miles of creek running through the ranch.

The Beaver Project is responsible for relocating 28 beavers (four family units) in 2010, and of those, two of the units are maintaining dams. For Joe Cannon, his undergraduate degree in botany from Gainesville and masters in applied science from the University of Oregon didn't prepare him for the captivating nature of beaver life in situ or the quirky beaver behavior.

He's now face to face with North America's largest rodent, but Cannon's always been interested in how beavers have played a role in wetlands and wildlife.

Small eyes make them myopic, and they are pretty much nocturnal. They live four to seven years and have litters of kits, two to eight. They mate for life, and the females are a bit bigger than the males. Cannon is interested in the flow regimes and timing of water.

Parrish rattles off all sorts of factoids concerning the beaver's habits and habitats, having spent time in and around her eight by eight foot holding pen tending to three-a-day watering and just general observation of the beavers as an entire family unit is reunited and then relocated and released in unison.

Statewide beaver relocation legislation is now dependent upon the Beaver Project's findings, and Cannon and Parrish are writing reports right now that will be delivered to various experts in the state's departments of Fish and Wildlife and Ecology. The two former AmeriCorps volunteers now are Lands Council staffers who presented their Beaver Project's

findings in February in Oregon, at the Canyon-hill beaver conference.

The title of their presentation says it all: "Beaver: Restoration and Community Development." **S**

For more information, visit the Lands Council at <http://www.landscouncil.org/beaversolution/>. April Showers, The Lands Council's 16th Annual Dinner & Auction will be held Saturday, April 16th, 2011, at The DoubleTree Hotel. For more information, contact www.landscouncil.org or (509) 838-4912

Paul Haeder has been a newspaper reporter in Arizona, Texas, New Mexico, Mexico and Spokane. He works as a sustainability expert for Down to Earth Northwest and teaches writing at Spokane Falls Community and hosts a weekly radio show, *Tipping Points: Voices from the Edge*.