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October 28, 2015

Restoring Ecosystems with Nature's Hydrologists: American Beavers



Via Flickr

Aside from the fact that they are obsessed with building dams, what is there to know about beavers? Apparently, quite a lot. The North American beaver, *Castor canadensis*, has a tremendous influence on the watershed ecosystem it inhabits. From stabilizing nitrogen concentrations in streams and rivers, to reducing soil erosion, to improving native fish populations, these strategic mammals could play an integral role in rebuilding

Featured Event

An Evening with Water Scientist Michal Kravcik

degraded watershed ecosystems across the country.

In Washington state, more than 300 beavers have been relocated into the headwaters of the Methow River system, which converges with the Columbia River, in an effort to restore damaged watersheds. The [Methow Conservancy](#) is one organization working to reintroduce beavers. Its stewardship director, Heide Andersen, comments on the significance beavers have on that ecosystem, saying, "Beavers impact almost every aspect of the watershed. They lower stream temperatures, retain sediment, create refuge for fish, and create groundwater percolation that reappears downstream later in the year." When beaver populations decline significantly, the impact can be quite pronounced. "When beavers disappeared, streams became channelized, we lost our flows earlier in the summer, and temperatures went up."



Photo by Rusty Cohn

From the early 19th century to the late 20th century, between 48 and 64 million acres of wetlands were converted to dry land--a trend that is directly correlated to the decline in the American beaver population. They were nearly hunted to extinction for their pelts, meat, and castoreum, a highly valued food additive. But they survived, and currently their population stands between 6 and 12 million. Now researchers are finding that beaver ponds can help to stabilize nitrogen concentrations in streams, and interest is growing in working with these natural engineers to restore degraded watershed ecosystems.



Please join us on for an evening with Slovak water scientist Michal Kravčik, author of "A New Water Paradigm," Goldman Environmental Prize recipient, and chairman of NGO People and Water.

Check out Michal's [Global Action Plan](#) for the Restoration of Natural Water Cycles and Climate

When

Thursday, October 29th, 2015
at 6:30 P.M.

Where

MIT, Building 4, room 149 (4-149). Cambridge, MA.

Fees

Free

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Beaver dam across Susie Creek in Nevada.
Photo by Bryce Gray

Nitrogen is a basic element of life and essential to the process of photosynthesis that enables plants to provide food for us. But when industrial-scale agriculture uses too much nitrogen fertilizer, the excess often runs off into nearby streams, where it creates a boom in the algae population. Algal blooms reduce the oxygen concentration of the ecosystem, killing off fish and other native species. This deadly chain of events can proceed from stream to river to parts of the ocean, generating "dead zones," where depleted oxygen levels are too low to support life. Biologists at the University of Rhode Island found a positive relationship between streams with reduced nitrogen levels and the presence of beaver ponds upstream. The ponds slow down river water, allowing it to incorporate more organic matter, which then transforms nitrates into nitrogen gas. The gas bubbles to the surface and reenters the atmosphere. This "denitrification" of the streams caused nitrogen levels to drop a whopping 45% in some cases.

As scientists and land managers learn more about the role beavers play in their habitat, they are increasingly eager to work with the animals to restore degraded landscapes, particularly in areas where beavers once thrived. Projects like that on the Methow River are already underway to [store precious water resources in California](#), to [restore salmon populations in Oregon](#), and to [recolonize streams in northern Nevada](#).

-Jacqueline Sussman

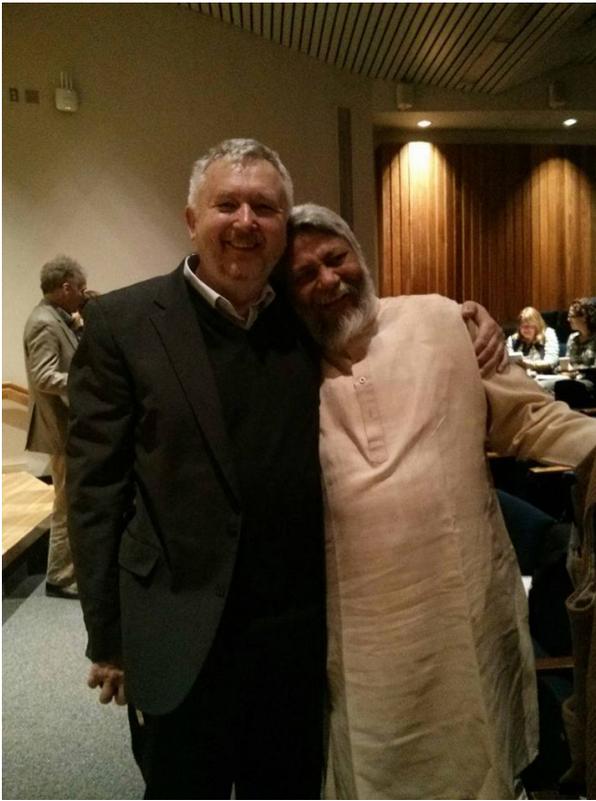
About BLC

Our mission at Biodiversity for a Livable Climate is to mobilize the biosphere to restore ecosystems and reverse climate change. Our primary project is to re-direct the mainstream climate conversation from an almost exclusive concern with atmospheric carbon to encompass the entire carbon and water cycles and the regenerative role of biology.

Learn more about our ongoing projects, upcoming events and find additional information and resources at bio4climate.org.

Thank You!

To all attendees and speakers of Restoring Water Cycles to Reverse Global Warming Conference at Tufts University



Thank you for being part of this extraordinary weekend conference! Please spread the word about the new water paradigm and share with others the hopeful potential of eco-restoration to heal and restore our planet.

Stay tuned for a recap of BLC's most recent conference in our November newsletter issue!