Bradford Beck Bulletin 21.12.12

BRADFORD BECK PROJECT

Monthly Bulletin – November/December 2012

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1. Bradford Beck Catchment Management Plan: Midwinter solstice - December 21st 2012

Firstly we would like to send warm seasonal greetings to all of our supporters, colleagues and wider contact network. This year has flashed by with a multitude of different activities and public events, and we are very pleased with the progress that the Bradford Beck catchment pilot project has made. We anticipate the completed version of the catchment management plan will be launched in early February – so more details will come through on that early next year.

We would like to say a big thanks to everyone who has contributed to the project thus far – through input at consultations, volunteering, and in all other forms. The document we are now working on couldn't have happened without your collective input! We look forward to continuing this process and the trajectory of improving the Beck into 2013.

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2. The reality of climate change – cascade effects in ecosystems

A new report documents how climate change is already causing rapid, massive changes with "cascading effects" on ecosystems and biodiversity. The report (pdf available), led by the US Geological Survey, the National Wildlife Federation and Arizona State University, foresees a global loss of biodiversity and major shifts in ecosystems. "These geographic range and timing changes are causing cascading effects that extend through ecosystems, bringing together species that haven't previously interacted and creating mismatches between animals and their food sources," states Nancy Grimm, a scientist at ASU and a lead author of the report.

For the rest of the article go to: http://www.commondreams.org/headline/2012/12/20

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3. Rescuing Ecosystems

Today, approximately 70 percent of the world's ecosystems have been altered to some degree, and the whole Earth may be approaching a tipping point toward an uncertain regime as a consequence of the accelerated global loss of biodiversity and ecosystem functionality. Ecosystem restoration and creation is necessary now more than ever before to slow and, where possible, reverse that loss. But devising successful restoration strategies can be tricky. Following ecosystem restoration, it may take many decades or centuries for damaged ecosystems to recover the structure and functionality they had prior to degradation. For example, in five depressional wetlands in the state of New York, only 50 percent of their organic matter was recovered 50 years after they were restored. Similarly, artificial ecosystems take just as long to resemble the selected reference systems its engineers are trying to recreate.

Some restorations and creations fail altogether, such as wetlands that end up dominated by invasive reeds or prairies where focal threatened species do not reestablish. In cases of success, some components, like highly mobile vertebrates, recover or re-assemble faster than others, like plants, which can affect the speed and trajectory of ecosystem recovery or development. Other factors, including the type and duration of the original cause of degradation, can further complicate the project, and ecological constraints, such as climate, hydrology, and organismal and plant-soil interactions, can also steer the trajectory of ecosystem development. The problem today is that we lack consistent understanding about how these factors affect ecosystem recovery.

For the rest of the article go to: http://www.the-scientist.com/?articles.view/articleNo/33314/title/Opinion--Rescuing-Ecosystems/

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4. Listen to your River!

When Mark Lorang listens to rivers, he hears answers. The scientist from the University of Montana Flathead Biological Station has spent the last five years studying the sounds of rivers for clues about their physical and biological characteristics. A new phase of his research, made possible with the help of a local technology company, could provide a breakthrough on better understanding river restoration and potentially foretell problems with underwater oil pipelines.
Lorang was first approached about the Sound of Rivers project by his colleague, German scientist Klement Tockner. Though Tockner already had the funding for the project and a graduate student for Lorang to work with, Lorang was skeptical. He worried they would only hear white noise, but Tockner assured him there was more to it. "I said, 'Klement, you are nuts, but I'll try and see if your student is any good,'" Lorang says. Swiss graduate student Diego Tonolla turned out to be great, and Lorang was in.

That was five years ago. Since then, Lorang, Tonolla, and Tockner have developed ways to record and listen to river sounds using hydrophones. What they've found is that not all moving water sounds the same, and the different sounds reveal important details about how the river works. "The water is trapping air and creating sound that way," Lorang says. "It is moving sediment in different areas and creating sound, and hence each little environment has its own little soundscape." Among other things, Lorang is attempting to use these different soundscapes to quantify and monitor how sediment moves through the water.

At any given time, a river takes sediment from one bank and deposits it on another. Depending on the season, the amount of sediment moving in the river changes. For example, think of the difference between the Clark Fork now and when it turns muddy in the spring. Lorang monitors the sediment transport because of its effects on aquatic and riparian habitat. One new technology may change how Lorang collects his data. He's buried highly sensitive fiber optic audio cables beneath the Nyack Floodplain of the Flathead River to record its sounds.

For the rest of the article go to: http://missoulanews.bigskypress.com/missoula/tuning-into-rivers/Content?oid=1692012

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