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# Coca-Cola Leaves It to Beavers to Fight the Drought

The soft-drink giant is deploying the dam-building animals to replenish groundwater supplies.



*(Photo: Flickr)*

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SEP 23, 2015



Erica Gies is an independent journalist who writes about the core requirements for life—water and energy—from Victoria, British Columbia, and San Francisco.



What do **Coca-Cola** and **beavers** have in common? It sounds like the setup of a bad joke, but the fates of beavers and bottlers look increasingly intertwined. Coke is funding the deployment of beavers in the United States to build dams and create ponds that can replenish water supplies for local ecosystems and, ultimately, people.

Coca-Cola received a ton of bad press a decade ago for drawing down groundwater near one of its plants in India, depriving local farmers of water for their crops. Funding beavers' work is part of the company's commitment to replenishing the water it consumes.

Coke is not alone in employing Mother Nature to increase water supplies. In 2013, governments, businesses, and donors invested \$12.3 billion in nature-based solutions to protect and restore watersheds across

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an area larger than India, according to a report from Ecosystem Marketplace, a nonprofit organization that tracks environmental markets.

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Ancient wisdom about water cycles is resurfacing, acting as a counterpoint to the “[engineer into submission](#)” mentality that marked much of the 20th century.



The National Water Authority of Peru, for instance, has approved spending \$23 million on so-called green infrastructure. [Projects are likely to include](#) the repair of a 1,500-year-old water management system created by a pre-Incan civilization called the Wari. Canals etched into the Andes Mountains siphon off river overflow in the wet season. Over several months, the water filters down through the mountains and emerges from springs during the dry season. By repairing the Wari’s work, the city of Lima would cut the its dry-season water deficit by [up to 40 percent](#). Another proposed project would restore high-altitude grasslands that were degraded by excessive animal grazing.

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Chinese government agencies ponied up the lion’s share of the billions of dollars invested worldwide in natural watershed projects in 2013. For example, two-thirds of the Miyun watershed that supplies Beijing lies in neighboring, poorer Hebei province. To protect the Miyun watershed, Beijing Municipality channeled more than \$103 million between 2000 and 2014 to local governments in neighboring rural areas, reforesting 119,000 acres of land and compensating local farmers for reducing water and fertilizer use over 255,000 acres.

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Coke's deployment of engineering rodents has a similar goal: getting water into the ground. Before Europeans' arrival on the continent, beavers lived in nearly every headwaters stream in North America, and they shaped the continent.

“They were everywhere and having a huge impact on the landscape and the hydrology,” said Frances Backhouse, a Victoria, British Columbia-based author whose book *Once They Were Hats*, about the history and environmental role of beavers, will be published Oct. 1.



(Photo: Courtesy Coca-Cola)

“Beavers mean higher water tables and water on the landscape throughout the dry seasons as well as wet seasons,” she said. They are, according to Backhouse, “the only animal in the world that can rival us in terms of engineering the landscape.”

When beaver hats came into vogue, that all changed as the

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animals were slaughtered for their fur. By 1900, beaver numbers had plunged to less than 1 percent of the historical population, said Backhouse. Without beavers, water moves to the ocean more quickly, scouring streambeds and limiting opportunities for surface water to recharge aquifers.

Beaver removal “really altered the plumbing of the Western United States,” said Kent Woodruff, a biologist with the U.S. Forest Service who works on beaver restoration. “By putting beavers back, we’re slowing water down, making our streams messier.”

Burgeoning human populations and climate change are also depleting water supplies. That’s a problem for corporations like Coca-Cola.

“Water is incredibly important to Coke,” said Jonathan Radtke, the water resource sustainability program director

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for Coca-Cola North America. “It’s the No. 1 ingredient in everything we make.”

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Radtke said the episode in India a decade ago increased the company’s consciousness about water security.



[Coca-Cola in 2007 committed](#) to replenishing water in local ecosystems equal to the [amount](#) of its beverage



volume by 2020. Coke produces about [40 billion gallons](#) of drinks annually worldwide. It uses an additional 41 billion gallons in production, most of which ends up as wastewater that is cleaned and returned to nearby lakes and rivers.

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To meet its goal, Coke has invested \$100 million since 2010 in more than [200 community water projects in 61 countries and territories](#). Coke also supports projects that improve safe water access for local people. In North America, it has partnered with the U.S. Department of Agriculture, the U.S. Forest Service, and the National Forest Foundation to fund more than \$1 million in water-related projects annually.

The funding repairs stream crossings and restores streams damaged by wildfires in California, New Mexico, Illinois, Michigan, and Colorado. It is helping to pay for [the beaver project](#), which seeks to boost water retention in the Upper Methow River watershed in the Okanogan-Wenatchee National Forest in Washington state.

Natural solutions such as deploying the beavers are a good

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value, said Radtke. An earlier project in the Sierra Nevada used heavy equipment to install a series of plugs to contain water so it could seep into sediment. “It was fantastic,” he said. “It was working. But it cost hundreds of thousands of dollars.”



(Photo: U.S. Fish and Wildlife Service)

The Upper Methow Beaver Project, a joint effort of five organizations, accomplishes the same thing for less. Coke’s investment in the project in 2014 was around \$40,000. Total project cost for that year was **\$271,000**.

“It turns out that beavers work cheaper than big, heavy, yellow equipment,” said Radtke.

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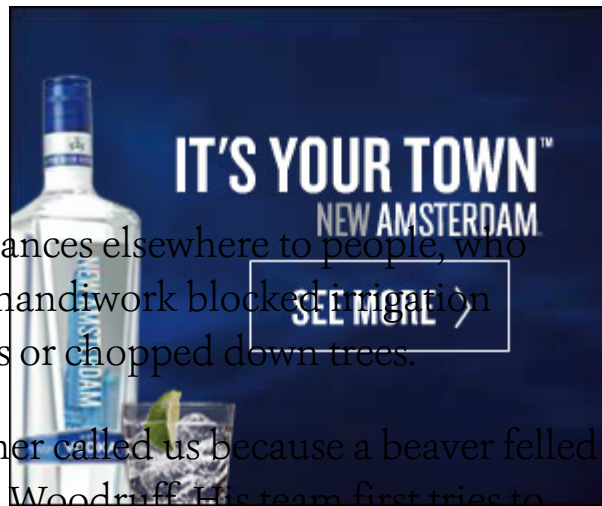
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Methow project a reform school for beavers. The animals deployed there had become nuisances elsewhere to people, who complained that their handiwork blocked irrigation ditches or road culverts or chopped down trees.



“In one case, a landowner called us because a beaver felled a tree on his boat,” said Woodruff. His team first tries to solve the problem and leave the beavers in place. If that’s not possible, relocating them is preferable to killing them, he said.

Beavers typically work together, so “we try to catch them in family groups,” Wooruff said. At the holding facility, single beavers are allowed to mingle to form a breeding pair before deployment. “They show us they’re compatible by sleeping in the same house together,” he said.

The beavers’ stint in the holding facility also allows them “to disassociate from the place where they were getting in trouble,” said Woodruff, and makes the grassy meadows where they are released particularly attractive. “They say, ‘OK, this looks like a much nicer place to set up shop.’”

Before the beavers are released, a human team goes out to the site and builds them a starter lodge for protection from predators such as mountain lions and wolves.

Construction really gets under way, however, after the beaver team is delivered. When Woodruff visits a beaver team in the spring after a fall deployment, “we’ll find a

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dam three to four feet tall and 50 feet

wide,” he said. “It’s awe-inspiring that one of our native animals can accomplish so much within a few months.”

In 2014, the project released 38 beavers to 13 sites and counted eight successful lodges, home to two to four beavers each, said Radtke. Some animals were lost to predators or other natural factors.

The term “busy beaver” is accurate, said Backhouse, who has observed them in the wild, “but busy in a calm way. They’re lovely to watch. They have this kind of steadiness about them. They’re very determined.”

The trickle-down effects are equally dramatic. The average beaver pond covers about a half acre, recharging underground reservoirs with 6 million gallons of water annually, according to a Coca-Cola-commissioned study by LimnoTech, a water sciences consulting firm based in Ann Arbor, Michigan.

Beavers can help counteract the loss of water storage as the Western snowpack melts owing to climate change, said Woodruff.

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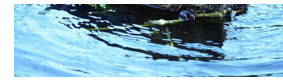


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Beaver ponds also clean water because they hold it long enough for it to filter into groundwater, a process that naturally purifies it, according to Backhouse. The ponds are important habitat for other species, such as salmon.



### The Latest Climate Change Threat: Beavers

The animals also have the potential to be a renewable resource, points out Radtke, if they settle in and reproduce: “Whenever you establish these colonies, the hope is these dams will grow and continue to expand, and they’ll do that on their own. By making this investment now, it will turn into more water replenished later.”

Thanks to the beavers, as well as other projects, Coca-Cola is on track to meet its water replenishment pledge by the end of 2015, five years ahead of schedule. Nevertheless, the soft-drink giant hasn’t solved all its water woes: A plant in Varanasi, India, was ordered to close last year after extracting too much groundwater. And its bottled water brand Dasani caught a lot of flak earlier in the year for bottling water from drought-stricken areas of the U.S.

Worldwide, growth in natural watershed restoration is expected to continue, fueled by governments’ desire to secure affordable, clean water.

As for the beavers, they are beavering away, and Woodruff is proud that this work will soften some of the impacts of climate change. “We’re solving important problems one stick at a time,” he said.

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**Raymond Martinez**

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# The Vaccine That Could Save the Tasmanian Devil from Extinction

Twenty captive-bred devils just got released into a national park, where it's hoped a new vaccine will help to save the species from extinction.



*(Photo: Flickr)*



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SEP 30, 2015



John R. Platt covers the environment, technology, philanthropy, and more for *Scientific American*, *Conservation*, *Lion*, and other publications.



The fight to save Tasmanian devils just got kicked up a notch.

Last week, 20 captive-bred Tasmanian devils returned to the wild. And while that may not seem to be much of a population bump, it's a start for the famously snarly marsupials that have been [devastated by a communicable cancer](#) known as Devil Facial Tumor Disease (DFTD).

Since it was first discovered in 1996, the cancer has killed off as much as 90 percent of the animals in many parts of their habitat. With no cure in sight, conservationist resorted to rounding up hundreds of disease-free animals from the wild, where they were placed in safe [captive-breeding programs](#) located far away from the possibility of infection.

Over the past few years, scientists have worked around the clock to figure out how to save the animals, and this

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release could be the starting point: Not only are the devils disease-free, they are the first recipients of a new vaccine which may prevent them from catching DFTD from other wild devils.

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The 20 inoculated devils have been exposed to DFTD in a laboratory setting, after which they produced an immune response—an indication that the vaccine may be effective against the disease.

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“This is an excellent outcome, but the real test will be determining whether the vaccine is effective in protecting devils in the wild,” immunologist Greg Woods of the Menzies Institute of Medical Research at the University of Tasmania said in a [statement](#).

Captive-bred devils have been released in the past, but only into regions that do not contain any others of their species. This time, they’ve been [released](#) into Narawntapu National Park in Northern Tasmania—an area that contains wild devils known to carry the disease.

The relocated devils benefitted from the work of Elizabeth Reid-Wainscote, an American intern on the ground in Tasmania who is being supported by San Diego Zoo

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Global. “She’s a behaviorist,” explained Bob Wiese Ph.D., director of living collections for San Diego Zoo Global. “What she’s been doing is kind of forewarning the wild animals out in the national park that new devils are coming.”

To accomplish that, Reid-Wainscote scattered the captive-born devils’ scat around the park in the weeks prior to the release. This allowed the wild devils to get used to the smell of the new arrivals so they would not perceive them as threats. The presence of the newcomers’ own scent also made the park feel more welcoming to them when they were released so they would be more likely to stick around and not disperse away from the park.

Now that the release has taken place, the devils will be checked on several times over the next 12 weeks. “They’ll be looking to see whether they’re surviving and finding enough food and prey to eat, and if they are being infected by the disease out in the wild,” Wiese said. If the immune response does not remain active, the animals could receive a booster shot to enhance the vaccine’s effectiveness.

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“The

disease has knocked the devils down quite a bit, which has

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caused all of their prey species to increase, which affects the environment in all kinds of ways,” Wiese said. “It’s like a chain reaction. One of the ideas is if you get additional devils back out there, can we raise the density of the devils and restore the natural balance.”

The release of disease-free devils is admittedly risky for the animals, but Wiese said it’s also necessary. “The whole point of breeding the devils and maintaining the insurance populations is so you can put them back out in the wild. At some point you’ve got to take that risk.” He equates the process with similar captive-breeding and release work with species that have been saved from extinction such as the [California condor](#) and [black-footed ferret](#).

Although Tasmanian devils have suffered terribly over the past 20 years, Wiese said it looks like the work that’s been done to fight the disease to date is starting to pay off. “I think maybe we’re starting to turn the tide against this thing,” he said.

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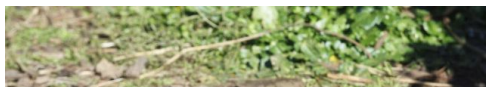
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