Beaversprite

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Owen Brown

Sharon Brown looks for the first beaver of 2013 as ice thaws near a lodge in the foothills of New York's Adirondack Mountains. An insert photo to the right shows that one did emerge!

International Beaver Day, April 7!—see page 2

Renewal Time for 2012 Members ("12" next to name on label)

Working for Wildlife, Healthy Ecosystems and People

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BEAVERS: WETLANDS & WILDLIFE

Carrying on the Work of Dorothy Richards Since 1985

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President's Message

I can't believe that it's RENEWAL TIME again!! Yes, Spring has sprung and it is time to renew your membership to BWW. Every one of your $s go to beaver education and solving beaver/human conflicts. No high-paid staff. In fact, no one who works for BWW gets a salary and even the Board of Directors have up-to-date memberships.

Well, what about the "Wildlife" in our name? By saving beavers and wetlands we are automatically helping dozens of other species: aquatic, semi-aquatic and land animals like raccoons that depend on wetlands for food and water. Oh, did I mention all the waterfowl and the deer, bear and coyotes we see at our own sanctuary's two huge ponds? If you would like to come to our 300-acre Wildsprite Sanctuary to visit wetlands and see wildlife, we welcome BWW members.

We have a 40-acre wetland to the north and a 60-acre wetland to the south. Our house is on a ridge between the two. We live approximately five miles by road, and two miles by raven, from Dorothy Richards' house, which can be seen by prior appointment while visiting Wildsprite.

Kesha as a kit at Fellow Mortals.

Happy Ending!

We had mentioned that Wisconsin rehabber Yvonne Blane of Fellow Mortals rehab center was seeking a safe release area for two beavers in the Spring 2011 *Beaversprite* (a photo of Kesha and Penn on page 2 of that issue had the caption: "Couple seeks a wilderness home").

Kesha had a rocky start when she and three littermates were delievered by Caesarean section just before their mother died. Only Kesha survived. Luckily, she had fine care at Fellow Mortals for her first two years. See how Kesha and her mate are faring now on page 16.

Surrogate Beavers?

U.S. Fish and Wildlife is going to select a few good species to have priority for conservation because they protect habitat for many other species. Such "surrogate species" will serve as tools for monitoring the wellbeing of ecosystems too.

The beaver has already been listed in some national parks as an "indicator species," a type of surrogate species, because they build dams and wetlands that benefit so many other plants and animals—including humans. Besides improving biodiversity, the beaver could qualify as an "umbrella species" to delineate areas that need protection and as a "flagship species" to attract widespread sympathy for nature.

BWW is submitting comments to promote the beaver as a surroagte species, and you can too. Use the form at http://www.fws.gov/landscape-conservation/public-comments.cfm or submit your comments here mailto:shc@fws.gov.

For Beavers and All,

Owen

Celebrate International Beaver Day on April 7!

To help celebrate International Beaver Day this year, BWW will email "Beavers—Ecological Engineers," a new PowerPoint program, to you for free. Just let us know about your plans to show it to a club, a class or other group, on April 7th or later in that month. Most libraries now have Digital projectors to show such programs from laptop computers. BWW's website gives much beaver information for background with the program.

Or, if you'd prefer, go to BWW's website to purchase one of our DVDs. For example, recently a new member from Minnesota bought our DVDs and told me he plans to show one on International Beaver Day (we have both the special edition and Teachers edition of "Coexisting with Beavers," plus our new "Meet the Beaver" DVD). We'd love to hear from you after your event too.

News & Alerts

Cleaner Air For All

A new air pollution rule will require ships navigating the coasts of the U.S. and Canada to significantly reduce their emissions. The North American Emission Control Area will prevent tons of harmful pollutants from entering the atmosphere from ships' smokestacks. Many of these air pollutants, like particulates and smog-forming compounds, significantly impact the health of coastal communities— and travel hundreds of miles inland.

This is the first time that many ships in U.S. waters will be subject to strong air quality protections. EPA estimates that 12,000 to 31,000 premature deaths will be avoided each year by 2030 thanks to the ship pollution limits. Unfortunately, there is an aggressive lobby to weaken the new safeguards. Friends of the Earth says: **That's where you come in. Can you sign our petition to EPA Acting Administrator Perciasepe and Secretary of State Kerry and urge them to protect the Emission Control Area -- and the air we breathe -- from attacks by the cruise industry?**

NY Fracking Stopped

New York's Governor Cuomo recently announced a two-year moratorium on fracking. Senator David Carlucci said that both an Environmental Protection Agency study and a Geisinger Health System study should be completed before hydrofracking moves forward in New York. "We believe that these studies, particularly the Geisinger study, will be of utmost importance if fracking is decided to move forward," Carlucci said, "and that these regulations should be the strongest and the strictest in the nation to protect the health of all New Yorkers. That is the bottom line."

New Beaver Program

April 10 BWW Annual Meeting

Susan Hendler will give her new multimedia program about Beavers, on Wednes. April 10 at 6:30 pm at the annual BWW meeting in the Community Room of the Little Falls Library 10 Waverly Place, Little Falls, NY). Her information-packed program includes great photos of beavers and other wildlife, such as a nest of great blue heron fledglings, plus exciting footage of a beaver confronting a moose.

Because Hendler has always been interested in beavers, she worked with Beavers: Wetlands & Wildlife as part of her coursework for an MS in Environmental Science at Green Mountain College. She's been a Registered Nurse for thirty years, but says, "my true love is Nature. I have also been a licensed outdoor guide for 15 years, which has given me the opportunity to share my love of Nature with others."

Hendler lives in the Adirondacks, where she often hikes to a beaver pond. This winter she heard the

paddletails talking inside their lodge.

All are welcome to attend this event, where there will be a brief business meeting and refreshments will be served. You can enter the library by going through the main entrance on Waverly Place or by directly entering the Community Room from East Main St.—see directions at http://www.lflibrary.org/library-information-history-2/directions/. Don't miss this engaging speaker who is passionate about beavers.

Ban N.C. Hunt Pens

Trappers in North Carolina are currently allowed to take injured foxes and coyotes from traps and put the injured animals in fenced "hunt pens." Then packs of dogs are allowed to chase and kill them.

Florida has banned this cruel practice, but about 150 hunt pens still exist in North Carolina. To sign a petition to ban them, go to:

http://www.change.org/petitions/prohibit-fox-coyote-pens-in-nc.

In addition, the website of Rise NC (www.risenc.org), a new coalition of state organizations, has links to this and other wildlife petitions, including one to ban inhumane roadside zoos.

New NY Snare Bill

A "live release cable restraint" (snare) bill has arisen in the NY senate and assembly. Despite the new language, S548a and A4023A would allow cheap, indiscriminate snares to litter the landscape, and endanger many nontarget wild animals as well as pet dogs.

These bills target coyotes and require a "relaxing lock" to be used. This is a misnomer, however, as this lock moves only in one direction, according to the Ohio Snaring Guide that explains, "This is what keeps the animal from backing out of the snare."

Because snares are so inexpensive, it's not unusual for one trapper to put out dozens and there is less incentive to retrieve them all at the end of the season. Please ask your representatives to oppose these new snare bills.

José and Justin Beaver Take the Bronx

Resettling New York City after 200 Years

By Sharon T. Brown

We released a young adult beaver at a small lake in Westchester County, NY in 1996. I was a licensed New York wildlife rehabilitator and beavers were scarce in that area despite some good habitat and wildlife friendly residents. This landowner was a retired scientist who I met while forming a coalition of environmental groups to stop regressive beaver bills. The release site was located about ten miles from the beginning of the Bronx River.

People first noticed signs of beaver along the southern Bronx River in the fall of 2006. Early reports were ignored because muskrats are often confused with their larger cousins and no beavers had lived in New York City for 200 years. But the evidence grew that winter…

Julie Larsen Maher © Wildlife Conservation Society

José was quite young when first photographed in 2007.

Julie Larsen Maher © Wildlife Conservation Society

Almost two years later, José had grown considerably.

Drew Mittiga was teaching a lesson about water quality to a youth group at an isolated site near the Bronx River in the New York Botanical Garden when it happened. Mittiga spotted fresh chew marks on a sycamore and beaver tracks nearby. Because he had spent many summers at a Massachusetts camp where beavers thrived, "I was familiar with the signs."

"Little did Drew know, but the folks at the Bronx Zoo had been noticing something too."

Mittiga reported his find to Damian Griffin, Education Director of the Bronx River Alliance. Griffin recently said, "Little did Drew know, but the folks at the Bronx Zoo had been noticing something too."

Stephen Sautner was strolling along the Bronx River south of the Garden where it flows through the Bronx Zoo when he spotted a muddy pile of sticks on the shore. Sautner, who works for the Wildlife Conservation Society (WCS) that runs the zoo, then told a co-worker that he'd seen a beaver lodge. But ecologist Eric Sanderson was skeptical; he said later, "If you'd asked me at the time what the chances were that there was a beaver in the Bronx, I'd have said zero."

Not until Sanderson (who heads the impressive "Mannahatta" project (see p. 9) for the Wildlife Conservation Society (WCS) saw the lodge, was he convinced that this keystone species had returned. WCS biologists set up some motion sensor cameras to further document the newcomer. History was made in February of 2007 when the film revealed images of a young beaver.

Everyone applauded the flat-tailed youngster as a symbol of the Bronx River's rebirth. Although no one knew the beaver's sex, the WCS nicknamed the historic animal José in honor of Bronx congressman José Serrano. Representative Serrano was a key player in obtaining $14.5 million to clean up the once filthy river. Three decades earlier the Bronx River—the only freshwater river in New York City—had been choked with refuse, including sewage, trash, and abandoned cars. But the waterway was considerably cleaner when José settled there. WCS spokesman John Calvelli said, "It sounds fantastic, but one of the messages that comes out of this is if you give wildlife a chance, it will come back."

The Bronx River was named after Jonas Bronck who settled along its shore in 1639. In turn, the New York City borough called the Bronx was named after the river, according to Damian Griffin of the Bronx River Alliance. He explains, "That's why they call it 'the Bronx'." The river begins in Westchester County, north of the city, and flows south about 24 miles before empting into the East River, a tidal strait connected to Long

Continued on p. 5.

José, *Continued from p. 4.*

Island Sound. The only two large natural areas along the south Bronx River are the NY Botanical Garden and the Bronx Zoo.

A "dark foreign object"

José's fans had a scare in the spring of 2008. New York harbor patrol was checking the East River prior to the pope's visit, when they found a "dark foreign object" in the water. It turned out to be very sick male beaver that was taken to a wildlife rehabilitation center. When the center called BWW a few days later, we recommended a New York wildlife rehabber who has saved many beavers. But this one succumbed to pneumonia. Some feared that was the end of José until fresh chewing marks on riverside willows proved them wrong.

Beavers have lived at isolated sites on Long Island (see "Beaver Blazing a Trail on Long Island," Winter 2011, *Beaversprite*) for years, and the East River beaver, may have come from there. After all, beavers imported to Tierra del Fuego at the tip of South America paddled miles through the oceanic waters of the Strait of Magellan to populate the mainland. But most biologists think José swam south from Westchester County.

Chris Kannon

José emerged from the river to avoid rapids at the E. Tremont Ave. bridge.

Single, but not alone

When a writer for *Outside* magazine staked out José's lodge in June of 2008, he discovered the beaver had a surprising housemate. Not only was a muskrat hanging around outside José's house, he even followed the beaver inside. Earlier, when high waters surged down the Bronx River, the WCS photographer witnessed José and the muskrat perched together atop the lodge.

Beavers are social animals that are known to tolerate other vegetarian species in close proximity, even sharing their food and lodges with muskrats.Dorothy Richards observed this behavior with both wild and in-house colonies. The late biologist/ author Donald Griffin even filmed muskrats mating inside a beaver lodge—while a beaver was present.

On the morning of June 12, 2009, José was spotted paddling upstream a few miles south of the Bronx Zoo, at the top of the estuary. Artist Chris Kannon, who was there to help launch a floating symbol of the watershed's renewal, took photos of the beaver as he paddled upstream. Then José emerged to stroll under the East Tremont Avenue Bridge.

Because the river's salinity at that site can be 8 ppt (parts per thousand), while freshwater is usually < 0.5 ppt, there was initial concern about José's well being. But researchers, such as Gregory Hood, have found beavers feeding in estuarine areas with salinity levels as high as 10 ppt.

Continued on p. 12.

Jim Henderson

A view of the Bronx River where it flows through the New York Botanical Garden..

Mt. Healthy Lives up to its Name

Ohio City explores Coexistence

Karen Arnett, who heads the Urban Tree Commission in Mt. Healthy, Ohio, contacted BWW in January. She said, "There is a constructed wetland here, which fulfilled a state requirement to replace a natural wetland when a highway was extended. It's really not a wetland but more like a pond and constructed drainage. Beavers have taken up residence in the pond, which is exciting to me, but others think it is a nuisance…"

Besides seeking information about which trees beavers prefer, Arnett was concerned about keeping the pond's vertical drain open (see the top photo to the right) because "beavers are putting sticks there to stop the flow."

She added, "Likely very few here have seen beavers, and to have them live in our pond and to have some natural interpretive/educational signage would be my idea of the best outcome."

"The kingfisher was a surprise, as is the great blue heron, since this pond is literally right next to a highway."

Arnett sent nine photos of the pond that showed a partially plugged vertical drain (see the top shot). She spoke with the Ohio Dept. of Transportation (ODOT) engineer who had installed the system, and learned "his concern is only with flooding of the road adjacent, and this is not a pressing problem right now." Plus, "he was open to working in the direction of coexisting with the beaver."

BWW next wrote to the ODOT engineer, saying in part, "First, I commend your work to achieve a long-term, environment friendly solution, which is quite achievable with a few improvements. According to the nine photos I have seen of this site, beavers are plugging the chain link fence immediately around the drain. To eliminate this, I recommend replacing the chain link with large mesh (5" or 6" squares), heavy gauge fencing. Large mesh fencing is often used for beaver cages (or filters) at drains because it collects less debris, whereas beavers can more easily clog small mesh fences..." Along with a few other specific suggestions, we attached a 2006 study about the beaver-proofing of Virginia DOT road sites.

Karen Arnett

Chain link fencing around a vertical drain at the Mt. Healthy pond shows some beaver plugging.

Callery pear trees

Arnett described some trees around the large pond, explaining, "There are a couple of nice young sycamores which I'd like to protect. Surprisingly, the beaver seem to like the Callery pear, which have sprung up in abundance. Since Callery pear species are quite invasive, it could be a good thing to have help with controlling them. It appears that the beavers don't care much for the black locust."

BWW agreed that black locust is considered a deer resistant tree, and that "beavers are herbivores like deer, and tend to prefer similar species."

Beaver Signs

When Arnett gave the Urban Tree Commission's report to the city council in late February, she "was heartened at the responses:

1) the area in question is a wetland, so the beavers belong there

2) we're happy the beavers have moved in."

This round fence of large mesh fencing better protects a vertical drain at another beaver site.

In addition, "The president of the council invited me to write up a blurb for the city's quarterly newsletter, to let the residents know about the beavers." She was given three months to write a very concise statement. "As well, I am encouraged by their response to go ahead and figure out a plan for signage for the park, to educate park visitors (mostly folks who walk around the pond on an asphalt track) about beavers and their ecological benefits. I will see if one of the naturalists from the county park system might help with content."

Continued on p. 7

Mt. Healthy, *Continued from p. 6.*

She later reported that the ODOT engineer in charge of the pond said, the drain protection looks simple, and he is going to bring this up with his boss at the next appropriate meeting... Arnett remarked he was "very agreeable to working in a way that allows the beavers to remain there."

She added, "I especially appreciated the comment toward the end of the [2006] report about the value of beavers in creating wetlands, given the large amount of wetland destroyed in highway and road construction."

"There's an interesting synchronicity with our pond and wildlife. I and a neighbor are noticing more diversity of species since we've started being aware of the beavers' presence. This pond, which was a human constructed waterway, has seemed somewhat sterile, although I admit there've been snapping turtles here for a while. But now we've seen kingfisher, and a great blue heron is spending its time here regularly, and red winged blackbirds . The other day a friend who helped to wrap trees there said it looked like a pair of Canada geese might be getting ready to nest on the dam the beaver have created."

Some kind of magic happening...

"I feel that there's some kind of magic happening. It could be that the beaver's presence is alerting other animals to the pond's suitability, or perhaps the beavers are more of a sign that we humans can read, that the pond has reached some viable state for other species.

Or maybe it's just that we humans are spending more time looking at the pond, now that the beavers are here. I don't know, but it's really interesting how I've lived here in this city for a decade but am only now becoming aware that we have more water oriented species than I've seen before. The kingfisher was a surprise, as is the great blue heron, since this pond is literally right next to a highway. Some kind of magic..."

How Beavers Help Geese Reproduce

By Glen Tickle

A new study done by a team at the University of Alberta shows that the increased activity around beaver damshelps create conditions more favorable for Canada geese mating. Essentially, the busier beavers are, the busier geese get.

The team was led by associate professor Dr. Glynnis Hood, and it looked at data collected at 71 beaver ponds at Miquelon Lake Provincial Park. 32 of the ponds were active, compared to the 39 that were not. The data showed that ice gave way to open water an average of 11 days earlier in ponds that were active. The snowpack in active ponds also averaged six centimeters [2.4 inches] shallower than ponds without beaver activity. It's believed that the heat produced by the beaver activity is what caused these differences.

Why is that important for geese mating? Geese prefer to mate in warmer, more hospitable places — who doesn't? Building a nest near an active beaver pond can give geese a jump start on their mating season because they won't have to wait as long for the ice to melt elsewhere. That can be a big help in the push to raise babies that are able to make the fall migration.

It also helps geese by making it possible to build a nest where land-based predators can't get them, and because other species benefit from active beaver ponds, there is also ample food available. Hood says that besides geese, animals like coyotes, fox, weasels, moose, deer, ravens, and other birds all benefit from the warmer head start provided by active beaver dams. This backs up earlier research that shows beavers are a keystone species that impact their environment to their own benefit and the benefit of other species.

Keep up the good work, beavers.

The author posted this article February 13th, 2013 on http://www.geekosystem.com about the following study:

Bromley, C. & G. Hood. 2013. Beavers (Castor canadensis) facilitate early access by Canada geese (Branta canadensis) to nesting habitat… and areas of open water in Canada's boreal wetlands. Mammalian Biology. 78: 73-77.

This study also found that prior to availability of open water, Canada geese exhibited intraspecific territoriality over beaver lodges as nest sites. Once water was present, the geese preferred island lodges over bank lodges.

These findings support other studies that examined island nesting as protection from terrestrial predators and highlight the importance of beavers in creating open water areas earlier in the season.

Good News From Unexpected

UNEXPECTED WILDLIFE REFUGE, INC.
Home of the Beaver Defenders
P.O. Box 765, Newfield, New Jersey 08344

By Sarah Summerville

Making tracks

As the old adage goes, take only pictures and leave only footprints. Recently, we got a little snow (far too little for me) - two inches one night, then a dusting two nights in a row with accompanying sub-zero temperatures, so it was a winter wonderland here at the Refuge for a bit. The first week of February lead me down some interesting paths. I wandered out of the house on a frozen morning to briefly check on the wood pile and found myself an hour later deep in the woods following tracks.

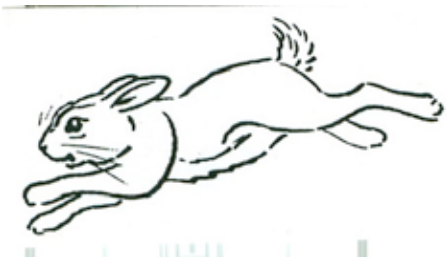
Using my identification books, I read the footprints in the snow like sentences on a page.

When I explain to others the reason the Refuge was created, I often get a perplexed look of disbelief that its primary mission is to "provide an inviolate sanctuary for indigenous plants and animals of the Pinelands." Or something to that effect. Basically, any creature within the boundaries of this haven is safe from persecution of any kind.

What? Just for animals and plants? It wasn't a playground made for humans to use? The by-product of this first function allows well-behaved humans to explore and enjoy the refuge through ***passive*** recreating. Taking only pictures and leaving only footprints.

Being one of those well-behaved bipeds (most of the time) I was delighted to be doing just that in the cold slanting shafts of brilliant morning sunshine. Using my identification books, I read the footprints left in the snow like sentences on a page. They told many different, but interconnected stories of intrigue, adventure, danger and delight, all written by different authors. Time warped as I tried to reconstruct the past.

The clouds pushed through abruptly and under a low leaden winter sky. I walked along a snowy path cradled on one side by a forest of



large, dark bare trees bent protectively overhead, and on the other by soft reddish bushes that fringed the frozen crusty pond. Surrounded by evidence of winter follies and forays, the story was written before me. Rabbit and squirrel tracks interlaced at the trail head where the open grassy slope squeezed down into a moss and snow mottled linear strip. The prints crisscrossed each other in an intimate chain, though the explorers probably never saw each other. As I walked along watching, listening and poking around, tiny sparrows darted in and out of the low, lacy brush along the icy shore, delicately picking hidden seeds from the dry grasses, fluttering and floating just steps ahead of my heavy snow boot pace.

Evidence of a fox appeared on the path from the ice. I followed his tracks back to find that he had come across the frozen pond from the north. Once on the path, he trotted here and there smelling his own story, nosing and digging into the cover, looking at the same tracks that I was now reading —those of his unsuspecting prey; but perhaps they had been onto him the whole time.

It looked like the otter had been playing hockey, slipping and sliding around....

Further down the trail, just before the frozen beaver dam, there was a 12" diameter hole in the ice where an otter had broken through to come topside. The dark water lapped at the jagged edges of ice. The unseen current was swift below me, below the white stillness where I stood. Gazing upstream, I could see other holes, every hundred feet or so, where she had popped up to look around and get air. Her tracks at this hole showed where she had slipped up and out of the frigid water, slid along the snow and glided out onto the open ice. It looked like she had been playing

Continued on p. 9

Good News, *Continued from p. 8.*
hockey, slipping and sliding around on her own personal rink Otters always know how to have a good time.

The path curved away from the open pond, and as it traversed deeper into the quiet forest I met a small flock of gregarious ruby crowned kinglets. Their sweet demeanor allowed me within arm's reach of where they were dancing in and out of the laurel and high bush blueberry plants. Under the protection of the quiet winter woods, I found and followed turkey, raccoon and opossum tracks (which look like little stars). I think, according to the field guides, I followed a skunk for a while, as well as a small herd of very lucky deer who made it through hunting season.

I didn't see that our beavers had been out after that snowfall, but I could see the new sturdy white outline of their homestead far upstream. Local beavers have been busy elsewhere this winter. We were called back to both Wenonah and Haddonfield to consult on beavers damming and flooding conservation areas in the Mantua and Timber Creek watersheds, respectively. Fortunately, after conferring with us, both municipalities have decided to install flow devices instead of trapping out the resident beavers.

Leave only piping

Following the step by step instructions from Beaver Solutions' DVD, *The Best Beaver Management Practices,* the Wenonah flow device was assembled by Jimmy Redmond and taken down into the Mantua Creek floodplain. We quickly discovered why Mike Callahan, of Beaver Solutions, does not install flow pipes in January. We were frozen out (or rather frozen in), and between the frozen creek, rainfall, flooding and tide schedules, and then vandalism, Wenonah's installation has been put on hold indefinitely.

In the meantime, Haddonfield's conservation area at Crow's Woods got their busy beavers back. Several years ago, a damming and flooding problem was solved by extending the length of the wooden boardwalks to accommodate the extra water. But now their new dams are causing problems for a neighboring golf course at the 16th hole pond. We met with the city Commissioners, the golf course and our old friend Butch Brees and came up with a brilliant idea. The golf course will fund a flow device installation in Crows Woods, which will be built and installed as an Eagle Scout project for a Boy Scout in Troop 65. We, of course, will consult. Win, win, win, win, win. I think that's how many wins we get out of this project. I guess in this instance we will take only pictures and leave only piping.

Mannahatta, a Ground-breaking Book

Mannahatta, a Natural History of New York City paints a fascinating portrait of Manhattan in 1609 when Henry Hudson landed. Author Eric Sanderson, a landscape ecologist with the Wildlife Conservation Society, has used ancient maps, along with the latest technology, to reveal how nature once thrived on "the island of many hills."

This is a beautiful book too, with colorful full-page simulations of Mannahattta opposite photos of Manahattan today. Sanderson emphasizes two "landscape species": the Lenape Indians and the beaver. He writes, "It is easy to underestimate the importance of beavers at our current ecological distance, but many problems can be solved through the diligence of beavers." He mentions how beavers "create the ecosystems in particular ponds and the fringing wetlands, that are so important to other species in the near term and to all of us in the long term".

As the author says, "We need a new way to live, a lifestyle that allows us to live within our ecological means…", and this ground-breaking work will surely enlighten and inspire many readers.

The soft-cover version of Mannahatta *comes out this spring.*

Here is part of a chart (p. 189) from Mannahatta, *showing other species and parts of the environment that depend upon the beaver.*

Amazing Beaver Video

See closeup views of beavers working on their house during a thaw along Bow River in Calgary, Alberta at http://www.wimp.com/beaverexperience/. The videographer was lying right on their lodge!

Beavers Bring their Skills to a Kentucky Creek's Restoration

By James Bruggers

Beavers are adding a whole new dimension to a pioneering stream restoration project in Bernheim Forest.

Nearly a decade ago, construction crews put the curves and meanders back in a nearly 4,000 foot-long stretch of Wilson Creek that had long ago been squeezed up against the side of its hollow, to make room for farm land. Native trees and wildflowers were planted, and fish populations grew.

Two years ago, beavers moved in and are now putting their own engineering skills to work on the creek. And Bernheim officials couldn't be happier.

"There are not a lot of beavers living in places that let beavers do what beavers do," said Andrew Berry, the forest manager at Bernheim.

The creek now has "incredible biodiversity," aided in part by the addition of new beaver dams that have created a couple of beaver ponds.

The ponds are great for birds, amphibians and reptiles, he said. The area has attracted raccoon, river otters and birds of prey.

I first saw the project nearly a decade ago, when it was under construction and wrote about it this way:

James Bruggers

Today Wilson Creek has "incredible biodiversity."

"In a Bullitt County hollow hidden from highways and towns, scientists are piecing together a Bernheim Forest creek as it existed more than a century ago.

They examined every slope and dip in the soil along the nearly 4,000-foot-long stretch of Wilson Creek - and studied other creeks in Kentucky – before moving even a single rock in the $500,000 restoration effort that's being hailed as innovative in Kentucky.

Today, the Wilson Creek project looks more like a subdivision development than an ecological restoration; earth-moving equipment that dug the new channel scraped the land bare, and workers have dotted the landscape with stakes that mark where trees will be planted, or the boundaries of a researcher's experiment plot."

You see, more than a century ago, Wilson Creek wandered through a 20-acre hardwood forest. But eventually, the trees were cleared and the creek pushed to the edge of the hollow to provide open land for planting crops.

The altered Wilson Creek had functioned more like a swift-moving drainage channel atop bedrock, leaving it less friendly to aquatic life. It also hasn't been restoring nutrients to the hollow's soils.

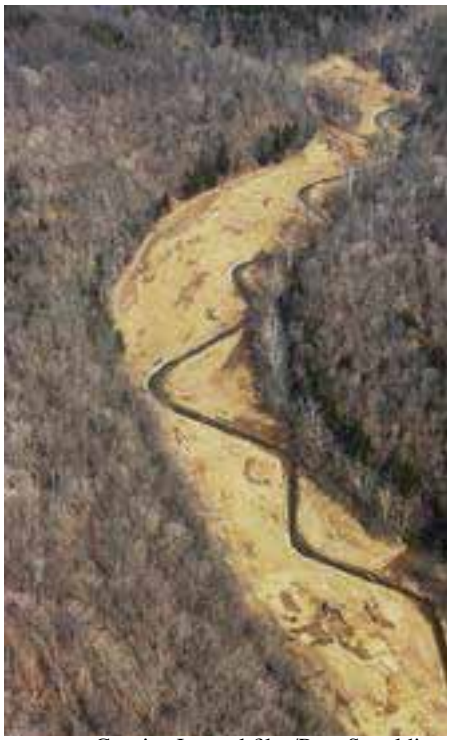
Even Bernheim Forest had prevented trees from returning to the valley for decades by planting corn and other food crops for deer, before deciding a more natural approach would be better.

Now that natural approach is in full bloom, so to speak. The creek has room to spread out, and when it does, it deposits nutrients across the flood plain. Trees have grown tremendously during the last decade, some reaching more than 20 feet into the air.

One of the most striking features is the clarity of the water. I have seen a lot of creeks and rivers in Kentucky, and they often are choked with sediment. This water was clear enough to see a few feet down to the bottom of the beaver ponds.

The project was funded largely with U.S. Environmental Protection Agency money. Work was done by the University of Louisville Stream Institute. The restoration project is in an area that's generally off limits to the public. But Bernheim officials occasionally lead guided walks there.

The author posted the above article on 2/25/13 on an environmental blog of the Courier-Journal, *Louisville, KY. It is reprinted with permission.*



Courier-Journal files/Pam Spaulding.

This is how Wilson Creek looked nearly ten years ago after construction crews restored the stream's meanders.

Doing the Dam Shuffle

By Tamia Nelson

Beaver ponds are among the jewels of the natural world. They're reservoirs, absorbing flood waters during years of heavy rainfall and recharging aquifers during prolonged droughts. They're settling tanks, trapping sediment and releasing crystal-clear water to continue its journey to the sea. They're also home to a startling variety of creatures. Animals and birds are drawn to beaver ponds and the associated wetlands like metal filings to a magnet. And because wildlife love beaver ponds, I love beaver ponds.

There's nothing to compare with a quiet paddle around the perimeter of a beaver pond on a calm, late-spring evening. As the sun sinks below the horizon and you drift silently through the lengthening shadows, the pond comes alive. Frogs begin their raucous come-hither chorus. Whitetail deer escort their fawns to the water's edge for a drink. Turtles drop with a splash from their daytime perches on partially-submerged logs. An otter tucks noisily into a fish dinner on the top of the dam. Then, if you've timed things just right, a full moon rises over the dark fringe of pines, just as a whole a family of beavers emerges from their lodge, ready to start the night's work.

North America was once blessed with tens of millions of ponds like these. No more. Today there are fewer beavers, and far fewer beaver ponds and wetlands. Happily, though, beaver dams are still a common sight on canoe-country rivers. That's good. But you only get what you pay for. Beaver ponds are a delight, but beaver dams can be…well…a damned nuisance. Dams can be wide or narrow, low or high, but whatever their size, they can be formidable obstacles, particularly if you're paddling a kayak or long solo canoe.

Why do beavers build dams, anyway? Simple self-interest. A dam makes a pond in a river, and the pond makes a moat. Beavers need deep water to survive, and if the water where they decide to make their home isn't deep enough, they'll make it deeper. They're a lot like us, really. They don't accept geography as destiny.

Beavers are eclectic vegetarians. Though they eat buds, leaves, and the roots of aquatic plants, their favorite food is the inner bark of trees. Trees grow on land, but beavers are clumsy once out of the water—all but defenseless, in fact. Water is their element. So they make use of water to float harvested trees back home, even digging canals deep into the forest.

And home for a beaver is usually a hemispherical lodge—a spiky igloo built largely of mud-chinked branches. Surrounded by deep water and thick-walled, a lodge is proof against all but the most determined carnivores. Even bears have a hard time tearing their way into a beaver's house.

Jeffrey M. Dean

A couple carefully lifts their canoe over a new beaver dam.

Lodges vary in size, but they all look more or less the same. Debarked limbs are smeared with mud and woven into a dome whose base rests on the bottom of the pond. The roof rises above the water. Sometimes pebbles and cobbles are incorporated into the walls, further strengthening the structure. An underwater entrance leads through a short tunnel to a snug, dry platform. This is the heart of the lodge. While beavers will spend hours at a time in the water, they need a place to dry off, groom, and oil their fur. If they get soaked to the skin, they can contract pneumonia.

No beaver can afford to get sick. Beavers are busy year-round. They don't hibernate. Before winter locks their pond in ice, they store food—the branches and trunks of trees, with the leaves and bark still attached—in underwater caches near the lodge. Beavers can hold their breath for up to 20 minutes. So all winter long, they swim about under the ice, inspecting their dam and fetching branches back to the lodge for a hearty meal.

"Inspecting their dam"? Why bother? Self-interest again. Winter or summer, the dam's important. It keeps the water level in the beaver pond constant: high enough to conceal the entrance to the lodge, but no higher. The thick-walled, water-girt lodge is also climate-controlled. Cool in summer, it's toasty warm in winter. So comfortable is a beaver's lodge, in fact, that the neighbors sometimes move in. Muskrats often set up housekeeping in odd corners, where they're tolerated so long as they don't become a nuisance.

Over thousands of years, beavers have left their mark almost everywhere in North America. In a sense, they were the continent's premier landscape architects—until we came along, that is. The dam was their principal tool in reshaping the land.

Beaver dams are built from the same materials as the lodge. And when pioneering a new homestead, the dam is constructed first. Using materials drawn from the "closet of the woods," beavers span a stream and raise a dam. They're good engineers. Their dams are much wider at the base than at the top, and the larger dams form a convex arc, bulging upstream and efficiently distributing stress—just like the dams built by humans. Not surprisingly, beavers spend a great deal of their time maintaining their dams. If a dam is breached, they'll work round-

Continued on p.13.

José, *Continued from p. 5*

Then there were two…

"We reported the possibility of multiple beaver in August of 2010," Griffin said. "During an evening canoe paddle in search of José, we were surprised to not only actually encounter the beaver but to be witness to the social warning signal of the beaver, the tail slap. A wildlife biologist along for the paddle assured us the slap was to warn another beaver, not to scare us away."

"the gardeners leave piles of prunings along the river banks.... So far the beavers have taken it all."

Within weeks, photos showed "clear proof" of José's companion. This time WCS held a contest for the community to name the new paddletail. Voter options included: Castor, Bobbie, Chompers, Wally (from TV's *Leave it to Beaver)*; and Justin Beaver (after the pop-star Justin Bieber). Not surprisingly, the latter won overwhelmingly.

"We are thrilled to see that the community is embracing the Bronx River and its newest inhabitant," said WCS's Calvelli. "Everyone that lives and works in the Bronx should be proud of the ecological rebound that the Bronx River has made. José and Justin certainly appreciate it."

During the couple's first winter together they surprised neighbors by cutting down five willow trees that were larger than their species was expected to fell. The pair inhabits a two-mile green corridor that cuts through the NY Botanical Garden's Thain Family Forest, the largest remnant of the original woods that once covered New York City.

Jessica Schuler, Director of the Thain Family Forest, first learned about José from the Bronx River Alliance, a nonprofit she calls "the voice of the river." She soon discovered, "The beavers had a lodge on the river bank right in the garden. It was great to see how they cut down the invasive Japanese knotweed around it."

When asked what changes she made to adapt to the beavers, Schuler replied, "The only thing I've done is try to keep the beavers out of the living collection, such as old dogwoods close to the river they were starting to chew. We used hardware cloth to protect them." In addition, "We prune trees regularly in the winter and the gardeners leave piles of prunings along the river banks. They target good beaver food, such as crabapple and birch. So far the beavers have taken it all."

Shuler added, "Last November I took a canoe ride with a handful of my forest staff and Alliance people to look for the beavers. At 4:30 pm we paddled through the Bronx Zoo and were just south of the bridge, still in zoo property when we heard a tail slap. It was right by us. Suddenly two beavers were slapping their tails all around us!"

Steve Zack

A tail slap from a Bronx River beaver is startling!

Future Plans?

When asked about a beaver management plan for the garden, Schuler said, "Eric Sanderson is taking the lead in creating an overall wildlife management plan with partners along the river." WCS's Sanderson led the 10-year Mannahatta project that described Manhattan's ecology in 1609, and he is now expanding this work into the other boroughs with a project called "Weilikia" (meaning "my good home" in the language of the native Lenape). He has said, "My project's purpose is to foster an appreciation for the remnants of the natural world – even in highly urbanized places like modern New York City – and encourage people to work harder to preserve them, here and across the globe."

At the 2011 unveiling of the new Bronx River intermunicipal plan, "Working Together for our River," a participant remarked, "One beaver is all right. Two beavers may be all right too. But when you say a beaver pair and its family—lets talk." Fortunately, this keystone species has natural mechanisms of population control, such as territoriality, that usually prevent overcrowding.

The Bronx river plan states, "...the return of two beavers to the lower part of the river in the Bronx Zoo, is a testimony to the water quality and habitat restoration improvements…" The plan recommends, "Install in-stream cover, such as anchored large woody debris…" along a stretch of the river south of the zoo. In that area, Griffin said, "the river is armored on both sides with rip rap, leaving the banks barren and lifeless. Dr. Hood's research found that trees growing along the banks of the river did so above the tidal zone, though they did not grow in soil. Instead, the trees were able to take root in the woody debris that washed down from upstream and became lodged on the bank at high tide."

Currently, manmade dams on the river upstream block most woody debris from reaching the south Bronx River. But Griffin explains that cabling logs to the banks might create "a landing zone for seeds that could then provide a food source for beaver and create habitats for other unexpected guests."

A "Critter Cam" in the botanical

Continued on p. 13.

José, *Continued from p. 12.*

garden captured views of Justin and José in February. The motion-sensitive camera takes series of photos that are assembled into animations. Because the flat-tailed pair had not been seen recently, Ann Rafalko, who directs the garden's online content, said, "Everyone's really excited."

Rep. José Serrano and NCS's John F. Calvelli recently co-authored an Op-Ed where they called the Bronx River cleanup, "a national model for reclaiming urban rivers, thanks to a joint effort of the federal government, the Bronx Zoo and dedicated local groups." When Hurricane Sandy hit last year, they noted, "The restoration of the floodplains in the lower Bronx River… helped to blunt the impact of the storm in nearby neighborhoods."

Since New York City Mayor Bloomberg launched his PlaNYC in 2007, 127 acres of city wetlands that he called "the best natural barriers against storms" are being restored. A 184-acre wetland ("Bear Swamp") was once located near the Bronx Zoo. Why not restore part of Bear Swamp, or another of the remnant wetlands along the south Bronx River, as an example of the earth's most beneficial ecosystem? With a little help, a couple of four-footed engineers are available to undertake the project for free.

For more information:

After 200 Years, a Beaver Is Back.... 2/23/07. NYTimes. http://www.nytimes.com/2007/02/23/nyregion/23beaver.html?_r=0

Justin Beaver, a Friend for José. 10/1/10. http://www.bronxzoo.com/multimedia/headlines/justin-beaver.aspx

Critter Cam footage from the NY Botanical Garden (Beaver gets Busy…) under "What's New" at http://beaversww.org/.

The cleanup of the Bronx River helped blunt the impact of Hurricane Sandy. 1/11/13. http://www.crainsnewyork.com/article/20130111/OPINION/130119984

Dam Shuffle, *Continued from p. 11.*

the-clock to make repairs.

Beaver dams are models of hydraulic engineering, as well. Water trapped behind a dam seeps into the surrounding land, keeping the local aquifer topped up. During the snow-melt-swollen spring run-off, water flows over the top in a "controlled flood." Later in the year, as undammed neighboring streams dry up to nothing, a steady stream of clear, cold water emerges from the base of each beaver dam.

"Clear, cold water." Sounds good, doesn't it? And canoeists often go with the flow. This is where problems sometimes arise. The beavers keep the rivers running long after the spring run-off has peaked, but their dams are a nuisance to paddlers in a hurry. What's the remedy? A hint: it's not dynamite or a crowbar. It's both simpler and easier. First, slow down. Simply slow down. Take it easy. Remember why you're on the river. The trip's the important thing. Elapsed time isn't. Enjoy the moment.

Second, use your head. There's a right way to negotiate dams, and doing things the right way will save you both time and trouble. Then you'll have more time to enjoy the moment. (Call this the Zen of getting around in the back-country. Speed's not usually important, but efficiency is.)

OK. You're on your way down a river. There's a beaver dam ahead. What next? Should you wade? NO. The deepest part of a beaver pond is usually just upstream of the dam. So if you're planning on wading there—forget it! (The muck at the bottom of beaver ponds in pretty smelly stuff, too. You've been warned.) Instead, step out onto the dam itself. If there's an active lodge nearby, the dam will be in good repair. Even a small dam will support you and your partner, along with your canoe. But be careful: the ends of beaver-gnawn sticks are sharp. Get the point? And watch your step. Mud-covered branches can be slippery. (You are wearing your life-jacket, aren't you?)

Once on the dam, stay there. Don't try to scramble up the banks and around the dam. Just get out, lift your boat over the dam, get back in, and continue on your way. Get out and get over. Simple, isn't it? Here's the drill:

Let's say you're in a tandem canoe. Approach the dam at a shallow angle, if possible. Stern paddler braces. Bow paddler gets out, finds a good place to stand, and steadies the canoe. Next, stern paddler moves up toward the bow of the boat. She steps out onto the dam, too. Together, the paddlers slide the canoe up over the crest of the dam and then ease it carefully down the face. (This will require care—and maybe even a belay—if the dam is a high one.)

Once the boat's back in the water, the stern paddler hangs on while the bow paddler works his way forward. One he's settled in his seat and hanging a brace, the stern paddler gets in. A little push, and you're off. Easy, isn't it? Easy for some, anyway. Solo paddlers—particularly kayakers—aren't always so lucky. It's simple if the approach to the dam is wide enough to permit "docking" broadside-on, of course. But what if space is too tight? What if you're paddling upriver on a narrow stream, for example? What then? Do you approach bow-on? How? There's no partner to hold a solo paddler's boat steady, after all.

Sometimes you can portage around the dam—if the bank's not too steep or swampy, that is. Sometimes you can paddle far enough up onto a dam to be able to step out of your boat without falling into the water. (Sometimes you can't. Hope you brought a change of clothes.) And sometimes you can inch your way forward on your deck. (Practice this at home first! It's easiest if another boater rafts up alongside you and hangs on while you hunch your way along. Be sure your deck's sturdy enough to take the load before you try it, though.)

Complicated? Yes. A bit. When you're in a kayak, each dam requires a slightly different approach. There's no universal solution. That's one reason I prefer canoes to kayaks when exploring in beaver country. But does this mean you need another boat if you already own a kayak? Certainly not! Use what you have. Even if you take an unexpected swim now and again, it's a small price to pay. Beaver-dammed streams are wondrous, fascinating places—well worth the effort needed to get out and get over.

From Paddling.net.

BWW Catalog—Help Wildlife with Your Purchases

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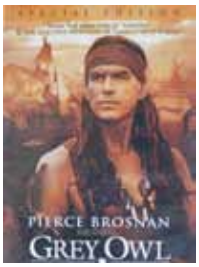

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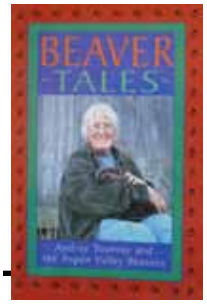

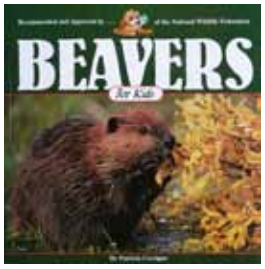

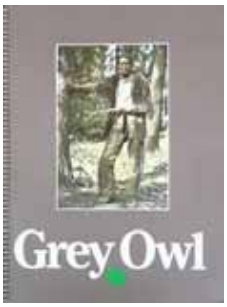

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Kesha and Penn

Wildlife Rehabilitation is a long and complicated process. It begins with a rescue, then becomes critical care and treatment, progresses to conditioning and, if all goes well, to eventual release. Most animals brought to rehabilitators are not with us longer than a few months, but some special cases literally take years. Only a very few allow for follow-up studies like this one, thanks to our dedicated and passionate volunteer, ME, who lives "somewhere in Wisconsin."

Kesha was just a week old and weighed under one pound when she came to Fellow Mortals from Waukesha County, Wisconsin in June of 2009. She and her siblings became orphans after humans destroyed their lodge. Only Kesha survived.

When Kesha was two years old, the time beaver leave their home lodge to find a place of their own, we introduced her to a wild beaver. Penn had been admitted to the hospital as a yearling because of burns on his feet. The two formed a loving bond over their first winter.

When they were released in the summer of 2012, Kesha and Penn stayed together and built a lodge. The cold and ice covered their pond and their loyal caregiver waited and watched and worried,—as did we—until the two appeared for the first time since the pond froze.

Happy endings like this are only possible because of people like you who recognize a wild creature in need and call a wildlife rehabilitator for help immediately. If this orphaned beaver had not received care within hours of being found, she most likely would have died, as proper care, handling, diet and understanding of a wild creature's natural history is critical to successful rehabilitation.

Your local Wildlife Rehabilitation professional is a precious resource. We do not receive state or federal funding, and very much appreciate your support.

To see more photos of Kesha and Penn, and contribute to the great work of Yvonne Wallace Blane and others at Fellow Mortals, go to http://fellowmortals.org/the-long-view/

Beavers: Wetlands & Wildlife is an all-volunteer, non-profit organization created to carry on the educational work of the "Beaver Woman" Dorothy Richards who was both an environmentalist and a wildlife advocate. Officers are Owen J. Brown, President; Brian Graff, Vice-President; Sharon T. Brown, Treasurer; and Caryl Hopson; Secretary. Other members of the Board of Directors are: Trina Bassoff, Kenneth Koman, Andrew Mason, Matthew Perry and Debbora Quayle.

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