

Beaversprite

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Spring 2019



An Evening Grosbeak leaves our snow-laden birdfeeder.
Below, a beaver breaks thin Spring ice to grab an apple.



State of the Beaver
2019 Conference.....p. 4

Thinking like a Trout
Stream?p. 6

Castor “Resurgence”
in Philadelphia.....p. 8

Triumphant Return
to Britain.....p. 9

Spring Farm Family’s
Adventures, Part 3.....p. 10

Beaver “Appreciation
Tour”p. 16

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Healthy Ecosystems
and People*

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Since 1985*

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President's Message

Spring comes to our Wildsprite Sanctuary in the foothills of the Adirondacks when the bear comes to our bird feeders for a tasty treat of sunflower seeds. We have new feeders this year and I hope they survive Ben's arrival. We have known this black bear for about 20 years and he knows us.

Last year, I went out the back door and there he was, gleefully eating from the remains of our hanging feeders in the backyard. He was about 30 feet away when I yelled some expletives like "Ben, what the ---- are you doing?"

He rose from his sitting position, sauntered about 15 feet away, sat down and looked at me as if to say "Owen, what is wrong with you?"

I haven't seen Ben since then and hope he has forgotten that experience. A few demolished birdfeeders are well worth having a good relationship with a very black and big neighbor. After all, how can you be mad at such a long-time friend? (See Ben's photo below.)



Most of our ungulate friends have made it through the winter. Sharon has names for many of the local white-tails. I love their beautiful brown eyes.

Socks in the Snow

Evening Grosbeaks have finally returned to our sunflower feeders after several years of absence. The bright yellow of these winter birds adds to the beauty of seeing our pair of Cardinals.

My favorite bird is the chickadee. I go outside at daybreak in my stocking feet, and enjoy the freshly fallen snow adding cracked corn to our platformfeeders. I call "Chickadee,



dee, dee" and they come.

If you live where there is still snow, try walking shoeless in it — wearing nice thick socks. The snow conforms to your feet as if you were wearing the most comfortable pair of shoes in the world. You won't regret the experience.

Renewal Time for the Earth & Us

Special thanks to you 2019'ers who've renewed already. We need you all as BWW is almost entirely supported by members.

If you haven't renewed yet, please use the enclosed envelope, do it online



if you prefer, or simply give us a call at 518/568-2077. Please leave a message if we're out of the office since we have more requests for consults and programs in the Spring.

Year of the Beaver

BWW gave a program on "Living with Beavers" to an fine audience on March 9 at The Great Swamp Conservancy (GSC) in Canastota, NY. GSC is calling 2019 the Year of the Beaver—perfect timing!

We met GSC's founder Mike Patane about thirty years ago when we helped solve a beaver flooding conflict. Recently, he worked with the local Natural Resource Conservation Service agency to install a flow device at a 5-foot culvert. They were careful to avoid draining the GSC wetland during that installation.

They've also added an adjacent 115-acre parcel with a great blue heron rookery on a small lake to their land. And the the wooly mammoth skull at the nature center/museum is worth seeing too.

Why not make every year the Year of the Beaver?

For Beavers and All,

Owen

News & Alerts

Huge Wake-up Call

United Nations chief Antonio Guterres called the UN 2018 climate report (www.ipcc.ch/sr15/) “an ear-splitting wake-up call.” He said the report shows “climate change is running faster than we are —and we are running out of time.”

It's still possible to limit the damage, but that will require “urgent and far more ambitious action to cut emissions by half by 2030...”

About 70% of Americans are worried about climate change, according to two, independent, nationwide 2019 surveys. Most citizens think climate change is real.

Some who're tired of the current administration's climate denial, are promoting a Green New Deal. Six presidential candidates support this plan for real climate solutions, including a transition away from dirty fossil fuels and towards 100% renewable energy.

We have only about a decade left for actions to avoid the worst impacts of climate change, according to the UN report. Ask your legislators to support proposals that replace polluting fossil fuels with clean energy to help ensure the next generation's future.

States Fill the Gap?

Beacuse our divided Congress may not pass a federal Green New Deal at once, certain states are now taking the lead. For example, a New York Green New Deal proposal includes: 100% clean power by 2040, quadrupling the state's offshore wind commitment by 2035, and doubling solar deployment to 6,000 megawatts by 2025.

Also, the NY Climate and Community Protection Act, which the Assembly passed three times, is based on the timeline scientists recommend to avoid climate catastrophes, and may well have a better chance of becoming law this year

Climate Change Education

Over 1 million students from 125 countries on March 15 protested the lack of meaningful climate action. They understand the threat to their future and that there's no time to waste. Yet, millions of other students are not being taught the basic facts of climate change — the most important environmental crisis of our time.

Today's K-12 students are growing up in the shadow of climate change and need to learn about climate science and solutions. The Climate Change Education Act would equip schools with the tools they need to understand the science behind climate change.

Under the Climate Change Education Act the National Oceanic and Atmospheric Administration (NOAA) would create a Climate program to ensure students learn the latest science about climate adaptation, mitigation, and resilience.

[Tell your senators to support the Climate Change Education Act!](#)

A Monumental Act

More than 100 members of Congress have introduced a bill to protect America's national monuments from unlawful attacks. The Antiquities Act of 2019 comes in response to President Trump's attempt to eliminate protections for two million acres of Utah's Bears Ears and Grand Staircase-Escalante national monuments. This would be the largest rollback of federally protected lands in America's history.

Over 99% of the 2.8 million public comments received on this issue were in favor of maintaining the existing protections for our national monuments. The new bill reaffirms that only Congress can alter national monuments.

The planned reductions in public land is also being challenged in court since that power has been limited to Congress. **[Urge your legislators to support the 2019 Antiquities Act and to keep our wild treasures intact.](#)**



Beaver Believers will be shown at 6:30 pm on Thurs., April 18 in the Community Room of the Little Falls Public Library. (10 Waverly Pl.) The new documentary tells how five western scientists—and a hairdresser—are partnering with beavers to tackle climate change, “one stick at a time.”

It was an official selection at eight film festivals, including EFFY 2019, Environmental Film Festival at Yale. At the event, which is BWB's annual meeting, BWB leaders will tell of their

experiences meeting the film's two-legged stars—and with beavers.

All are welcome at the free event, although donations to help with the screening fee are appreciated. See the displays about beavers and the “Beaver Woman” Dorothy Richards, who once worked at that library.

BWB was inspired by Mrs. Richards' 50 years of educating about the animal engineers and created International Beaver Day on her birthday, April 7.

For more information, call 518/568-2077 or email: castor@frontiernet.net.

State of the Beaver 2019

Inspiring International Oregon Conference

By Bob Boucher

The bi-annual “State of the Beaver” conference took place on February 19-21, at the Seven Feathers Convention Center in scenic Canyonville, Oregon. The organizational sponsors were the South Umpqua Rural Community Partnership Beaver Advocacy Committee (SURCP) and the Cow Creek Tribe. Co-chairs of the SURCP Beaver Advocacy Committee, Stanley Petrowski and Leonard Houston planned the conference. Rhonda Richardson gave the Cow Creek Tribal welcome.

These folks are the voices and advocates of our beaver clan.

A rich variety of presenters from North America and Europe spoke at the three-day conference. The rendezvous attracts a unique group of people who recognize the significance of beavers as ecosystem engineers for the health of the Earth. These folks are the voices and advocates of our beaver clan. Their shared vision of restored landscapes with beaver complexes, strengthens the hearts of participants and inspires hope. The presenters were excellent, and here are some of highlights.



Bibermanager Gerhard Schwab holds a C. fiber kit.



Only small beaver populations (blue dots) survived in Europe by 1900.

Eurasian Beavers

Gerhard Schwab of Bund Naturschutz in Germany spoke about the comeback of the Eurasian beaver. His program on the reincarnation of *Castor fiber*, an almost extinct species, was especially inspiring.

Schwab has personally re-established 987 beavers in locations all over Europe. He has chronicled an additional 400 “pop-up” beavers that have filled in territory gaps. Such pop-ups tend to occur when and where bureaucracy or institutional barriers are in place that inhibit reintroductions.

Gerhard has been called the

Johnny Appleseed of Beavers without passports for Europe. His map of Europe showing where he has reintroduced beavers moved the audience.

It is encouraging that these animal engineers continue to expand their range and thrive. They have increased from only



Reintroductions and “pop-ups” have greatly expanded C. fiber’s range.

a few thousand Eurasian beavers in remnant populations in 1900 to about 1,300,000 today in Europe and Asia.

Derek Gow gave “Beavers return to Britain. In troubled times a reason for real optimism.” It was a colorful update of progress in a land that could use more beavers for flood abatement.

Alicia Leow-Dyke of Wildlife Trusts Wales then told about “The Welsh project: The story so far.”

Eager and Beaver Believers

Ben Goldfarb, author of the award-winning book *Eager, the Surprising Secret Life of Beavers and Why They Matter* gave a passionate talk on communicating science to the public and the media.

A showing of the film “The Beaver Believers” by Sarah Koenigsberg was a big hit. Her documentary is very well done. It is available for showings by nonprofits, and can be rented from Tensegrity Productions.

Legal Action to Protect Wildlife

On the second day, attorney Andrew Hawley from the Western Environmental Law Center in

Continued on p. 5

Beaver 2019, Continued from p. 4.

Seattle gave an overview of using Federal and State Law to protect beavers and other wild species.

Hawley's Center and two other organizations sent USDA Wildlife Services (WS) Oregon office a notice of intent to sue in late 2017. That agency had never analyzed how its beaver killing in Oregon impacted endangered salmon and steelhead that rely on beaver pond habitat.

In January of 2018, WS agreed to stop the killing beavers, otters, muskrat and mink in Oregon.

Plans are underway for a 2020 beaver event in Maryland.

Mike Callahan updated us on The Beaver Institute, the nonprofit he



founded after the last conference. The Institute is gaining momentum and he announced the launch of the "Beaver Corps" to train more people and staff of government agencies in the construction and use of flow devices to reduce conflicts.

Re-wilding California Beaver

Kate Lindquist and Brock Dolman from the Occidental Arts and Ecology Center, gave an interesting update on re-wilding beaver in California and their "Bring back the beaver" campaign.

Brock had helped prove that beavers were once common in California, a fact previously denied



Ben Goldfarb (right) spoke about communicating science at the conference. Above, he'd earlier accepted the 2019 PEN Award for his beaver book, Eager.

by state agencies. Part of their present challenge is that the central river valleys of California may be the most hydrologically modified region in the world because of agriculture's demand for irrigation.

Cows and Fish

Our Canadian friends from the Alberta Riparian Habitat Management Society (called Cows and Fish) gave a presentation on day three. They have partnered with the Miistakis

Institute to develop outstanding community outreach educational materials that they will happily share with you. Their materials and programs are well thought out and you can use them for beaver advocacy in your own community.

Western Great Lakes Beavers

Bob Boucher (the author of this article) presented "Beavers of the Western Great Lakes, an overview of management policies in Minnesota, Michigan, Wisconsin and Ontario. Before European settlement, this area had the highest densities of beavers in North America. Where beavers are now protected in Voyageurs National

Park (Minnesota) their population has been estimated at between 20 to 30 beavers per square mile.

He also gave an overview of a proposed Milwaukee RiverKeeper project to restore beaver wetland complexes in that watershed for flood abatement.

Emerging Issues and Old Obstacles

The final session was an open forum to discuss emerging issues and agency obstacles to restoring beavers on our landscapes. Participants warmly endorsed Mike Callahan's proposal to alternate the Oregon conference with an east coast beaver conference in 2020. Plans are underway for an event in Maryland so stay tuned for more announcements.

Overall, the conference was welcoming and invigorating for all the beaver clan. Personally, I came away charged up and inspired by the great work and dedication of my fellow beaver believers.

The organizers, Stanley Petrowski, and Leonard and Lois Houston did a wonderful job putting it all together. I encourage you to attend and participate in the upcoming 2020 conference and the State of the Beaver 2021 in Oregon.

Thinking Like a Trout Stream? Maybe Not.

Many were shocked by Ted Williams' piece "Thinking like a Trout Stream"* in the March issue of *American Angler*. Williams blamed beavers for "nuking" coldwater trout habitat. Yet a major study found the belief that beaver dams harm coldwater fish by warming water was not data driven" (Kemp, 2012).** Instead, that notion was almost entirely (91%).based on speculation.

Here are three experts' comments on the article.

Award-winning Author Reacts

Ben Goldfarb recently won the E.O. Wilson PEN Science Literary Award for his book *Eager, The Surprising, Secret Life of Beavers and Why They Matter* (his photo on p. 5).

His first reaction to Williams' piece was "Oh no, you didn't!"

Goldfarb explained, "Here's my own blurb, spoken from the heart as a graduate of the Yale School of Forestry (Aldo Leopold's alma mater) and a former Leopold Writing Fellow.

"Williams.... is committing the exact mistake that Aldo Leopold cautioned against in his iconic essay."

Setting aside all the unscientific junk in this piece, here's what bothers me most: the spurious invocation of Leopold's *Thinking like a Mountain*, which actually says *precisely the opposite* of what Williams thinks it does.

The point of "Mountain" is that, by killing a native keystone species (wolves) to benefit a recreationally targeted game species (white-tailed deer), we inadvertently inflicted profound ecological harm upon the broader natural community. And yet, Williams is advocating that we... kill a native keystone species (beaver) to benefit a recreationally targeted game species (brook trout)!

In other words, he's committing the exact mistake that Leopold cautioned against in his iconic essay — advocating for short-sighted, heavy-handed lethal management driven by recreational biases rather than ecology.

It's a shame — I'm actually a big Ted Williams fan. Here's hoping he goes back to defending public lands and holding corporate polluters to account, rather than misguidedly punching down at beavers."



Wisconsin Ecologist Robert Boucher, Founder of Milwaukee Riverkeeper

Robert Boucher, who has an MS in Water Resource Management from the University of Wisconsin at Madison, wrote:

"The recent article *Thinking Like a Trout Stream* by Ted Williams is an inaccurate and unscientific assessment of beavers' impacts on trout streams. Mr. Williams also assumed that Aldo Leopold would have agreed with him. Aldo Leopold would definitely not have agreed, he would have been appalled at the attempted mischaracterization.

Beaver complexes do change trout habitats and add complexity. To

recognize the benefits that beavers provide, you need to understand how they affect the hydrology of streams. Dams provide structure, creating wetlands with the conditions for greater productivity of trout food. Sunlight warms the wetland's shallow edge water and triggers photo plankton production (plants, algae), which feeds the zoo plankton (little bugs), which feed the bigger bugs and on up the food chain.

The water pressure from the dam impacts stream thermodynamics. The water above the dam re-circulates into the ground where it is cleaned and cooled. Those changes create conditions that increase the food chain production and improve trout habitats. Critically, they also make the stream temperatures more stable and add species richness. Streams without beavers are impoverished.

A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.

Conservation is a state of harmony between men and land.

To keep every cog and wheel is the first precaution of intelligent tinkering.
Aldo Leopold

The *Hexagenia* mayfly is a good example of an important trout food that is common in Midwest trout streams and beaver ponds. These large mayflies need a silt substrate in slower water to thrive. Wetland sloughs and beaver complexes are gardens of bug production. When a *Hexagenia* hatch occurs, you witness a phenomenon that is amazing. On the Brule river in northern Wisconsin, when the bugs come off as it gets dark (around the summer solstice), it is like a snowstorm of mayflies. The pond surface temperature is warmer, but it

Continued on p. 7

Thinking, Continued from p.6.

is also roiling with fish. The trout are feeding like crazy, grabbing the large bugs. The fish move into warmer water to feed opportunistically. They will hang in the cool water pockets (like us, hanging out in an air-conditioned space if it's hot) and move to the surface to take bugs. I do not live in my refrigerator, but I keep my food there. Like all creatures, getting food and having a reliable stable system to get it, insures life.

“Dams provide structure, creating wetlands with the conditions for greater productivity of trout food.”

Contrary to the dogma suggested in Mr. Williams article, the Wisconsin DNR studies have shown that beaver dams do not inhibit trout movement and they do not negatively impact watershed stream temperatures.

Also, he quotes people who say the landscape is infested with beavers. Currently the beaver population is only about 5% of the potential carrying capacity in the best north-woods landscape.

The positive interactions between beaver and fish (salmon and trout) are noted in numerous peer reviewed, scientific, evidence based journals. Beavers create and maintain deep pools that act as rearing/overwintering habitat for fish. Beavers are ecosystem engineers that change the hydrology of stream systems. The dams trap sediment and make streams cleaner and cooler, recharge aquifers, stabilize stream flows and reduce flooding. The established colonies create wetland habitats that benefit many species; amphibians, reptiles, birds, mammals, insects, and plant communities. If you want biodiversity, you need beavers.”



Michael Pollock, NOAA Fish Biologist and Ecosystems Analyst

“I do think we have created a lot of drainage ditches across this country, to drain “swamps” etc. and that beaver tend to restore these drainage ditches back into swamps or wetlands, when left alone.

“We do better when we think about watershed restoration ...rather than focusing on the needs of a single species such as trout.”

Another way of thinking about it is that in places like Wisconsin, there was a lot of wetlands, and that getting rid of beaver made it easy to drain these areas, or to convert wetlands into streams, or essentially, to extend the stream network into places where it didn't previously exist.

The same process has arguably gone on in the Sierra and elsewhere in the west, where erosion and incision has extended stream networks into areas that were once wet meadows with no discernible stream channel.

So if beaver are playing a role in zipping up drainage networks and reducing their extent, then yes, they will be reducing the amount of stream habitat, and increasing the amount of wetland or wet meadow habitat, and species that like streams, such as trout, will be less plentiful in those areas.

I haven't been to Wisconsin lately, but I speculate that something similar

is going on and that the extent of the stream network is an artifact of land use practices from current and previous centuries.

I also speculate that **better land use management might reduce the extent of trout, but that on a watershed scale they would be more plentiful. The increase in wetlands would improve water quality and quantity, as well as modulating hydrographs, creating more stable flows.**

If we think about streams as habitat networks, with different types of habitat in different parts of the network, rather than as drainage networks, with the implied goal of “draining” the landscapes, I think that helps point us in the right conceptual direction.

We do better when we think about watershed restoration and process restoration and ecosystem restoration rather than focusing on the needs of a single species such as trout.”

* Williams, T. Thinking Like a Trout Stream. 3/2019. American Angler.www.americanangler.com/thinking-like-trout-stream.

**Kemp, P. et al.. Qualitative and quantitative effects of reintroduced beavers on stream fish. 2012. Fish & Fisheries, 13 (2): 158-181.

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A Beaver “Resurgence” in Philadelphia

By Ximena Conde

Larry Lindsay and his wife took advantage of the warmer weather late one afternoon with a walk in Philadelphia’s Fairmount Park. As Lindsay strolled along a metal boardwalk, some trees caught his attention.

“The trees that had been planted looked like they’d been cut off,” he said. “At first glance, I thought, who would do that? And then I saw that, in fact, they’d been chewed down.”

The couple then saw a beaver about the size of a little dog by a small lodge not far from the trees. Lindsay called WHYY and left a voicemail about his sighting. He said, “Hope you can use it, maybe everybody knows about it already.”

“I’m delighted to hear there are other beavers in Cobbs Creek.”

It turns out that some officials at Philadelphia Parks and Recreation didn’t know about it. Lindsay may’ve witnessed evidence of a beaver resurgence.

Haddington Woods

We called Tom Witmer to learn more. He’s operations manager of Natural Lands Restoration in Philadelphia Parks. Witmer took us to a section of Haddington Woods that is split by Cobbs Creek.. This woods has been the site of lots of beaver activity.

As we combed through the trees, Witmer said, “We’re now looking at a number of trees about 15 years old that have been felled recently by beavers.” A black willow tree, a black cherry tree, some hickories and oaks had been cut down at their base — or were close to coming down. Witmer said, “It takes a while for a beaver to fell a tree that’s over a foot in diameter.”

He said there was almost no beaver activity in the city 20 years ago. But



A young beaver eats the green bark from a branch.

park employees have seen signs of beaver activity during the past decade.

According to Witmer, the parks agency has put a lot of effort into restoring wildlife in this stretch of Haddington Woods. The beaver activity is proof that their efforts are working. He said, “That’s partly due to improving both water quality and streamside vegetation...”

He said beavers use tree bark for food and branches for their homes. The beaver activity is not a nuisance yet, but they decided to collect data on beaver activity late last year. So far, they’ve recorded four instances of beaver activity. If beavers start to claim too many trees, Witmer said they would consider protecting trees with stump guards.

A Limited Comeback

Still, at least one wildlife biologist said the beaver comeback is limited, in part because of all the urban and suburban development. Sharon T. Brown has studied beavers for over 30 years and is one of the founders of Beavers: Wetlands & Wildlife, an educational nonprofit. She said taking a census of beavers is difficult, but the highest estimates from experts put the current North American beaver

population at 20 million, a small fraction of their number before the fur trade and farming exploded.

“In no way are beavers surging somehow out of control if the habitat no longer can support them,” said Brown. “So many of our cities and towns are built around waterways,”

Still, the man who called about the beaver in Fairmount Park was happy to hear his beaver sighting was not a total anomaly. “I’m delighted to hear there are other beavers in Cobbs Creek,” he said. “But I can understand how Parks and Recreation is concerned they might be destroying some of the new growth they’re trying to encourage.”

In our quest to learn about beavers in Philadelphia, we never spotted any ourselves. But Witmer said they become more active in spring.

The above 2/11/19 article is on the WHYY website. References included in it are:

Brown, S. and S. Fouty. Spring, 2011 Beaver wetlands... LakeLine (N.A. Lake Management Soc.) 31(1): 32-36. www.beaversww.org/assets/PDFs/Brownrevised.pdf

Baker, B. & E. Hill. 2003. Beaver (C. canadensis). In Wild Mammals of N.A, Ed. G. Feldhamer. 2nd Ed.. 288-310., John Hopkins Univ. Press, Baltimore, MD.

Britain's Beavers Triumphant Return

Congrats to the leaders of the Scottish Wild Beaver Group Trial, and the Scottish Beaver Trial. All their years of work have led to this well deserved win.!

Scottish Government will Grant Beavers Protected Status in May

The Scottish Government has agreed to give beavers protected status. The move will stamp out unregulated culling by making it illegal for them to be shot without a licence. It follows a plea from the Scottish Wildlife Trust after a female beaver was found shot in the chest at a Perthshire nature reserve.

The trust was among several conservation groups that signed an open letter to First Minister Nicola Sturgeon in December, urging her to take action to safeguard the species and crackdown on uncontrolled shootings.

The Scottish Government will today [Feb. 23, 2019] confirm that the Eurasian or European species will be added to the list of European Protected Species of Animals, protected under Scottish law, with effect from May 1.

Shooting will only be allowed under licence, managed by the Scottish Natural Heritage. Environment secretary Roseanna Cunningham said: "The Scottish Government believes in the highest standards of animal welfare – for both wild and domestic animals – and we felt it was high time that beavers enjoyed the same legal protection as other

species like bats, dolphins, wildcats and otters."

She said: "There are few species that have such significant and, largely positive, influence on the health and function of our ecosystems. The importance of beavers to Scotland's biodiversity is huge."

From the 2/23/19. Courier.

Re-wilding Streams in Britain: Letting Nature Control Flooding

Government flood management investment, often reacting to events rather than in anticipation of them, has tended to focus on hard flood defences – channelling water faster elsewhere.



An Eurasian beaver kit is held by Roisin Campbell-Palmer, field manager at the Scottish Beaver Trial.

But long term, is this just making things worse? Is there a more natural alternative to slow the flow as nature originally intended?

....There now seems to be a consensus across communities, water and insurance companies, engineers and conservationists that **we need to put back complexity into our river systems** – helping creatures move from one place to another, creating natural barriers and ecosystems that can soak up surface water higher up in the river catchment.

Elsewhere in southern Britain, Beavers, known as "nature's architects", are being used to re-wild our rivers and streams.

In 2012, the villages of Lydbrook and Upper Lydbrook in the Forest of Dean were badly flooded. Some £290,000 was spent by the Council to replace just one section of culvert, as funding was limited. Seeing that this hasn't been enough to reduce flood risk, last summer beavers were released into a large penned-off section to build dams and create ponds on Greathough Brook, which feeds into the River Wye, and slow the flow of water through the steep-sided, wooded valley at times of torrential rainfall.

The Government gave backing to the scheme and launched guidance for assessing applications for further trial releases across England to hold back the waters in a more natural way and improve biodiversity.

The above is an excerpt from the article, Rewilding Streams..." on the Legal Futures website at:

<https://www.legalfutures.co.uk/associate-news/>

Spring Farm Family's Adventures, Part 3

The story of Julia and her family, as told by Spring Farm Cares Conservation Director, resumes.

By Matt Perry

One afternoon in May, I used a sweet potato to lure Julia out of the water on to the dock. I wanted to see how she was using her left hind foot. She had been having problems for over a year. Earlier, I noticed she was not paddling with it.

An adult Beaver's back foot is very large – 6 inches long or more. They normally walk with their webbed toes spread, but the toes on Julia's foot were more clasped together.

So much water was spilling over the dams that they looked like elongated waterfalls.

While walking, she held that foot slightly off the ground and shifted some of her weight onto the back of her leg. It was a bit of a contortion, but it seemed to work for Julia.

Meanwhile, migrants were returning to the ponds. Solitary Sandpipers and Spotted Sandpipers were walking the muddy shorelines



An adult Beaver enjoys fresh leaves.

and probing for invertebrates. Neither would remain here long, but normally only stop for a few days or weeks. Sixteen years ago, a pair of Spotted Sandpiper nested in a plowed-up meadow on the south shore of Wick's Pond. The female laid eggs, but then departed the scene, leaving her mate to incubate the eggs and raise the chicks.

Solitary Sandpipers head north to Canada. Unlike most shorebirds which nest on the ground, the Solitary will use abandoned Robin nests. Shortly after hatching, the young leap out of the nest tree and follow their parent to water.

Wood Ducks became more common at this time, but I didn't know if any females were incubating eggs inside any of our duck boxes. I saw a female Hooded Merganser sitting on

top of a nest box at Wick's Pond. Although she was seen there several times, there was no unobtrusive way to determine if she had laid eggs inside.

In the last week of May, the Beavers were still only infrequently being encountered in the afternoon.

Only Julia, the matriarch, and her daughter Tippy were seen at Secret Pond.

As is typical for the end of May, I didn't know if there were kits in the lodge, although sometimes they are heard whining from inside. Nighttime visits were the only way for me to see most of the colony, although their work was always on display. Work on the dam with a corresponding rise in water levels at Morton's Pond indicated that the Beavers were planning to move there.

A Bald Eagle Visits

Roddy and Lydia, a pair of Canada Geese, were living at Morton's Pond with no sign of reneesting. On May 19th they became highly agitated when a Bald Eagle visited the pond. Although these Eagles mainly prey on fish, they do on occasion take waterfowl as large as geese and loons.

In the last days of May, the Beavers made the anticipated move to Morton's Pond. Given her lame back foot, I was concerned about Julia climbing over the dams. But she was there in the mid-afternoon, along with Tippy and a yearling. Tippy and a few of the others continued going back and forth between Secret Pond and Morton's Pond for a week. Could new kits be in the lodge at either pond?

Meantime, the adult male GenLo turned his attention to an experimental pond by a willow grove. He increased the size of the dam and dredged up Phragmites. Recent rains kept this

Continued on p. 11.



All photos are by Matt Perry.

Deluges led to flooding high enough to collapse seven dams.

Spring Farm, Continued from p. 10.

pond at top levels. The Beavers had their sights on the headwaters area too, just upstream from Morton's Pond. A small cut ash lay directly across our foot trail—a prelude for what was to come.



. Even an immature bald eagle will alarm Canada geese.

As spring ensued, returning migrant songbirds were setting up housekeeping around the Beavers' habitat. At Sarah's Pond, a pair of newly arrived Eastern Kingbirds wasted no time in building a nest in a dead buckthorn tree rising from the water. Most likely it was the same pair that had nested there for three consecutive years, and not always successfully. Many songbirds do nest over water and it prevents some predators from reaching the nest.

In early June, the Beavers turned their attention to our man-made pond (a.k.a. "Wick's Pond"). GenLo, the colony's patriarch, had plastered the outflow pipe there with mud to raise the water level. Work also began on a lodge on that pond's west bank. It made me wonder if the Beavers were contemplating yet another move. Perhaps Wick's Pond would become their backup home in case the other ponds were destroyed. All work on Wick's Pond had been taking place under cover of darkness, and I continued daytime monitoring.

Snapping Turtles Mate

One morning while checking Wick's Pond, I saw an unusual sight. At first, I thought it was an odd shaped log, half submerged in the water and bobbing up and down. Then, a dead Snapping Turtle floating on its side.

In fact, it was two Snapping Turtles that appeared to be engaged in a slow-motion wrestling match. As it happened, they were mating!

As you might expect with turtles, it was a slow and awkward process. While at the pond, I saw a female Wood Duck hiding in the pickerelweed. A single duckling was with her. It

had likely hatched that morning and emerged from a nearby nest box. Fortunately, the Snapping Turtles were otherwise occupied.

Signs of New Kits!

At Morton's Pond the Beavers began coming out in mid-afternoons again. They were eager for the leafy poplar branches we left by the shore. Julia was looking better and using her lame left foot to paddle. Both she and Tippy had swollen mammary glands, but I still hadn't seen any new kits. Sometimes we don't see kits until half-way through summer.

Heavy rains brought ponds and streams to near flood stage. GenLo worked on his latest project at the vernal pond by the willow grove. He added to the height and breadth of that dam and did his best to waterproof it.

The Beavers continued to work on the dam at Morton's Pond and in mid-

June, that pond achieved all-time high levels. The former goose nest islands were submerged well below the water line. A few more trees had been cut in the area's headwaters too. All this work was a clear sign that the Beavers' intended to remain at Morton's Pond.

At Sarah's Pond, a Mink appeared frequently. She may have been using an old Beaver lodge as her den. Once she was scrambling on the Beaver blind at Sarah's Pond, and seemed to be searching for nests. Mink can climb trees in an attempt to raid the nests of birds and mice.

I was still leaving some food at Secret Pond. But it seemed that only Muskrats were eating it, since no recent signs of Beaver habitation appeared. We continued putting out birdseed there for an eclectic flock of songbirds that included a family of towhees.

Chickadees Feed Nestlings

A pair of chickadees made trip after trip to the seeds. They had a nest in an old willow tree at the far side of the Pond and they were feeding nestlings inside a cavity in a large broken-off limb.

Many Beavers were coming out in the afternoon, but I had a hard time determining precisely which members of the colony were still with us. Two-year-olds often leave in the spring. Did any of ours leave?

Continued on p. 12.



Chickadees nested in a hole in a willow. Many birds thrive in beaver ponds' "edge" habitat.

Spring Farm, Continued from p. 11.

Sweet potatoes were the treat of choice for most Beavers, although one two-year-old (Sweet Flag) still preferred carrots. She carried away up to three carrots at a time.

For Julia and Tippy, sweet potatoes became a *must have*. Each would emerge from the pond, walk to me and ask for one. Both would stand on their hind legs, with their short arms held out with hands ready to grasp. If I wasn't fast enough, I would end up with muddy paw prints on my legs.

When Tippy asked for food this way, it reminded me of her as a young kit in the summer of 2012. That was when I really got to know Tippy and her three siblings. They would make a begging circle around me while I cut up carrots.

Only after a catastrophe can you fully appreciate the work that Beavers do.

They really needed help since their father (May Apple), and several older siblings, had been lost in a dam collapse at Sarah's Pond. Tippy and the other new kits were only spared because they were still in the lodge. Most likely, Julia was with them at the time. Now, five-year-old Tippy is huge and may well be the largest Beaver here.

Very heavy rain brought streams to near-record highs on the last day of June, and the dams were severely tested. So much water was spilling over the dams that they looked like elongated waterfalls. Most of the Beavers were at Morton's Pond, where I hoped they would stay. That pond was the oldest one and its dam was best fortified. In fact, it was the only pond that survived the "100-year" flood of 2013.

Dam collapses can be existential threats to Beavers. On the morning of July 1st, the rain was unrelenting. At Secret Pond a twenty-foot section of the dam opened like a door and

drained the pond. The May Pond dam had collapsed by the afternoon. Before that, the dams at the lower ponds, including Blueberry Pond, were overwhelmed and all gave way. Sarah's Pond was next to go after a small section of its dam eroded. The dam at the new headwaters pond was easily breached too. By mid-afternoon only Morton's Pond of the entire system was still intact.

Torrential rain continued, transforming the normally sleepy brook into a raging river—a powerful flow intercepted by only one dam. As water gushed into Morton's Pond, the stream's current spread over the length of the dam and that helped reduce the stress on any one section. But how long could the dam hold out?

Despite the deluge pouring in from both the stream and the sky, several Beavers came out. They casually swam around as if all was well. When I returned that evening, the dam at Morton's Pond was still holding. The rain had stopped and the amount of water flowing into the pond had lessened considerably. This potent storm had taken out seven ponds, but the Beavers still had their oldest and most important one.

Only a month before, they had fortuitously moved to Morton's Pond. That decision probably saved their lives. That evening I saw all three adults and at least three young ones. None were doing repairs yet, but no doubt, a major assessment of the pond system was underway.

Next, the Beavers suspended work on all projects outside of the pond system. GenLo concentrated on repairing the dam at Sarah's Pond. Comparatively minor damage there could be fixed in the short term, while the dams at Secret Pond and May Pond could take years to rebuild. I examined the ruins of Secret Pond, where the remaining steep walls resembled the maw of a volcano.

Ironically, it's only when such a catastrophe occurs that you can fully appreciate the work Beavers do. The dam at its highest point above the stream was close to eight feet high! Remains of the old food cache lay completely exposed and it still had a half-winter's worth of branches. Visible at the base of the main lodge were large entrance and exit holes. A person could easily fit through those holes, but I resisted the temptation.

Continued on p. 13.



A view of the Secret Pond dam after the devastating flood.

Spring Farm, Continued from p. 12

A little further up the bank, another large hole looked like it would make a good cave for a hibernating bear. The small lodge on the eastern shore had a single huge entrance/exit passageway. The other failed ponds revealed similar secrets, although none as dramatic.

These Beaverworks would now be utilized by other wildlife. Mink, mice, and perhaps even Fishers or Belted Kingfishers could use the caves as their own dens. In a much-diminished Sarah's Pond, I watched a hen Mallard with six new ducklings walking up the muddy shoreline, the first Mallard clutch of the season. Somehow their nest had survived the flood.

Duck Nurseries

Other Mallards produced more ducklings and soon the two functioning beaver ponds became duck nurseries. Unlike Canada Geese that tend to have a rather antagonistic relationship with Beavers, Mallard mothers seem to treat their pond-creating benefactors like comrades. In fact, Mallards would follow in a Beaver's wake as readily as they would with another duck.

In mid-July, repairing the dam at Sarah's Pond remained the Beavers' top priority, along with fortifying the dam at Morton's Pond. Water levels were rising at both main ponds. Sarah's Pond was almost at its pre-flood level. We *still* hadn't seen any new kits. Then Tippy provided us with a clue. She would take food, carry it to the lodge, and come right back for more, as if feeding kits.

As July progressed, the Beavers emerged earlier in the afternoon. It wasn't unusual for Julia to be walking up the trail to greet me when I arrived at 2:00 pm. I would give her a treat from my bag, and she'd then execute a slow 180-degree turn and escort me to the pond. This gave me a chance to assess her back left leg. She was compensating for her weak foot by putting less weight on it and more weight on her upper leg. It seems to work and her "waddle" speed wasn't

noticeably affected. Also, I saw that a yearling (Calla) had a small gash above his nose. Most likely it came from getting poked by a sharp branch, an ever-present hazard for Beavers.

As July came to an end, Morton's Pond had surpassed its pre-flood levels and both Sarah's Pond and the headwaters pond had been repaired. Virtually all of this work had taken



A kit at last!

place in the overnight hours and so I couldn't be sure which Beavers were doing it. The few times when I would catch a Beaver working on a major project, it would be GenLo, or a two-year-old.

It was rare that we got to August without seeing any new Beaver kits. And then on August 9th, I finally saw one. The kit was pestering Julia for a piece of her sweet potato. It was going from one side of her to the other, twisting upside-down and trying to snatch the food from beneath.

But Julia wasn't letting go. She would frustrate the kit by holding the treat just out of reach. The kit swam around the pond like he knew the territory. If Julia wasn't going to share, then he would fetch his own treat.

Kits always prefer to take food from an adult, instead of self-service. Interestingly, most Beavers will give up their food to a persistent kit.

In mid-August, I went for three days without seeing Julia in the afternoon. Then, during an evening visit, she showed up promptly with Tippy and GenLo. The new kit didn't surface, and it didn't help that a neighbor was doing target practice that evening. A twenty-one-gun salute that ensued was not appreciated by the

Beavers and they retreated into the lodge.

At this point, the Beavers were again shifting gears. Their activities in and around the pond system radically increased. Suddenly, they were stepping up their work in the headwaters area. They were more frequently traveling up to Wick's Pond and the pond at the willow grove. They took small saplings out of the east field and piled them in the water in front of the beaver blind. We've seen this in previous years and it usually portends the start of food caching.

At Wick's Pond, GenLo was plastering the outflow pipe with mud to bring up the pond's water level. Years ago, I put fencing over that pipe to stop them from plugging it. But they simply used more mud, since they have an endless supply.

On the west shore of that pond they began heaping up mud and cut branches. Although I couldn't see below the waterline, I think they had dug a den in the bank beneath the branch pile.

An Orphan Wood Duckling

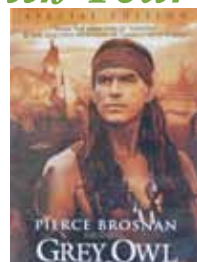
The number of Mallards using Morton's Pond rose to nearly forty. A Mallard mother had adopted an orphaned female Wood Duckling weeks earlier. Some young Mallards would make splashy charges at the little Wood Duck. Regardless, she endured the hazing and stayed at the pond. Then she found a boyfriend. He was an immature male Wood Duck in the awkward stage of molting into adult plumage. Soon the pair was seldom seen apart.

Ducks and Beavers usually get along well, but I did see a female Wood Duck nipping at a Beaver's back more than once. It likely wasn't due to aggression. The duck may have been going for some edible tidbit. As for the Beaver, she hardly seemed to notice.

To be continued in the next issue. All photos are by the author Matt Perry.

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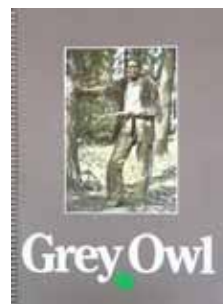
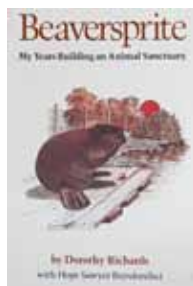
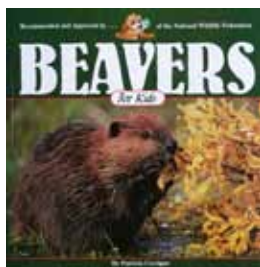
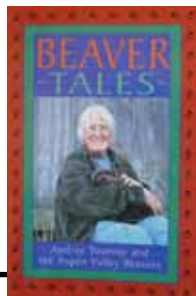
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Coast-to-coast “Beaver Appreciation Tour”

Ted Lightfoot, who lives in British Columbia, took a beaver exhibit across Canada to celebrate his country’s national symbol. During his 25-day-long “Beaver Appreciation Tour,” he towed a custom-built trailer with a “Beep For Beaver” message on the back. He said, “Thousands of cars and trucks honked their horns.”

Lightfoot made his trailer by modifying an antique rail carriage cart. He altered it by removing the metal wheels and replacing them with regular tires and added a trailer hitch. His 2018 tour also celebrated Canada’s Sesquicentennial.

When he stopped driving, curious people would come over to see what was going on. Lightfoot would open up his trailer to reveal an exhibit that includes a replica of a Hudson’s Bay Company fur bundle and 3 carved wooden beavers. Lightfoot said many interesting discussions ensued.

As a former biology teacher, he enjoys sharing his knowledge. He would often explain a beaver’s unique anatomy, such as, “They’ve got a double toenail, it’s like a comb for their fur.” He describes the beaver a “keystone species” because they create wetland habitat that benefits many other animals.

Our Life Support System Too

Earlier this year, Lightfoot spoke at World Wetlands Day events, saying, **“The importance of wetlands is paramount, To save ourselves, we need to save our wetlands.”**

Wetlands are among the earth’s best carbon sinks. When wetlands are drained, they often release centuries of stored carbon as carbon dioxide, the major greenhouse gas that is causing global warming. Because beavers maintain and restore wetlands, they are our partners in combating climate change.

Beavers: Wetlands & Wildlife (BWW) 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 Brown PhD, President; Andrew Mason, Vice-President; Sharon T. Brown, MS, Treasurer; and Caryl Hopson; Secretary. Other members of the Board of Directors are: James Hopson, Kenneth Koman, Matthew Perry, Debbora Quayle and Deborah Saltis.

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