

The BEAVER DEFENDERS



Belinda Irizarry, Beaver Defender - Rooster Rustler (page 9)

October 2005

They shall never be trapped anymore.

The BEAVER DEFENDERS



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October 2005

GOOD NEWS FROM UNEXPECTED

By Sarah Summerville

The orphans who summered in the nursery all grew into respectable woodland residents and left home in late August. The raccoons came back for snacks for about three weeks, but now the barn is quiet; it would appear that they are out preparing for winter. The opossums trudged off in their own directions and never looked back.

As the summer wind blew across Main Pond it took a little bit of precious water with it every day. The cove has been transformed to a bright green carpet of tall wild grasses, elegant rust-colored broom sedge and stately red cardinal flowers, all nodding and bending in the merciless breeze. The rest of the pond dried up, except for a green shallow pool around the dike where the water used to crash over the beaver dam. The Canada geese walk across the overgrown pond bed, picking and choosing among the grasses and mosses. The Great egrets stalk the last remaining haven for fish and frogs, delighted at the ease with which they could find a meal. Like the egrets, there were others who seemed to thrive on the hot, humid, rainless days of summer here. In July and August temperatures were in the 90's, with a heat index in the neighborhood of 105 degrees (f).

During the third week of July, it was extremely warm, but there was considerably more water in the pond then. Not enough water to meet the needs of the beavers, who incidentally packed up and moved downstream weeks earlier. But there was enough water to please a completely different class of fellows - the odes. "Ode" is the nickname given to those individuals in the order Odonata, including dragonflies and damselflies.

Two undaunted adventurers decided to brave the bug bites and stifling heat to have a look at our Unexpected odes. Jean Gutschuth, Beaver Defender and extremely talented birder, brought Chip Krilowicz, a self-

taught "oder", to do an Unexpected dragonfly/damselfly inventory.

We have surveyed frogs, birds and vegetation at Unexpected, with each endeavor developing a tempo of it's own. We leap-frogged from bog to bog counting amphibian species in the dark, headlamps and flashlights swinging from one croaking spot to the next. Birding events are like waltzes, when our group moves down the path, pauses to enjoy a bird, moving on again to the next pretty song. When the Philadelphia Botanical Society joined us for a vegetation survey the scrutiny was intense, as the subjects were stationary and available for minute considerations (it took 20 minutes to get out of the parking area). However, I have never experienced anything as interesting or captivating as our Ode Outing.



At 10 AM we set out with our binoculars and bug spray, moving slowly along the dike in the mid-morning heat. The Main Pond was on our right, and Chip immediately pulled up his glasses and called out three different dragonfly species dipping and zipping around the slow warm pond. He rattled off their names like old friends. I pulled up my binoculars and saw water. Training your eyes to spot these fast, erratic flyers is quite a challenge.

As we moved through the Refuge, we encountered several different environments, both wet and dry. In the pond we saw hundreds of Slaty Skimmers, Common Whitetails and Eastern Amberwings. At a dry Muddy Bog, we found Carolina Saddlebags and Green and Blue Darners. When we slowly crossed the Long Boardwalk,

traversing a vegetated portion of the stream, we found the exquisite Ebony Jewelwings and the Attenuated Bluets, both extremely small and fragile, with metallic colors of deep green and turquoise.

Unlike birds, the odes make no noise, so you must pay attention. Chip could quickly spot the smallest damselfly nestled within the sweet pepper bush; he spent more time trying to explain to me where it was located than finding it. Good close range binoculars are vital for examining these creatures with any detail. And detail is important because one species can be distinguished from the other by a tiny spot on the wing. Like most birds, the odes' genders can be identified by their colors or intensity of color; males are flashy and females are duller, or are a completely different color or pattern all together.

Dragonflies and damselflies require water to breed, feed and live. Some prefer fast moving water where plant life and food is more scarce, but most like the habitat found at Unexpected: slow moving water with lots of decomposing matter, bacteria and small invertebrates to support them. When they mature, many will leave their wet areas to visit upland meadows and forest edges to feed and mate, but they always need water to complete their life cycle.

These incredible flying machines eat on the wing, devouring flying insects like mosquitoes, gnats and even other dragonflies. They can eat their own weight in an hour, making them a vital part of any integrated pest control plan.

Odes change form throughout their lives, spending most of it in the larval stage. Larvae can remain dormant in the water for weeks or years, depending on the species and environmental conditions. They survive on other larvae, insects, small fish and even frogs. After hatching out of the larval case, the new body is soft and dull, however it does look like the final product. During this dangerous phase the young odes are susceptible to predation, as they are vulnerable and unable to fly.

After their bodies harden and their colors develop, the mating begins. These creatures are by no means monogamous. The male and female join "in tandem" creating what is know as the wheel, and can remain in this position for minutes or hours, depending on the species.

The female's eggs will not be fertilized until she has found a suitable, safe location to deposit them, usually within her mate's territory. The eggs begin to mature immediately, entering the larval stage before winter sets in. During the adult phase, when they mate, they may live only a few weeks. After this energetic period, they are considered to be in the post-reproductive stage, when they become duller, less active and may look a little tattered and tired.

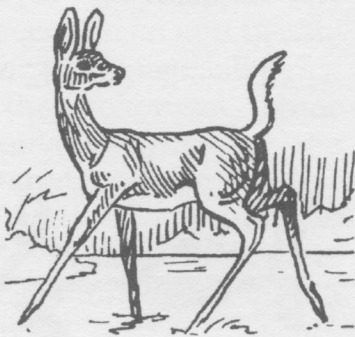
I was transfixed watching the hundreds of different dragonflies and damselflies dancing over the warm summer pond, eating, mating and chasing each other. The females were dipping their tails into the water, depositing the next generation of odes. Males who were stationed at strategic lookouts waiting for a convenient meal or mate, would circle briefly and land again on that same perfect spot.

Of the 168 different species of odes found in New Jersey, Unexpected Wildlife Refuge is home to at least 16. Since the life cycle of the order Odonata absolutely requires access to some type of wetland habitat, and are an important link in the chain of life there, it is vital that we all do our part to help preserve, protect and support these extremely important environments.

It's that time of year again, so if you have a few hours to donate to the Unexpected Wildlife Refuge, we sure could use your body.

Bow season began on September 10, and we want to thank Steve Ember for kicking off the first day of patrol here with a hardy lunch, followed by a great hike. We patrolled the Refuge and inspected the latest 127 acre addition. It was a warm day, and thankfully, uneventful in the woods.

Deer season will continue until the end of January, so remember us when you are looking for something to do outside in the fresh air and sunshine!



More 'Nuisance' Animals Killed Last Year

WASHINGTON — The U.S. government killed more than 2.7 million so-called "nuisance" animals last year, an increase of 1 million over 2003 that drew criticism from environmental groups. The list includes wild turkeys and chickens, black bears, coyotes and wolves, but especially starlings, which destroy crops and contaminate livestock feed. Other animals were killed because they threatened livestock, crops or people in airplanes, according to reports in the San Francisco Chronicle and UK Guardian.

"Wildlife Services killed more than five animals per minute in 2004," said Wendy Keefover-Ring, spokeswoman for Sinapu, a Colorado-based advocacy group for wolves and other predators. "The toll on ecosystems wrought by this one agency is jaw-dropping."

Wildlife Services, an Agriculture Department program, kills black bears that like to eat campers' food in public parks, or birds that congregate near airports and could get sucked into aircraft engines. The mission of Wildlife Services is to protect agriculture, property and natural resources and to reduce wildlife threats to human health and safety. It used to be known as Animal Damage Control.

The number of animals killed probably rose because funding increased for the department's cormorant program, aimed at protecting fish farms from the large, diving birds. Also targeted were flocks of Canada geese that have stopped their annual migrations.

"Most of the public has no idea that a significant portion of the federal wildlife management budget is actually devoted to extermination," said Jeff Ruch, executive

director of Public Employees for Environmental Responsibility. "Animals that inconvenience humans become expendable 'varmint' that are then dispatched with stunning efficiency."

Among the animals killed were: 75,674 coyotes, 31,286 beavers, 3,907 foxes, 397 black bears, 359 cougars, 191 wolves, 143 feral or free-ranging chickens, 72 wild turkeys, 3,263 double-crested cormorants 10,735 Canada geese, and 2.3 million starlings.

posted September 19, 2005

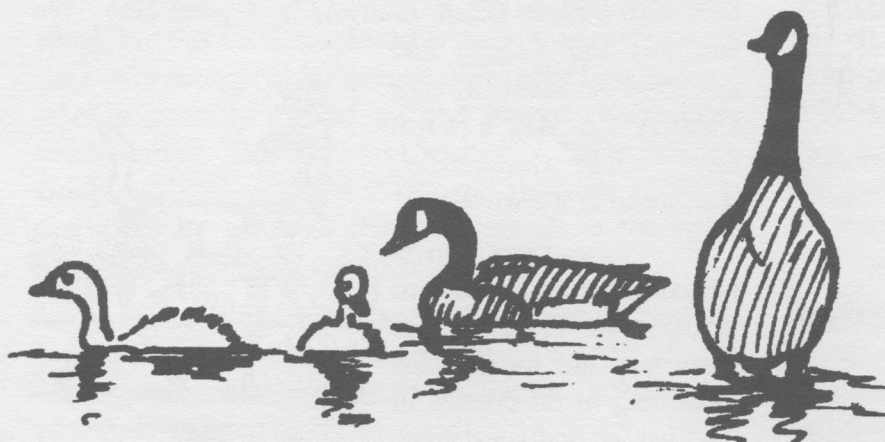
Lautenberg Urges State Not to Hold Bear Hunt

WASHINGTON, DC In a letter sent today to New Jersey Department of Environmental Protection Commissioner Bradley Campbell, United States Senator Frank R. Lautenberg urged the department to reconsider the upcoming bear hunt.

"I am writing to you on behalf of many concerned constituents regarding the possibility of another black bear hunt this fall. I urge you to reconsider possible viable alternatives to this hunt. This is a divisive, controversial issue in our State and I ask that you do everything in your power to avert a hunt, and to expand upon recent bear-proofing initiatives in New Jersey and give them an opportunity to work," wrote Lautenberg.

In his letter to Commissioner Campbell, Lautenberg argued that removing unnatural food sources is the most important component to reducing the presence of bears where they are not wanted. This requires education and waste management near populated areas. This method may also reduce black bear breeding rates, as black bears breed more successfully and earlier when there is excess food.

"Many experts believe that the hunt will do little to reduce human-bear encounters because the bears are drawn to populated areas by the food supply. Therefore, I urge you to reconsider alternatives to the hunt, including food waste management," concluded Lautenberg.



Recently, I found an interesting article in *The Press, Atlantic City*, on two festivals occurring simultaneously in the local area: one was called **Wings 'N' Water** and the other was called the **South Jersey Sportsmen's Jamboree**. Although I did not have the good fortune to attend either one of these events, according to the article, both shows have been attracting southern New Jersey residents every September for almost 50 years. I would like to share what I discovered in the paper:

Wings 'N' Water vs. SJ Sportsmen's Jamboree

Best Overheard Quotes

W&W: "The falconry demonstration was canceled because of the heat. Apparently, it's an Arctic falcon."

SJSJ: "Unfortunately, I hate to be sexist, but all male water dogs are more colorful."

Condiments

W&W: Blueberry chutney

SJSJ: Deer jerky

Best T-Shirt Message

W&W: Slow Down. Save a Terrapin Today.

SJSJ: Cumberland Friends of the NRA

Gifts

W&W: Designer gourds

SJSJ: Concrete furniture

Vessels

W&W: Tiny wooden replica models of skipjacks

SJSJ: Big aluminum bass boats

Bird Buys

W&W: A bronze osprey for \$6,800

SJSJ: A dozen duck decoys for \$29.95

Best Stuffed Toys

W&W: A dolphin that makes Flipper sounds

SJSJ: A black bear, a real one (dead)

-S.S.



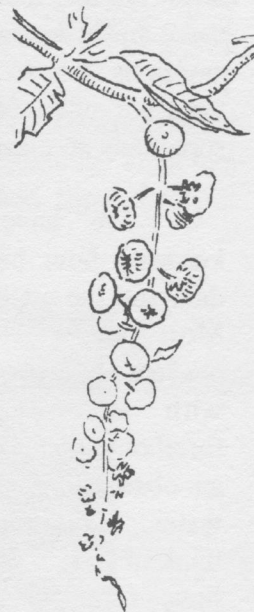
Hymn to the Pokeweed, by Ruth Thomas

A friend asked the name of a bushy plant in my yard, and that made me wonder if many novice bird watchers are unacquainted with pokeweed. And so, again, I repeat what I've urged for years, that all who like the company of birds give generous space to this native plant, more dependable than any shrub for providing berries from mid summer to frost.

Even now, in July's heat, you can set out a seedling, obtained from anyone who has an old pokeweed, and with some care, make it thrive. Just because poke bears the stigma of "weed", don't think of it as a plebian among aristocrats. For most of the season, the pokeweed that grows in good soil has peculiar beauty. A perennial.

Although all fruit-eating birds enjoy the pokeweed's banquet, when I write of this plant I think mainly of mockingbirds and bluebirds. I see in my mind the autumn bands of young gypsy mockers, the madcap chases, the fights over the pokeweed bushes, and I hear again the songs like wild "hurrahs" of fun and freedom.

As for the bluebirds, I remember a golden October day, a graveled road with a huge dusty-leaved pokeweed in the ditch at one side, and a flock of between fifteen and twenty bluebirds, all in bright new plumage, all flying again and again to the pokeweed, some fluttering, hovering, some swaying on the slender stems as they snatched the berries. Now and then the soft calls to one another, "Tu-a-wee, Tu-a-wee," voices of sweet contentment yet sad and wistful, too, poignant as time's eternal running.



Beaver Dams, by Bob Arenbeck

Beavers can make impressive dams. The tallest I've seen was at least 12 feet high, and I've seen them maintain a dam 275 feet long. But we should be careful when we use the same word to describe what people make and what animals make. We put too much of our emotions, not to mention grit and determination, into what we make, especially when the finished product is something so massive and landscape changing as a dam.

We have no way of knowing how beavers regard a dam and the art of dam building. Most people who write about beavers and dams credit the animal with a large measure of forethought, engineering skill, and an obsession for stilling flowing water. I disagree. We humans think of stream gradients, rates of flow, force vectors, and what might cause the dam to fail. By making a dam we make a grab for power. Beavers make a dam to make it easier for them to get food. Beavers can move faster in the water than they can on land so naturally they feel more comfortable in water.

By making a dam, they flood the valley behind the dam, making it easy to swim to trees they want to cut down for food, and when they cut the trees down on the shores of the growing pond, they can drag branches and logs they cut into the pond and then more easily pull them through the water to build up their lodge or dam or take logs to a more comfortable place to eat the inner bark that is their principal food. They can also eat the plants that grow in the water behind the dam. So I think a dam is more a line of continuity than it is an interruption of a fundamental force of nature. A beaver dam is that arc of a circle that enables a beaver pond to be the home of a colony of beavers.

I've seen beavers build a pond though for the first three months I thought it was a joke, that a few baby beavers had climbed over the old dam and were imitating the big beavers by pushing some leaves and mud together to back up a little rivulet. But even a little puddle of water takes on a logic of its own. The beavers kept building small dams a few yards farther downstream and

then water would back up flooding the dams behind. The beavers would then make a hole in those dams so they could more easily swim down stream and then in a matter of six months or so, they found the logical spot to complete the circle of the largest possible pond. This crucial spot does require a bit of engineering to stop the force of the flow but this conglomeration of logs, mud, grasses and rocks is not the concrete of the human dam builder, it is more akin to scar tissue holding in the life blood of an organism.



Yes, beaver dams do break catastrophically and the resulting flood can damage roads, but more commonly beaver dams gently sweat. The flooding water can lap over the dam in many places and within a few days the beaver will patch the leaks with mud, grasses and branches.

When beavers neglect a dam, it usually dies a slow death -- unless there is an otter around. In the dead of winter these fish foraging, long-tailed tubes of energy commonly dig holes deep through beaver dams so the fish

behind the dam have less water to hide in and the fish downstream swim up so the otters can eat them. It took the beavers about a month to patch that holes which they did by building a little dam just below to still and back up the escaping water and then positioning logs, branches and mud to make the dam whole again.

I think it took the beavers that long to patch the dam because of the cold weather making it harder to work with mud. Humans busted another dam I watch in the late spring and the beavers had it patched in two days.

This will give you some idea of how the beavers go about dam building. In essence they back the mud with logs and compress the mud with rocks. The arrangement of logs strikes us as quite intricate, but from my observations these logs are tossed over and brought onto the dam quite haphazardly. In the interior of beaver lodge I have seen some lattice work with sticks woven together, but never on dams. The strength comes from the weight and random entanglements.

Beavers usually operate on both sides of a dam. I've frequently seen them drag freshly cut saplings and branches over the dam, and they always take them into the

pond to be stored for winter food or stripped of their bark and leaves right away. Eventually the remaining log might be brought to the dam and dragged up and pushed over. I think the beavers prefer waiting for a log to get rather waterlogged. I've seen them dive and bring a log up from the bottom. They want weight to brace the dam.

While I don't want to diminish the poetry of an animal using what it doesn't eat, the logs, to build dams and lodges, the beavers use of mud truly marks the rhythm and rhyme of its life because what it dredges up and carries and pushes with its arms and body creates the channels in the pond that will allow the beavers to survive when their seemingly shallow pond freezes in the winter. The pond ice will often break behind the dam sometimes creating a gapping hole, as if the pond were gasping for air. And sometimes a beaver lurks in the exposed pool of water with an eye out for spring.

That colony of beavers, six of them, I think, a typical size for a colony, made their lodge right in the dam that winter. Far from having an innate urge to stop flowing water, as some suggest, in the winter especially beavers manipulate the dam so water flows through to keep ice open and create space for living inside the dam and for eating in the pool of open water forming behind and in front of the leak in the dam.

Recently, vandals made a gap in one of the dams I watch. The beavers immediately began to patch it by pushing logs down from the pond into the gap, and a week later was still leaking. We've had a great deal of rain and snow lately so, I think, the beavers simply decided to keep the leak. Better to have one gap that can be monitored rather than high water lapping over the dam and making leaks all over. The flood from the dam also made a gap in a smaller dam just below where the beavers made a better patch.

But I can see how a little leaking served them well. It kept the water behind that part of the dam from freezing and made a comfortable place for the beavers to sit and nibble sticks, and the stripped sticks could be filed into the mass of sticks holding back the water of the pond. The ponds and dams are always changing.

"Before the mind had a name for beauty, the heart had a response."

-Carl Safina, Eye of the Albatross

Good News from Helga Tacreiter!

Helga Tacreiter of the Cow Sanctuary and creator of Cowches, the life size soft sculpture floor pillows resembling any one of her rescued cows, has launched a new line of soft sculpture. But before I tell you of this new adventure, first let me explain, very briefly, how the Cowch was born.

Years ago, Helga bought six orphaned calves from a local farmer. Their mothers were killed by lightning. Their fate was sealed as the farmer who owned them was not interested in raising orphans.



Helga purchased the calves, and since has adopted and saved many threatened, mistreated and homeless cows. To support her family, Helga created, with the help of one of her favorite cows, a pattern for huge cow shaped floor pillows. Long story short, Helga has sewn, stuffed and sold thousands of Cowches to bovine believers all over the world.

Recently, Helga turned her eye toward the equestrian world (she has homeless horses too!), and created a hansom horse sculpture to complement the huge herd of cows she has set free in the world.

To learn more about the story of Helga and her Sculptures, simply go to www.cowches.com or you can Google her and read any on of the 155 hits! You will find her story fascinating and her talents exceptional.

If you want to talk to Helga about her artwork, call (856) 455-6637.

A Warm Welcome by Peter J. Marchand

A beaver's lodge is its castle, particularly when ice covers the pond.

Northern winters can be long for a beaver--longer than for most nonhibernating mammals. Though equipped to gnaw through the hardest wood, beavers show little inclination to chisel through ice and thus are seldom seen from the time their ponds freeze over until spring melt, often long after snow has left the land. Yet beavers rarely die during the winter from cold stress or a shortage of food. The key to their success in the North seems to lie, in large measure, with their lodge--the most massive communal nest constructed by any animal.

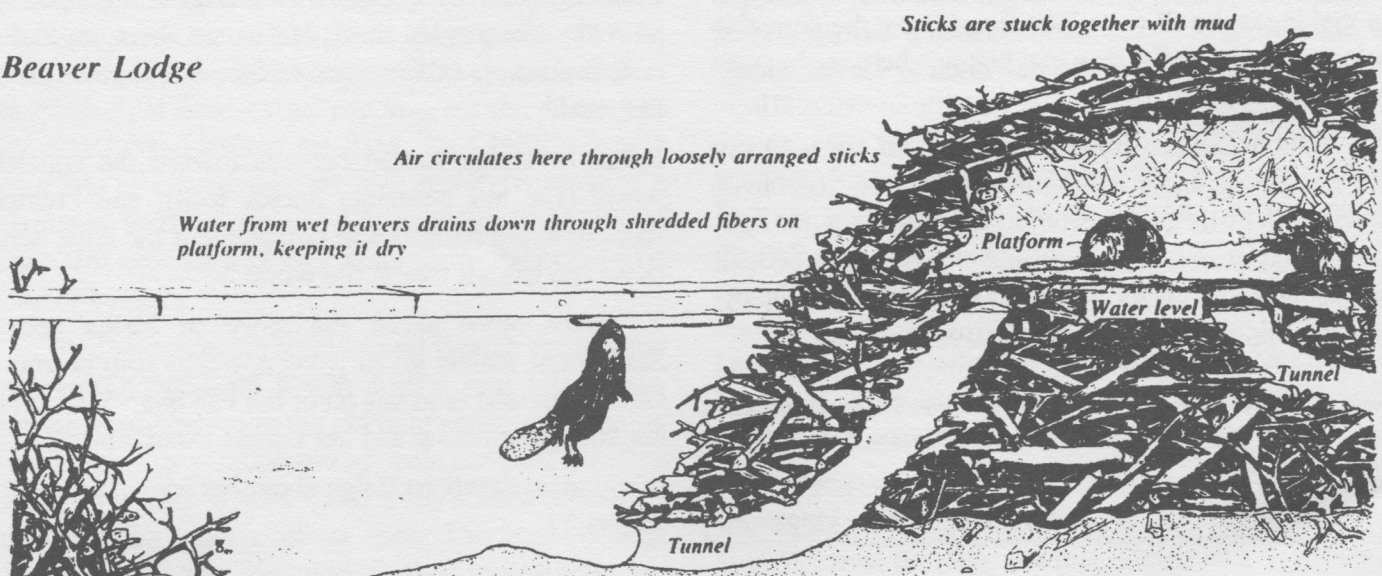
Not until I actually crawled inside a lodge did I understand the full implications of this structure for a beaver's life under ice. My opportunity came early one winter in northern Vermont as a result of an unusual circumstance. Just before freeze-up, a local highway maintenance crew had rifted a colony's dam to prevent the flooding of a road. When the pond's water level dropped below the entrances to their lodge, the beavers, rather than attempting to repair the dam, vacated the premises. A month later, my students and I ventured onto the frozen pond to investigate the lodge and found the exposed entrances. We couldn't resist the temptation. Shedding some of our bulky clothing, two of us wiggled and squirmed (with an occasional push from behind by others) into opposite tunnels until we met in the middle.

That firsthand inspection gave me an insight into the winter lives of beavers that none of my previous

studies had ever provided. Outwardly, a beaver lodge appears to be nothing more than a mud-plastered pile of woody debris--an unkempt heap of odd-sized sticks that occasionally reaches twenty feet in diameter and rises four or more feet out of the water. In this case, the interior turned out to be a marvel of neatness and cleanliness. The earthen floor of the lodge was worn smooth by the countless comings and goings of wet feet on silky clay. The walls and ceilings were trimmed evenly; not a single nub protruded to discomfort a huddling animal (which explained why the beavers in lodges I'd previously attempted to study had been so quick to chew off the ends of some temperature probes I'd inserted). A small chamber branched to the side of one entrance tunnel, apparently having served as a feeding platform just above the water level. It held a single scrap of food: a frozen aquatic quillwort, still whole and green. The main nest chamber, roomy enough to permit us to raise our heads and pass a camera back and forth between opposite tunnels, was devoid of any detritus--not a trace of food, fecal material, or odor.

The lodge had been empty for some time, but my initial sensation upon entering it was one of subtle warmth. Heat, conducted upward from the unfrozen water beneath the floor, maintained the temperature near the freezing point--considerably warmer than the snowy world outside. It was easy to imagine the relative comfort of an occupied chamber. A family of beavers crowded into a small space, huddling and grooming, can generate significant heat (it is not unusual for a pair of adults and two litters of kits to winter together). On a zero-degree day, I once recorded a lodge temperature of 60 degrees F

Beaver Lodge



well within a beaver's thermoneutral zone (the temperature range within which an animal can remain comfortable without raising its metabolic rate) and warm enough to melt a hole in the snow at the top of the lodge.

But there's another, colder side to this picture. Beavers face an energy dilemma every time they slip into the icy water for an excursion to their food cache. (In the fall, beavers stockpile tree branches underwater.) The compression of their fur in the water and the resultant displacement of air from the otherwise superbly insulated pelt, coupled with water's high capacity to conduct heat, greatly accelerate heat loss from the beaver's body and can render the animal hypothermic within about thirty minutes. The need to procure food can become a repeated trauma for the kits, which may enter the water daily in feeding forays lasting from less than five minutes to more than forty. (Adults may make fewer trips, subsidizing their energy needs with fat stores in the tail.) A foraging beaver benefits by being able to return to a warm lodge, where its body temperature can be quickly restored to the requisite 98 [degrees] F.

But herein lies a potential problem. Four hundred cubic feet of earthen lodge, if allowed to cool, can quickly turn into a massive heat sink instead of a life-saving refuge. One way to prevent this might be for family members to stagger their foraging trips, ensuring that the lodge is occupied at all times--and this is where an unusual aspect of beaver behavior comes into play.

To maximize effectiveness in functions such as feeding and mating, virtually all animals maintain biological rhythms that are precisely cued to day length and seasonal cycles. Scientists aren't sure why or how, but beavers' biological clocks (and thus their activity patterns) drift out of phase with the day/night cycle in winter. Although long isolation in the lodge without external light cues would promote such drift (and I can attest to the darkness of a lodge interior), even infrequent excursions underwater should recalibrate internal clocks, since light easily penetrates ice and snow cover on a pond. Yet all across southern Canada and the northern United States, beavers display winter activity patterns based on a twenty-six- to twenty-nine-hour cycle, resulting in a considerable shift, over time, in their daily schedules. Having a free-running internal clock probably carries little risk under the ice, where predators are not a threat, but what is the advantage? One possibility is that in winter, staggered foraging times may maintain an equable indoor temperature, guaranteeing a warm welcome whenever a

beaver returns to its lodge.

Peter J. Marchand is currently a visiting scientist at the Carnegie Museum of Natural History's Powdermill Biological Station near Rector, Pennsylvania.

Victory for the Horses!

The U.S. Senate, by a 68-29 vote, passed the Ensign-Byrd Agriculture Appropriations Amendment yesterday prohibiting the use of any federal taxpayer funds to slaughter horses for food exports.

The amendment mirrors an amendment that passed the U.S. House of Representatives in June. Together, these measures will effectively stop America's horses from being killed in three slaughterhouses in the U.S. that slaughter horses -- two in Texas and one in Illinois.

The amendment also stops horses from being shipped to slaughterhouses in Canada or Mexico so that their meat can be exported to foreign countries.

This issue of *The Beaver Defenders* is dedicated to my dear friend Belinda Irizarry, who lost a very short, but courageous battle with cancer in August.

Some of you may have know Belinda through her years working as coordinator of the Great Egg Harbor Watershed Association

From a very young age, Belinda devoted her life to saving the natural habitat and caring for neglected and abandoned animals. She belonged to many animal and wildlife organizations, including The Beaver Defenders, and dedicated her time to these causes. Belinda spent countless hours passing on her values and beliefs to the little children she met, and she lived her life as an example to others.

The photo on the cover was taken last March when Belinda helped me capture Buck, the abandoned Rooster (page 3, April 2005) here at Unexpected.

April 16, 1963 - August 30, 2005



Palimpsest

The Living Legacy of the North American Beaver

by Tamia Nelson

Human progress often seems to proceed by fits and starts, with periods of growth and activity followed immediately by intervals of consolidation and stasis. The sixteenth century was one of the busy times. Jacques Cartier sailed to the New World, explored the Gulf of Saint Lawrence, and founded New France. What followed, as the saying goes, is history.

Nor was that all. Back in Europe, the face of battle changed as gunners replaced archers. Castles, once all but impregnable strongholds, became mere ornaments of fashion and indicators of status. Professional soldiers took over from feudal levies. The word "mercenary" entered the English language.

There were changes away from the battlefield, as well. Spurred by the need for more accurate landfalls, navigators adopted a new instrument for determining latitude. Called the cross-staff, it replaced the quadrant and mariner's astrolabe, neither of which could be used with any confidence aboard a ship under way in a rough sea. Once they had the cross-staff, however, mariners schooled in the emerging discipline of scientific navigation could determine latitude at sea to a high degree of practical accuracy, under nearly all conditions. Exploration and commerce both benefitted thereby.

Perhaps most important of all, though, was a change that went almost unnoticed outside the libraries of Europe's universities: paper replaced parchment in books. Parchment was made from the skins of sheep and goats. These had to be washed, limed, dehaired, stretched, pared and dusted before they could be inked. Parchment was therefore costly. Paper was cheaper, and it lent itself to new methods of printing. Books soon became common items in well-to-do households. A revolution in information technology was in progress.

Before paper became commonplace, however, books were frequently recycled. The parchment sheets that made up the pages were scraped to remove earlier writing and then reused. Such leaves, once cleaned and ready for re-inking, are known as palimpsests. Even when written-over anew, they often bear faint traces of the earlier manuscript, reminders of what was sacrificed to make way for the new.

This is also true of the landscape that we North Americans know today. Much of "canoe country" (nearly all of Canada, in other words, along with the northern third of the United States)

was given its present shape by the last Ice Age. Only 18,000 years ago, two massive conjoined ice sheets ground their way south to the junction of the Ohio and Mississippi Rivers, rounding off mountains and gouging out valleys as they went. When the glaciers then began to retreat, they left a newly-sculpted landscape behind them, a land stripped of its previous inhabitants and now ready to receive the impress of new life—a palimpsest landscape, in other words.

Among the animals which resettled the land abandoned by the retreating glaciers was a big rodent with a passion for the inner bark of poplar, beech, and alder—the animal that biologists know today as *Castor canadensis*, the North American beaver. While not among the largest of the creatures returning to the newly-opened landscape, the beaver left the biggest mark by far.

There are now some 10 million beavers in the contiguous United States. Once there were 200 million, "living," in author Alice Outwater's words, "almost everywhere there was water, ... [even in] the deserts of northern Mexico." Beavers, she continues, "were scarce only in the swamps of Florida and Louisiana, where [their] dams and lodges were no match for voracious alligators."

Since beavers dam streams and rivers to create protective ponds around their lodges—each of which houses three generations of a single family, typically numbering four to six members—and since on average each pond floods from eight to fifteen acres, beaver ponds may once have covered nearly one-quarter of the country's total land area. And what a place America must then have been! Beaver ponds and their associated

wetlands teem with life. Clouds of tiny, one-celled algae. Red-spotted newts ("red efts"), frogs, and snapping turtles. Herons, grebes, ducks, minks, and muskrats. Even the standing dead trees, killed by the rising water, become home to cavity-nesting birds.

Indeed, beaver ponds are among the most productive of natural environments, and for that reason alone they're just about the best places to go if you're stalking really big trout. Robert Traver, in "Lost Atlantis," a classic essay from his 1960 book *Trout Madness*, writes of looking out over the beaver pond created by a "beautiful live dam, at least eight feet high," and feeling "like Magellan or somebody beholding a new continent[,] ... a beautiful expanse of mysterious deep water as far as the eye could see." Most back-country fisherman probably have



some such memory tucked away, to bring out and savor on the days when nothing's biting, or when work or another obligation keeps them off the water.

Of course, even in areas where beavers haven't been trapped out or killed off, no beaver pond lasts forever. As you'd expect of an animal that weighs as much as a fair-sized dog and lives

on such low-calorie food as green plants and the inner bark of trees, beavers eat a lot. Sooner or later, therefore, they eat themselves out of house and home and have to move on. And when they go, they leave their dams behind. Without daily maintenance, abandoned dams quickly fall into disrepair. While they can last a good long time—we've returned to derelict dams again and again for many years, only to find them still standing—the day comes at last when the dam goes out, often after a prolonged, wet spring, or a torrential summer thunderstorm.

When the dam goes, it leaves a fertile, open "beaver meadow" behind. Before long, the poplar, beech and aspen return. Once the forest is reestablished, the beaver, too, will be back.

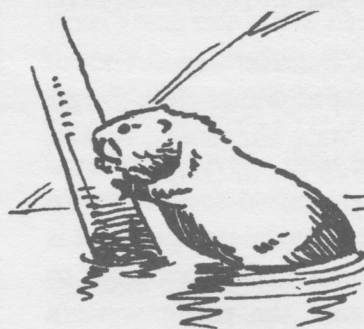
The greatest gift of the beaver, however, is clean water. Beaver ponds are natural reservoirs and settling tanks. They both absorb flood waters during years of heavy rainfall and recharge aquifers during prolonged droughts. Before the sixteenth century, North America was blessed with tens of millions of such ponds.

But Jacques Cartier changed all that. On the 6th of July 1534, in his first encounter with the Micmac Indians near Paspebiac village on the north shore of Chaleur Bay, Cartier's men found themselves surrounded by native canoes. The meeting began badly—the frightened French fired on the Micmac—but it ended well. By the next day, in historian Samuel Eliot Morison's words, "a profitable traffic took place," with the Micmac "selling the very clothes off their backs" to sailors eager to buy. The clothes, of course, were furs. It was the start of "three centuries of friendship between French Canada and the Micmac." And it was the beginning of the end for the North American beaver. From that day forward, beavers were relentlessly sacrificed to European fashion. Acre by acre, the continent's beaver ponds and wetlands disappeared.

Once it began, the killing proceeded with astonishing speed. In New York, the Dutch began trading furs with the Iroquois in 1626. Thirty-eight years later, the British displaced the Dutch. By 1700, the British colonial governor reported that "the beaver trade [in New York] ... is sunk to little or nothing." Beavers survived only in the central Adirondacks, and even there they were subjected to relentless trapping pressure. By 1903, only one family group survived.

That could have been the end of this story, but in the same year the state legislature voted to spend \$500 to return beavers to the Adirondacks. Though fewer than 50 were released, and although the trapping season was reopened in 1924, the restoration attempt succeeded, thanks in large measure to the efforts of a single remarkable individual—Dorothy Richards, whose Beaversprite Sanctuary provided a safe haven during the uncertain early years of the program. The beaver was back to stay.

Farwell and I were reminded of this when, a few years ago, we were awakened by the sound of loud gnawing just outside our bedroom window. Looking out, we could see nothing—it was a moonless night, with low cloud obscuring the stars—but the gnawing continued, to be followed shortly thereafter by the thump of a falling tree. Soon we were hearing steady, rhythmic chewing coming from the water's edge.



We stayed up for several hours more, listening without seeing. It was obvious that a whole family were enjoying a meal. We could hear at least two distinct chewing rhythms. Occasionally, the high-pitched "contact call" of young beavers would pierce the stillness of the night, and once we heard the enthusiastic SLAP! of a yearling sentry.

In the morning, we found only a small stump where a poplar had once stood. The tree itself lay in the shore eddy, stripped of all its leaves and bark. Somewhere on the Flow, in a lodge or bank den, a family of beavers were slumbering happily. They'd had a meal at our expense, to be sure, but we didn't begrudge them the cost. For a few short hours we'd been given a tantalizing glimpse of another country, a page from a living past that, although rubbed out and overwritten long ago, still endures—a faint yet vital palimpsest of a lost America.

The Beaver Defenders is published quarterly by the Unexpected Wildlife Refuge, Inc., a non-profit organization created in 1961 to provide an inviolate sanctuary for wild animals, to study wild animals in relation to humans and to promote humane treatment of animals and environmental protection.

Climate Warning as Siberia Melts

by Fred Pearce, New Scientist, August 11, 2005

THE world's largest frozen peat bog is melting. An area stretching for a million square kilometres across the permafrost of western Siberia is turning into a mass of shallow lakes as the ground melts, according to Russian researchers just back from the region.

The sudden melting of a bog the size of France and Germany combined could unleash billions of tonnes of methane, a potent greenhouse gas, into the atmosphere.

The news of the dramatic transformation of one of the world's least visited landscapes comes from Sergei Kirpotin, a botanist at Tomsk State University, Russia, and Judith Marquand at the University of Oxford.

Kirpotin describes an "ecological landslide that is probably irreversible and is undoubtedly connected to climatic warming". He says that the entire western Siberian sub-Arctic region has begun to melt, and this "has all happened in the last three or four years".

What was until recently a featureless expanse of frozen peat is turning into a watery landscape of lakes, some more than a kilometre across. Kirpotin suspects that some unknown critical threshold has been crossed, triggering the melting.

Western Siberia has warmed faster than almost anywhere else on the planet, with an increase in average temperatures of some 3 °C in the last 40 years. The warming is believed to be a combination of man-made climate change, a cyclical change in atmospheric circulation known as the Arctic oscillation, plus feedbacks caused by melting ice, which exposes bare ground and ocean. These absorb more solar heat than white ice and snow.

Similar warming has also been taking place in Alaska: earlier this summer Jon Pelletier of the University of Arizona in Tucson reported a major expansion of lakes on the North Slope fringing the Arctic Ocean.

The findings from western Siberia follow a report two months ago that thousands of lakes in eastern Siberia have disappeared in the last 30 years, also because of climate change (*New Scientist*, 11 June, p 16). This apparent contradiction arises because the two events represent opposite end of the same process, known as thermokarsk.

In this process, rising air temperatures first create "frost-heave", which turns the flat permafrost into a series of hollows and hummocks known as salsas. Then as the permafrost begins to melt, water collects on the surface, forming ponds that are prevented from draining away by the frozen bog beneath. The ponds coalesce into ever larger lakes until, finally, the last permafrost melts and the lakes drain away underground.

Siberia's peat bogs formed around 11,000 years ago at the end of the last ice age. Since then they have been generating methane, most of which has been trapped within the permafrost, and sometimes deeper in ice-like structures known as clathrates. Larry Smith of the University of California, Los Angeles, estimates that the west Siberian bog alone contains some 70 billion tonnes of methane, a quarter of all the methane stored on the land surface worldwide.

His colleague Karen Frey says if the bogs dry out as they warm, the methane will oxidise and escape into the air as carbon dioxide. But if the bogs remain wet, as is the case in western Siberia today, then the methane will be released straight into the atmosphere. Methane is 20 times as potent a greenhouse gas as carbon dioxide.

In May this year, Katey Walter of the University of Alaska Fairbanks told a meeting in Washington of the Arctic Research Consortium of the US that she had found methane hotspots in eastern Siberia, where the gas was bubbling from thawing permafrost so fast it was preventing the surface from freezing, even in the midst of winter.

An international research partnership known as the Global Carbon Project earlier this year identified melting permafrost as a major source of feedbacks that could accelerate climate change by releasing greenhouse gases into the atmosphere. "Several hundred billion tonnes of carbon could be released," said the project's chief scientist, Pep Canadell of the CSIRO Division of Marine and Atmospheric Research in Canberra, Australia.

FRANK AND ERNEST

VINELAND (N) TIMES JOURNAL - APR. 12, 1982 by Bob Thaves



PETA THROWS BOMB IN NEW HAVEN - Shall I Compare Thee to a Freaking Cow? By Andrew Christie, 9/19/05

Pictures of Jews in concentration camps with numbers tattooed on their arms are juxtaposed with monkeys subjected to medical experiments, tattooed likewise. Children working their lives away in 19th-century factories are seen next to pigs and chickens exploited in present-day factory farms.

So, naturally, outrage ensues. When the exhibit came to a Connecticut street corner one day in early August, the New Haven Register editorialized, "If you care about animals more than people, the comparison may seem apt.... There is little common ground for agreement if PETA sees the slaughter of livestock for food as the same as the lynching of blacks or the extermination of millions of people in Europe."

Passers-by apparently agreed. The head of the state chapter of the NAACP showed up on the scene, said "black people are being pimped," and told organizers to take down the exhibit. A brother shouted in the face of a PETA volunteer "You can't compare me to a freaking cow!"

Two years ago, the Anti-Defamation League was likewise livid when a PETA display drew parallels between mass animal slaughter and the Holocaust (including the uncomfortable fact that the design of Auschwitz was based on the Chicago slaughterhouse system), though Isaac Bashevis Singer had long ago made the same observation with no fear of inappropriate equivalencies. The exhibit has now been pulled and PETA is "evaluating feedback." Is PETA right?

Before pondering that, let us turn to the entity that is currently crafting the most incisive, devastating media critique of our cultural moment currently on view, one almost too painful to watch. I refer, of course, to Carl's Jr. — or, more precisely, to Carl's Jr.'s ad agency, Mendelsohn Zien.

Last July, the Santa Barbara News-Press asked Carl's Jr. CEO Andrew Puzder about complaints concerning his company's "edgy" ads — including "soft-porn images of a sexy babe gyrating on a mechanical bull or Paris Hilton washing a Bentley while barely dressed" — and his company's current campaign encouraging viewers to think of animals as too dumb to live ("There's only one thing chickens are good for"). Puzder's reply, that the ads are "not intended to insult or demean anybody," would not seem to merit response, but it's worth noting that these ads are all of a piece and in fact insult and demean one more group beyond the obvious: The 18-to-34-year-old male demographic they're aimed at. They all send an unmistakable message: We know what level to reach you on. Women and animals are here for your pleasure. Use them.

PETA got it wrong in New Haven in only one respect: Animals are not "the new slaves." They're the first ones. They're the

ones who got the worst a dominator culture had to offer, and the worst has lately gotten much worse, as a quick tour through a Confined Animal Feeding Operation will demonstrate to anyone in possession of two or three of his senses and lacking a vested interest in the company's quarterly profit statement.

The larger lesson of Darwin (there are no superior species, only differently adapted ones) has not yet sunk in; instead, we are still ruled in every way that matters by the medieval Great Chain of Being, on which we placed ourselves one rung below the angels and far above all other manner of beast, most low, foule and uncleane. When a black man in New Haven sees images of his ancestors and a cow side by side, equally mistreated and commodified, he is conditioned to see only the comparative sully of his godliness, not the cruelty that is the lot of sentient beings who have no rights. He fears he will be cast down by the implication that the lot of the oppressed should be raised up.

Historically, he is not alone. That was the deepest fear of his ancestors' owners in the ante-bellum South. It was the fear of men confronted by women's suffrage. It was the fear of our founding fathers, the white male land owners who, in drafting the Constitution, struggled to find a way to exclude the rabble from too much participation in the democratic experiment, the better to keep the levers in the hands of the right sort of people while giving the others just enough by way of social rewards to keep them controllable.

Changing those paradigms were (and are) hard fights, but the animal rights movement is fighting 10,000 years of cultural conditioning (memo to the 18-to-34-year-old male demographic: it's like *The Matrix*, dudes) and the tendency of the disenfranchised, in the words of Howard Zinn, to fall upon each other "with such vehemence and violence as to obscure their common position as sharers of leftovers in a very wealthy country."

Thus the good people of New Haven recoil, the NAACP shouts at PETA, and the pundits trot out safe, predictable outrage, using generations of conditioning to studiously miss the point. It's a fight amongst ourselves on a deeper level than usual. It misses not only the fact of our increasing disenfranchisement but the dysfunctional ways in which the disproportionately distributed wealth is produced by a system that is impoverishing the Earth and our ethical sense alike. One of that system's most fundamental control measures persuades people that in their visceral rejection of the truth PETA is laying down, they are standing up for their dignity and humanity, when, in reality, they are defending a system in which commonality of suffering is not on the agenda, the members of only a single species have any right to life, liberty and freedom from harm, a chicken is of value only as a sandwich, and the idea that a chicken might be of value to the chicken is an idea that must not be thought.

Andrew Christie is an environmental activist in San Luis Obispo, CA.



Girls and Boys, Meet Nature, Bring Your Gun

By Pam Belluck, September 18, 2005

GREEN MOUNTAIN NATIONAL FOREST, Vt. - Chomping wad after wad of Bubblicious Strawberry Splash gum and giggling as she tickled people's necks with a piece of grass she pretended was a spider, Samantha Marley could have been any 9-year-old girl.

A couple of things set her apart, though. She was cloaked in camouflage from boots to baseball cap. And propped next to her on the seat of a truck was her very own 20-gauge shotgun.

Samantha, a freckle-faced, pony-tailed fourth grader, was on a bear hunt. Not the pretend kind memorialized in picture books and summer-camp chants, but a real one for black bears that live in the woods of southwestern Vermont and can weigh 150 pounds or more.

She had won a "dream hunt" given away by a Vermont man whose goal is to get more children to hunt, and she had traveled about 200 miles from her home in Bellingham, Mass., and was missing three days of school to take him up on his offer.

"Almost everything you hunt is pretty fun," said Samantha, grinning and perfectly at home with a group of five men, the youngest of whom was nearly three times her age.

At one point, as the group crossed a wooden bridge, Samantha's father, Scott, who had accompanied her - and had filled out her application for the hunting contest - teased her that trolls lived under the bridge. "Dad," Samantha said with bravado, "I got a gun."

The dream hunt - all expenses paid, including taxidermy - was the brainchild of Kevin Hoyt, a 35-year-old hunting instructor who quit a job as a structural steel draftsman a few years ago and decided to dedicate himself to getting children across the country interested in hunting.

His efforts reflect what hunting advocates across the country say is an increasingly urgent priority, and what hunting opponents find troubling: recruiting more children to sustain the sport of hunting, which has been losing participants of all ages for two decades.

"Forty years from now our kids will be learning about this as history," said Larry Gauthier, one of Mr. Hoyt's buddies on the bear hunt. "Hunters should be included as an extinct species because we're falling away so fast, we need to be protected."

This year, three pro-hunting groups - the National Shooting Sports Foundation, the U.S. Sportsmen's Alliance and the National Wild Turkey Federation - started Families Afield, a program to lobby states to lower the age at which children can

hunt or to loosen the requirements for a child to accompany a parent on a hunt.

"We're trying to take down some legal barriers so kids can get involved earlier," said Steve Wagner, a spokesman for the shooting sports foundation, who said bills to those ends were being introduced in Ohio, Pennsylvania and Wisconsin. The group says the 20 most restrictive states set 12 as the minimum hunting age and do not let a child accompany an adult on a hunt without completing hunter education training.

Vermont, by comparison, allows children of any age to hunt if they have passed a hunter's safety course and have parental consent.

Fish and game departments in some states, whose programs depend in part on the licensing fees hunters pay, are trying to entice youngsters with special hunting weekends. New Hampshire, for example, plans to have Youth Waterfowl Hunting Days this month for children 15 or younger, just before the start of the official waterfowl hunting season.

The number of hunting licenses in the United States dropped to 14.7 million in 2003, from 16.4 million in 1983, according to the federal Fish and Wildlife Service. Hunting advocates cite many reasons for the decline.

"Some of it has to do with habitat loss, urban sprawl taking away places where people used to hunt," Mr. Wagner said. "And people just don't have time."

He said that getting children involved in hunting earlier would be one way to turn the trend around. More than 90 percent of hunters are 35 or older, and nearly 80 percent of current hunters started between ages 6 and 15, the shooting sports foundation says. Hunting advocates say children are much less likely to become adult hunters if they wait until they are 16.

Mr. Hoyt, a father of five children under age 13, says he is committed to recruiting younger hunters.

"My youngest child was with me when he was 2 months old and I shot a deer with a muzzle loader," he said. "He was in a backpack. I was stuck home baby-sitting and I felt like hunting."

With his wife, Heather, supporting the family by working from 6 a.m. to 11 p.m. at a veterans' home and a Wal-Mart, Mr. Hoyt devotes himself to his mission, asking for donations of services from outfitters, taxidermists, hunting guides and others.

This month he plans to drive his camouflage-tattooed Toyota Tacoma truck to dream hunts for deer, elk, bison or pronghorn antelope in Michigan, Tennessee, Kentucky, Texas, New Mexico, Colorado, Wyoming, Montana, North Dakota, Ohio and Saskatchewan. He intends to sleep in his truck in between hunts and not return home until Thanksgiving.

The Beaver Defenders Membership Application

Name: _____

Email: _____

Address: _____

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Membership/subscription is \$20 annually, due each July. Please make checks payable to Unexpected Wildlife Refuge. All contributions are tax deductible. The amount of your donation in excess of membership dues will be considered a donation unless otherwise specified.

Mail to: Beaver Defenders
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(Please include an additional \$3 for shipping and handling of merchandise orders)

Books: Hoofmarks	\$18.00
Beaversprite, My Years Building an Animal Sanctuary. The	\$15.00
Best of Beaver Defenders	\$ 8.00
T-shirts: Hunter green, on the front - our logo; on the back - I support the Unexpected (with charming beaver).	\$20.00
Mugs: Light brown mug with green logo, very tasteful	\$ 5.00
Posters: Trapped beaver and baby	\$ 1.00
Beavers turn wilderness into happiness	\$ 1.00 (colorable!)
Cards: 12 custom beaver block prints created by fifth graders with poems written by Beaver Defenders, 24 pack, fit legal envelopes	\$ 4.00
Sheet Music: Away with Traps, Song of the Beaver Defenders . . We	\$ 1.00
Love You, Little Beaver	\$ 1.00

Educational Materials free with a self-addressed stamped envelope.

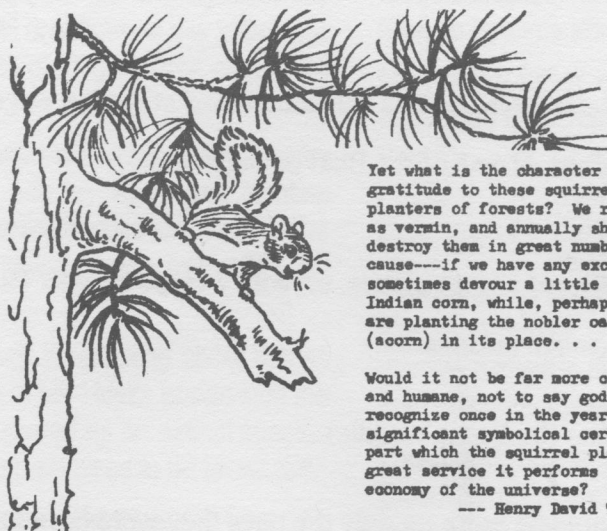
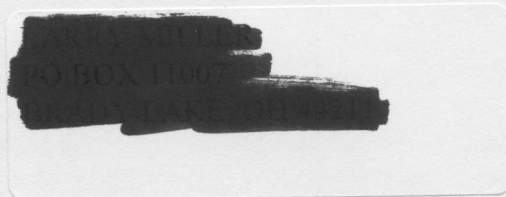
- ▶ Unexpected Wildlife Refuge, Home of the Beaver Defenders
- ▶ What Beavers do for Waterways
- ▶ Beaver Problems and Solutions
- ▶ Species found at the Refuge
- ▶ Coloring sheets (five different beaver scenes, drawn by Hope Sawyer Buyukmihci)
- ▶ They All Call it Home
- ▶ Slandered Do-gooders (snake information)
- ▶ The Square of Flesh
- ▶ Chopper, in Memoriam
- ▶ Intruder in a Cageless Zoo (by Ferris Weddle)

Furs should be worn on only the ones they were born on.



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Yet what is the character of our gratitude to these squirrels, these planters of forests? We regard them as vermin, and annually shoot and destroy them in great numbers, because---if we have any excuse---they sometimes devour a little of our Indian corn, while, perhaps, they are planting the nobler oak-corn (acorn) in its place. . . .

Would it not be far more civilized and humane, not to say godlike, to recognize once in the year by some significant symbolical ceremony the part which the squirrel plays, the great service it performs in the economy of the universe?

--- Henry David Thoreau