

Cooks Current

"To protect, preserve and improve the quality of water, land and life in the Cooks Creek Watershed"

Volume 15, Issue 1

Newsletter of the Cooks Creek Watershed

Winter 2018

2018 Events

Regular Board Meetings:

Springtown Fire House- 7:30PM

4th Thursday of the month except Nov. and Dec. which is the 3rd Thursday; April meeting is the Annual Meeting. Jan. 25, Feb. 22, Mar. 22, Apr. 26, May 24, June 28, July 26, Aug. 23, Sept. 27, Oct. 25, Nov. 15 (3rd Thursday), Dec. 20 (3rd Thursday)

Special Events coming for year

Apr. 7, first Sat. of April, Spring Clean-Up

Apr. 26, fourth Thurs., Annual Meeting

June 16, Sat. of Father's Day weekend, Mini Monster Mayhem

July 7, second Sat. of July, Native Plant and Invasive Workshop

Springfield Community Day 275 yr. celebration - TBD

Oct. 6, first Sat. of Oct., Fall Dinner

Oct. 13, second Sat. of Oct., Durham Community Day

Nov 10, second Sat. of Nov., Fall Clean-Up



See back for details!

We're on the web!
www.cooks creekpa.org

Cooks Current is a publication of the Cooks Creek Watershed Association.

Board Members:

President: W. Scott Douglas

Treasurer: Jim Orben

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Recording Secretary/Editor:**
Lois Oleksa

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Lois Oleksa

Additional Members:
Sarah Snider, Stephen Smith, MD,

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Ellie Scheitrum

From Across the Board...

Wow, hard to believe how cold it has been the past few weeks. For all the time I've lived in the Watershed (since 1990) I've never seen this many single digit mornings. But don't be fooled, this is just another symptom of climate change, with strange weather patterns likely to continue into the future. We are in uncharted waters at this point, the only sure thing is that uncertainty will increase going forward. Speaking of uncertainty, take a look at the article on our stream gauging efforts. As you may remember, we obtained a grant from the Lehigh Valley Foundation a couple of years ago to evaluate all of our data from the two stream gauges. The experts came back and let us know that there are discrepancies in our data that need to be resolved before we can draw any conclusions about long term water levels in the Creek. To that end, we applied for money from PADEP's Growing Greener program to reset and recalibrate our stream gauges. We heard in December



Firehouse planting - CCWA and Trout Unlimited

that our grant was approved! It's not a huge amount – a little over \$39K - but it will be enough for us to start up the stream flow monitoring program again. We will be working with Princeton Hydro of Ringoes, NJ on this project over the summer and fall. Part of our grant agreement is to provide over 300 in-kind volunteer service hours. If you would like to be part of that, and learn more about hydrology and stream gauging, drop me a line at info@cooks creekpa.org.

If you'd rather help out with something less brainy, then consider coming out to the Durham Mill and helping us clean out the invasive plants and debris from the **Tailrace**. The Durham Historical Society and CCWA received a small grant (\$2000) from the Delaware River Greenway Partnership and the National Park Service. Like the Growing Greener grant, we need to supply volunteer hours to match the dollars we received. Look to Face-

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book for updates on the date and time, which should be before spring brings out the ticks. All equipment and supplies will be provided, and you can come for an hour or all day. Another opportunity to help outside will come later in the spring when we will work on the **Streambank Restoration** at the Springtown Firehouse. We will spruce up the plantings, add some mulch, plant some more flowers, and chat with our friends at Trout Unlimited. Again, we'll post the date and time as soon as they are set.

In other areas, we have our calendar set for 2018. Our **Annual Roadside Cleanup** will be on Saturday April 7. Please come over to the Firehouse in Springtown to pick up supplies and refreshments and let us know where you want to work. Trash trucks will be at parked at the Springfield Township Building. Our **Annual Meeting** will be held during our regular Board Meeting timeslot (7:30-9pm) on April 26 at the Springtown Firehouse. This meeting is where we firm up our budget and make sure all or our programs are on track. We would love to have you attend! Looking even further forward would be our **Mini Monster Mayhem** on June 16 (Fathers Day weekend). Last year we did not have any takers, so I'm hoping that the pent up demand will spur attendance. Please pass the word around, this is a really fun event for young and old alike.

On the municipal front, the **Comprehensive Plan** rewrite is ongoing in Springfield Township. If you have not already, please fill out your **Township Survey!** If you have more to say, come to the Township Building on the last Monday of each month for the public workgroup meetings and state your case to maintain our environmental vigilance. We've done so much to protect our resources, and even though there have been losses over the years, those losses would be much worse if we didn't have the restrictions we have.

Yours in Conservation
W. Scott Douglas
President

Notice!

It's Annual Meeting Time again!

Not just another Board Meeting, the Annual Meeting is a chance to discuss our year, plan for next year, elect officers and recognize the hard work of our members.

This meeting is a requirement of our 501c3 status, but is also a great time to "put in your two cents" about what the CCWA does with YOUR money.

Make a difference, plan on attending!

Thursday, April 26, 2018 @ 7:30 PM @ Springtown Fire Company



Botanical Focus: Witch Hazel (*Hamamelis virginiana*) By: David Oleksa

This is the 6th installment in a series of articles on the flora of the Cooks Creek Watershed.

This native shrub or tree grows throughout the entire eastern half of the United States. Although it is closely related to some Asian varieties, it differs primarily in the fact that *H. virginiana* has fragrant flowers not found on its Asian cousins.

Witch hazel tends to grow as a dense multi-stemmed clump with a width of 15 to 20 feet and occasionally reaching 30 feet in height. Its leaves are oblate in shape measuring two to six inches in length. The leaves are dark green on top and a lighter shade of green on the nether side. The tree can be readily identified in the late fall and early winter since it is one of the last of the native flora to flower. The flowers themselves are fragrant and are bright yellow with four slender petals. The flowers are pollinated by a moth and often they appear as the only bright color in the wood lot, with all the other trees' leaves having long since been dropped to the forest floor.

The genus name *Hamamelis*, is derived from two Greek words; *hama* meaning “at the same time” and *melon* meaning “fruit”. Since witch hazel bears its fruit and flowers at the same time, the name is appropriate. The American name, witch hazel, also has an interesting derivation. Early settlers watched the Native Americans use forked branches of witch hazel as divining rods to locate underground sources of water. “Wicke” is Middle English for “lively”, and “wych” is Anglo Saxon for “bend”. Since the dowsing end of the forked stick would suddenly bend when an underground source of water was near, the tree became known as either “wicke hazel” or “wych hazel”. As time went on, the seemingly magical properties of the dowsing stick caught the attention of the religious leaders of the day who ascribed the effect as supernatural. The tree then became known as witch hazel. Interestingly enough, dowsing became a well- established procedure used by well diggers until the mid-20th century and even today, in some rural areas, is used by some practitioners.

The fruits of the witch hazel are found as tan or gray hard capsules which are dormant through the winter and then develop fully during the next growing season. In the autumn, two black seeds explode from the capsules and are hurled 10 to 20 feet away (sometimes as far as 40 feet). After another year, the seed germinates, the plant begins to grow and after 6 years, the shrub starts bearing flowers of its own.

There is a second variety of witch hazel in the United States. This one is found in the southern part of the witch hazel range and is identified as *Hamamelis vernalis* . This variety is essentially identical except for the fact that it blooms in the spring.

In addition to its dowsing use and the fact that the witch hazel makes an attractive ornamental addition to the landscape, the tree is also known for its medicinal properties. The “witch hazel” liquid which can be purchased at a pharmacy is made from the bark of the tree and the resulting liquid is an astringent which alleviates conditions of acne, bruises, hemorrhoids, sore gums and is also an effective lotion to be used after shaving since the astringent properties help stop the bleeding from small nicks and cuts and tighten the skin.

Without a doubt, this is one of the most unique, useful, and beautiful types of foliage in the watershed.



Photos from Wikipedia



Firehouse planting - CCWA and Trout Unlimited

Photos by Scott Douglas

Stream bank restoration project at Springtown Firehouse.



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Children's Backyard: Eco Friendly Movies, Films with Environmental Messages and Nature Documentaries

By: David and Lois Oleksa

Fern Gully – The Last Rainforest: A rainforest adventure where this special world is trying to be saved from mankind's carelessness and the evil Hexxus.

Dr. Seuss – The Lorax: Twelve-year-old Ted will do anything to find a real live Truffula Tree in order to impress the girl of his dreams. As he embarks on his journey, Ted discovers the incredible story of the Lorax, a grumpy but charming creature who speaks for the trees.

Spirit: Stallion of the Cimarron: Follows the adventures of a wild and rambunctious mustang stallion as he journeys through the untamed American frontier. Encountering man for the first time, Spirit defies being broken, even as he develops a remarkable friendship with a young Lakota brave.

WALL – E: WALL-E, short for Waste Allocation Load Lifter Earth-class, is the last robot left on Earth. He spends his days tidying up the planet, one piece of garbage at a time. But during 700 years, WALL-E has developed a personality, and he's more than a little lonely.

Hoot: When the new kid in town discovers that a local population of burrowing owls are about to have their home destroyed, he teams up with the resident outcast and the school's offbeat tomboy to take on the town and to save the endangered owls.

Free Willy: Captured at sea and confined in a small aquatic park, Willy (Keiko the Orca whale) is an unhappy and unpredictable attraction. No one understands Willy – except a scruffy street kid named Jesse who knows what it's like to be without a family. Together these two form a special bond...one so strong that they're willing to risk it all to find a way home.

Furry Vengeance: Sometimes, four legs are better than two. Dan just moved his wife and son to the woods to take a new job with a supposedly eco-friendly housing development. But the fur – and Dan's temper – is sure to fly when the local critters learn of the bleak plans for their forest home and stop at nothing to halt construction.

March of the Penguins: At the end of each Antarctic summer, the emperor penguins of the South Pole journey to their traditional breeding grounds in a fascinating mating ritual that is captured in this documentary.

Arctic Tale: Nanu, a polar bear cub, and Seela, a young walrus, live and grow to maturity in the frozen wilderness of the North, where the tundra has been a haven to their kind for countless generations. Now Nanu, Seela and the rest of the Arctic's wildlife experience the diminishment of their environment.

Planet Earth: David Attenborough celebrates the amazing variety of the natural world in the epic documentary series, filmed over four years across 64 different countries.

Green Tip #41: How should I De-Ice my sidewalks and driveway?

All chemical deicers are toxic to plants, pets and children.

Remove as much snow and ice as you can with a plow, snowblower, shovel or scraper. The less ice and snow that has to be melted, the less chemical deicer you will have to buy and spread.

Rock Salt or sodium chloride is the most popular because of its availability and low cost. The road crews use rock salt. It is not very effective below 15 degrees F.

Calcium Chloride, while more expensive, works at lower temperatures and is a bit less harmful to the environment.

Anti-skid materials like sand or kitty litter are a good choice because after the ice melts they can be swept into the lawn or shrubbery and are not toxic.

Be Safe and enjoy winter.



Renew Your Membership

Cooks Creek is an important resource for our community. Don't forget to renew your membership and stay up to date on issues concerning our Watershed.

If you want to get more involved, come to a meeting and share your talents and interests!

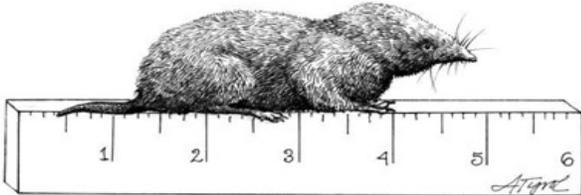
Find the membership form on the back page.

***** Check your mailing address for your membership status. *****

Creature Feature: Short-Tailed Shrew (*Blarina brevicauda*)

By: W. Scott Douglas

This is the 43rd installment in a series of articles on the fauna of the Cooks Creek Watershed.



I was out walking my dogs on one of those frigid days we had last January, when both became very interested in a pile of leaves. I was pretty surprised when a dark mouse-like form jumped out at them and squeaked loudly before scurrying away quickly to disappear in the brush. I suppose the dogs were not surprised, but they both sure jumped back when the animal jumped at them. Wait, what's a mouse doing out in single digit temperatures in January? Shouldn't they be sleeping away, tucked into a straw lined nest under a log? I watched the little creature snuffle in the brush and got a good look at it. Not a mouse at all, I realized, but a shrew. By the length of the tail, I knew it was a northern short-tailed shrew, *Blarina brevicauda*. The short-tailed shrew is one of the smallest but most common mammals in Pennsylvania. Some naturalists estimate that there are more than 100 of these little guys per acre.

The northern short-tailed shrew shares Pennsylvania with five other species of shrew. The short-tailed is by far the most common, and easiest to identify with its stunted and mostly hairless stub of a tail. Shrews are not rodents at all, but along with moles are members of the Order Insectivora; the most primitive of the placental mammals. Shrews are incredibly energetic, staying active year round, and their sole activity appears to be desperately looking for food. This is hardly a surprise when you learn that they have a heartbeat of over 750 beats per minute, and a metabolism to match. While they don't weigh much, less than an ounce, they have to eat their weight in worms, insects and basically anything else

they can catch, every day just to stay alive. They even cache berries, nuts and roots in their tunnels for lean cold periods when insects are hard to find. This frenetic activity makes them more than a bit belligerent, explaining the attack on my dogs. Perhaps my dogs even knew instinctively that this little guy is actually dangerous, being the only mammal with a venomous bite. Milliliter for milliliter, shrew venom is actually as toxic as rattlesnake venom, and is strong enough to kill a human, but it would take more than the shrew has available. Its delivery system is not very efficient either, since it uses it for eating, not for defense. The bite slows the struggles of its prey enough for it to shred it and gulp it down before quickly moving on to its next victim. Don't let this make you think that a shrew is safe to handle though, their bite is painful and the effects of the toxin are not pleasant and last for several days.

Shrews live in a variety of habitats, anywhere that there are cracks and crevices to hide and hunt. They will even climb trees and will take to the water as well. They make their nests of shredded leaves and grasses in logs, stumps or old rodent tunnels. They don't live very long, often not even through their second winter, but they make up for this by being very prolific. Shrews mate in January and February, and have their first litters at the end of February or early March. Gestation is only 21-22 days, after which they give birth to 3-10 blind, naked, helpless pups that each weigh less than a paperclip. The pups grow quickly though, and are weaned in only 25 days. Consequently, shrews can easily have 2-3 litters per year. It's a good thing, because shrews have a lot of enemies; they are eaten by a whole host of predators, including raptors, shrikes, snakes, fish and many predatory mammals. Interestingly, while mammals like skunks, fox, opossum, mink and weasel will kill shrews, many won't eat them, presumably because of their strong musky odor.

You can find shrews practically anywhere, I usually see them when raking leaves, picking up brush or moving the woodpile. You can often hear them working through dried leaves when sitting out in the woods. Since their eyesight is very poor, they move about by echolocation, much like bats, but their system is not nearly as sophisticated. Their squeaking is pretty audible to us, and they don't seem to show much fear of being seen, so they are fun to watch. Just don't try to pick them up.

Update on the PennEast Pipeline AND the NEW Adelpia Gateway Pipeline Project

By: Arianne Elinich

The PennEast Pipeline has been granted a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission. You can find the details of the FERC Certificate at https://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20180119-3110. In the order, FERC Commissioner Glick dissented, making note of the questionable “public benefit” of this project, stating, “...there will not necessarily be any restriction on a pipeline developer’s ability to exercise eminent domain while the Commission waits to confirm that the pipeline is in the public interest.” In fact, in the FERC order, Commissioner Glick makes a note of the fact that PennEast’s application lacks the evidence that he believes “...is important to making the public interest determination.”

The Delaware River Basin Commission, the New Jersey Department of Environmental Protection and the Army Corps of Engineers must still weigh in on the project, and in the meanwhile, many actions are being planned on both sides of the river. Please reach out to the Delaware Riverkeeper Network at bridget@delawareriverkeeper.org if you are interested in participating in any of the upcoming informational webinars or direct-action trainings.

Next, we have an entirely new pipeline project on the docket affecting five counties in Pennsylvania, the Adelpia Gateway Pipeline Project (<https://adelphiagateway.com>). Additional information about the Adelpia Gateway can be found at <https://www.pipainfo.org/adelphia>. The project will convert the lower (and currently deactivated) southern portion of the existing eighty-four-mile pipeline from oil to gas, and in fact, intends to connect to the PennEast Pipeline.

Adelpia Gateway officially filed an application with FERC for a Certificate of Public Convenience and Necessity on January 11th, 2018. Interestingly enough, this project was originally contested when the pipeline was first proposed in the 1970’s, and in fact, many of the same environmental and watershed concerns being addressed when this line was first proposed are the same concerns our communities have today.

The Adelpia Gateway project will impact communities in Northampton, Bucks, Montgomery, Chester and Delaware Counties as the gas makes its way to Marcus Hook, and would result in new pipeline interconnects, compressor stations and other infrastructure. This project is in no way less a hazard to our communities, and there are additional integrity concerns as the result of this being a line that has been in the ground for almost three decades.

Additionally, with the recent approval of the PennEast Pipeline’s Certificate of Public Convenience and Necessity, there is some discrepancy about the redundancy of projects, and the Federal Energy Regulatory Commission’s Order does make a record of the fact that “the expansion of existing pipeline systems was not a feasible alternative.” So, it’s interesting to find the Adelpia Gateway project submitted on the FERC docket within only a few weeks of FERC’s Order granting PennEast the permission to move forward with proceedings to condemn properties across Pennsylvania and New Jersey where many land owners have still refused to sign easement agreements with PennEast.

The process of natural gas fracking is a dangerous practice from start to finish. If the companies invested in these enterprises were really worried about energy independence they would not be extracting this gas as quickly as possible to move it to market in other states. The Adelpia Gateway project is not in the best interest of gas consumers or energy independence for Pennsylvanians, and in fact, there is a good possibility that this project could actually result in increased market price volatility and reduced supply reliability.

Please voice your concerns with your elected officials about the dangers of converting the deactivated portion of this oil pipeline to a natural gas transmission line. For more information please check out <https://www.stoppenneast.org/index.php/county-pages/bucks-county> and if you are concerned about the impacts of this project, please file promptly as an intervener on the Federal Energy Regulatory Docket under Docket #CP18-46-000 at <https://www.ferc.gov/docs-filing/efiling.asp>.

PART I: Can Our Soils Save us from Climate Chaos? By: Lorna Yearwood

This is a question I've been pondering for a few months now. Over the last few years of teaching and learning about organic gardening and agriculture, I have become more and more fascinated with, and indeed grateful for, soil (definitely not "dirt"!) - not just because of its ability to grow our food and sustain us human beings (and many other creatures), but for its whole complex ecosystem – an example is the symbiotic relationship between mycorrhizal fungi and plants - where the fungi gather nutrients and water in return for sugars from the plant roots¹. And, being a farmworker, I definitely appreciate the fact that soil makes me happier, which is apparently due to the fact that soil contains bacteria called *Mycobacterium vaccae* which gets absorbed through the skin of my hands (and surely some is ingested) as I am planting & harvesting, which in turn triggers a release of serotonin in my brain - the happy hormone!²

Recently, I have come across more and more organizations and articles (thanks to my social media silo) proclaiming "hurrah - all is not lost in our battle against climate chaos"! Soils are the non-technological panacea we have all been waiting for - they have the ability to act as carbon sinks, that is, they have the capacity to sequester or "absorb" sufficient carbon dioxide to reduce atmospheric carbon dioxide levels down to safe levels^{3,4}. It makes sense, since after all, soil is part of the carbon cycle and it is estimated that since humans started changing land use 7800 years ago, 456 gigatons of carbon dioxide equivalent (Gt Co2e) have been lost from soils⁵ – that is 23% of total carbon dioxide equivalent emissions from all sources since 1850⁶. In my excitement, I started researching scientific papers on the carbon sequestration potential of soils, and alas, the evidence does not seem quite rosy... but more on that in Part II, first let's delve into soil biology.

Soil Biology

Soil is alive! (I tried to persuade my kids when they were in middle school of this after their science lessons on soil – alas to no avail) The dark colored upper layer of soil is dark because it is full of organic matter which consists of dead and decomposing plants and roots, live plant roots, and about 5% of it is the live soil microbiome, which contains many different types of microbes (bacteria, fungi, protozoa, nematodes, algae, etc.) and macro organisms (earthworms, beetles, springtails, etc.)¹.

Carbon in the soil is stored in the soil organic matter (SOM), about 58% of which is carbon⁴. Some of the dead organic matter provides sustenance for the soil microbiome, but it is the combination of live plant roots and the microbiome where the carbon sequestration magic happens. It is explained by Kitteridge of NOFA⁴, "when plants photosynthesize and make carbohydrates,... they use some of these to make their cells and structure and some to burn for their life energy." But they "leak" or exude a significant amount of these compounds as "liquid carbon" into the soil". Amazingly, about 50% of the carbon fixed (i.e. changed from

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carbon dioxide into simple sugars and carbohydrates) by the plant is transferred from the plant to the rhizosphere (around the living roots). This "liquid carbon" then feeds bacteria, fungi and other organisms which then in turn provide various functions for the plant - food in the form of nutrients otherwise unavailable to the roots (e.g. nitrates from nitrogen fixing rhizobacteria), water uptake, and protection from invading "bad" bacteria or fungi. This all helps the plants thrive, and in turn helps the farmer to have better yields.

Another important "service" provided by the microbiome is the formation of soil aggregates which form the structure of the soil – a soil with good "tilth" is one which is well aggregated – it drains well and has the ability to hold on to nutrients. Soil particles are stuck together by glue-like substances, such as a glycoprotein called glomalin, which is exuded from mycorrhizal fungi and is thought to account for about 27% of soil carbon and last more than 40 years in the soil⁷. This association of soil carbon with aggregates is important because, aggregates (and for that matter fungal strands) are broken up by tilling (or ploughing) the soil, which in turn leads to soil erosion and loss of organic matter. A reduction in SOM leads to other problems too - the soil has a reduced capacity to hold moisture, which can lead to lower resilience of crops in periods of drought and reduced nutrient availability. Soils with very low organic matter are devoid of "life" and in order to function to grow our food, they need the addition of chemical fertilization and chemical protection from pathogens such as bacteria and fungi.

There are many methods of changing and managing land use to increase carbon sequestration; they include soil restoration, reforestation, conversion from annual crops to perennials, rotational grazing, silvopasture, etc. This article will focus on agricultural practices – specifically annual croplands such as those that surround the Cooks Creek Watershed with the typical corn-soybean rotation. The type of farming that leads to a net reduction in emissions via carbon sequestration is referred to by different terms – regenerative agriculture, carbon farming, climate smart farming, agroecology, etc. – all of which have some significant differences but they have many overlapping practices which I will describe in Part II of this article.

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7. Nichols, Kristine A., and James Millar. "Glomalin and Soil Aggregation under Six Management Systems in the Northern Great Plains, USA." *Open Journal of Soil Science*, vol. 03, no. 08, 2013, pp. 374–378., doi:10.4236/ojss.2013.38043

Back to the Past: The Durham Iron Mines, Tunnels, &c. 1876

By C. Laubach. (For the Doylestown Democrat.)

A column highlighting the natural history of the Watershed

Thinking a description of the mines, tunnels and geological position of the Durham iron hills would be of interest to some of your numerous readers, and as we but lately took a stroll through and among them, we will try to give you a feint description of the places of interest in rotation as mentioned above. --- First taking a look at the *Haematite Mines* in an orchard about one-fourth of a mile northwest of Cooper & Hewitt's steel and iron works. Here we find immense heaps of debris, and excavations to the extent of about twenty acres, the excavations are from twenty to fifty feet in depth. In prospecting for ore, the ground has been removed and re-removed to get at the ore and facilitate its removal. Most of the ore to a depth of fifty feet has been taken out, below that depth it is considered that the mining is unprofitable at the present time on account of the serious interference of water. This ore is usually massive, with a smooth or stalactitic surface, and compact fibrous structure, sometimes earthy. It occurs in connection with rocks of all ages, but in this particular locality, it is found in close proximity to an extensive bed of secondary limestone. This is one of the most valuable ores of iron.

Following a wagon road due west, we pass excavations one after another, showing an immense amount of labor and money expended in bringing this valuable mineral to the surface. Following this road up a gradual incline about half a mile, we come to a very steep incline where we find an entirely difference kind of ore called "Magnetic Iron Ore". Ascending the incline (angle about 74 degrees) about one hundred feet, we come to the outer opening of the "Rattlesnake Mines," and tunnel. Here we found the courteous and polite superintendent of this tunnel, Mr. Bray, who, after our business was made known to him, took us to a side building used as a blacksmith shop, and furnished us with a tin-cup with a nozzle and wick for burning whale oil. Having thus prepared ourselves to enter this subterranean abode, we followed our guide. The entrance is furnished with a door to keep out the cold and prevent too great a draught. Pushing the door open, our conductor lighted the lamps and showed us how to hold them. We began our heavy tramp through mud and over debris, and soon reached the interminable darkness where not a ray of light can penetrate save from our lamps. The constant dripping of water and the peculiar echo of our steps and words, made the journey through these sepulchral and contemptible passages anything but pleasant. There is a narrow track running the whole length of the tunnel, which is used to remove the ore and debris to the light of day.

How soul-inspiring the wonderful circulation of water underground! Here and there is a spring of purest water gushing from the sides through the various strata of rocks. There is always plenty of water in the tunnel. We splash on however

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through mud and wet places, and have to mind that we do not get some extra bumps on our heads, or accidentally stumble over some tool implement or stray rock in our way.

All at once our guide commenced to descend a ladder, we following his example. Down, down we went on the treacherous and slippery rounds of the ladder, grasping them quite firmly so as to make sure are of not losing our footing, which at the best seemed to be quite insecure owing to our inexperienced and awkward manner of descending. At length after descending eighty feet in this manner, we reached bottom and found ourselves in another tunnel, the same in size and appearance, only this had no horizontal opening. After chatting with the workmen awhile, we began another decent by means of a ladder; this time, however, only to the depth of fifty feet. Here we found quite a number of men at work on an immense vein of ore. The vein in the shorter diameter being not less than fifty feet, and extending to unknown depths, showing that the ore, comparatively speaking, is almost inexhaustible. The above mentioned series of tunnels have been worked for at least twenty years in succession, and may last an indefinite time yet. This ore of iron occurs in extensive beds. Its structure is granular and massive. No ore of iron is more generally diffused than this, and none is superior for the manufacture of iron. It is usually met with in gneiss, syenite, chlorite slate, hornblende and granite. In this mine, the gangue, or ore bearing rock, is generally chlorite slate, syenite and gneiss. The perpendicular depth of this mine is about 280 feet. The day and was cold, and it was raining outside, but down at this depth it is always summer. The mean temperature summer and winter is about sixty-five degrees. Having seen all that was to be seen here we now began to return our steps up the ladders and inclines, and after a hard scramble, found ourselves out in broad-daylight again, and found that we had spent upwards of three hours in exploring this series of tunnels.

NEW TUNNEL

About five hundred yards west of this series of tunnels is another tunnel called "New Tunnel," on account of its being the latest and most recent of all the tunnels in this locality. This tunnel is considered to be quite an achievement; and if the time, labor and money is taken into consideration, it may well be termed such. But to give the reader a better idea of the magnitude of this work, we will to try and describe it:

Editor's note: The last page of the article is missing. Transcribed and may contain errors due to transcription into digital format.

Fracking ban comment to Delaware River Basin Commission

Sent by Scott Douglas for CCWA

"We are writing to you in response to the request for public comment on the draft regulations pertaining to natural gas development and related activities in the Delaware River Basin. We wish to inform you that the CCWA, its Board and members strongly support the continued ban of natural gas development in the Basin. We are particularly concerned about any withdrawals of water for development of fracking wells, storage, treatment, or disposal of waste water (directly or indirectly) into the waters of the Delaware, or placement of pipelines in, under, on, or through the Cooks Creek or Delaware watersheds.

If these activities cannot be outright banned, we strongly encourage the DRBC to adopt the strongest regulations to protect the water quality of the Delaware Watershed and its tributaries. Thank you for the opportunity to comment."

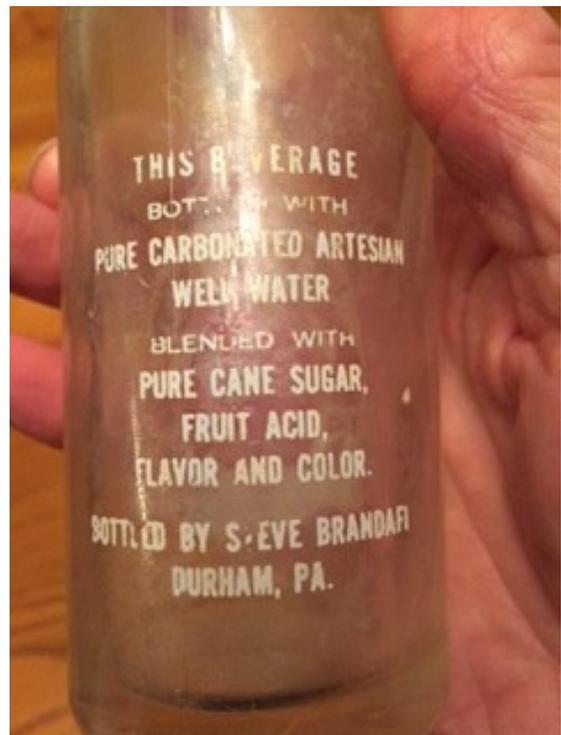
Important

It is **necessary** that all send comments to support this opinion to the DRBC by 5PM March 30th. Tell the DRBC why you think it should ban fracking and should also prohibit waste water storage, processing, and discharge as well as prohibit the export of our precious Delaware River water to be used for fracking elsewhere. Written comments submitted to <http://dockets.drbc.commentinput.com/> Choose comment item: Proposed Draft Regulation Addressing Hydraulic Fracturing

It can be a simple statement and sent by email. What can be easier, and more important?

Sparkle Plenty bottled in Durham

Looking for information on this beverage and bottling location. Place comments at:
Info@cookscreekpa.org



Recycle! Local Recycling Information

Durham Township Recycling Center

Location: Municipal Building, 215 Old Furnace Rd, Durham

1st Saturday of every month (2nd Saturday if 1st Saturday is on a holiday weekend)

Hours: 8:00AM – 12:00 noon, 1:00PM-4:00PM, (call ahead)

Accepting newspapers, magazines, junk mail, phone books, glass, tin, plastic, aluminum and cardboard, and CFL bulbs, rechargeable batteries (during office hours).

Please note that this facility is available to all, not just Durham Township residents!

Contact Dani McClanahan at the township building for more info. 610-346-8911

Springfield Township

Location: Township Building, 2320 Township Road

Paper Recycling Bin Available at Township Building.

A Recycling bin was recently placed here and is available to anyone. Cut down on trash and help the township earn extra money. You can drop off: Magazines, Shopping Catalogs, Phone Books, Newspapers, Office and School Papers, Mail.

Please do NOT include: Plastic, glass, metal, trash

Hours: Anytime ; See website: www.springfieldbucks.org

or call (610) 346-6700.

Blinderman & Son

Location: 1320 Whitaker St, Hellertown. 610-838-9221

Hours:
7:30AM – 4:00 PM, Monday – Friday

7:30 AM – 11:30AM, Saturday

Accepting cardboard and most metals.

City of Bethlehem Theis/Cornfeld Recycling Center

Web site: www.bethlehem-pa.gov/recycle/services/theis_cornfeld.htm

Location: 635 Illick's Mill Rd, Bethlehem

Phone: 610-865-7082 Hours: Weekdays: 9AM to 5 PM, Saturday 9 AM to 4 PM, Sunday 11AM to 4 PM

Accepting glass, cans, plastics, newspapers, all books, magazines, catalogs, cardboard, mixed office paper, metals, textiles (clothing, shoes, etc.), large appliances (certified freon-free). Call or go to the web site for specifics.

Bonus!! They provide FREE on site shredding services for businesses and private individuals. If you have 4 or more boxes, call 610-865-7082 to schedule an appointment.

Schedules of Local Government Meetings

Springfield Township:

www.springfieldbucks.org

610-346-6700

2320 Township Road

Supervisors: 2nd Tuesday @ 7:30 PM

Planning Commission: 1st Wed. @ 7 PM

Supervisors/Planning Commission

Work Session: 3rd Thurs. @ 7 PM

Environmental Advisory Council:

2nd Thurs. @ 7:30 PM

Open Space Committee:

1st Tuesday @ 7:30PM

Historic Commission:

3rd Tuesday @ 7:30 PM

Durham Township:

www.durhamtownship.org

610-346-8911

215 Old Furnace Road

Supervisors: 2nd Tuesday @ 7:30 PM

Planning Commission:

1st Tues. @ 7:30 PM

EAC: 3rd Tues. @ 7:30 PM

Lower Saucon:

www.lowersaucontownship.org

610-865-3291

3700 Old Philadelphia Pike

Council: 1st and 3rd Wed. @ 7 PM

Planning Commission:

3rd Thurs. @ 7 PM

EAC: 1st Tues. @ 7 PM

Williams Township:

www.williamstwp.org

610-258-6060

655 Cider Press Road

Supervisors: 2nd Wed. @ 7 PM

Planning Commission: 3rd Wed. @ 7 PM

Land Preservation Board:

3rd Mon. @ 7 PM

Richland Township:

www.richlandtownship.org

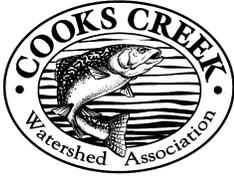
215-536-4066

1328 California Road

Supervisors: 2nd and 4th Mon. @ 7 PM

Planning Commission: 3rd Tues. @ 7 PM

Preservation Board: 2nd Thurs. @ 7 PM



Cooks Creek Watershed Association
 P.O. Box 45
 Springtown, PA 18081
 www.cooks creekpa.org

If you hold precious the beauty that surrounds us in the Cooks Creek Watershed area and would like to be actively involved in its preservation, then consider joining our association as a member. Reach out to your community! We would love to hear from you! Please drop us a line at info@cooks creekpa.org

CCWA is a 501 (c) (3) non-profit organization.



Find us on Facebook

Please Join Us... Cooks Creek Watershed Association-Membership Form

All of us who reside in the area enjoy the beauty of Cooks Creek.

Those of us who are fortunate enough to live here are dependent upon this watershed not only for the beauty of the creek but our wells, the wetlands, the wildflowers and all of the beautiful landscapes in our townships.

It's up to all of us to protect this treasure. The Cooks Creek Watershed Association asks that you become a member and help in the task of protecting this special resource.

Name: _____

Other household members: _____

Address: _____

Phone: _____ E-mail: _____

Interests: (circle)

Newsletter	Website	Roadside Cleanup	Event Planning
Membership	Fundraising	Stream Studies	Wherever I'm Needed

Individual Membership Fee: \$ 15.00 per year _____

Family Membership Fee: \$ 25.00 per year _____

Student Membership Fee: \$ 10.00 per year _____

Donation: to legal defense fund: _____

Donations to the Hans O. Reimann Memorial: _____

Total:

Please detach and mail to Cooks Creek Watershed Association, (CCWA)

P.O. Box 45, Springtown, PA 18081. **THANK YOU!**

Checks can be made payable to Cooks Creek Watershed Association.

CCWA is a 501 (c) (3) non-profit organization.