GUARDIANS NEWSLETTER

INVASIVE PLANT SPECIES

by James Nedrow

GARLIC MUSTARD (Alliaria petiolata). This invasive species has invaded our forests, and has been especially prevalent around the edges. When I started looking for this weed, I couldn't believe how wide spread it is. I first saw this plant in the Upper Lambert's Run watershed; I was reminded that it looked a lot like the farm grain buckwheat. The white bloom atop this weed has an uncanny resemblance to the Buckwheat flower.

This biennial herb comes up in the early cool spring. Its height varies anywhere from 12" to 36" inches. It produces small white flowers in clusters. Garlic mustard is a rapidly spreading woodland weed. If you pull up this weed, you will notice the distinctive odor for which it derives its name. Actually, it smells somewhat like garlic, but all in all it stinks.

This weed was introduced to the North American continent from Europe by the early settlers for cooking and its medicinal properties, which are now questionable. It has spread throughout the United States. Animals spread the seeds of this weed on their fur. Deer, squirrels, and coyotes are the primary culprits. I suspect the wind also has a lot to do with its propagation.

This weed has devotees, who consider it to be a "green." While I am sure it has a fair amount of 'roughage' value, and there may be some vitamin-C in it, I personally would pass on this plant. There are many more palatable plants than garlic mustard.

Photo: Garlic Mustard Weed in its early stages.

This European plant has flourished in West Virginia; it competes with native plant species for nutrients, water, and habitat, causing a decline in native plant growth. This is problematic because other local organisms rely on native plant species for food.

Invasive Plant Species

I have my own grudge against this weed as it crowds out plants known as toothworts (Dentaria spp.), which are needed as a food source for a native insect, the West Virginia White butterfly (Pieris virginiensis). Garlic mustard plants are toxic to eggs of this butterfly. Garlic mustard out-competes our native plants by aggressively monopolizing light, nutrients, moisture, and soil. The biggest problem it presents is its commandeering of growth space. Its shiny black seeds can remain viable in soil for five years. Each plant can produce thousands of seeds. The seeds can be either cross or self pollinated. This results in a weed that spreads very rapidly.

Management of this plant is best, by chemical or mechanical means. The application of systemic herbicides with glyphosate is effective. However, as with any herbicide, there is a negative effect on the environment as rain water run-off carries chemicals into local water systems. So what you spray on weeds is in someone's drinking water downstream.

For large patches and infestations, my suggestion is pulling weeds out by hand. You can pull garlic mustard and thereby save our native plants. When pulling out the plants try to remove the weed with its entire root system. Removing and completely disposing the plants after pulling is advised. Burning is another option, being careful of the 'fire season' and with care.

Jim Nedrow
Elk Hunter

Photo: Mature Garlic Mustard Weed

"For large patches and infestations, my suggestion is pulling weeds out by hand. You can pull garlic mustard and thereby save our native plants" -Jim Nedrow

Photo: Hydrofracking water pond near a local home.

The Un-Balanced Sheet

by S. Thomas Bond

It's clear by this time that the Marcellus development is being promoted with a balance sheet that has only one side, assets. Liabilities are never mentioned. You read about all the money that will flow, the growth that will result, vague projections for a golden future, largely unquantified. The degradation of resources and the influence on people is never mentioned by the developers.

So what are these costs? In the case of the Marcellus, one is the very resource being extracted. The resource is fantastically large, but only 10% is removed, 90 % is left behind, degraded. The problem with virgin Marcellus is to bring the gas up from a mile or more deep. When it has been drilled by present methods the problem is to bring it up from a mile deep when the earth below has been saturated with water and chemicals.

The Un-Balanced Sheet

The water pressure at the bottom of a well is much the same as it is that far down in the ocean. This restrains the production of gas now, and makes an additional , very serious problem, for secondary recovery in future generations.

The picture is OK to print.

Marcellus extraction is grab it now, as much as you can, to hell with tomorrow.

Executives claim there are no environmental problems. A recent article in an oil and gas trade magazine begins "Misrepresentation building in the eastern US threatens to limit a technology-based, multiple-location gas play that's reshaping energy markets in ways that benefit US interests such as national security, air quality, employment, and tax receipts. It's the allegation that drilling and completing wells in gas-bearing shales threaten subsurface supplies of drinking water. If not discredited, repeated falsehoods will coalesce into a political force able to stop the most promising development in generations for US energy supply."

The notion that water on the surface and in aquifers do not get contaminated has been disproven over and over again. The "easily imagined menace" as the author of the article calls it, is a fact on the ground. There is a regular constellation of problems that occurs everywhere horizontal wells with hydraulic fracturing occur. It not only includes water contamination and damage to streams by removing too much water and dumping in them, but also air and noise pollution, large disturbed surface areas, rural roads crowded and destroyed, and large demands on local services that the drilling companies do not pay for. And very serious health problems. Although reliable observers, primary care physicians are quite unlikely to publish their cases, and there is no agency collecting data, nor any likely to be in the present regulatory atmosphere if it must be paid for by government!

This is the way coal was promoted, too. No one ever looked at the decades of mine water, now being slowly remediated at public expense, nor the subsidence, nor the toll of miners, nor the blighted communities which take many decades to recover when the mines play out. The "big boys" got away with the money, though.

The Marcellus will play out, too. Probably in half a lifetime, the way the game is now being played, in little longer time at best. The rate of decline of shale wells is notorious - the fantastic early production is very brief. The decline is usually presented on a logarithmic graph by the industry, in terms of months. This is a tool to fool the unwary. 50 to 60% of the production is in the first year, less time than it takes to get the investment, get a permit and bring the well into production. The well is exhausted in a few more years.

Remember the early coal industry? Lots of jobs alright, but deadening, routine jobs where people and families had to turn into themselves to survive. No opportunity to travel, no opportunity to enjoy the better things of life, no opportunity to educate their children and most of all, no chance to change their circumstances. Technically they could leave, but the absence of surplus resources, the absence of other experience and contact with the outside held them to the mining towns like serfs on a medieval manor.

This time it won't be as bad. But the jobs provided by Marcellus will be similar. Deadening, dangerous work, long hours with work in all kinds of weather. Kinds of work that make it difficult to change to other work. Mineral resource development doesn't lead to a vibrant economy for the area where extraction takes place, the long term benefits go elsewhere. Marcellus will keep Appalachia right where it is in the national scheme of things, a sort of internal third world nation.

And look at our government! We are as helpless as the people in the Niger delta, Peru, or the Middle East. Was there advance planning to effectively utilize the resource, to regulate the industry to protect other interests, to minimize damage to us natives? Not on your life! Perhaps the most damning thing is that the most important force changing our future that could be controlled in the state was effectively bypassed by our government. The governor couldn't see fit to call a special session for a few days to iron out regulations for the industry.

Why? The best indication is that at least one legislator relates he has been openly threatened that he will never be elected to another term because of his support for regulation. Doubtless, this runs all the way up to the Top Man. Can it be that other legislators are unaware of the same for themselves? "A politicians first duty is to get himself reelected," they say. Will historians of the future look back and see funds for his campaign are more important to most politicians than his/her record of public service?

Tom Bond

Solar Flare Speculation

What will you do when the lights go out?

I'm not talking about the electricity going off for three hours or even three days like it did this past July. I'm talking about the electricity being off for three months, six months, or even an entire year. Don't think it can happen?

In August 1859, the earth was struck by the most powerful solar storm in recorded history. Telegraph operators reported sparks shooting from the wires, and many miles of wire simply burned and fell to the ground.

In March 1940, a solar flare caused the loss of 185,000 miles of electrical wire in the US. Individual phone lines fused together and the carbon filaments in light bulbs glowed without electricity.

As recently as March 1989, the entire electrical grid in Quebec collapsed because of a solar storm. It left millions without power, some for up to three months. It was said that the East coast of the United States was saved from a $6 billion dollar catastrophe by a few capacitors in the Allegheny power system that did not fail.

The July issue of National Geographic speculated that if we were hit by a solar storm with the same intensity as that of 1859, the high voltage wires would act as an antenna drawing the electro-magnetic pulse into the power grid, causing massive burnout of transformers and a nationwide power outage lasting months.

So, I'll ask again. What will you do when the lights go out for six months? There will be no electricity to pump water or gas. You won't drive to the next county to fill your tank or your stomach. Water will not flow from the tap and your refrigerator will quickly reach room temperature. After just a few days, things could begin to get a bit dicey.

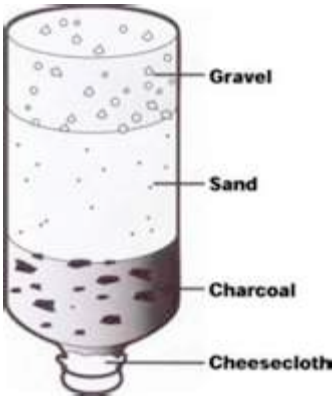
I'm lucky enough to live on the West Fork River. Though I may be a little uncomfortable, I will have plenty to eat, water to drink and even some of the most common medicines that I now get from the drug store. In fact, the West Fork River is a virtual buffet line and supermarket all rolled into one.

Besides the usual sources of protein like fish, water fowl and other forms of edible aquatic life, the river and it's surroundings offer fruit, carbohydrates, flour, salad material, hot tea, aspirin and even a cold remedy.

Here's just a few of the edible items you will find along the West Fork River: blackberries, river beauty, cattails, watercress, Pennsylvania bittercress, elderberries (common), and spotted jewelweed. The young shoots of **blackberries** can be eaten in the spring, and in the summer, fresh berries provide a good source of vitamins. Shoots and young leaves of **river beauty** make a tasty cooked vegetable. **Cattail** shoots can be eaten raw or cooked like asparagus, and its flower spikes can be cooked like corn on the cob in late spring. In summer, the flower spikes produce a yellow pollen that makes a excellent, protein-rich flower. In late Fall, cattail rootstock are filled with starch and can be eaten like a potato . If only the Butter Cup really produced butter, you could have a cattail feast! By the way, Butter Cups are poisonous. Watercress and bittercress make great salads, as do leaves from violets, common dandelions, and swamp saxifrage. **Elderberry** juice makes a very effective cold remedy, while **spotted jewelweed** stems can be crushed and made into a juice that soothes the sting of nettles. The inner bark of **weeping willows** contains one of the active ingredients in aspirin and other pain killers.

But before you try to eat anything collected in the wild, make sure you are educated as to what is edible and what is not. To learn more about the consequences of too little education on this topic, watch the DVD, "Into the Wild".

One of the things you will need long before you have to go hunting along the river for food is water. I just hope that you did as I did and saved that water purifier you bought for Y2K. If not, find a 5 gallon bucket or 2 liter bottle and layer it with several layers of sand and charcoal. Drill small holes in



the bottom and cover them with pieces of nylon stocking. This will allow the water to run out but not the sand. Boil the filtered water, add some red (not white, which are poison) Sumac berries and enjoy a citric tea that is full of vitamin C.

The West Fork River not only provides terrific recreational possibilities, beautiful scenery and an abundance of aquatic life;, it could save your life and that of your family. We should all be grateful to have such a wonderful, natural resource so nearby. Get out and enjoy it!

Jeff Reichel

Recent Events

Summer 2012 Partnership with AmeriCorps

The Guardians have partnered with the U.S. Department of the Interior, AmeriCorps, and the Southwest Conservation Corps in the **Environmental Stewards Summer Program**, a 10-week internship for American youth that combines community enrichment, environmental activism, and practical, on-the-job field training. Interns work on a variety of projects, including neighborhood beautification and environmental restoration. This year's intern, Andrea Varrato, tells about her experiences in the article below.

Photo: Water Testing near Jane Lew, WV

Andrea is seen here using a handheld water monitoring device that assigns a numerical value to the conductivity, salinity, and number of total dissolved solids (TDS) in a solution. These factors are commonly used in stream health assessments because abnormally high conductivity and TDS readings, coupled with a low pH value, suggests water quality degradation from acid mine drainage. Andrea has sampled restoration sites and free-flowing streams from Fairmont to Jackson's Mills and everywhere in between. The Guardians will use the data she collected to construct an educated assessment of watershed health in this area.

Internship Recap

by Andrea Varrato

I was introduced to the Guardians of the West Fork one week after graduating from Allegheny College in Meadville, Pennsylvania with a degree in Environmental Science. I was incredibly eager to work with a not-for-profit organization that specializes in environmental remediation. I spent my last year in college focusing on stream remediation and ecology, and this seemed like the perfect opportunity to use the things I had learned to achieve real world goals and to make a difference in a community. The Guardians assigned to me three primary tasks: to conduct stream sampling, to establish sampling locations, and to create a website that would enable the public to learn more about the Guardians and their work.

Photo: acid mine drainage flowing near one of the Guardians' restoration sites

The first task I was given was to conduct stream sampling. I traveled with almost every member of the Guardians to a number of tributaries in the watershed. I covered the area from Jackson's Mill to Fairmont sampling for pH, conductivity, total dissolved solids, salinity, stream flow, and temperature. Conductivity and total dissolved solids (TDS) were important to examine because the presence of heavy metals from mine drainage increases TDS and conductivity to levels that jeopardize the health of aquatic organisms. The pH was examined to detect acidity that may be in the water, and some water samples were taken for a more thorough chemical analysis in a local laboratory. Benthic macroinvertebrates (stream insects) were also examined because the pollution tolerance of these species is well known. Macroinvertebrate sampling is relatively easy compared to other methods of biological surveying. While I was sampling in the field, I took GPS points and notes on which direction I traveled for my second objective.

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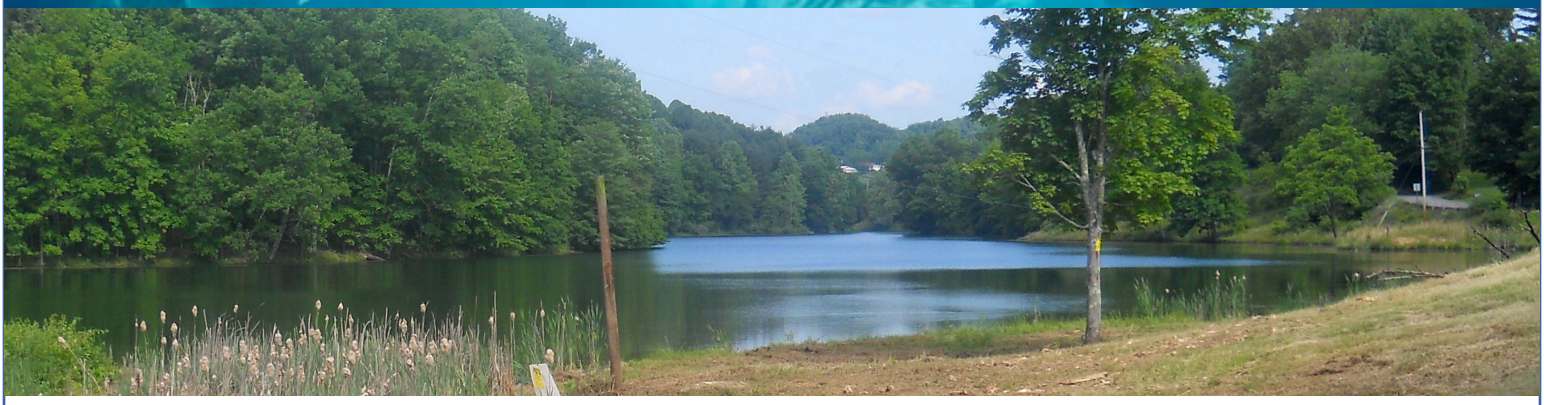

Internship Recap

I used the GPS data and directions I gathered to create a PDF of easily accessible tributaries that the guardians could sample habitually. I identified sampling locations in approximately twenty different tributaries.

In addition to field work, I conducted research on various topics for several ongoing projects, helped with a mailing project, and created a functional and updated website.

My experience working with the Guardians was very positive; they were incredibly kind and helpful. I learned a lot about local environmental issues, environmental policies, field work, and non-profit organizations. I am thankful that I had this opportunity to work with them and to explore the West Fork watershed in great detail. I was able to grow as a person while enhancing my knowledge of environmental issues.

GWFW Mission Statement

Guardians of the West Fork Watershed is a volunteer 501(c)(3) organization dedicated to the preservation and improvement of the ecological integrity of the West Fork River, its tributaries, and its watershed. It will monitor and assist agencies in monitoring biological, physical, chemical, and cultural characteristics of the watershed to identify sources of degradation and suggest their elimination. It will publicize the status of the watershed and encourage education and recreational enjoyment of the watershed. It will seek wide membership and outside funding to support its activities.

Monthly Meeting Information

You are welcomed to join the Guardians of the West Fork during their monthly meetings, which occur on the third Wednesday of each month at 6:00 pm. Meetings are held at the Nutter Fort Emergency Services building. Directions to this location from I-79 South can be found on our website. Tentative meeting dates for the rest of 2012 are as follows:

September 19th

October 17th

November 21st

December 19th

Don't forget to check out our new and improved website!

www.guardiansofthewestfork.com

If you would like to join our organization and receive a copy of our quarterly newsletter, send $5 per calendar year to one of the officers listed below. To receive a free electronic copy of our newsletter, email John Eyelette at JMEYELETTE@rocketmail.com

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