

# Montgomery County's Sole Source Aquifer: THE GOOD GIFT

BY CAROLINE TAYLOR

The atmosphere, the earth, the water and the water cycle—those things are good gifts. The ecosystems, the ecosphere, those are good gifts. We have to regard them as gifts because we couldn't make them. We have to regard them as good gifts because we couldn't live without them. - WENDELL BERRY



More often than not, when asked, folks in the D.C. metro region do not really have a fix on where the water that flows from their faucets comes from. Sure, residents and businesses know that they pay Washington Suburban Sanitary Commission (WSSC) for their water and sewage service, and they may know that the origin of their water is the mighty Potomac River. But as to the details—filtration plant operations, the infrastructure that delivers the water from plants to homes and businesses, what happens when there is prolonged drought these bits are not broadly known.

More mysterious still to many is where roughly 25-30,000 homes, businesses and farm enterprises get their water from in the nearly one-third of Montgomery County that is wholly outside the WSSC service area by design. And that is the story I aim to share in two parts.

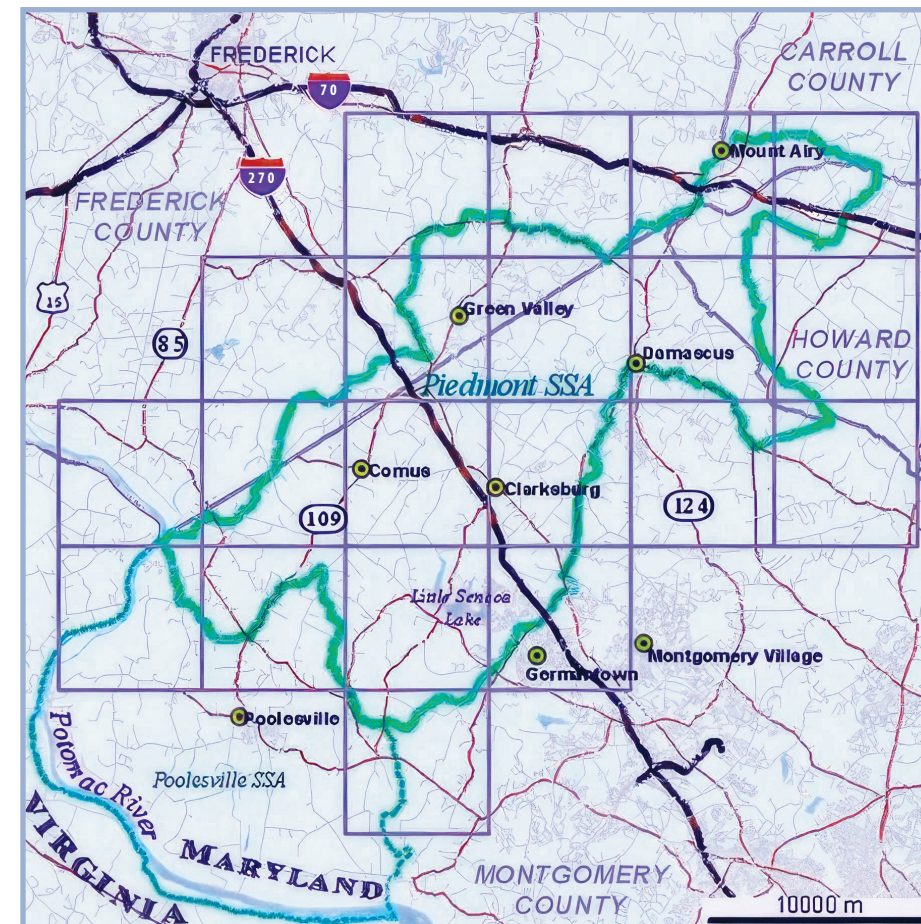
Consider this first installment an introduction to the groundwater aquifer that sustains the Agricultural Reserve and the rural communities that surround it. My aim is transparent: To know

our sustaining water resources is to value them, and to value them is to foster necessary collaborative stewardship.

## The water beneath our feet

Maryland's Piedmont Sole Source Aquifer (SSA, see map) was first afforded the protective SSA status from the US Environmental Protection Agency (EPA) in 1980 and was extended southward through the municipality of Poolesville in 1998 through tenacious efforts of Reserve community members beginning two years earlier. This federal designation acknowledges that the groundwater serve at least 50% of the water use in an area and that there is no economical alternative drinking water source available. While not a panacea for protection for the groundwater, the designation does provide that any land use projects within the SSA area that receive federal funding will be subject to EPA review to ensure that they will not compromise the integrity of the resource, creating hazard to the public. Moreover, advocates for stewardship of the aquifer utilize the designation to educate as to its importance and fragility.

Within the SSA footprint, individual groundwater wells varying in depth from under 100 feet to



The Piedmont Sole Source Aquifer of central Maryland covers roughly a 130 square-mile area, outlined in green on the map. In 1998, the delineation was extended to include the area around Poolesville. The federal sole source aquifer designation aims to provide a layer of protection for this irreplaceable resource. Groundwater provides nearly 50% of the nation's drinking water; the volume of groundwater in storage is decreasing in many areas of the United States in response to pumping, however.

When we dug our well in 2017, I was hoping to get roughly 20 gallons per minute, which is what I had at the farm I rented in Boyds. That well was 200' and I had tons of water. We moved to our current location, and I asked them to stop digging at 200' to see how much water we got. It was 2 gpm—way too little for me to run my farm! We kept drilling until we got to about 600'. At that point, I was fully panicking because of the cost of the drilling and the increased size of the pump required since we were so deep. As we waited to hear how much more water all that drilling got us, I about died when I learned the answer—still the same 2 lousy gpm!!! Thankfully, I have a pond, otherwise I don't know what I would do trying to irrigate 6 acres of produce.

- MICHAEL PROTAS, ONE ACRE FARM





*Our aquifer is the bloodstream for all farmers in the Agricultural Reserve. It's what sustains us.*

*- GENE KINGSBURY, KINGSBURY'S ORCHARD*



*Anyone with livestock depends on a thoroughly reliable source of water. When the power goes out, or waterlines freeze, or a well pump fails, figuring out how to get sufficient water on site can go very badly very quickly for our flock of sheep at Shepherd's Hey Farm. This kind of situation provides more angst and urgency than almost anything else we deal with. We can go buy feed, we can get bottled water for ourselves, and food to eat, all without a care. The prospect of insufficient or unreliable access to water is hard to imagine, but even harder to contemplate for those of us who keep livestock.*

*- LEE LANGSTAFF, SHEPHERD'S HEY FARM*

hundreds of feet, and draw good quality water in widely varying amounts. However, the Piedmont Aquifer with thin soil cover and rapid flow in fractured rock geology is vulnerable to potential contamination. Hydrogeologist and Reserve resident Bob Tworkowski explains that the unconfined aquifer is in “direct communication with the ground surface, where what is spilled above will more readily percolate through the thin soil seeping into the aquifer.” Moreover, he explains, water in an unconfined aquifer is also subject to losses through evaporation and plant uptake—think thirsty forests.

#### **Where does the water come from?**

The Piedmont Aquifer is fed by rain and snow. An individual well is “recharged” by the precipitation that falls within the nearby watershed. The most effective recharge comes from gradual snow melt or low velocity rain allowing water to slowly percolate through soil and rock to the aquifer below. This process differs from groundwater in Maryland’s coastal plain which travels significant distances from where it enters the system to where it is withdrawn from an individual well.

Bob Tworkowski notes, “The healthiest land use for good recharge to the aquifer is to keep the land as natural open space to minimize the impervious surfaces. Recharge can be affected by a number of items which include the type of soils, the slope of the topography, the vegetation cover, etc. The trick is to hold the water from running off and allow it to sink into the ground where it can contribute to the aquifer.”

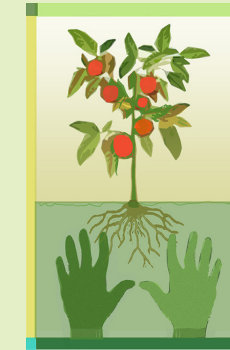
The good news is that the Reserve and the low-density rural communities that surround it have retained a significant amount of pervious land that allows for recharge. In those areas where development is dense, recharge is limited, and a greater withdrawal of water may challenge the sustainability of the resource.

Those of us served by groundwater wells here in the Agricultural Reserve and communities like Barnesville, Poolesville, Sugarland, Darnestown, Martinsburg, Damascus, Dickerson, Boyds, Etchison, Clarksburg, and western Potomac are closely tied to our groundwater. We consider ourselves very fortunate as the water is clean and cold, without additives and without per gallon charge, though we maintain our own well infrastructure. This good gift comes with responsibility. We track the seasons and precipitation, or lack thereof, ready to implement water conservation methods such as limiting laundry loads, landscape irrigation, and celebratory showers.

Farmers also utilize practices that will hold water as best as possible on the land, avoiding storm water runoff and enabling recharge of precipitation into the aquifer. We know that squandering this resource spells disaster for our farms and communities. Imagine if farmers had to source their water from WSSC, paying per gallon. The additional operating cost would break a number of farm operations. Remember, it was noted that the rural part of Montgomery County is outside the WSSC service area, as laid out in the County’s comprehensive water supply and sewage systems plan updated in 2022 by design. This plan is aimed to hold public cost down and, importantly, contain sprawl development that relies on public water and sewer infrastructure. It is a solid plan with a good purpose.

*Up next in part 2 of The Good Gift—a discussion of looming challenges to the aquifer, including issues around climate change and future development in Montgomery County, and how we might get ahead of them, together.*

*Caroline Taylor serves as executive director of Montgomery Countryside Alliance and lives with her family in the Reserve. She completed the petition for the Poolesville Sole Source Aquifer designation in December of 1996 with her young son fidgeting merrily on her lap.*



## **LAND LINK MONTGOMERY**

*A program of Montgomery Countryside Alliance helping farmland and farmers find each other...*

Land Link has matched 33 new and expanding farmers with long term leases. Here are a few of the farmers that are still seeking land through the program.

#### **FARMERS SEEKING LAND**

■ An African with 30+ years experience in farming back in my country and 4 years experience in gardening here in the USA looking for one acre of land to produce vegetables and, if possible, a small poultry operation to give my community the best vegetables and chicken. I will soon complete the Beginning Farmers training program with Eco City Farm and would like to apply my new knowledge learned.

■ We are an employment social enterprise. Our mission is to eradicate barriers to employment faced by women who have been impacted by the justice system, are unhoused, aged out of foster care, or are chronically unemployed. Currently, we are in a business accelerator with the American Heart Association and a program sponsored by Howard University. Our need is 5 acres or more with access to water for our pasture-raised laying hens, and to grow seasonal produce and flowers. A land donation, long-term lease, or sale is what we are seeking to continue job training operations. Thank you for considering our “do good” organization!

■ I am a personal private chef with 10 years farming experience looking for land for lease to grow crops and plants for the ingredients I use for my customers. I also am looking to grow the ingredients needed to create specialty products including cashew hummus, flax pesto and almond dips. Crops include garlic, herbs, peppers.

■ Compost Crew is looking to partner with farms to divert food scraps from the local community and make compost to improve crop yields. We are interested in leasing or buying at least a half acre of land for our composting program. Access to electric and water, a skid steer, and asphalt or concrete pad is a big plus.

■ Community herbalist ready to grow! I have been a grower of herbs in gardens large and small for many years and completed the Beginning Farmer Training Program at Eco City. Working with a mentor through Future Harvest and utilize sustainable growing practices. We grow a wide variety of aromatic medicinal plants and herbs, some culturally relevant vegetables. Looking to steward up to one acre.

Learn more: [www.mocolandlink.org](http://www.mocolandlink.org)  
BETHESDA BEAT profiled The Faces of Land Link:  
[bit.ly/BBLandLink](http://bit.ly/BBLandLink)