



RAVINIA

An Advocate for Community Resources

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Urban Hermits:

Salamanders' secret lives reveal ravine conditions

By Daryl Largent

The ravines of Columbus provide shelter from the din of city traffic and in return, I have found, provide shelter for the spirit. I set out to discover if the forested banks sheltered something else, a secret sign of the ravines' well-being: salamanders.

Salamanders are interesting and ancient amphibians. The Greek roots *amphi* and *bios* indicate a dual life, and many but not all amphibians spend their lives in and out of water. This began 200 million years ago, when these cold-blooded creatures became the first vertebrates to crawl from the water and live throughout the land. Amphibians spread nearly worldwide and are found today from the Arctic Circle to Australia. In Ohio, with twenty-six species, salamanders represent more amphibians than frogs and toads together. From the rare cliff-dwelling green salamander to the massive and entirely aquatic hellbender, all of Ohio's salamanders are mysterious and venerable creatures.

Snow still blanketed the ravine banks on the late February day when I first began my search. The slowly thawing blizzard of 2007 revealed a few possible salamander habitats. All logs, favorite covers for salamanders, clung frozen to the ground despite my efforts. Needless to say, I found no salamanders that day.

Being amphibians and not scaly, dry-skinned reptiles, salamanders are more similar to frogs than to lizards. Amphibians' skin needs to remain moist to absorb water and often oxygen as well. The best places to find frogs are in ponds, toads in shaded brush and woodland, and salamanders under damp logs and leaf litter.

The best conditions to bring salamanders to the surface of the soil occur after a relatively warm rain in early spring—not quite as early as February this year. With this in mind, I set out one month later, on March 31. The finally mild temperatures and recent rain were perfect conditions for finding salamanders—best known for an ability to remain hidden.

I focused my search in the public sections of Glen Echo and Iuka because I was interested in the natural state of these urban parks. If I found these ravine soils to be fair enough to support salamanders, I concluded that the less-developed ravines of Walhalla, Adena Brook, and beyond would contain salamanders as well.



Redback salamanders require damp leaf litter to thrive. (photograph by Alan McClelland @ www.eyelyft.com)

I began in Glen Echo, working east from the Indianola bridge and along the bottom edge of the southern slope. I looked under logs at the bottom of the ravine but not on the slopes, to avoid upsetting the fragile hillside habitat; bloodroot had already bloomed white on the banks.

The first log I flipped immediately revealed that my search would be easier than expected—two salamanders hunched at the sudden daylight, curling their tails around their bodies, while a squiggling tail revealed a third before it wormed into a hole in the log.

Given the success under the first log (which I set back in place—as with all logs and rocks—with delicate care) it followed that I would see many more salamanders, ranging anywhere from two to almost four inches in length. All wore single stripes down their backs, the bands' colors ranging from dull orange to sandstone-tan to rusty red. These are the appropriately named redback, or red-backed, salamanders, the most frequently found species in Ohio.

Redbacks are also among the smallest species in the state, with slender bodies rarely exceeding four inches in length. As evidenced in Glen Echo, redbacks prefer moist beech and maple forests and occur more often in ravines than flatland, though they frequent floodplains. These habitats are relatively damp areas that help redbacks maintain moist skin, which is essential for them to absorb oxygen, as they are lungless. Unlike other salamanders, redbacks avoid water—a good thing considering the poor (yet possibly improving) water quality of Glen Echo Run.

FROM THE CHAIR OF THE BOARD

As we move into the coming months, I'd like to encourage you to visit a ravine in winter. One needs to be conscious of safety issues, but ravines often have spectacular and wonderfully aesthetic ways of showing ice and snow at their very best. Also, with the leaves and plants in their cold-season mode, there are parts of ravines that show themselves more now than at any other time of year. When you visit them again in the spring and summer, you're able to visualize things in a richer way.

Winter also is the time of reflection and resolve, and all of us at FOR hope this year has been a wonderful one on which to reflect. We also hope that you'll resolve to help a ravine near you next year. Ravines are fragile things with many timetables—geologic, botanical, of long-lived and short-lived fauna and of our own species.

We may not notice when a ravine's structure might be on the verge of a dramatic change that will play out over decades. Sometimes, these changes are part of the cycle of a ravine, and we should let them unfold. Other times, they are unnatural, and we would be wise to help a ravine lead its life according to its own life cycle rather than ours.

It will mean the ravine will be there for you and for all the generations to come, and it can be a rewarding resolution for the time of renewal that comes each spring.

Jack Cooley, Chair



NEWS FROM THE RAVINES

Adena Brook Community invites you to visit and bookmark their new website at www.adenabrook.org.

Glen Echo Park stairs from Cliffside Drive are temporarily closed to pedestrian traffic and will be removed. The city is currently getting bids on replacing the stairs.

Iuka Ravine residents report good news. The Columbus Division of Transportation has allocated \$1,061,000 for improvements on Iuka Avenue between Indianola and N. Fourth Streets. The project includes repairing and replacing the existing brick streets and sandstone curbs in the ravine roadway and installing additional storm drains and street lights. Construction is scheduled to start at the end of September and to last three months. G&G construction is the contractor for the project; R.D. Zande is the construction manager.

Linden Run residents continue removing bush honeysuckle and replacing the invasive plants with non-invasive native shrubs, following in the footsteps of the many ravine groups who are dedicated to ravine preservation.

New Stream Names *By Leslie Strader*

Most people know the Scioto River, the Olentangy, and Alum Creek, but few are familiar with the names of the many smaller streams that are tributaries to these bigger rivers. As our area continues to urbanize and construction impinges on many small streams, the ecological importance of these streams becomes an important community issue. Employees of the Mid-Ohio Regional Planning Commission (MORPC) recognized that perception is critical in rallying support for our local streams and embarked on a stream naming and renaming project in cooperation with local environmental protection groups and government.

Friends of the Ravines Board Member Andrea Gorzitze initiated the stream-naming project as an employee of MORPC in 2005. "Many people believe that small unnamed streams are not important, or that if a stream is called a 'ditch,' it is worthless anyway," said Gorzitze. "These small streams are often put in pipes underground, which has a cumulative negative impact on water quality of the streams into which the small creeks flow."

The stream-naming process is a long one. It involves research into historic maps and records, public outreach, name selection, and name endorsement by local area commissions, municipalities, and county commissioners. The name then has to be registered with the United States Board on Geographic Names (USBGN), which can take approximately one year. MORPC staff recently received notice from the USBGN that the stream names submitted more than a year ago have finally been approved. After a stream officially becomes named, MORPC coordinates having the stream labeled with signage at road crossings. Central Ohio's newest streams to be labeled are Ackerman Run, Argyle-Woodland Run, Glen Echo Run, and Walhalla Creek.

The initial focus of the project was on the Scioto River, Olentangy River, Alum Creek, and Big Walnut Creek watersheds, but it is now expanding to include more waterways across our entire region.

To become involved in tributary naming, please contact Leslie Strader at 614-233-4124 or lstrader@morpc.org.



City of Columbus Installs Its First Rain Garden

When it rains, it pours. At the intersection of High and Overbrook, rainwater will be pouring into the city's first rain garden. Here's how it works: when rainwater flows down High Street, it is captured by the inlet directing it to the rain garden. Rainwater overflow goes into the storm drain just south of the inlet near the corner of Overbrook and High. The rain in the garden will filter into the ground. The plant roots absorb the pollutants from the grease, oil, and gas from High Street. Eventually, the flowers will grow and multiply and develop into a native flower garden.



Greg Schneider from the Ohio Department of Natural Resources' Division of Natural Areas and Preserves will be training a team to maintain the rain garden. If you can volunteer an hour or two on the second Saturday of the month from 9 to 11 A.M., send an e-mail to susanbarrett@columbus.rr.com.

Greg Schneider, Ohio Division of Natural Areas, is in charge of the Maintenance Team for the newly installed rain garden.



Carina Carter sweeping the sidewalk while others plant grasses between the rocks and the inlet. Approximately 33 volunteers helped install the city's first rain garden at Overbrook Drive and High Street on Saturday, September 9.

Environmental scientist **Vincent Tremante**, nicknamed **Vinnie**, authored "Rain Gardening for Ravines," which appeared in the Spring/Summer 2007 issue of *Ravinia* and helped design the rain garden installed at High and Overbrook. He has over 10 years' experience in residential landscape design/build, with a focus on using native species to help create lower maintenance,

sustainable ecological systems that are aesthetically pleasing. Over the past three years, he has applied his environmental science training, with his understanding of horticulture and ecology, toward primary stormwater treatment systems in large commercial and regional applications. Mr. Tremante earned an associate of Applied Science in Landscape Design Build from Columbus State Community College, a Bachelor of Science in Landscape Horticulture and a Master of Science in Environmental Science from The Ohio State University.



Vinnie Tremante helped design and install the city's first rain garden.

He has also completed the U.S. Army Corps of Engineers Wetland Delineation and Management Training Program, Ohio EPA's Qualitative Habitat Evaluation Index and Ohio Rapid Assessment Method Programs, and ODOT's Managing the Environmental and Project Development Process Program, Ecological and Waterway Permits training.



Volunteers plant native flowers in the newly dug rain garden bed.



Redbacks are territorial, especially egg-guarding females that bite intruding salamanders. The females remain constantly wrapped around their eggs, not only to defend them but to keep the gooey clusters moist. The hatchlings emerge mostly developed.

In appearance, the redback's characteristic stripe is sometimes darkly pigmented, resulting in a gray "leadback" morph in approximately 20% of populations, although I saw none. An even rarer red morph occurs in northern populations, and color variations occur throughout different ranges. The underbelly is delicately speckled with black and white.

Redbacks are known to be "locally abundant." I was hoping to find fifty salamanders—I stopped counting at seventy-five. This healthy number, discovered along the bottom south slope within Glen Echo Park, points to a much larger population: on the slopes, under the leaf litter, in the ground, and in the woodlands that continue down the ravine. Research shows that redbacks found on the surface are only an indication of the true size of the total population.

I had more doubts about Iuka Park, because it is smaller and closer to more-developed areas. I was surprised to discover almost fifteen redbacks near the Indianola bridge and ten in and around the brushy area of the grassy park. As with Glen Echo, this is only a model that indicates a larger hidden population.

The habitat is different in Iuka. In Glen Echo, the salamanders most often preferred coverings with leafy or damp ground underneath. Ants and centipedes there resided in dry conditions, and only worms were found in very wet conditions. However, in Iuka Park I discovered redbacks huddling in dry conditions with

both ants and centipedes. Perhaps the more limited habitat in Iuka forced the salamanders to accept conditions they would otherwise reject, or perhaps they were hungry. Ants and centipedes—anything small enough to swallow—are part of the redback's diet. It is likely that resident salamanders on the Iuka ravine slopes were hidden in a more suitable habitat, but rain and spring thaw may also have made the dryer habitats temporarily suitable.

Though a common species, redbacks are no less susceptible to pollution than other amphibians. All amphibians are indicator species: if no salamanders inhabit an area, pollutants might. The absorbent skin and continual exposure to soil substrate makes redback salamanders highly susceptible to any harmful contaminants.

The soil of Glen Echo and Iuka has to be in a fair natural condition to support salamanders. The moisture level is stable, as redbacks require a relative humidity of 85% to avoid dry skin and suffocation. These moisture levels rely on the forested banks, which provide the shade and leaf litter necessary. During dry periods redbacks find the proper conditions deep in rotten logs and the ground, as I discovered in August in Glen Echo; I found only two redbacks under a log in the eastern woodland and no recently laid egg clusters, as these are most often hidden deep in logs. The acidic pH levels in the soil must also be stable to support redbacks. Research shows that when they are kept in acidic soil, redbacks' oxygen absorption, water retention, sodium balance, and growth are negatively affected, and recovery is unlikely. Lethal levels begin between 3 and 4 on the pH scale, which are roughly the acidic levels between tomato and orange juice. Unfortunately, acid rain in central Ohio has veered close to these levels, ranging anywhere from 5.6—considered natural—to a dangerously low level of 4.1.

As U.S. forests mature, the soil naturally becomes more acidic. Outside of the lab, of course, salamanders can roam away from negatively affecting pH levels, which vary greatly in forest floors and in different soils. This difference in soil pH levels, from alkaline to highly acidic, can be seen in the Soil Survey of Franklin County, Ohio. The high percentage of salamanders in close proximity in the areas I searched indicates that the soil has balanced pH.

These sections must also lack a large degree of pollutants, as these would destroy the population. According to a soil survey conducted in 1980, Cardington soil, which is found in Iuka and Glen Echo ravines, has good potential for many wildlife habitats; the redbacks apparently approve of the survey's "good" rating for woodland wildlife.

The redback salamander populations in the areas of Glen Echo and Iuka I searched imply that moisture, pH, and pollutant levels are balanced, and therefore the soil is in at least a fair natural condition. The areas I surveyed are samples that indicate the quality of the rest of the ravines, but varying factors are cause for more research. Although a powerful indicator species of natural conditions, salamanders are ultimately only an indication. For definitive results, the soil substrate should be further monitored and tested in different areas of all ravines.



*A juvenile redback rests on a leaf.
(photograph by Alan McClelland @ www/eyelyft.com)*

The conservation of the redback's habitat is as simple as preservation. Logs and leaf litter should remain as undisturbed as possible on the ravine slopes. Pesticides, fertilizers, and other pollutants should be kept clear of the ravines and the entire watershed area. The Glen Echo hillside restoration project has certainly created habitat, while the informative signs have no doubt inspired support of the ravines.

Further research and monitoring are necessary to ensure the continued favorable condition of the salamanders' habitat. For instance, there are reported possibilities of other salamander species within Clintonville, such as the Jefferson's salamander found in the Highbanks Metro Park's ravines. This and several other species, unlike redbacks, engage in a spectacular migration to spring vernal pools to breed. If any migratory salamanders exist within any of the ravines, it means that there are also vernal pools that demand conservation. Although formerly dismissed from construction in Glen Echo due to practical concerns, human-created vernal pools have been a success for American toads in the Whetstone Park Prairie, and discussion will be necessary if migratory salamanders are discovered and confirmed.

Some vernal pools may already exist. There is a bog-like pool in Walhalla, but in my observations it has offered no amphibian activity other than a single banjo-croaking green frog. In the occasional woodlands between the bike path and the Olentangy River there are possible vernal pools, as well as in Adena Brook. I have had no success in finding vernal pools in either, and further research and confirmation is necessary.

As one of the fastest-growing Midwestern cities, Columbus needs to continue to support its unique and precious green spaces through city funding and community efforts. Research can continue through vigilant monitoring of the soil, streams, and wildlife. Organizations and ravine programs can continue to provide education. Litter clean-ups, invasive species removal, and erosion control will maintain the preservation of the Columbus ravines.

Amphibian populations are declining worldwide, so maintaining and monitoring the redback's habitat is essential. With conservation, the redback salamanders will live their lives as they have for eons, a quiet secret.

I also discovered another secret of the ravines on my first early search in Iuka. The tall trees, massive branches raised, rose like monuments to the rare blue February sky; lit by the slanting afternoon sun, the trees' shadows stretched even further over the snow-spotted park and ravine slopes. All was still except for my own rising clouds of breath and, far above, the knocking red head of a pileated woodpecker. I found no salamanders that cold day, but something else: a warm and aware peace, not unlike meditation or prayer. I can offer many reasons why the continued conservation and research of the ravines is important, but by listening—even to the silent lives of salamanders—one can hear nature speaking for itself.

Daryl Largent is a salamander aficionado with rock-flipping experience in most Metro Parks. After graduating from Ohio University with a degree in Creative Writing, Daryl moved to Columbus and now lives on the edge of Iuka Park.

A complete bibliography for this article is available at friendsoftheravines.org.



Focus on Snow Trillium— Denizen of Central Ohio's Limestone Ravines

By Brian Gara

Early next spring, when hiking near the Scioto River and its many ravines, keep an eye open for the delicate snow trillium (*Trillium nivale*). This beautiful wildflower, one of the earliest plants to bloom, frequently appears before the last snow has melted, which explains its name. Like all members of the genus *Trillium*, it has three petals and leaves but is much smaller than the more common large-flowered trillium (*Trillium grandiflora*).



The snow trillium holds a special place in the lore of Ohio botanical exploration. It was first collected by Dr. John Leonard Riddell, who made numerous collections of specimens throughout the region and was one of the earliest botanists to document the plant diversity of central Ohio. In 1832, Dr. Riddell accepted a position as lecturer on chemistry at the Reformed Medical College in Worthington. Two years later he moved to Cincinnati to accept a similar position at the local medical college. However, while still in the Columbus area he encountered the snow trillium and made a collection of the "type" specimen, a designation given to the best or earliest known example of a species when it is described and named for the first time. In 1835, Dr. Riddell wrote of collecting this plant "on the east bank of the Scioto River, near Dublin, inhabiting a steep declivity, among the comminuted fragments of limestone." The type specimen for the snow trillium is now displayed in the herbarium of the New York Botanical Garden.

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Gardening for Wildlife *By Linda Ridihalgh*

On a tour sponsored by the Columbus Department of Recreation and Parks this past summer, I visited a garden that displayed a sign announcing the property as a National Wildlife Federation Certified Wildlife Habitat. That green and white sign, invoking a sense of community pride as well as concern for the environment, made me think about our woodland setting on the Iuka Ravine. I wondered, “Are we friendly to our wildlife?”

We have a water feature that is visited year round by local song-birds and by migrating warblers each spring and fall. We grow ground cover rather than grass; we don’t use pesticides (unless you count that wee skirmish with the carpenter bees last spring). Perhaps some would call our landscape overgrown, but we think of it as a thicket of mature shrubbery. We grow flowers in pots to attract butterflies and honey bees from the hive nextdoor.

The Iuka Ravine wildlife seem to appreciate our efforts. Hadn’t the raccoons applied for residency in our attic? Didn’t the squirrels enjoy all 400 of the tulip bulbs we planted one fall? With few exceptions (the groundhog who sought refuge in our garage comes to mind) we welcome wildlife visitors. So I decided to make this relationship official and seek Habitat certification for our small property.

It was a simple process, one that can be completed online at nwf.org/habitat. We met most of the criteria, especially the important ability to provide “food, water, cover, and places to raise young.”

As a side note, the food thing hasn’t worked out quite as we expected. I was assuming nuts, seeds, bugs, and berries, which are plentiful on and around our property. My particular wildlife, however, seem to prefer lettuce, tomatoes, and peppers seasoned with fresh basil. That’s fine. Thanks to the largesse of friends, there is plenty to go around and we are happy to share.

Linda Ridihalgh lives on the Iuka Ravine, where she makes salads for raccoons, squirrels, and the occasional rabbit.

How to Create a Certified Wildlife Habitat

You can be counted among the numerous wildlife enthusiasts across the United States recognized by the National Wildlife Federation for creating backyard havens for neighborhood wildlife. All you need to do is to provide food, water, places for cover, and places for wildlife to raise their young and be committed to sustainable gardening.

What exactly does this mean? It means that your yard can provide native plants, seeds, fruits, nuts, berries, and nectar for wildlife. You need to have a birdbath, pond, water garden, or stream for water sources. You need a thicket, rockpile, or birdhouse to give cover. Critters need places to raise their young, so your yard should have dense shrubs, vegetation, a nesting box, or a pond. The last component, sustainable gardening, requires that you use chemical-free fertilizer, mulch, and/or compost or have a rain garden.

Your request for certification needs to be accompanied by the \$15 application fee. After certification is granted, you receive the following benefits:

- A personalized certificate that recognizes your NWF Certified Wildlife Habitat
- A free NWF membership, which includes a full year’s subscription to the award-winning National Wildlife magazine



- A free subscription to the quarterly e-newsletter, *Habitats*, full of insightful tips and information on gardening and attracting wildlife year after year
- Your name listed in NWF’s national registry of certified habitats

Once you complete your application, you will be eligible to purchase the Certified Wildlife Habitat yard sign that shows your commitment to conserving wildlife. Get started now! This habitat project is, of course, a way for the National Wildlife Federation to build a base of support—there are some 70,000 such designations across the country—and that’s a good thing.



RUSH CREEK REMEMBRANCE *By Christine Hayes*

I remember sitting in the twilight, holding a handful of wild-flowers in a little May basket, hoping to surprise my mother. She was calling me, and I didn't answer, because I wanted her to come out of the house and look for me. I was in the lower part of the ravine, hiding, breathing shallowly, and merging with the Ohio clay. The stream gurgled behind me.

I watched water striders dance their mesmerizing patterns on the surface of the stream. I lifted a stone to find a crawdad. Minnows glittered in the deeper portions of curving Rush Creek.

My mom was surprised by the basket of flowers, but mean about calling and my not answering. Who nowadays remembers May baskets and Maypoles?

We daring neighborhood girls—Martha, Andi, Lisa, Jan, Connie, and I—would venture further along the creek to a log-crossed deep section we called “Cherry Beach.” We sang, we fell in, we made secret-boyfriend lists, we practiced cheerleading. We admired the cow moored nearby. We felt grown-up being so far from home. The water was so inviting on a hot summer day. The locusts and cicadas and grasshoppers buzzed and hummed. We were oblivious of time. The creek was our living playground.

Just sitting on a log over a creek and waving your feet in the water can be the best thing in the world.

The mile-long strip of woods and ravine, through which I stomped with my friends, is part of Worthington. Between

Colonial Hills School and the housing area known as Rush Creek, we made “Indian Village” in the grapevines. No cat hiding in the bushes had more fun than we did. It was a crunchy, curly world all our own. We sat in our grapevine shelters and made up stories. But we were still close enough to our houses that we could hear the mothers' calls to dinner.

Sound carries well up that ravine. The rumble of trains and the screech owls' whimper-trill carry equally well. The quaking poplar leaves shaking silver in a storm-laden wind are also loud. Crows and jays break the day's silence; raccoons and possums growl and squeal at night. Thus it was and still is.

I am suddenly reminded of the muffled ravine noises in the puff of a newly fallen snow. Then there's that lovely evening in May when everything seems to be magic and holding its breath. (Throw in a full moon for even more “ambience.”) I can remember looking up through red and yellow leaves and the crispest air to the bluest sky. We saw mist, even fog, in a morning on the cusp of fall. But most of all I remember the seething aliveness of the creek bed in summer: water, trees, locusts, crickets, mosquitoes, fish, chiggers, turtles, ants, raccoons, ground hogs, chipmunks, possums, squirrels—inhaling and exhaling, pulsating and throbbing, through the hot summer day and night. The firefly-laden night air caught the heat and wrapped the ravine in moisture, making it a hothouse of delight.

Christine Hayes grew up on Rush Creek.



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Focus on Snow Trillium, *continued from page 3*

Since its identification as a new species, the snow trillium has been recorded in several states in the central United States. It is hardly common, however, as it has been listed in five of those states as rare, threatened, or endangered. Fortunately, Ohio still has numerous protected limestone ravines that preserve the habitat for this lovely species. One of the largest known populations of this species in Ohio is located just south of White Sulphur, a town in Delaware County. It can also be observed at Clifton Gorge State Nature Preserve in Greene County.

The Columbus Department of Parks and Recreation is doing its part in the protection of the snow trillium as well. It manages Indian Village Camp for this species by partnering with the Friends of the Scioto River to remove invasive species such as garlic mustard and shrub honeysuckle, allowing the snow trillium to persist in that location.

So next time you encounter this lovely spring wildflower, keep in mind that it was recorded to science for the very first time from a specimen collected in our own backyard: a limestone ravine along the Scioto River in central Ohio!



Ravinia is the official publication of Friends of the Ravines.

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Submissions and suggestions are welcome.

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