“Stream Restorations”, The Inconvenient Truth, or: Crimes Against Nature or: The Greenwashing* of “Stream Restorations”

February 20, 2022

by Ken Bawer (kbawer@msn.com)

*Greenwashing: the process of conveying a false impression or providing misleading information about how products or practices are environmentally sound.

A “stream restoration” project along Winkler Run, Alexandria, VA; March, 2012. (Photo by R.H. Simmons)

Cutting to the Chase

- Submit comments to deny permits for doing “stream and wetland restorations” by Feb. 23

  or

- Go to Sierra Club site and send a pre-written letter with just a few clicks.

- Ask your elected reps and CA Board to write MDE and USACE to deny permits.

- *This presentation explains why.*

(groovyhistory.com)

AGENDA

- Define “stream restoration” & why done
- The inconvenient truth about “stream restorations”
- What about erosion gullies?
- Why “stream restorations” don’t last
- The collateral damage
- “Stream restorations” promote global warming
- The cost
- What does the science say?
- Alternatives to “stream restorations”

Can some SRs can be successful?

- Some people say that SRs an be successful in some places if they are done correctly.
  - NO. That’s like saying a nuclear bomb dropped on a city can be successful Yes, if your goal is total annihilation.

- Some people say "stream restoration" projects should adhere to best science and evidence-based practices
  - NO. Science says stream restorations should NOT be done

Saying “stream restoration” is only one tool in the toolbox for addressing stormwater

Is like your brain surgeon saying a chain saw is only one tool in his toolbox.

What is a "stream restoration"? Why done?

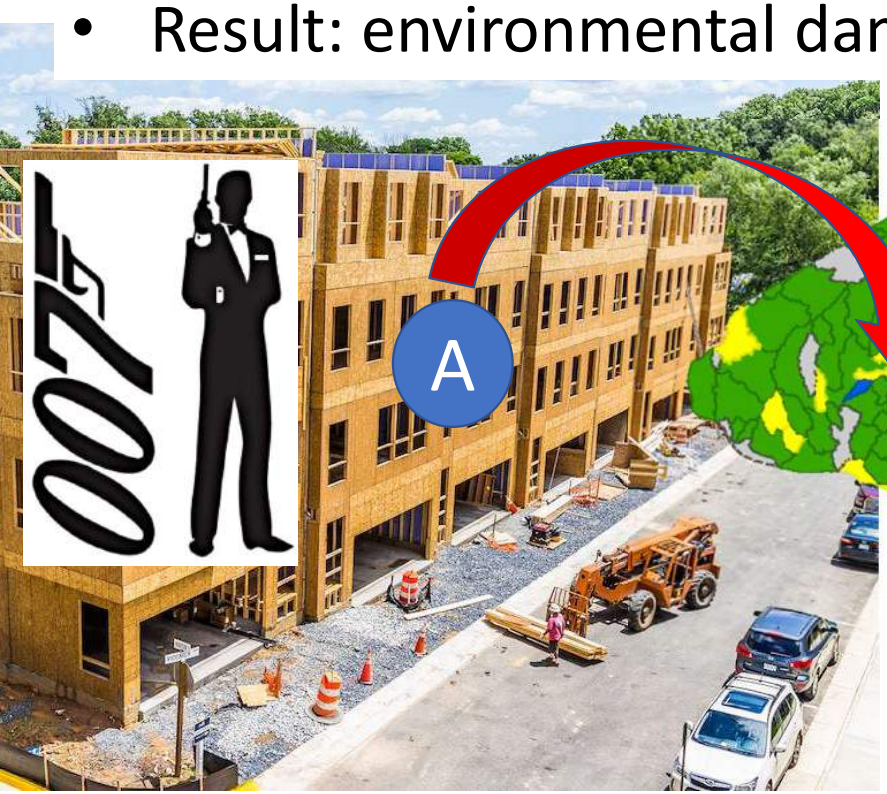
- "Stream restorations" are usually done to meet Municipal Separate Storm Sewer System (MS4) Permit or for mitigation

- MD Dept. of the Environment's (MDE's) definition for MS4 permits (this is why most "stream restorations" are done): engineering project done to stabilize eroding stream banks.

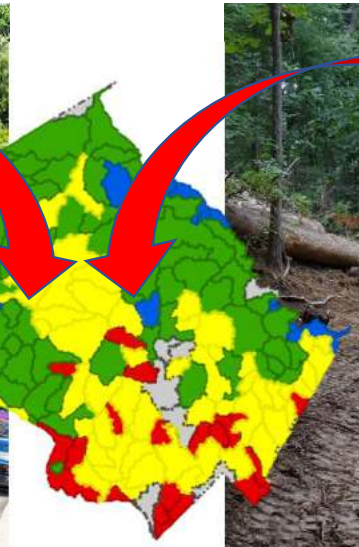
(Montgomery Parks web site)

What is Mitigation?

- Current law requires “in kind” or “like-for-like” – a false equivalence
- Result: environmental damage in site A, then damage in site B



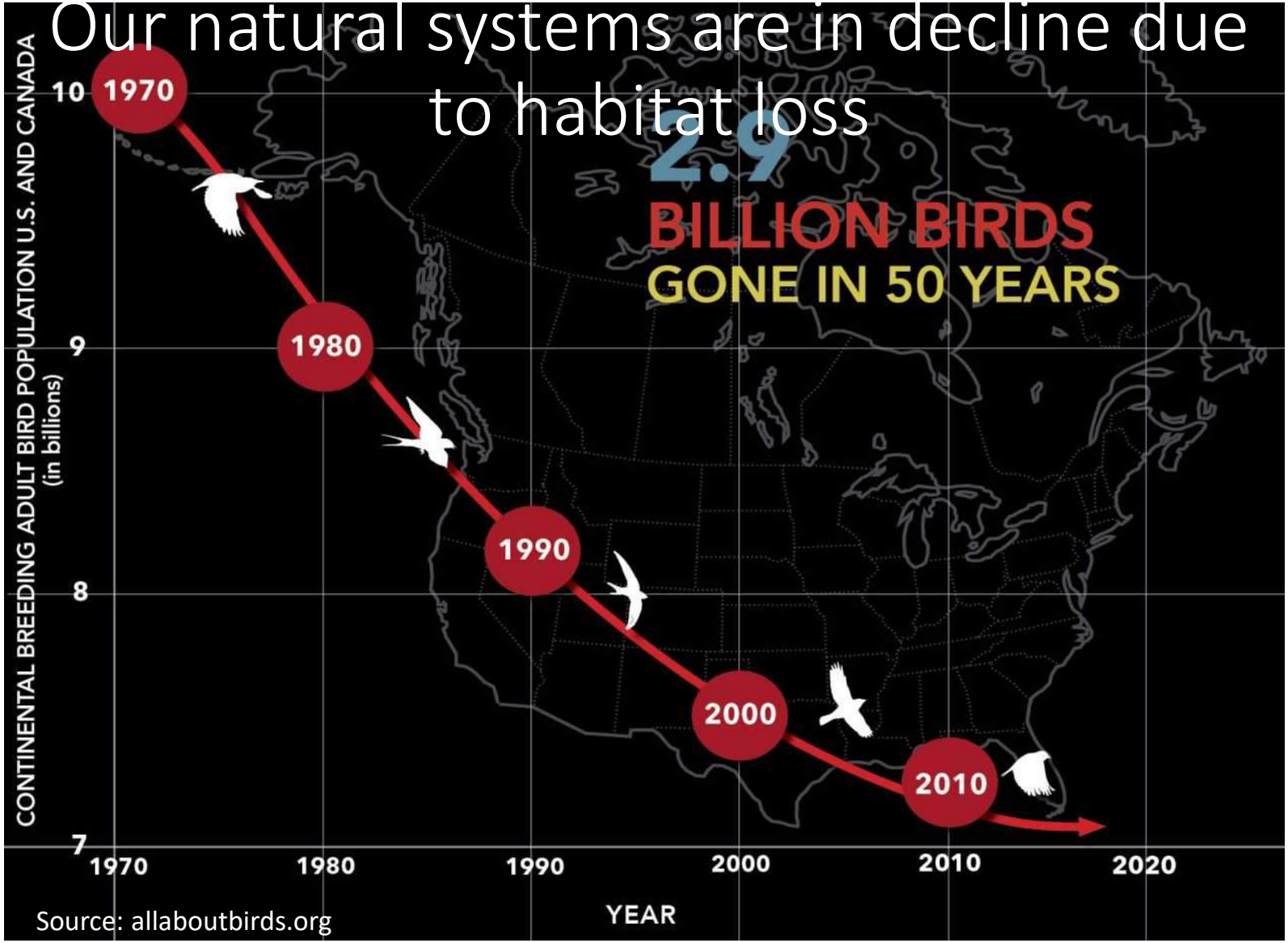
(hollywoodinhidef.com)
(levelset.com)



https://www.montgomerycountymd.gov/water/streams/watershed.html

These photos are just examples and are not from the locations on the map.

Our natural systems are in decline due to habitat loss



Source: allaboutbirds.org

The Inconvenient Truth: "Stream Restorations" Don't Restore Streams

- Restore: to bring back to a former state
- Can't ignore the damage we can see
- Don't address root cause of erosion – stormwater from impervious surfaces

(3/26/2021. downstream from Jones Mill Rd. Photos by K. Bawer)

TO BE CLEAR: Infrastructure protection/repair projects are necessary…

(from Robert Hilderbrand, U. of MD, presentation for Appalachian Lab Series on 3/4/2021)

…but these are not "stream restorations"; per Maryland Dept. of the Environment (MDE) – they get no MS4 Permit credit.

“Stream Restorations” don’t restore streams

Falls Reach, Potomac, MD

Before Montgomery County DEP “stream restoration” on Falls Reach. (Photo by DEP)

After “stream restoration” on Falls Reach completely destroyed the forest community in its footprint. (Photo by K. Bawer on 3/19/2019)

“Stream Restorations” Don’t Restore Streams

Upper Watts Branch, Rockville

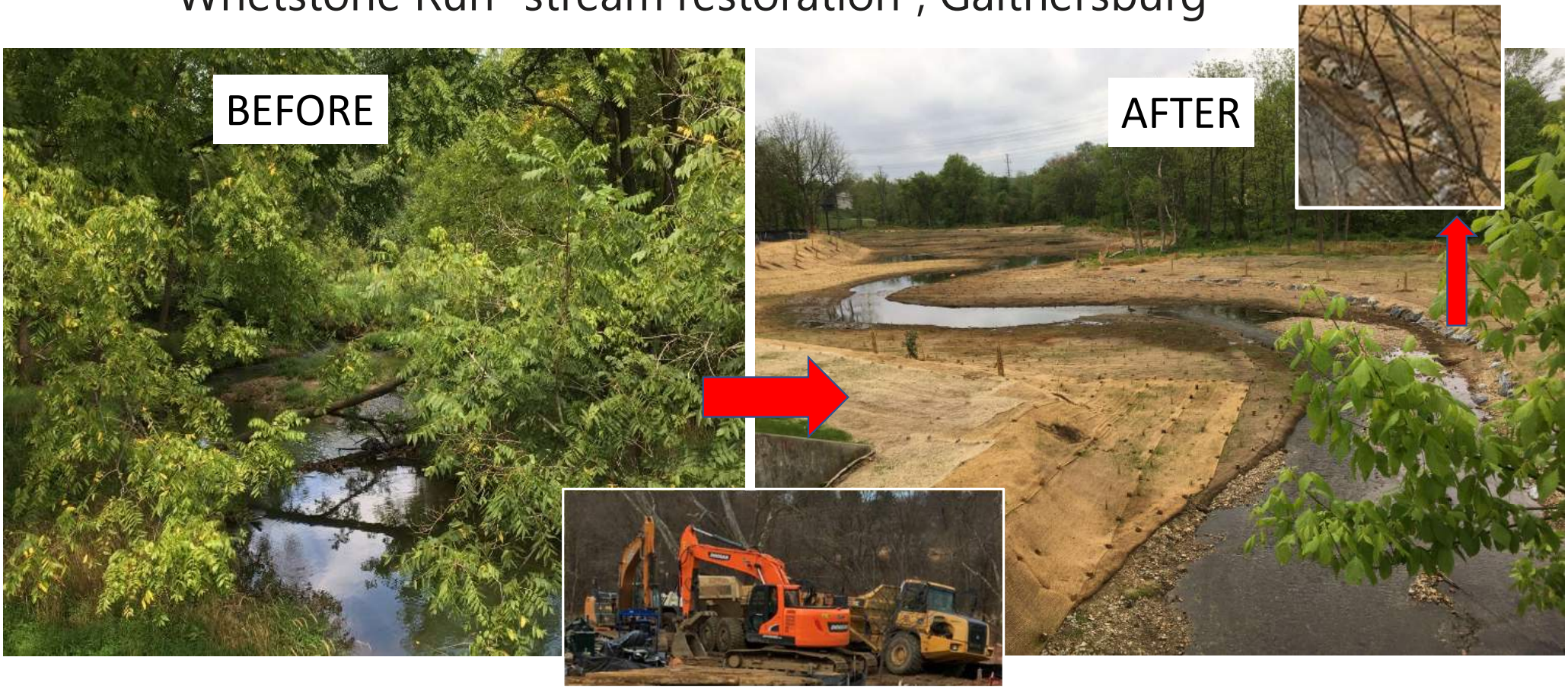
(“Stream restoration” in Upper Watts Branch, Rockville; photo by City of Rockville)

Where is the stream?

(Fallsreach Stream Restoration Project. The entire Fallsreach stream forced to run through the black pipe during construction (3/19/2019 photo by K. Bawer)

“Stream Restorations” Don’t Restore (cont.)

Whetstone Run “stream restoration”, Gaithersburg



(“Stream restoration” in Blohm Park, Gaithersburg at Watkins Mill Rd. over Whetstone Run at the same location.
Note the stream bank armor-plating on the right. (Left on 9/3/2020; right on 5/03/2021); by K.Bawer)

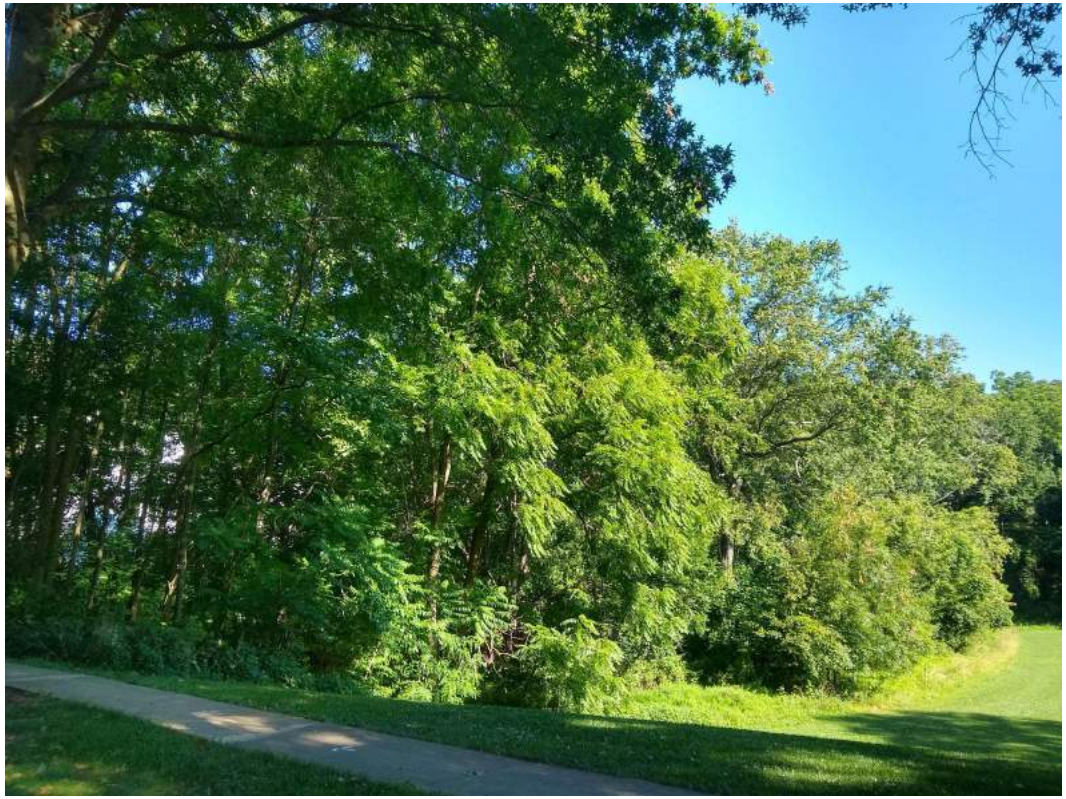
“Stream Restorations” Don’t Restore (cont.)

Solitaire Court “stream restoration”, Gaithersburg

Solitaire Court Stream Restoration Frequently Asked Questions: “It is expected that terrestrial wildlife and some of the aquatic species will move away from the area when the construction equipment arrives. Wildlife normally returns to the area once the construction is over.” https://www.gaithersburgmd.gov/home/showpublisheddocument/9316/637607355144330000

“Stream Restorations” Don’t Restore (cont.)

Solitaire Court “stream restoration, Gaithersburg



(from D.S., 6/3/2021)

(from D.S., 2/3/2021)

“Stream Restorations” Don’t Restore (cont.)

Solitaire Court “stream restoration”, Gaithersburg

(Photo by R.Portanova, 2/7/2022)

“Stream Restorations” Don’t Restore (cont.)

(https://www.youtube.com/watch?v=ix42pr9t3ts)

Scotts Level Branch Stream Restoration Project In Baltimore County

Takoma Branch “restoration” in Takoma Park, MD

(From DPW, City of Takoma Park)

Impact of non-native invasive plants

Photo credit: Betty Marose

- $120 billion/year in damages - both plant and animal. (US Fish and Wildlife service)
- Competition with native species
- Habitat degradation

"Stream restorations" disturb huge swaths of soil and create light gaps in forests – perfect for non-native invasives.

Long Branch “Restoration”, Takoma Park, MD

(With permission, 1/19/2022)

Columbia, MD

(Cedar Lane Park, 1/8/2021)

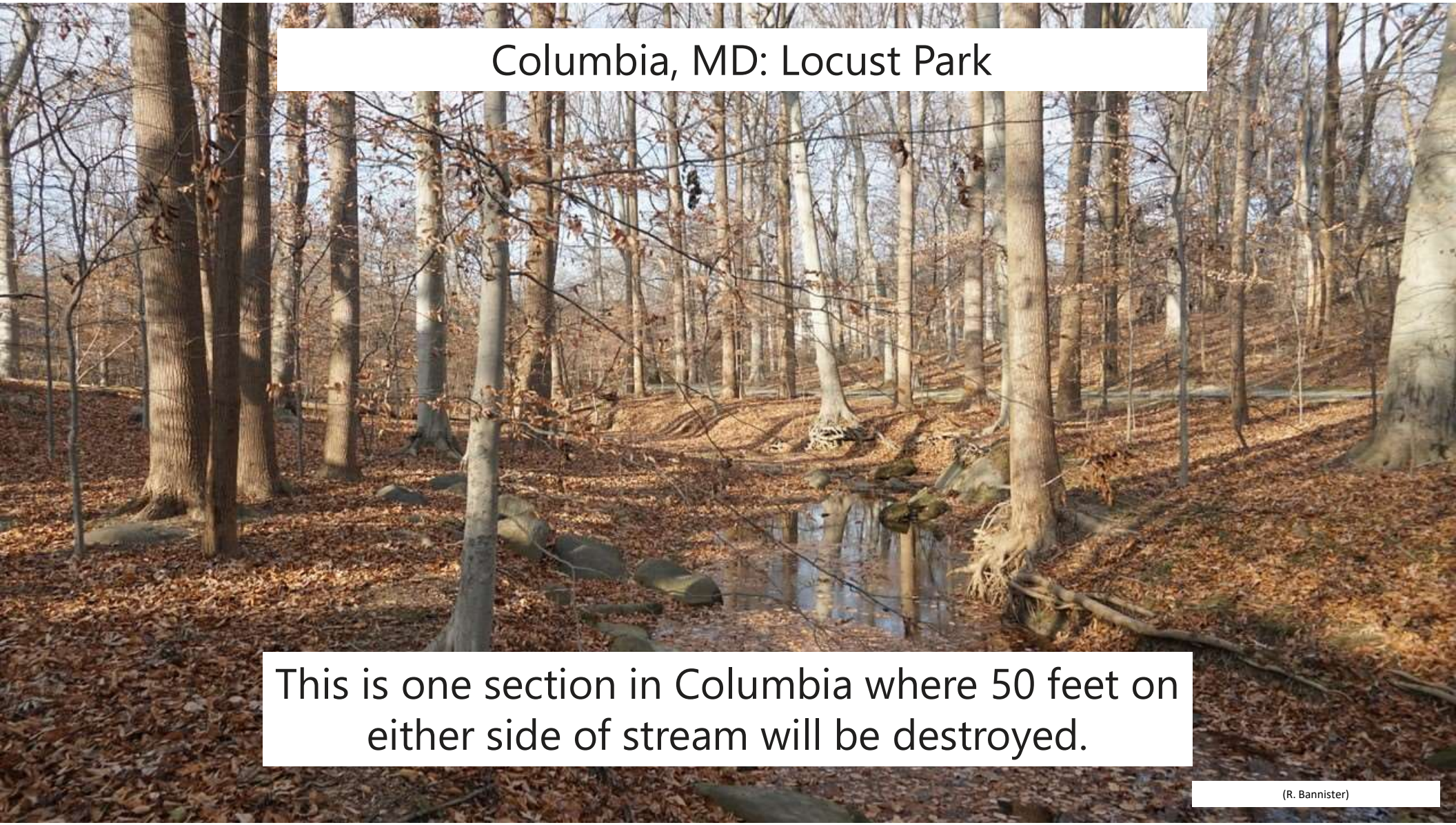
(Cedar Lane Park, 4/6/2021)

(Cedar Lane Park, 1/19/2021)

(headwaters to Lake Kittimiquandi,
, downtown Columbia, 3/21 /2021)

Columbia, MD


restore, replant, renew.
This stream is going through some changes.
Erosion control, soil stabilization
Buffer and shade
Wildlife food source
Beautification
Wildlife habitat
Questions?
Destroyed forest area


Columbia, MD: Locust Park
This is one section in Columbia where 50 feet on either side of stream will be destroyed.
(R. Bannister)

Prince George's County, MD

Briers Mill Run, After Restoration

("RECOMMENDED STREAM RESTORATION BEST PRACTICES FOR THE COG REGION," December 2021, Prepared by the Stream Restoration Workgroup on behalf of the Water Resources Technical Committee of the Metropolitan Washington Council of Governments (COG))

Chevy Chase, MD

(https://conservationblog.ansnhome.org/tag/stream-restoration/)

How can fish and salamanders move up and down this so-called “restored” stream?

Coming to a Neighborhood Near You

- **Statewide:**
  - **Entire state + Columbia, Lake Elkhorn Mitigation project (https://drive.google.com/file/d/1s-B-TIzZGZSJQGsczb96Rgh6iVRhrSnT/view?usp=sharing)**
- Montgomery County
  - Dept. of Environmental Protection: Germantown Park Stream, Old Farm Creek, Grosvenor Stream (per DEP presentation to WQAG)
  - Montgomery Parks: Long Branch in Takoma Park, Glennallen, Clearspring (https://www.montgomeryparks.org/projects/directory/stream-restoration-program/)

  Montgomery Village: proposed North Creek Stream Mitigation project
- Howard County:
  - Ellicott City, Plumtree Branch Stream Restoration
    - http://www.saveplumtreebranch.org/
    - https://www.howardcountymd.gov/News081021b

(Photo by Montgomery Parks)

What about eroded gullies & stream banks?

(From DEP Stream Restoration presentation to WQAG, 4/12/2021)

What about eroded gullies & stream banks?

- If stormwater is controlled before it gets into streams, most erosion is eliminated.
- Then, stream banks will self-stabilize over time at $0 cost – gravity does "natural healing" vs. $800K actually spent by Mo Co
- Plant vegetation to stabilize
- The loss of a few trees (dozens?) would be tiny compared to hundreds or thousands cut down during SR projects.

Breewood Tributary before "restoration"

(Photo by DEP, Montgomery County, MD)

Let eroded gullies & stream banks self-recover

- "It is expected that, with the reduced hydraulics [from erosive flows] within the catchment, these banks will continue a trajectory toward stability as indicated by reduced bank angles and vegetation establishment."* (https://www.cwp.org/the-self-recovery-of-stream-channel-stability-in-urban-watersheds/)

"The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al.

(https://www.cwp.org/the-self-recovery-of-stream-channel-stability-in-urban-watersheds/)

Reference

"The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation" by Lisa Fraley McNeal, Bill Stack, et. al.

- … "[stormwater BMP] retrofits reduce the magnitude, duration and frequency of erosive flow rates." (p. 48)
- "…there is strong evidence that the channels below the treatment sites will stabilize and adjust as the frequency of erosive flows diminishes. This will likely translate to corresponding decreases in sediment erosion. (p. 52)
- "…, it is likely the channels are on a trajectory leading towards stabilization as anecdotal evidence (which includes photographs)…." (p. 52)

Reference

- *Reference: "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al., March 2021, Prepared by the Center for Watershed Protection, Inc.; Prepared for the Carroll County Bureau of Resource Management; $176K Funded by: The Chesapeake Bay Trust, the Maryland Department of Natural Resources, the National Fish and Wildlife Foundation through the Environmental Protection Agency's Chesapeake Bay Program Office, Anne Arundel County, the Maryland Department of Transportation State Highway Administration, the Montgomery County Department of Environmental Protection, and other partners via its Restoration Research award program. https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf

Boulders used for SRs are blown-out by future storms rendering them useless – a waste of tax $$

Joseph's Branch Stream (by K. Bawer,)

Joseph's Branch during rainstorm (Photo by K. Bawer)

Cabin Branch Stream in Cabin John Regional Park (by K. Bawer, 3/19/2021)

- SRs are only temporary since stormwater is not controlled at its source.

“Stream restoration” failures, continued

Long Branch, Takoma Park, 10/2/2021 (Photo by K. Bawer)

“Stream restoration” failures, continued

“Stream restoration” failures, continued

“Stream restoration” failures, continued

(By K. Bawer, 11/23/2021)

“Stream restoration” failures, continued

Lower Booze Creek, Potomac, MD

“Storm damage occurred very soon after construction, initiating structural failures”

$700K for original “stream restoration”

(ihttps://www.montgomerycountymd.gov/water/Resources/Files/restoration/streams/Lower-Booze-Creek-Restoration-Repair-Fact-Sheet.pdf)

Lower Booze Creek - Erosion downstream of imbricated wall structure from original stream restoration.

(https://www.montgomerycountymd.gov/water/Resources/Files/restoration/streams/Lower-Booze-Creek-Restoration-Repair-Fact-Sheet.pdf)

(iconfinder.com)

$3.6M repair

(By K. Bawer, 12/4/2021)

“Stream restoration” failures, continued

Figure 1: Visual Indicators Showing Failures in the Field for Protocol 1

Exposed Soil on Banks

Extreme Undercutting

Outflanking of Instream Structures

Bank Armoring Collapse

Photo sources: Tim Schueler and Josh Running

- From, a Chesapeake Bay Program Expert Panel report.
- Promotes “stream restorations” yet acknowledges failures.
- CONFLICT OF INTEREST: Some authors work for the multi-billion dollar “stream restoration” industry.

(From“Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed,” Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18, 2019 https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf)

(Photo by Montgomery Parks)

Collateral Damage: Forests can't be planted

(pinterest.com)

- Trying to replant a forest is like trying to put Humpty Dumpty back together again.
- No amount of planting can reconstitute a destroyed natural forest community
- A forest is more than just a few trees

The complex web of interactions between fauna, flora, geology, and hydrology that interact in natural areas is irreplaceable and can't be recreated by engineering projects using bulldozers, trucked-in material, and some replanted saplings.

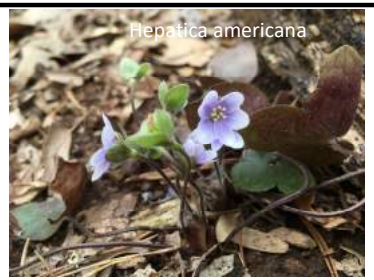
Collateral Damage: Forests can't be planted

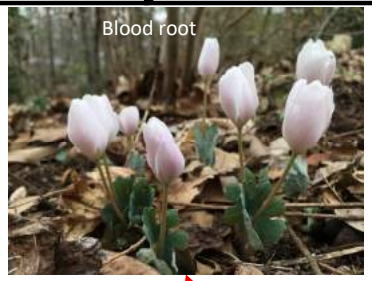
"We see the tall oaks and hickories, but these trees alone do not make a forest. They need all the other forest creatures – the mycorrhizal fungi underground, insects, everything."

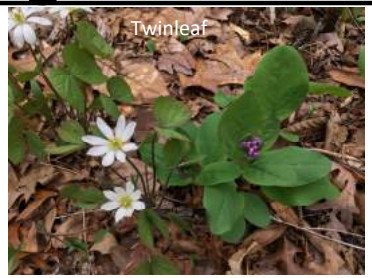
Lisa Bright, Executive Director,
Wild Plant Nursery,
Springfield, VA

(from "A Seed Letter from Lisa Bright" sent to the Regional Natural Resource Management Group, 2/18/2022)

Wildflowers & animals destroyed during “stream restorations”







All photos by K. Bawer except middle)

What happens to the fish? See next slide

(https://www.montgomerycountymd.gov/water/streams/fish.html)

Fish pulverized by the pumps

"Aquatic life would be either be prevented from passing the project reach or pulverized by the pumps." ("Stream Restoration Design", USDA National Engineering Handbook)

(Fallsreach Stream Restoration Project. The entire Fallsreach stream forced to run through the black pipe during construction (3/19/2019 photo by K. Bawer)

Cutting Forests Promotes Global Warming

- Lost carbon sequestration
- Additional lost ecosystem services:
  - Lost oxygen production
  - Lost stormwater absorption
  - Lost water quality protection
  - Lost biodiversity
  - Lost native plants that insects eat
  - Lost insects that birds eat
  - Lost wildlife habitat

Over 1 million square feet destroyed in Mo. Co. alone

How do we combat global warming when SRs cut our forests?

“Stream restorations” and climate change

- Science says: more intense rainstorms in our area
- More rain = more stormwater runoff = more stream erosion
- Resulting in more “stream restoration” blow-outs

(From Istockphoto.com)

Joseph’s Branch during rainstorm
(Photo by K. Bawer)

They say upland stormwater control is too expensive!

- But our few remaining natural areas are priceless, even if they aren't in pristine condition.

(pnommensen.com)

(Dry Seneca Creek Stream Valley Park by Montgomery Parks)

(pngall.com)

What does science say about effect of "stream restoration" on stream biology?

- The results of "stream restorations" rarely, if ever, show evidence for biological improvement for aquatic organisms (References on next page)
- When a project's "…location is dominated by urban land use …its biological restoration potential will be limited." (8/26/2021 Fish & Wildlife letter to US Army Corps of Engineers re. proposed Lake Elkhorn Mitigation Bank)

(https://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/water/advisory-group/ms4-ppp-wqag-pres-2014.pdf)

Stonefly

Black Fly and Chironomid Larvae

Blacknose Dace

- References:
  - (1) Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf
  - (2) Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)
  - (3) Kaushal, Sujay S. et. al., 2018, "Tree Trade-offs in Stream Restoration Projects: Impact on Riparian Groundwater Quality," University of Maryland, State University of New York ESF, Maryland Department of Transportation State Highway Administration, 2018 Presentation (https://cbtrust.org/wp-content/uploads/Kaushal-and-Wood_UMD_061219.pdf)
  - (4) Palmer, M. A. et. al., 2014, "Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)
  - (5) Laub, B.G, McDonough, O.T, Needelman, B.A., Palmer, M.A., "Comparison of Designed Channel Restoration and Riparian Buffer Restoration Effects on Riparian Soils," Restoration Ecology, Vol. 21, Issue 6, November 2013 (https://onlinelibrary.wiley.com/doi/abs/10.1111/rec.12010)

(Photo by Montgomery Parks)

Margaret A. Palmer, University of Maryland professor and restoration ecologist:

“You can't ask a stream to do everything an entire watershed should do.”

Alternatives to “stream restorations”

- Root cause of stream erosion: Stormwater from impervious surfaces

(From istockphoto.com))

(From wcfcourier.com)

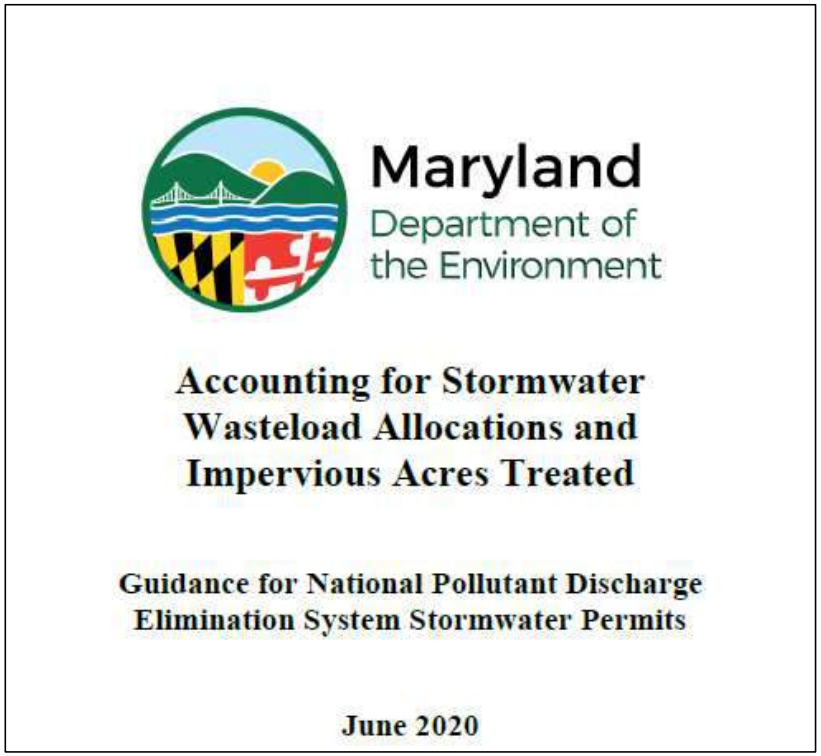
(From shutterstock.com))

(From Istockphoto.com)

Joseph’s Branch during rainstorm (Photo by K. Bawer)

Alternatives to “stream restorations”

- MS4 Permit “Accounting Guidance” document
- Long list of non-distructive “practices” can be used to meet the MS4 Permit instead of “stream restorations”.


Maryland
Department of
the Environment

Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated

Guidance for National Pollutant Discharge Elimination System Stormwater Permits

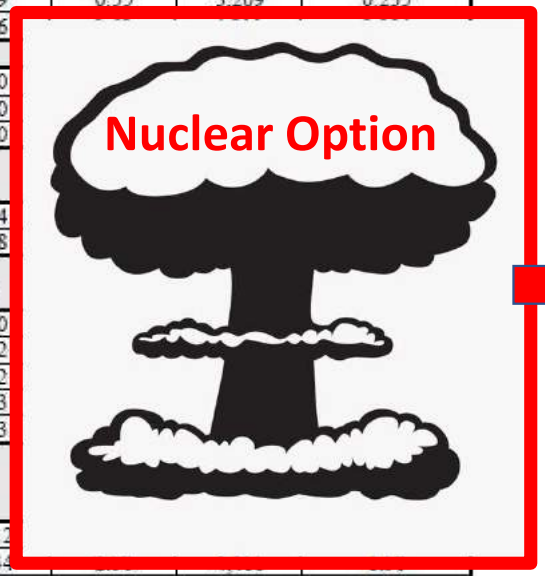
June 2020

https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Documents/2020%20MS4%20Accounting%20Guidance.pdf

All these are alternatives to “stream restoration”

Table 1. EIA_f and Load Reductions for Alternative BMPs

BMP	Load Reductions (lbs/unit/yr)			EIA_f
	TN	TP	TSS	
Advanced Sweeping				**Per Mile Swept**
1 pass/12 weeks	0.00	0.07	401	0.027
1 pass/8 weeks	0.26	0.14	802	0.059
1 pass/4 weeks	0.36	0.21	1,203	0.087
Spring 1 pass/1-2 weeks else monthly	0.36	0.28	1,404	0.106
Fall 1 pass/1-2 weeks else monthly	0.73	0.34	2,005	0.148
1 pass/2 weeks	0.73	0.34	2,206	0.156
1 pass/week	1.09	0.55	3,209	0.235
2 passes/week	1.46	[illegible]	[illegible]	[illegible]
Mechanical Broom Sweeping				
1 pass/4 weeks	0.00			
1 pass/week	0.00			
2 passes/week	0.00			
Storm Drain Cleaning				
Organic	4.44			
Inorganic	3.78			
Floating Treatment Wetlands (% of pond wet surface area covered by FTW)				
FTW1 (10%)	0.10			
FTW2 (11-20%)	0.22			
FTW3 (21-30%)	0.32			
FTW4 (31-40%)	0.43			
FTW5 (41-50%)	0.53			
Land Cover Conversion				
Forest Planting	11.12			
Riparian Forest Planting	14.34			
Conservation Landscaping	5.24	0.53	0.00	0.37
Riparian Conservation Landscaping	6.75	0.74	0.00	0.50



(clipartkey.com)

BMP	Load Reductions (lbs/unit/yr)			EIA_f
	TN	TP	TSS	
Table 1 Continued				
Forest Conservation	10.57	1.10	2,465	0.46
Impervious Surface Reduction	6.96	0.45	5,241	0.71
Street Trees	3.10	0.76	1,404	0.40
Urban Tree Canopy Planting	3.20	0.50	206	0.28
Urban Soil Restoration of Compacted Pervious Surfaces (soil excavation depth in inches)				**Per Acre of Soil Treatment**
Level 1 (15 inches)	4.4	0.72	278	0.40
Level 2 (20 inches)	8.9	1.44	557	0.80
Urban Soil Restoration of Removed Impervious Surfaces (soil excavation depth in inches)				**Per Acre of Soil Treatment**
Level 1 (15 inches)	13.7	0.7	1,696	0.91
Level 2 (20 inches)	15.0	0.77	1,864	1.00
Septic[1]				**Per System**
Septic Pumping	0.00	0.00	0.00	0.02
Septic Denitrification	0.00	0.00	0.00	0.16
Septic to WWTP Connection	0.00	0.00	0.00	0.23
Shoreline Management[2]/Stream Restoration and Outfall Stabilization[3]				**Per Linear Foot**
Shoreline Management (Default Rate)	0.173	0.122	328	0.04
Stream Restoration (Planning Rate)	0.075	0.068	248	0.02
Outfall Stabilization (Planning Rate)	0.075	0.068	248	0.02
Elimination of Discovered Nutrient Discharges from Grey Infrastructure[4]				**Per Discharge**
Elimination of Eight Approved Discharge Types	Protocol	Protocol	0.00	Individually Calculated

Notes:

[1] Actual load reductions must be reported through the local health department. Septic system credits only apply to the impervious acre restoration requirement. (WWTP = wastewater treatment plant).

[2] Default load reduction values can be used in cases when the shoreline management practice parameters are unavailable for the protocols recommended by the panel, such as in some planning efforts, historic projects, and/or nonconforming projects.

[3] Load reduction values and EIA_f are used for planning purposes only and must always be replaced with individual site-specific values prior to reporting for nutrient and sediment reduction credit and EIA restoration credit.

[4] TN and TP load reductions for individual discharges are calculated based on the protocols approved in the CBP's 2014 Grey Infrastructure Report. The EIA_f is determined using Equation 5: EIA_f Calculation for Alternative BMPs.

“Stream restoration” alternatives (continued)

Table 2. Stormwater BMPs for Upland Applications

Runoff Reduction (RR) Practices		Stormwater Treatment (ST) Practices	
Manual Reference	**Practice**	**Manual Reference**	**Practice**
Infiltration		**Ponds**	
M-3	Landscape Infiltration	P-1	Micro-Pool Extended Detention (ED)
M-4	Infiltration Berm	P-2	Wet Pond
M-5	Dry Well	P-3	Wet ED Pond
Filtering Systems[1]		P-4	Multiple Pond
F-6	Bioretention	P-5	Pocket Pond
M-2	Submerged Gravel Wetland	**Wetlands**[2]	
M-6	Micro-Bioretention	W-1	Shallow Wetland
M-7	Rain Garden	W-2	ED Shallow Wetland
M-9	Enhanced Filter	W-3	Pond/Wetland System
Open Channel Systems		W-4	Pocket Wetland
O-1	Dry Swale	**Infiltration**[2]	
M-8	Grass Swale	I-1	Infiltration Trench
M-8	Bio-Swale	I-2	Infiltration Basin
M-8	Wet Swale	**Filtering Systems**	
Alternative Surfaces		F-1	Surface Sand Filter
A-1	Green Roof	F-2	Underground Filter
A-2	Permeable Pavement	F-3	Perimeter Filter
A-3	Reinforced Turf	F-4	Organic Filter
Other Systems		F-5	Pocket Filter
M-1	Rainwater Harvesting		

Notes:
[1] A dry channel regenerative step pool stormwater conveyance system is considered a stormwater retrofit by the CBP Stream Restoration Expert Panel. This practice may use the BMP code SPSD and use the same pollutant load reductions as a filtering practice. The impervious area draining to these practices may be considered treated in accordance with the design rainfall depth treated (P_{Tr}) for crediting purposes.
[2] Stormwater wetlands, infiltration trenches, and infiltration basins are ST practices unless designed according to Section VI.

Expert Panel report for SR credits: http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2013/10/stream-restoration-short-version.pdf

What do some alternatives look like?

Bioretention

Grass Swale

Green roof (by realfarmacy.com)

Permeable Pavement

Conservation Landscaping

Planting trees (by mrtreeservices.com)

(Photos by Montgomery County DEP)

Out-of-stream alternatives don’t destroy natural areas

References for non-destructive stormwater control examples

- Maryland Dept. of the Environment:
  - Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated (2020) ("Accounting Guidance") https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Documents/2020%20MS4%20Accounting%20Guidance.pdf
- Montgomery County Dept. of Environmental Protection
  - Green Streets program: https://www.montgomerycountymd.gov/water/restoration/green-streets.html
  - RainScapes program: https://www.montgomerycountymd.gov/water/rainscapes/
- EPA Green Infrastructue site: https://www.epa.gov/green-infrastructure/what-green-infrastructure

But there's not enough land for upland control! Not true!!

(Photos by Montgomery County DEP)

Kensington, Montgomery Co, MD

(Photos by Montgomery County DEP)

But there's not enough land for upland control! Not True!!

(Photos by Montgomery County DEP)

Columbia, MD

Photo 3: Example of an opportunity for increases in tree canopy. Metzler's Garden in Hickory Ridge (Dotty's Way).

(https://www.montgomerycountymd.gov/water/restoration/green-streets.html)

(Photos by Montgomery County DEP)

Environmental Justice / Equity Focus

(by City of Rockville)

OR

Non-destructive stormwater control practices

(DEP presentation to Mo Co WQAG, 4/12/2021)

- Cutting down forests makes communities less livable.
- Cutting trees increases urban heat island effect in areas with fewer trees

SUMMARY – Reasons to Oppose "stream restorations"

1. "Stream restorations" don't restore streams either physically or biologically, import foreign material, & destroy riparian ecosystems – this complex web can't be recreated by re-planting some trees.

2. "Stream restorations" don't address the root cause of stream bank erosion: stormwater fire-hosing into streams from impervious surfaces such as roofs and roads.

3. The science tells us that forests counteract global warming, even if they aren't in pristine condition.

(Photo by City of Rockville)

(From Istockphoto.com)

Before Columbia Lake Elkhorn "stream restoration" (Photo by R. Bannister)

SUMMARY, continued

4. The way to “fix” streams is to control stormwater outside of streams by non-destructive practices such as raingardens, bioswales, permeable pavement, tree planting, etc.

(Photos by Montgomery County DEP)

You Can Stop the Destruction

- Due to citizen protests, Alexandria no longer pursuing "stream restorations" for Taylor Run and Strawberry Run
  - "They're really destructive [projects] and they basically replace an entire stream valley with something different that's totally artificial and actually doesn't work," Rod Simmons, a natural resource manager and ecologist who works for the city, said, speaking as a private citizen. "Apart from all that, you've just lost all the native biodiversity. You can't ever get that back again."
  - See "What's Next for Taylor Run?" pp. 8-10 and "Kudos to council's stream restoration decision", pp. 24-25. https://alextimes.com/wp-content/uploads/2022/01/ALEXT012722_FULL.pdf

Call to Action

- Go to Sierra Club site and send a pre-written letter (or you can type in your own comments) asking for a denial of the statewide and Columbia permits with just a few clicks (by Feb. 23).
  - Sierra Club campaign called "Protect Our Streams And Forested Valleys In Maryland"- just requires a few clicks at https://addup.sierraclub.org/campaigns/protect-our-streams-and-forested-valleys-in-maryland
- Contact elected officials at state and federal level asking them to write MDE & USACE to deny the statewide and Columbia permits; find yours at:
  - https://mgaleg.maryland.gov/mgawebsite/Members/District

Call to Action

- Contact City and County officials asking them to write MDE & USACE to deny the statewide and Columbia permits: find on internet

- Contact Columbia Association & Village Boards asking them to back out of agreement for Lake Elkhorn project with Davey corporation: emails provided to participants

The End - Questions?

(Photo by Montgomery Parks)

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