CMC
Chesapeake Monitoring Cooperative

COMMUNITY-BASED RESTORATION MONITORING ORIENTATION

Photo by Chesapeake Bay Program

PROJECT PARTNERS

NFWF

CMC
Chesapeake Monitoring Cooperative

STROUD
WATER RESEARCH CENTER

Chesapeake Bay Program
Science. Restoration. Partnership.

ALLIANCE
for the Chesapeake Bay

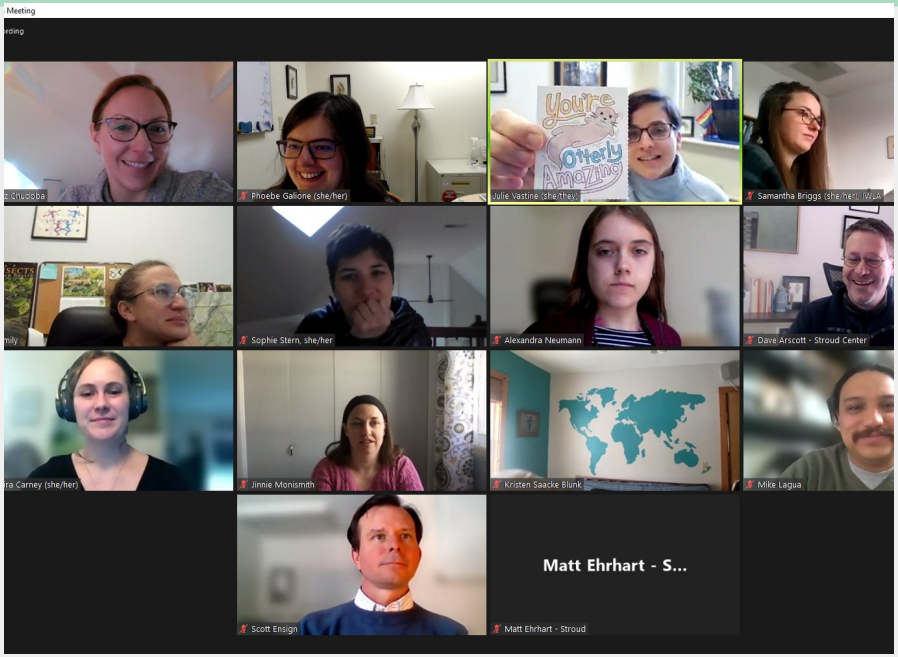
EPA

Dickinson

BACKGROUND

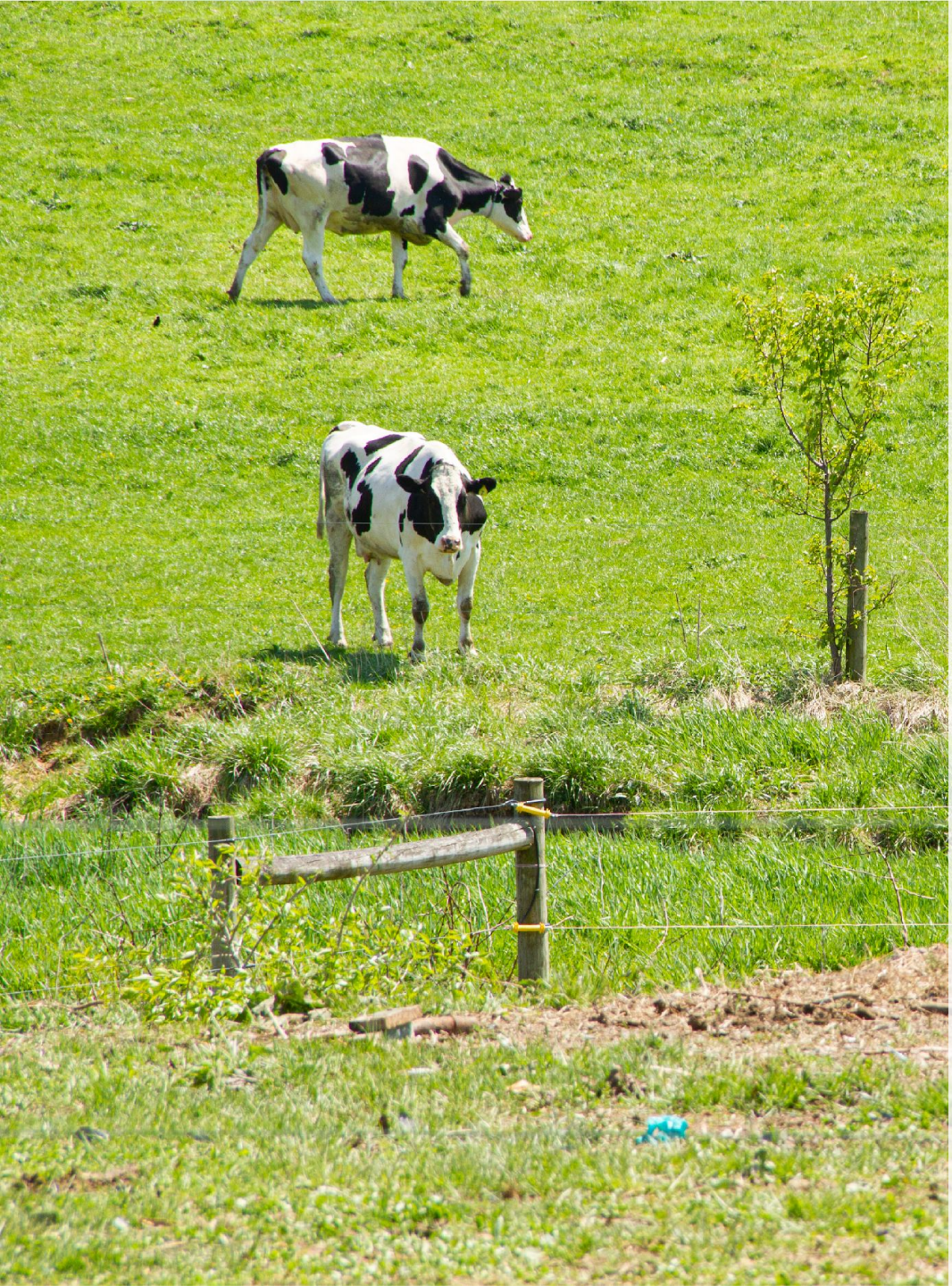
- 2021 the Chesapeake Monitoring Cooperative (CMC) partners with the NFWF develop a program to have volunteers track the progress of stream BMPs funded through the NFWF Chesapeake Bay Stewardship Fund.

- Development efforts ->
  1. Background research to identify potential water quality impacts of restoration practices
  2. Stakeholder meetings and surveys
  3. Study design to determine best monitoring protocol to answer questions.



4. Protocol Development
5. EPA QAPP approved
6. Database development (survey 123)
7. Data Collection

Photo Credit:ACB and ALLARM Staff



MONITORING GOALS

- Assess the status of the intervention pre, during, post restoration.
- Develop case studies that help NFWF document visual/physical impact of practices on local streams.
- Alert project managers to potential issues.
- Community engagement and education.

PILOTING THE PROTOCOL

- Testing of the developed protocol began in May 2022
- Revise protocol and develop training materials – Summer - Fall 2023
- Pilot sites (9 sites) - 2023 - 2024
- Recruit volunteers – Fall or Winter 2024
- Full roll out expected in 2025 with onboarding 7-10 sites annually

BEST MANAGEMENT PRACTICES (BMP) CATEGORIES

Cattle Fencing

Photo Credit: Adam Miller, Alliance for the Chesapeake Bay

Forest Buffer

Photo Credit: Ryan Davis, Alliance for the Chesapeake Bay

Stream Restoration

Photo Credit: Alliance for Aquatic Resource Monitoring - Dickinson College

Specifically projects which are funded through NFWF's Chesapeake Bay Stewardship Fund grant program.

SITE SELECTION

Working with Project managers to see if the site meets the requirements:

- Project includes at least 100m of stream receiving treatment.
- Project is located on a 1-3 order perennial stream.

Photo Credit: Alliance Staff

- Landowners are willing to allow monitoring activities for at least 5 years.
- Site contains restoration practices - riparian buffers, or cattle exclusion fencing funded by NFWF.
- Site must be safe, accessible and wadable.
- Filling out project documentation
- Site visit and site set up

MONITORING

MONITORING COMPONENTS

- Water Quality Indicators (water temperature and water clarity)
- Visual/Physical Assessment of: stream geometry, substrate, stream viewer measurements, canopy cover, riparian zone, biological habitat)
- Standardized Stream Reach Photographs and Stream Viewer Photos
- Benthic Macroinvertebrates (family level ID) Spring Only

Photo Credit: ALLARM Staff

WATER QUALITY INDICATORS

Air and Water Temperature

Photo Credit: Alliance Staff

Turbidity

Photo Credit: ALLARM Staff

VISUAL PHYSICAL ASSESSMENT EXAMPLES


Cross-Section Measurements


Wetted Width


Bank Angle


Stream Viewer Measurements


Bank Height

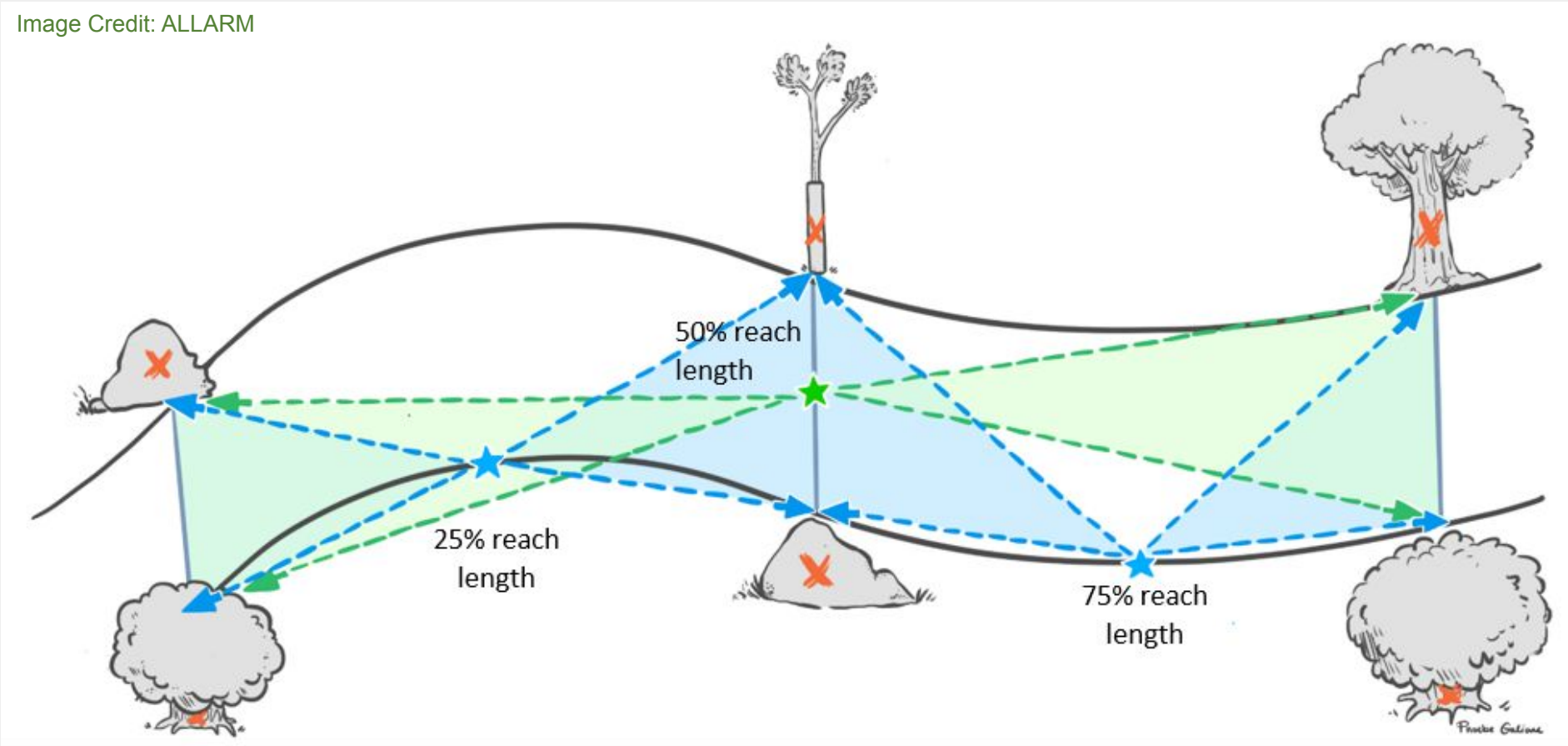

Bank Characteristics

Photo Credit: Allianceand ALLARM Staff

STANDARDIZED PHOTOS

Six standard stream reach photos from the bank at the 25% reach length, mid-channel at the 50% reach length and the bank at the 75% reach length.

Image Credit: ALLARM



BENTHIC MACROINVERTEBRATES (SPRING)

- CBP Benthic Macroinvertebrate Sampling Protocol

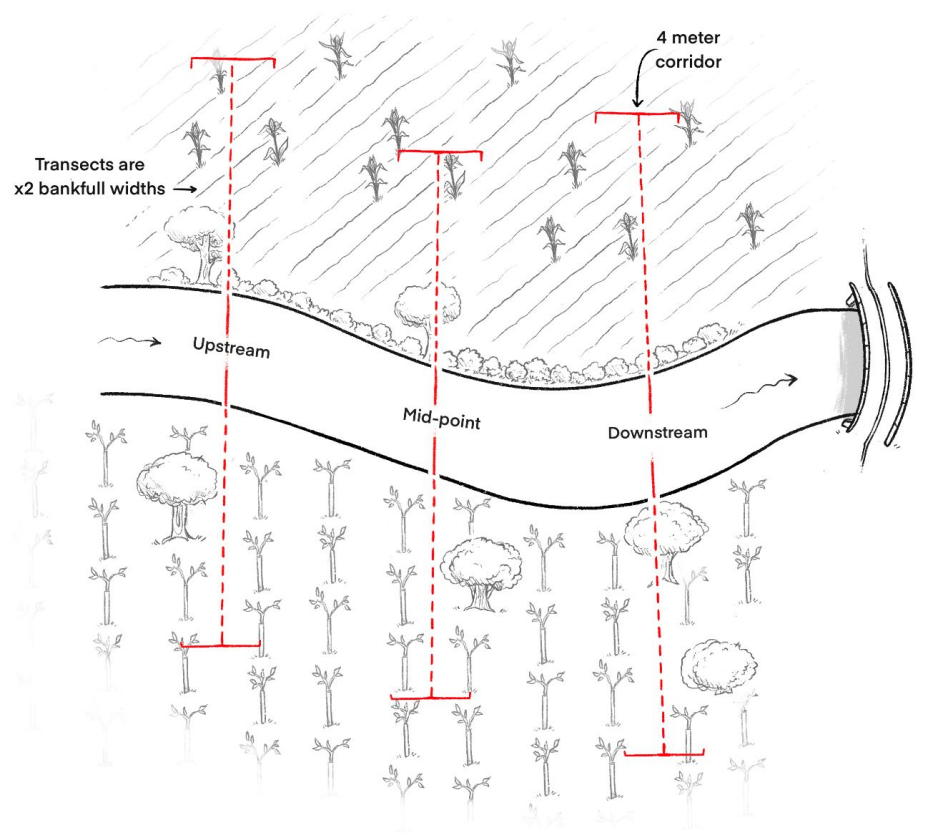
- Samples collected in the field, preserved and sent to EPA Wheeling Lab for family level identification.

Photo Credit: ALLARM Staff

RIPARIAN AREA

Transect length = bankfull width x2, then create a corridor 4 m wide (2m on either side of the transect line.

- # of pre-established trees
- # of planted trees (post-restoration)
- Dead or fallen trees
- Invasive species
- Concerns



GENERAL REACH CHARACTERISTICS

- Riffles/pools/runs
- Aquatic vegetation
- Bank Conditions and Impacts
- Floodplain inundation
- Impacts of animals

EXAMPLE

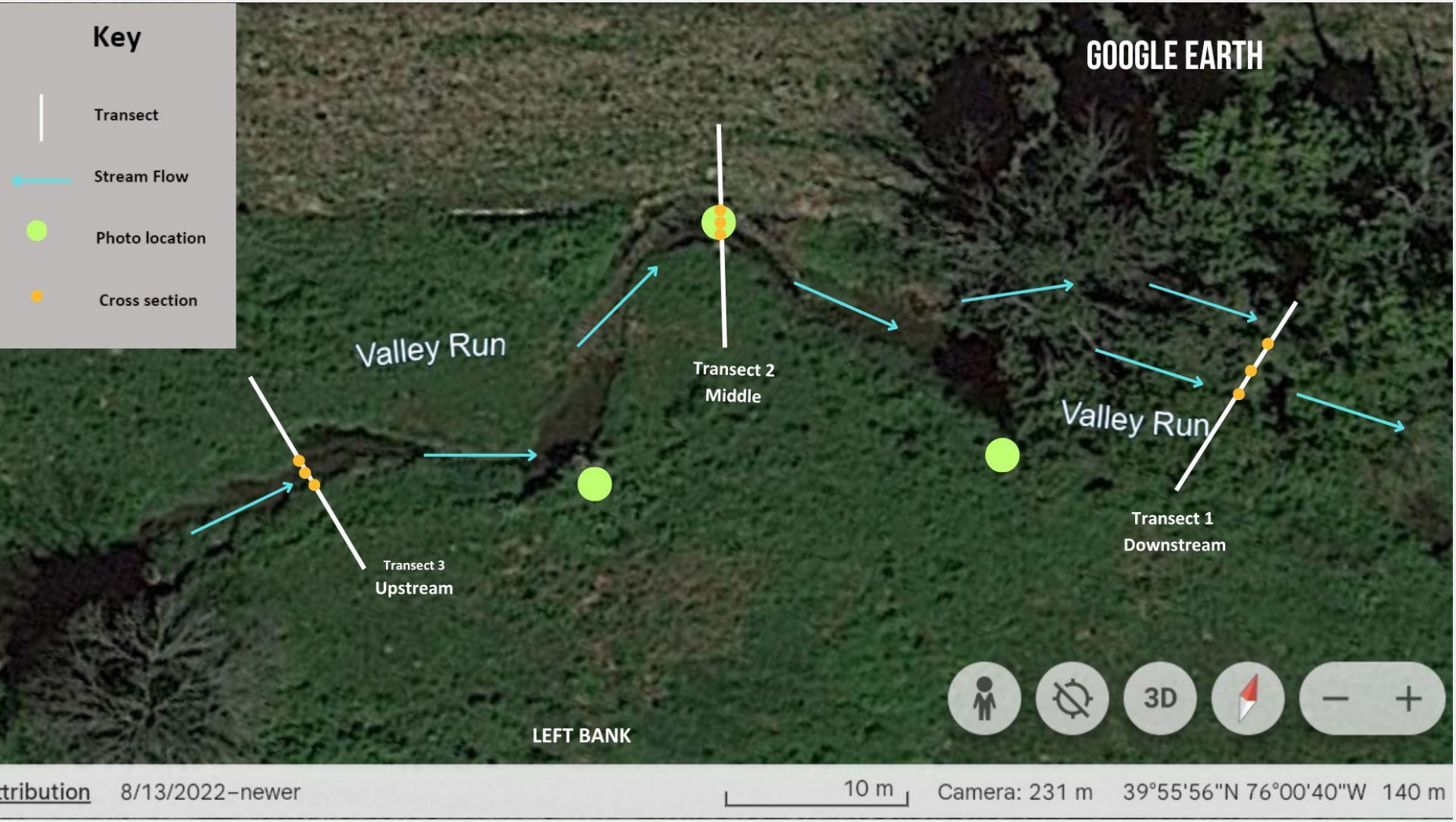
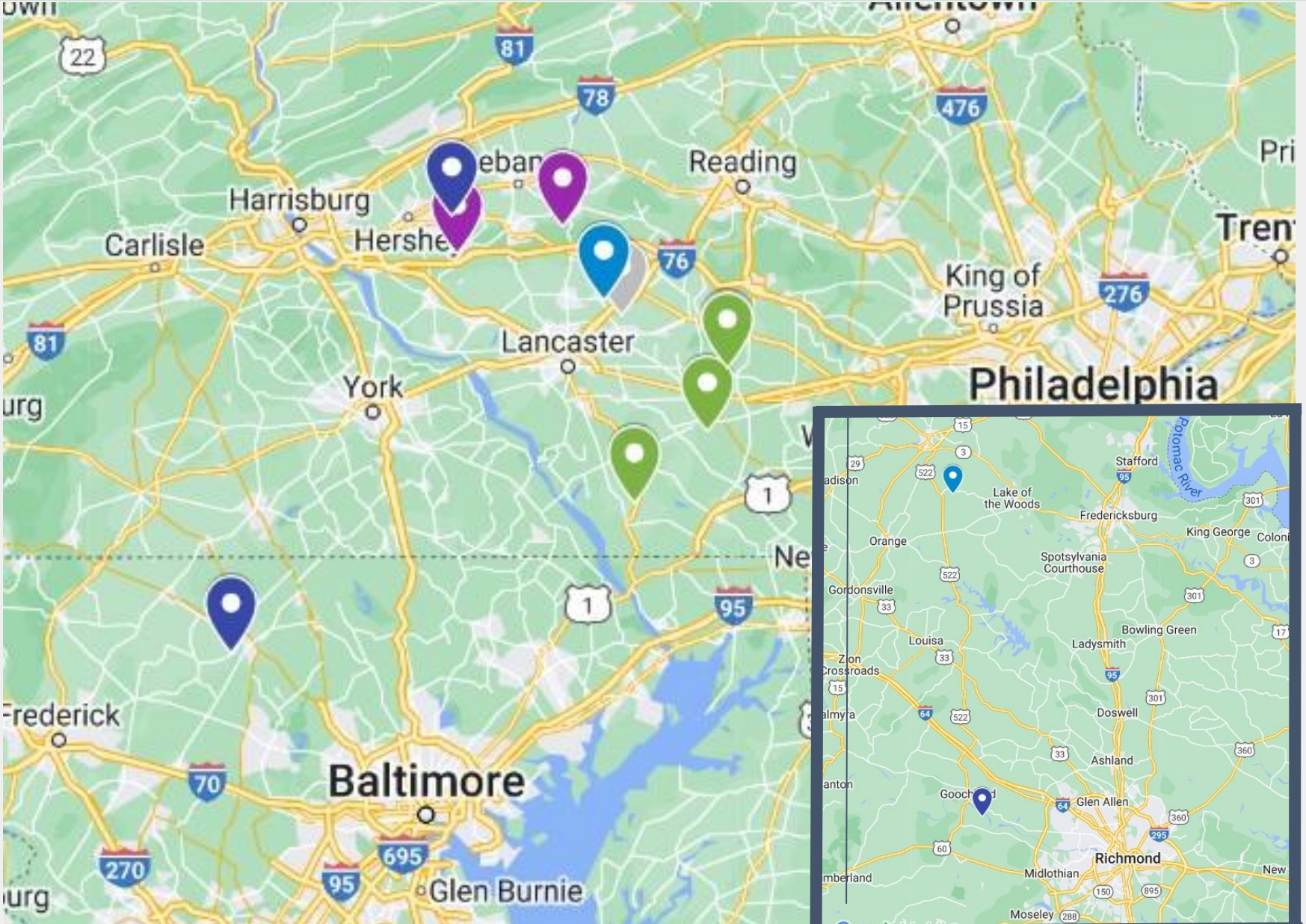


Photo Credit: Alliance Staff

CURRENT SITES



WANT TO LEARN MORE?

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Photo Credit: James River Association Staff



QUESTIONS?



Photo Credit: ALLARM Staff