



# Community Science Projects: Heat Biking Study

---

Thomas McCarty

Forest Assistant, Baltimore Green Space

4<sup>th</sup> March 2026



# Introduction

---

- Thomas McCarty: Forest Assistant
  - University of Maryland, Baltimore County
  - Peace Corps Senegal; Agroforestry Volunteer
- Baltimore Green Space
  - Environmental land trust; forestry stewardship
  - Community connection with nature and science



# Heat Monitor Bike Project

- Forests provide cooling through:
  - Evapotranspiration
  - Higher albedo
  - Shade
- What is the change in cooling effect going away from the forest?
  - Direct line? Plateau at certain distance?
- How can we get geospatial and temperature data at the same time?
  - 4 bikes in different directions



# Heat Bike Building/Equipment

- Dr. Mike Alonzo's (AU) bike assembly based off Carly Ziter's (University of Wisconsin) design
- BGS assembly based off Dr. Mike Alonzo's bike
- Project equipment
  - Bikes
  - GPS
  - heat sensor
  - battery case
  - data logger

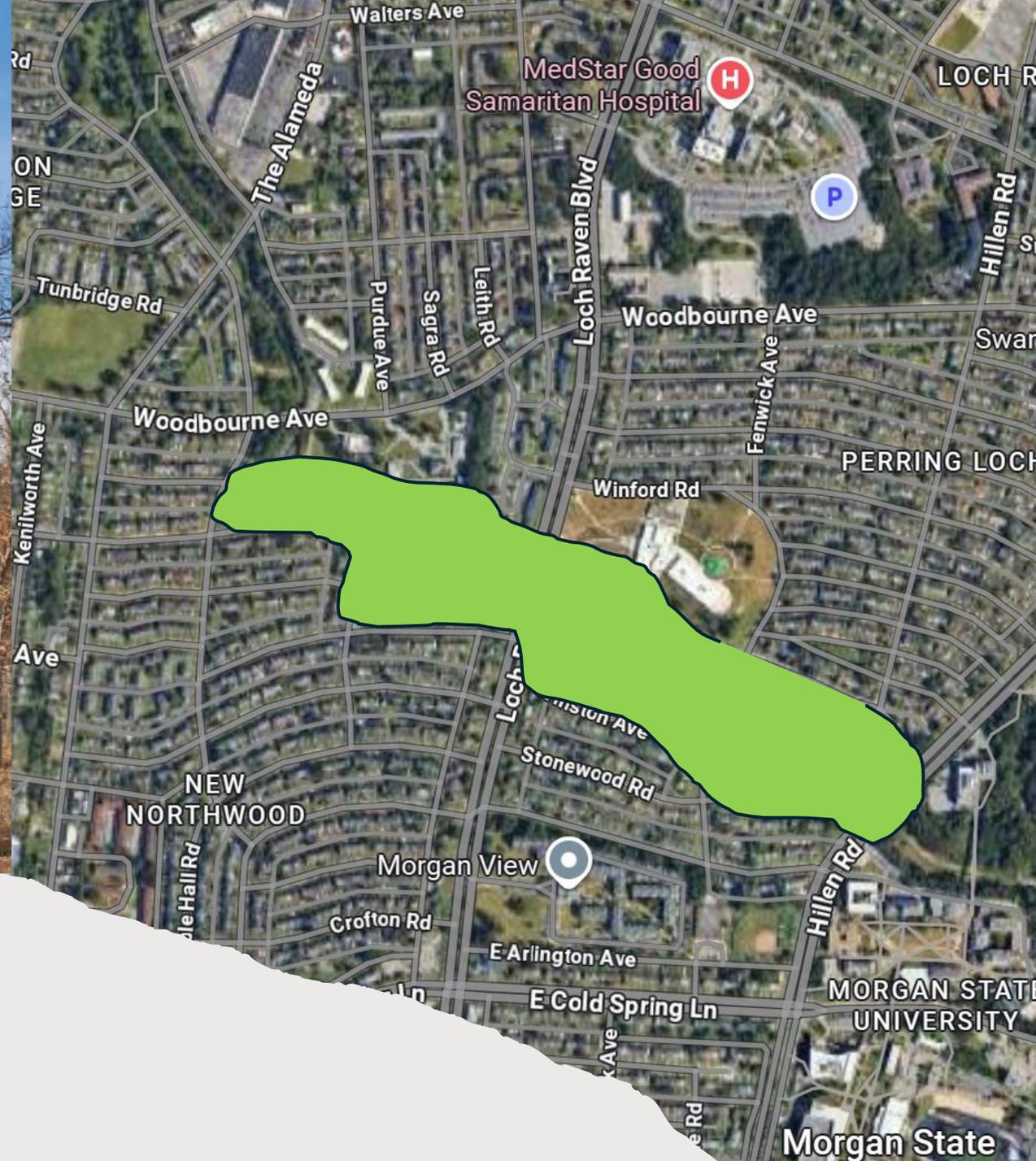


# Where to bike?

---

- Requirements for forests:
  - Community support
    - Forest patches that are currently being managed
    - Community invested and interested in collaboration
    - Will not bother neighbors riding bikes in circles (8 hours of data collection)
  - Scientist-approved
    - Forest patches that are somewhat large and surrounded by similar land cover on all sides
    - HEPP?





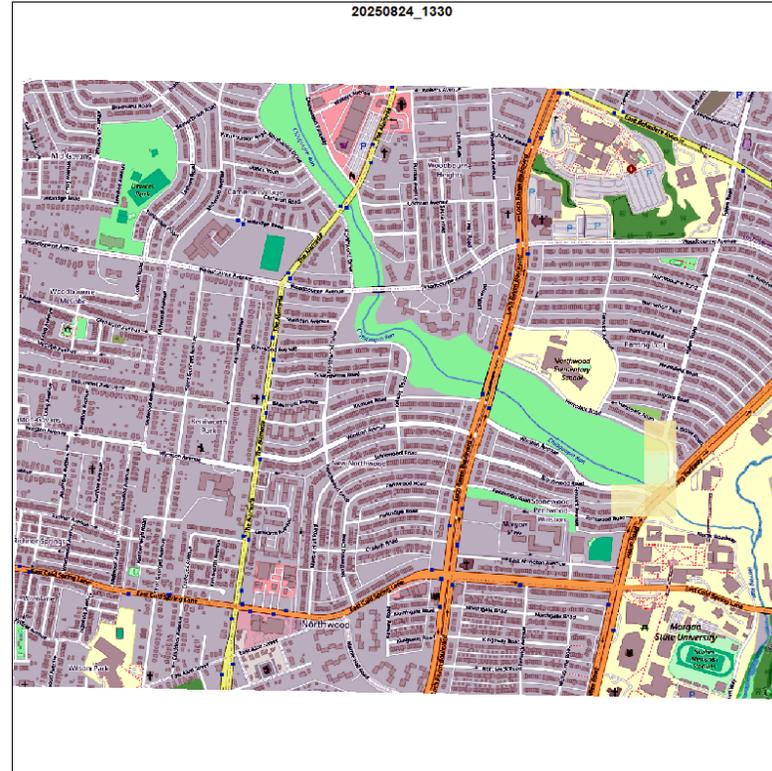
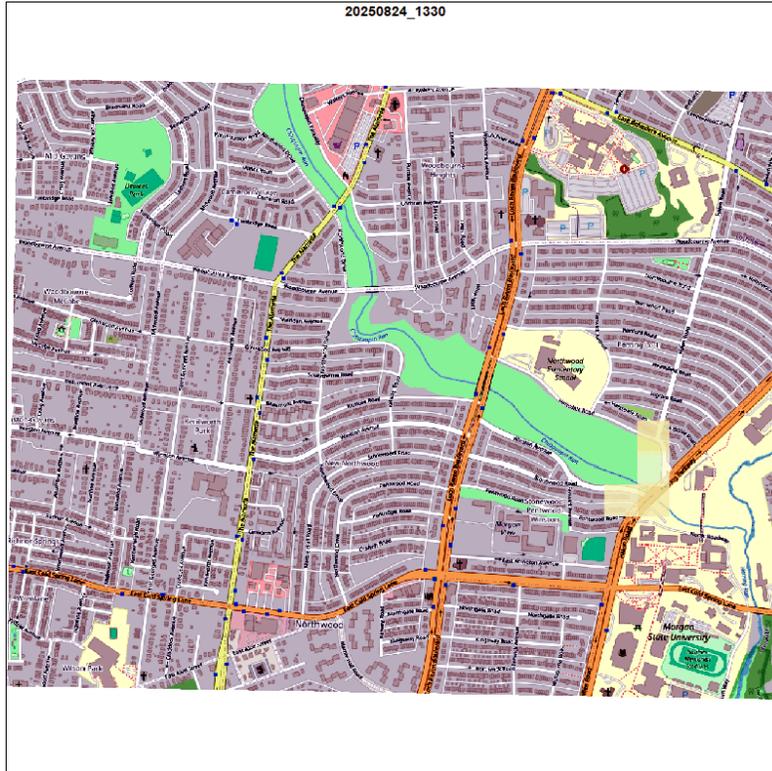
# Sycamore Chinquapin Run



## Heat Monitor Bikes

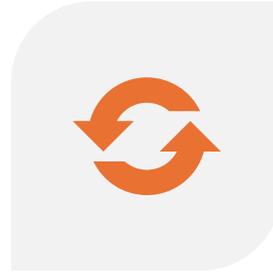
# Trial Run Summer 2025

- Completed 2 trial runs this past summer
  - August and September
- Over 50 volunteer bikers participated
- Bikers riding on 4 separate routes at the same time
  - 2 North and 2 South
- Bikes collect GPS and temperature data every second
- 4 shifts of 2 hours (8 hours total)
- Bumpy road conditions and fragile hardware
- Fixing hardware issues for Spring 2026 rides

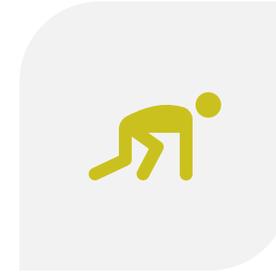


Heat Monitor Bikes

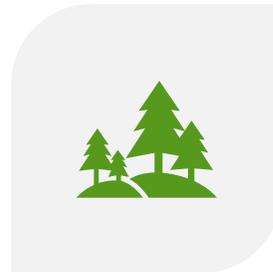
# Plans for 2026



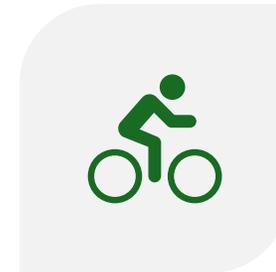
LOOKING FOR VOLUNTEER  
BIKERS AND COURSE  
MONITORS STARTING EARLY  
APRIL!



BIKING AT SYCAMORE  
CHINQUAPIN RUN (AGAIN)



BIKING AT OTHER FORESTS (AS  
INFORMED BY SCIENTISTS AND  
AS COMMUNITIES ARE  
INTERESTED)



ORGANIZING A CROSS-TOWN  
BIKE



Thank you to  
our stewards,  
scientists,  
and funders!

# Thank you!

- Thomas McCarty
  - Baltimore Green Space, Forest Assistant
  - [thomas@baltimoregreenspace.org](mailto:thomas@baltimoregreenspace.org)
  - +1(301)615-2912
- Questions?

