



# STREAMTRACKER

Crowd sourcing and remote sensing to monitor stream flow intermittence



1 ECOSYSTEM SCIENCE  
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## WHY INTERMITTENT STREAMS?

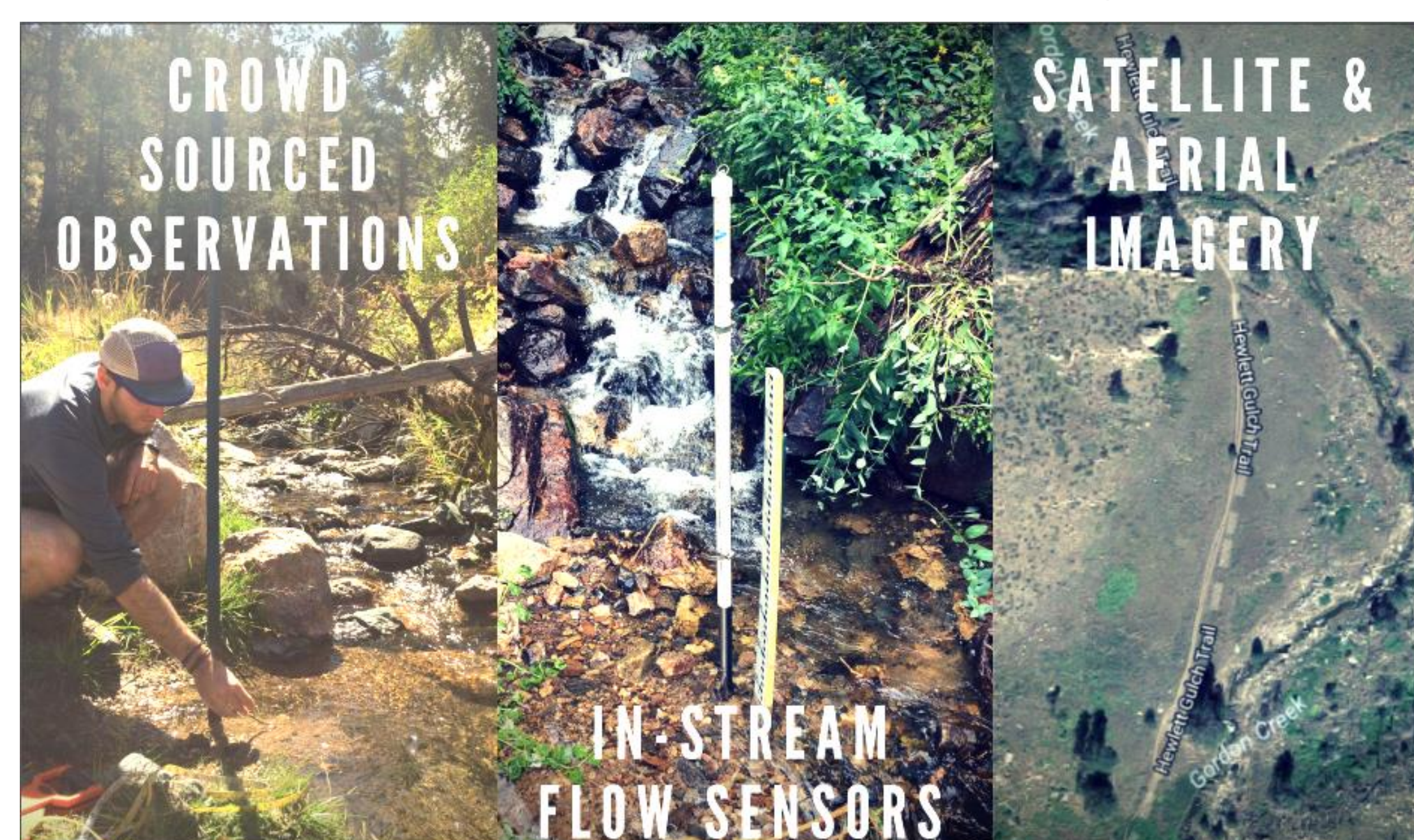


Mill Creek, Fort Collins, CO in May 2016 (left) and in June 2016 (right)

Intermittent streams are important for water supply, habitat, biodiversity, downstream ecosystems, and downstream water quality. However, most streamflow monitoring is concentrated on perennially flowing streams leading to intermittent streams to often be poorly mapped and rarely monitored. We are missing baseline data on simply when and where intermittent streams are flowing.

## WHAT IS STREAM TRACKER?

Stream Tracker aims to improve mapping and monitoring of intermittent streams by combining:



With this network of baseline flow conditions, we seek to answer:

- (1) How can we best classify types of streamflow intermittence?
- (2) What causes a stream to be intermittent?
- (3) Can we improve mapping of flow types in stream networks?
- (4) How is streamflow intermittence changing over time?

## THE POWER OF THE CROWD

**JOIN**

**Stream Tracker**

65 members | 2,150 observations | 337 locations | 4,570 measurements

Stream Tracker is a community powered stream monitoring project to improve the mapping and monitoring of smaller, intermittent streams through crowd sourced on-the-ground observations of streamflow presence and absence.

Participants become a member by joining the project on CitSci.org.

From the project page, members can view data and submit their field observations

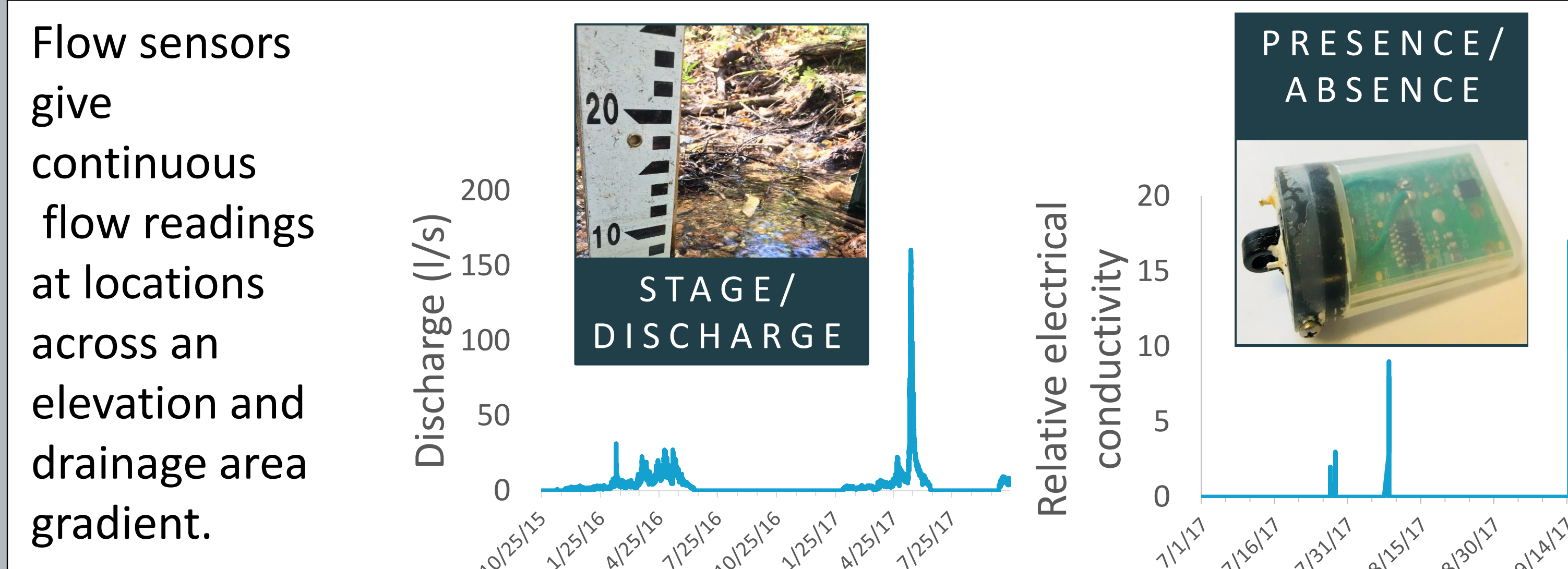
**NAVIGATE**

Participants use a free mobile phone app or a handheld GPS to navigate to sites along roads or trails. Stream Tracker sites can be established anywhere there is a defined, recognizable channel.

**RECORD**

Participants record streamflow presence or absence using mobile app or paper datasheets. Once out of the field, the observations are uploaded to the online database on CitSci.org.

## STREAMFLOW SENSORS

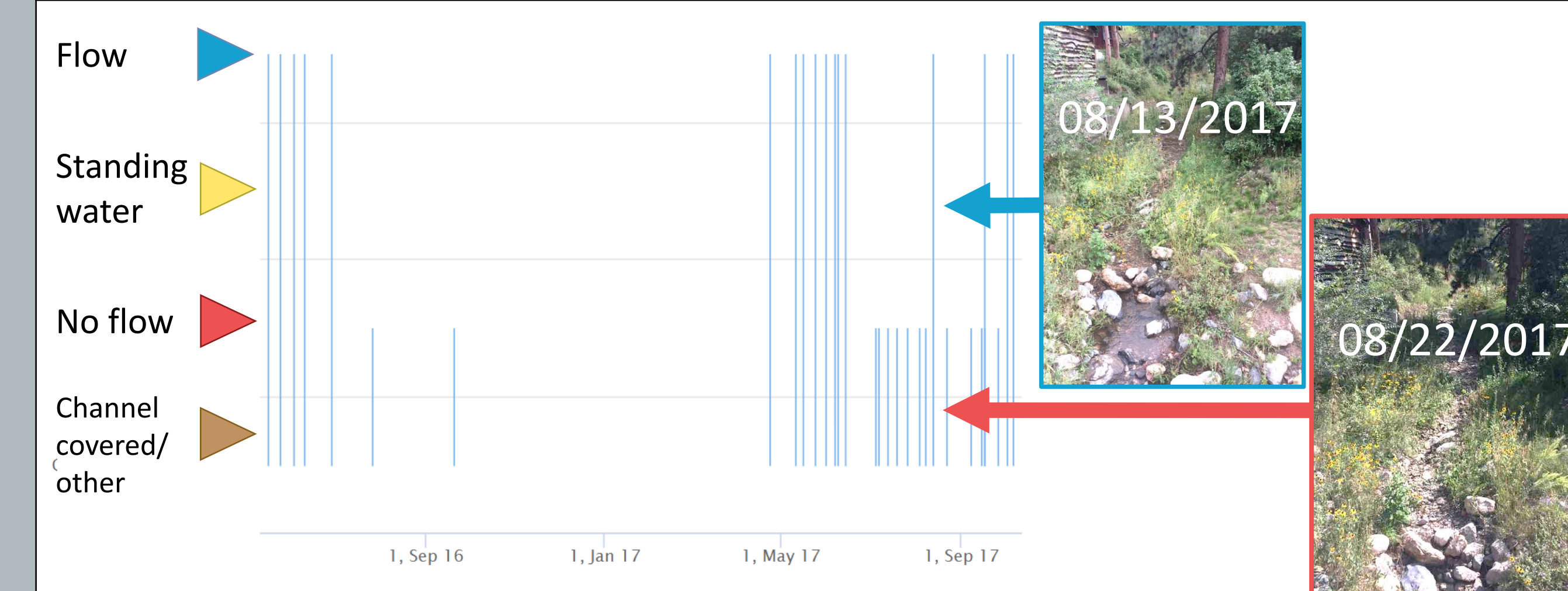


## REMOTE SENSING

**FLOW**

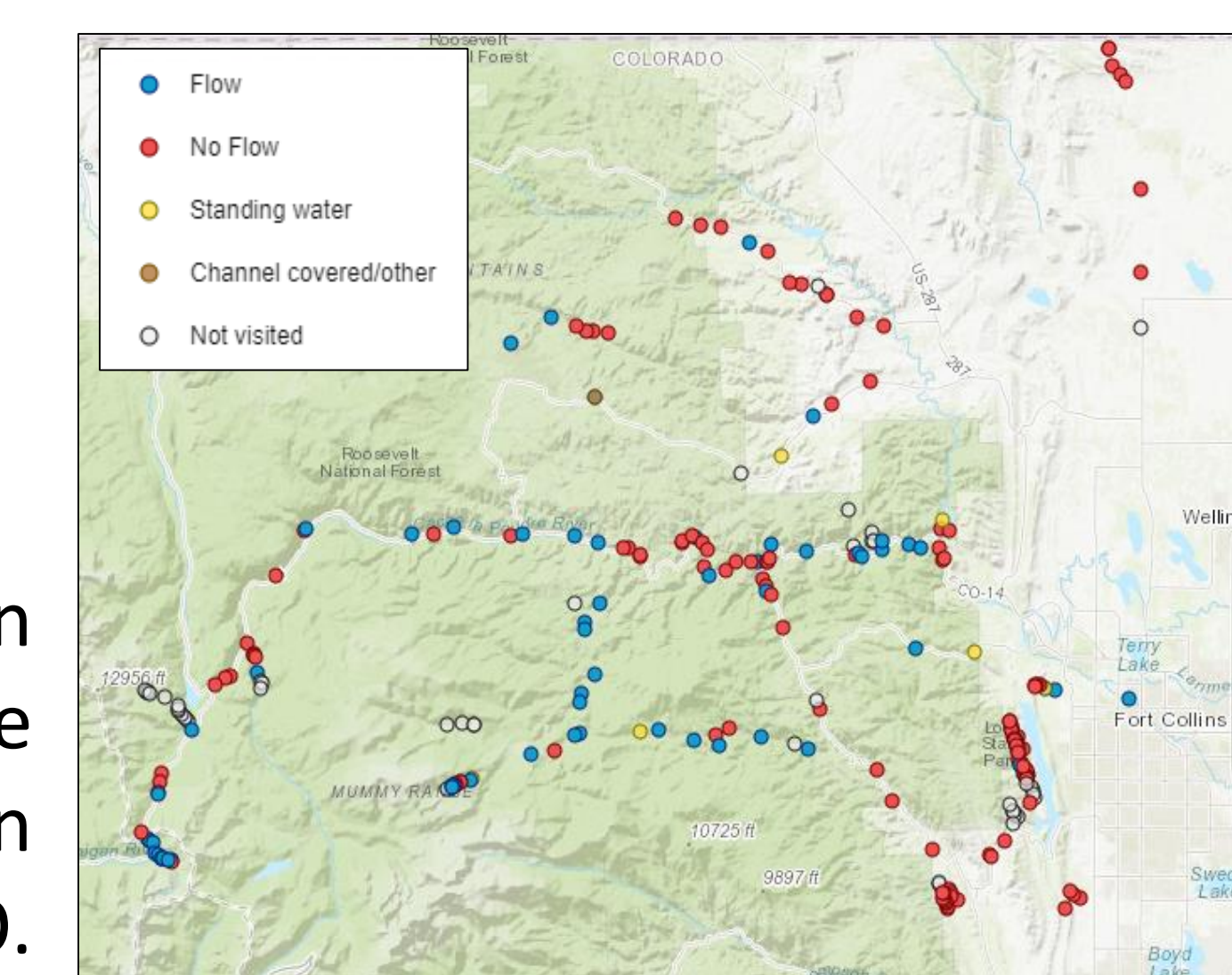
Observations of streamflow presence/absence from citizen and streamflow sensor networks are used to improve flow detection algorithms using satellite and aerial imagery

## TRACKING CHANGE IN FLOW OVER TIME



Data record on CitSci.org for a tributary to the Cache la Poudre River, Colorado for 2016-present.

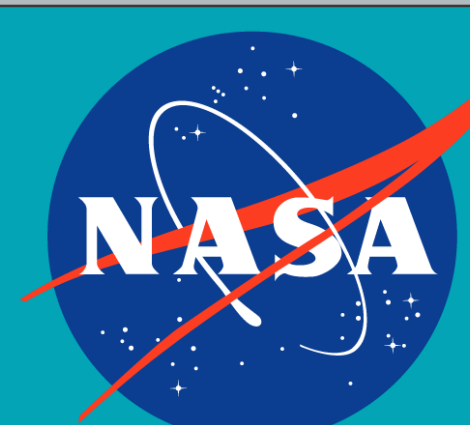
Mapped flow conditions in September, 2017 within the Cache la Poudre River basin and surrounding area, CO.



## A GROWING NETWORK



- Simple observations of flow/no flow/standing water minimizes errors from data collected by a diverse range of citizens
- Crowd-sourced data collection integrates into daily routines (hiking/biking, working, or driving)
- Project is accessible to all and can increase understanding of flow intermittence and awareness of changes in flow over time



Stream Tracker is funded by the NASA Citizen Science for Earth Systems Program under grant 16-CSESP16-0040

You can join Stream Tracker! For more information, visit:  
[streamtracker.org](http://streamtracker.org)

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