Climate Change in VT:

Avg. Annual Precip in past past 30 yrs:

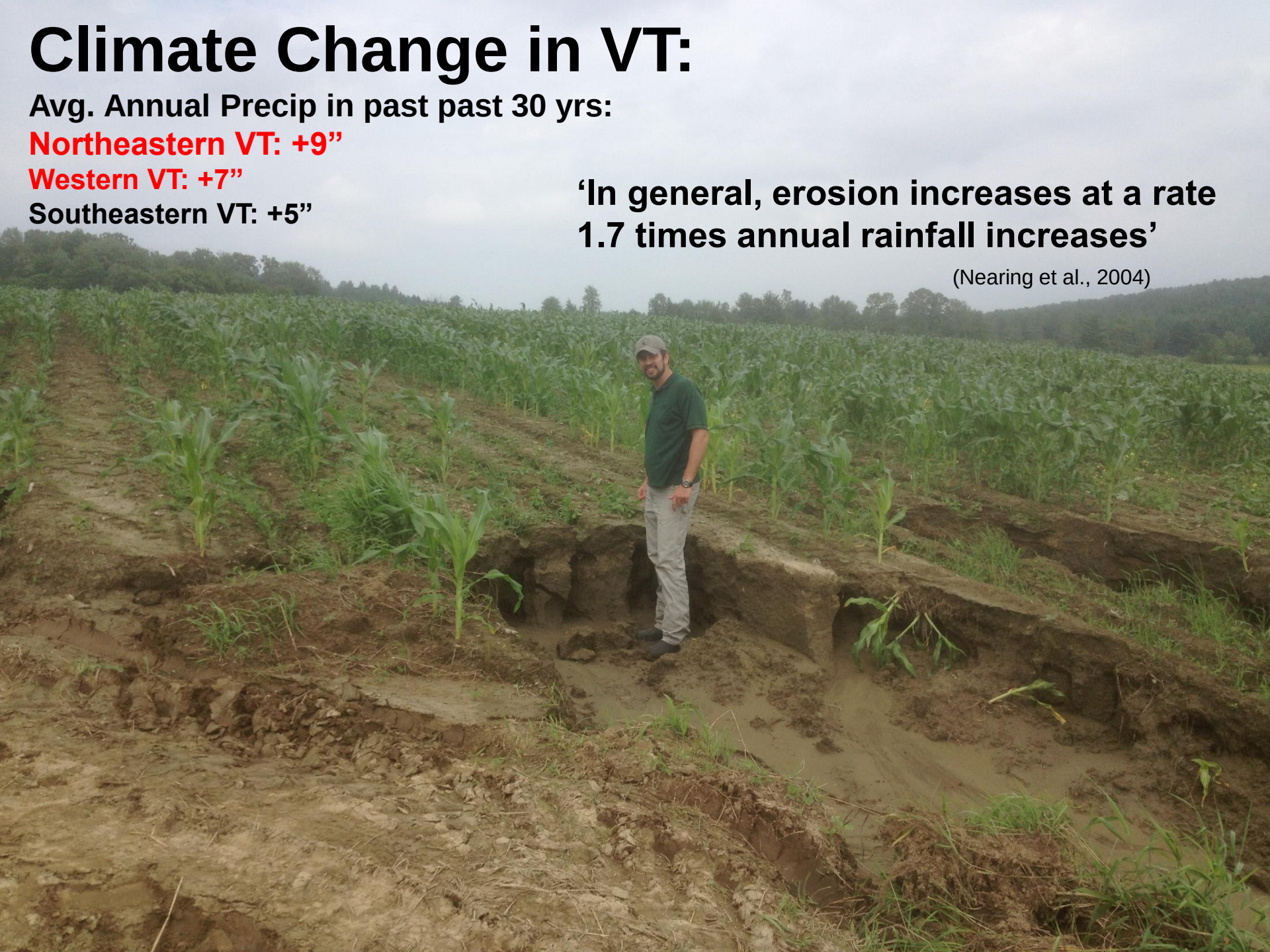
Northeastern VT: +9”

Western VT: +7”

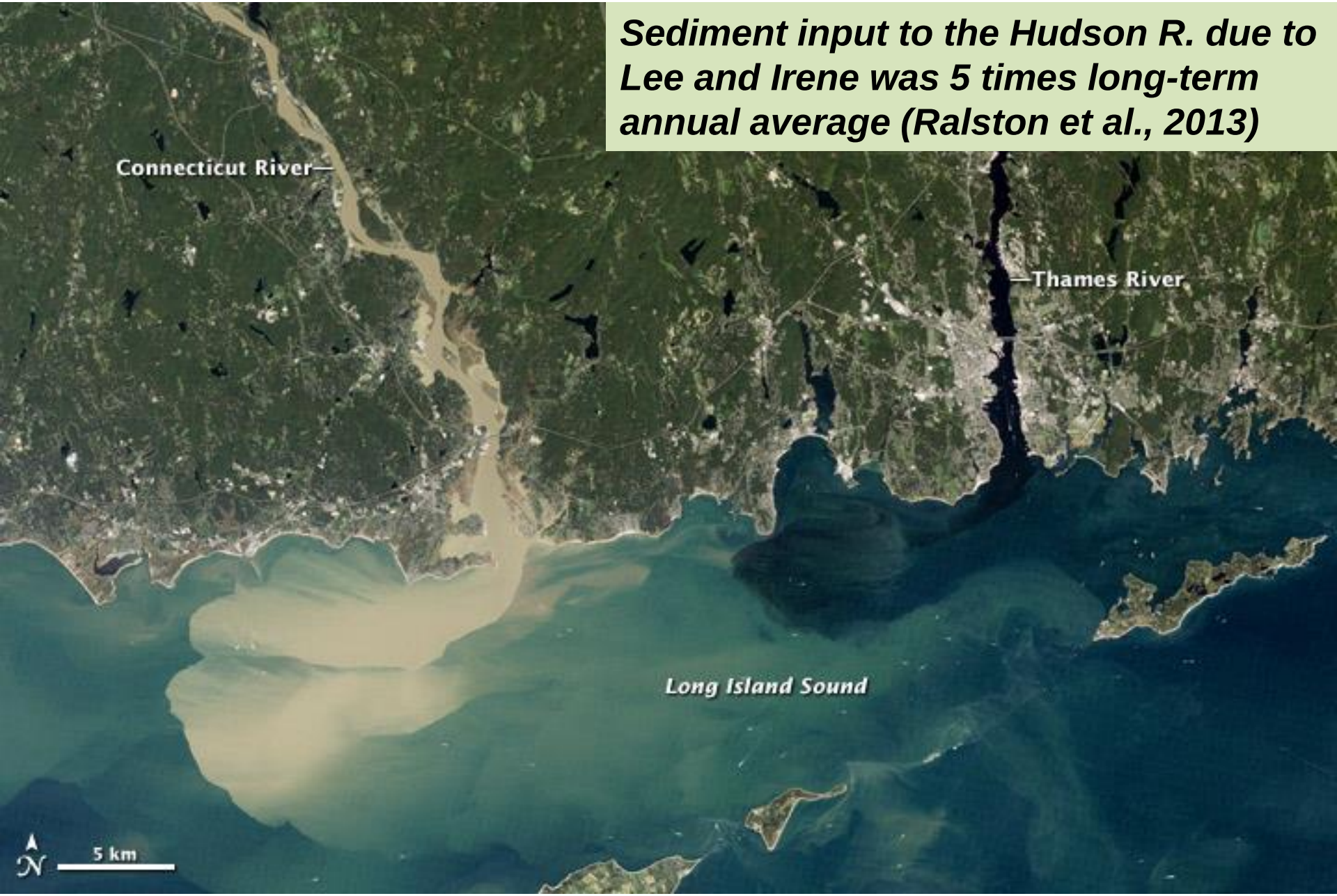
Southeastern VT: +5”

‘In general, erosion increases at a rate 1.7 times annual rainfall increases’

(Nearing et al., 2004)



Sediment input to the Hudson R. due to Lee and Irene was 5 times long-term annual average (Ralston et al., 2013)



(Source: earthobservatory.nasa.gov))

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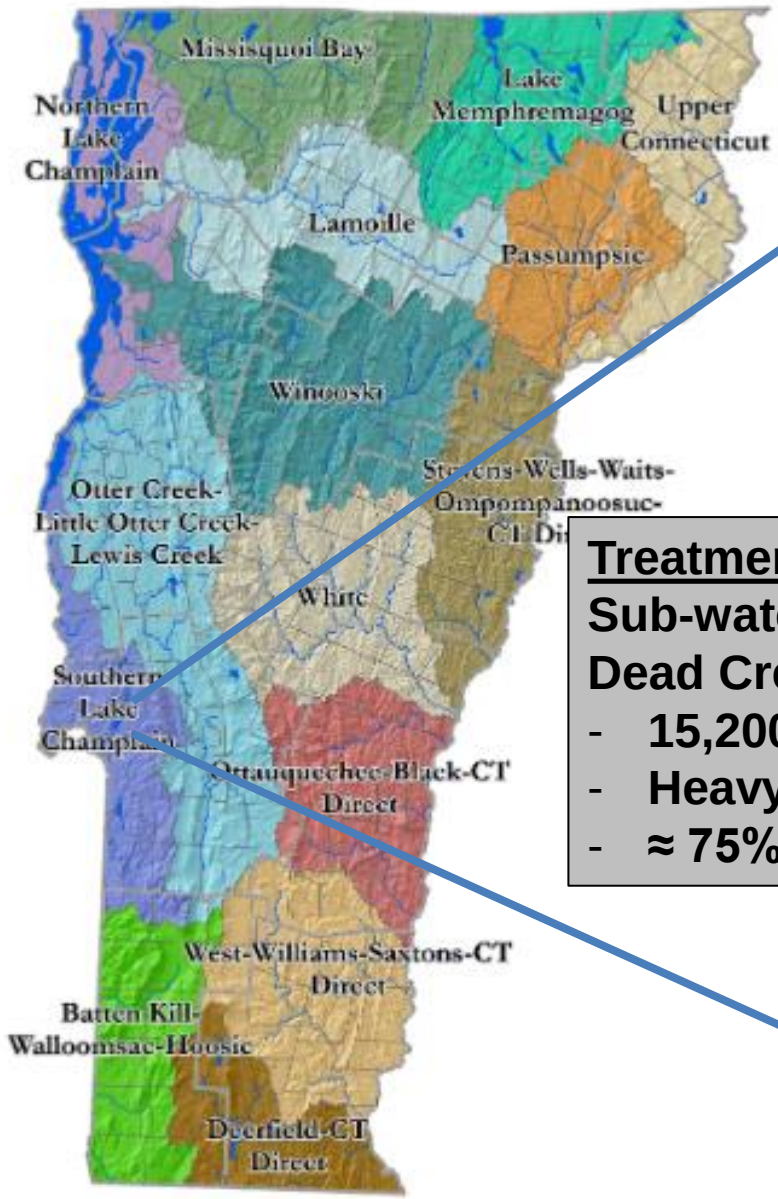
Photo: Dwight Burdette.

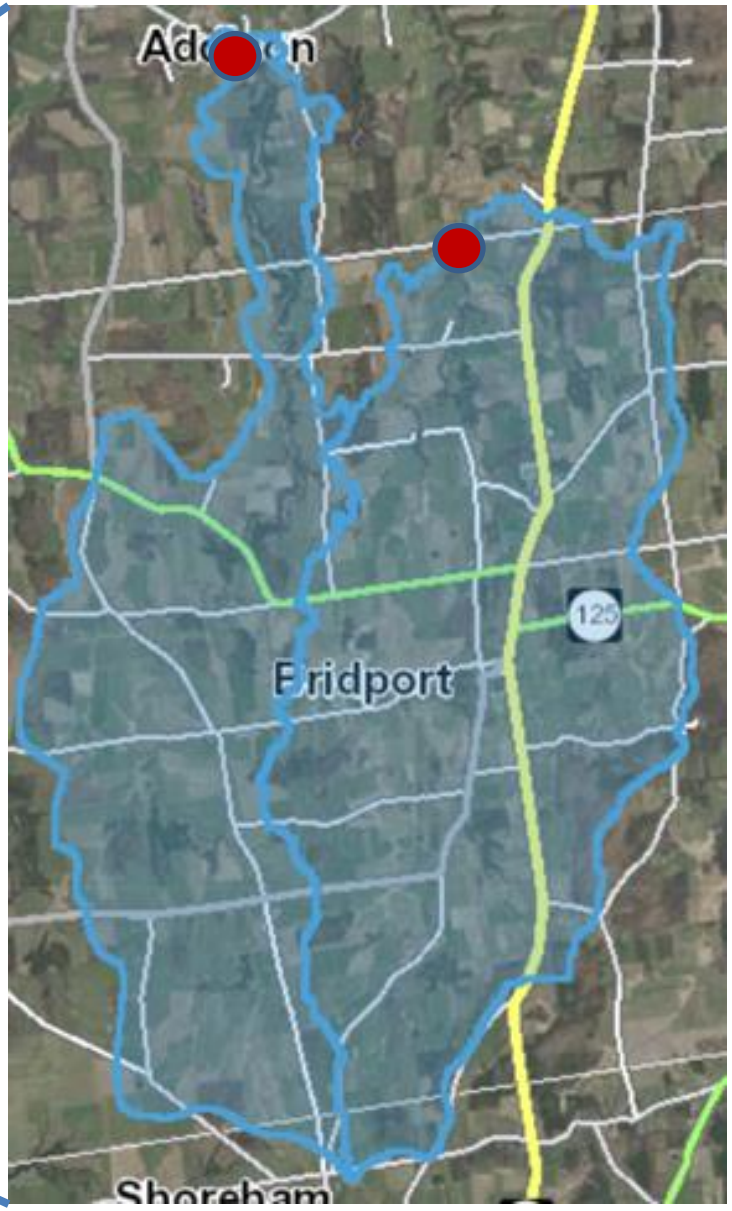
Watershed Scale Research

- Long-term evaluation of conservation practices at the watershed-scale (via NRCS CEAP)
- Baseflow and storm samples analyzed for:
  - Phosphorus, Nitrogen, Sediment
- Documentation of land use and conservation practices

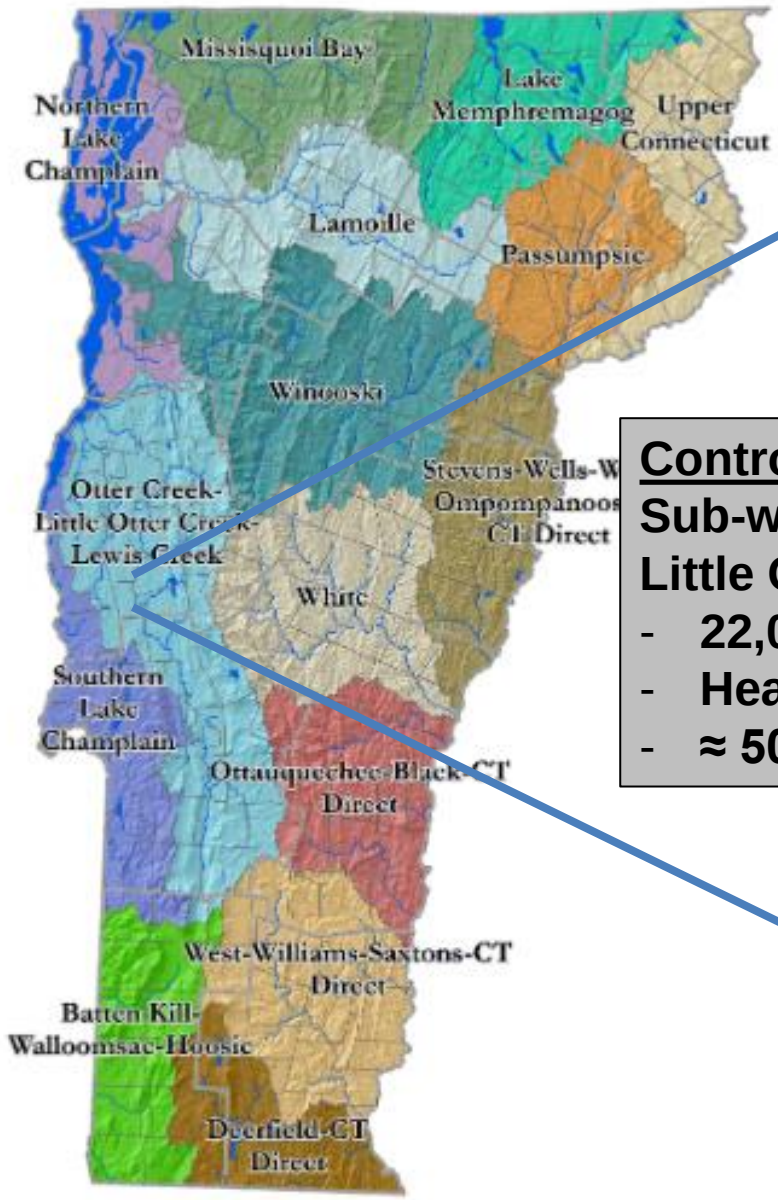
CEAP: Paired Watershed Approach



Treatment Watershed
Sub-watersheds of Dead Creek
- **15,200 ac**
- **Heavy clay soils**
- **≈ 75% ag**



CEAP: Paired Watershed Approach



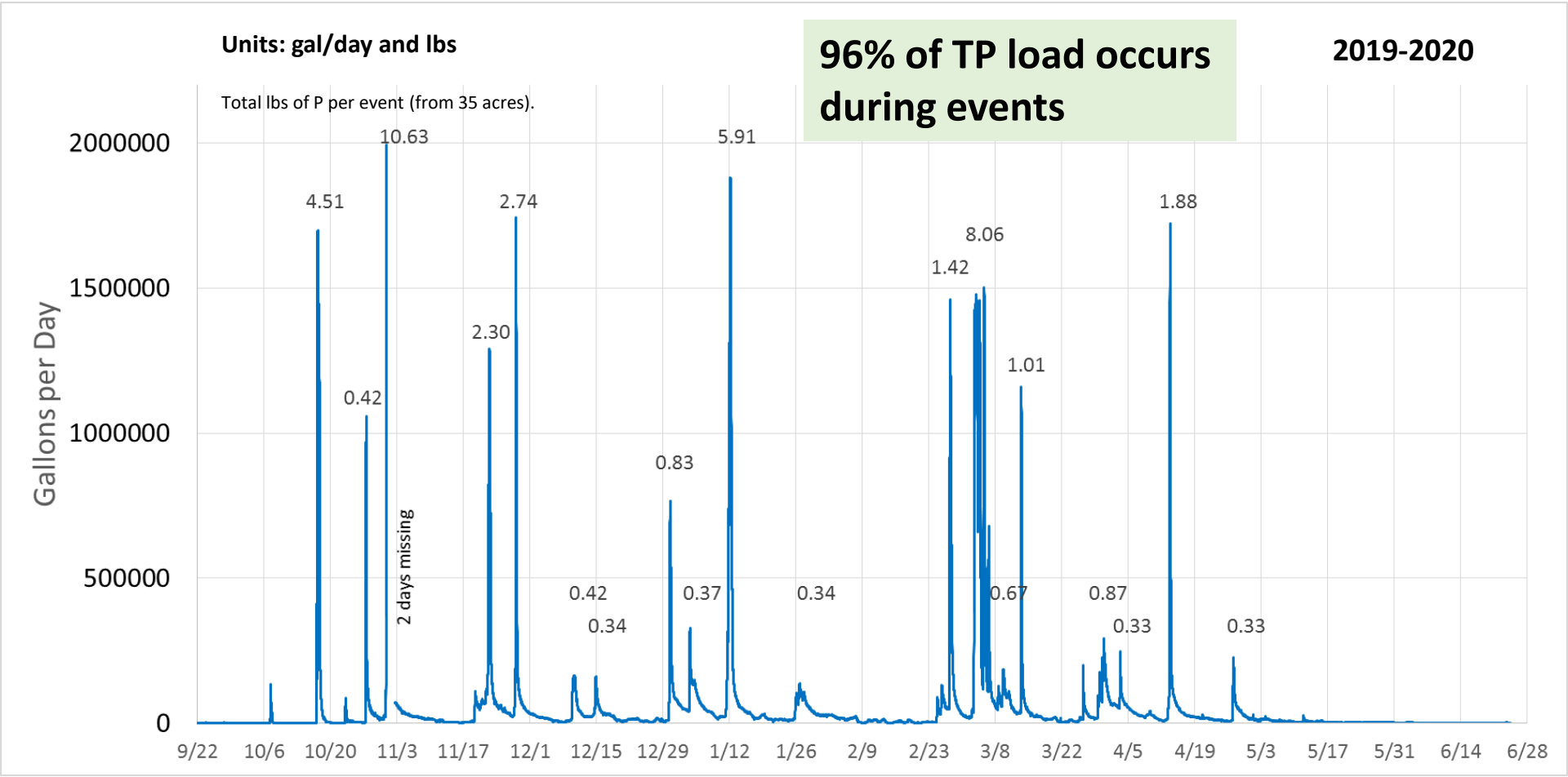
Control Watershed
Sub-watershed of Little Otter Creek
- **22,000 ac**
- **Heavy clay soils**
- **≈ 50% ag**

Soil Health in CEAP Watersheds

- Correlation of water quality and soil health at watershed scale
- 70 fields across watersheds
- Included soil C at 30 cm depth
- Soil health scores returned to farmers

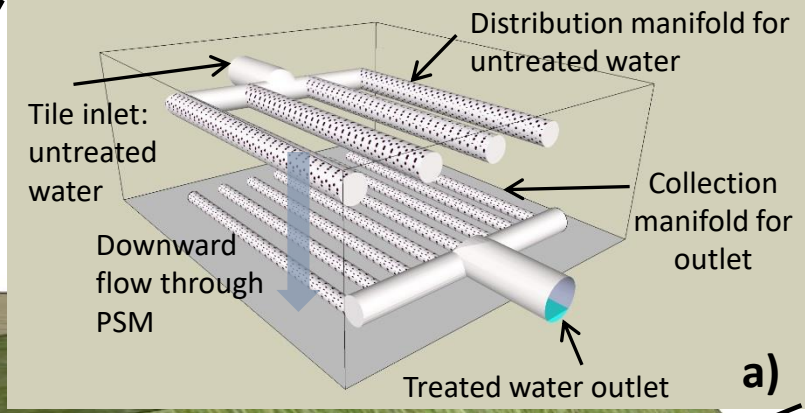
Field-Scale Research

AHS Tile Study: From Oct 7, 2019 thru June 3, 2020, 45.0 lb of TP was exported or 1.4 lbs/acre



Management: Corn silage, fall injection, cover crops, very light spring tillage before planting

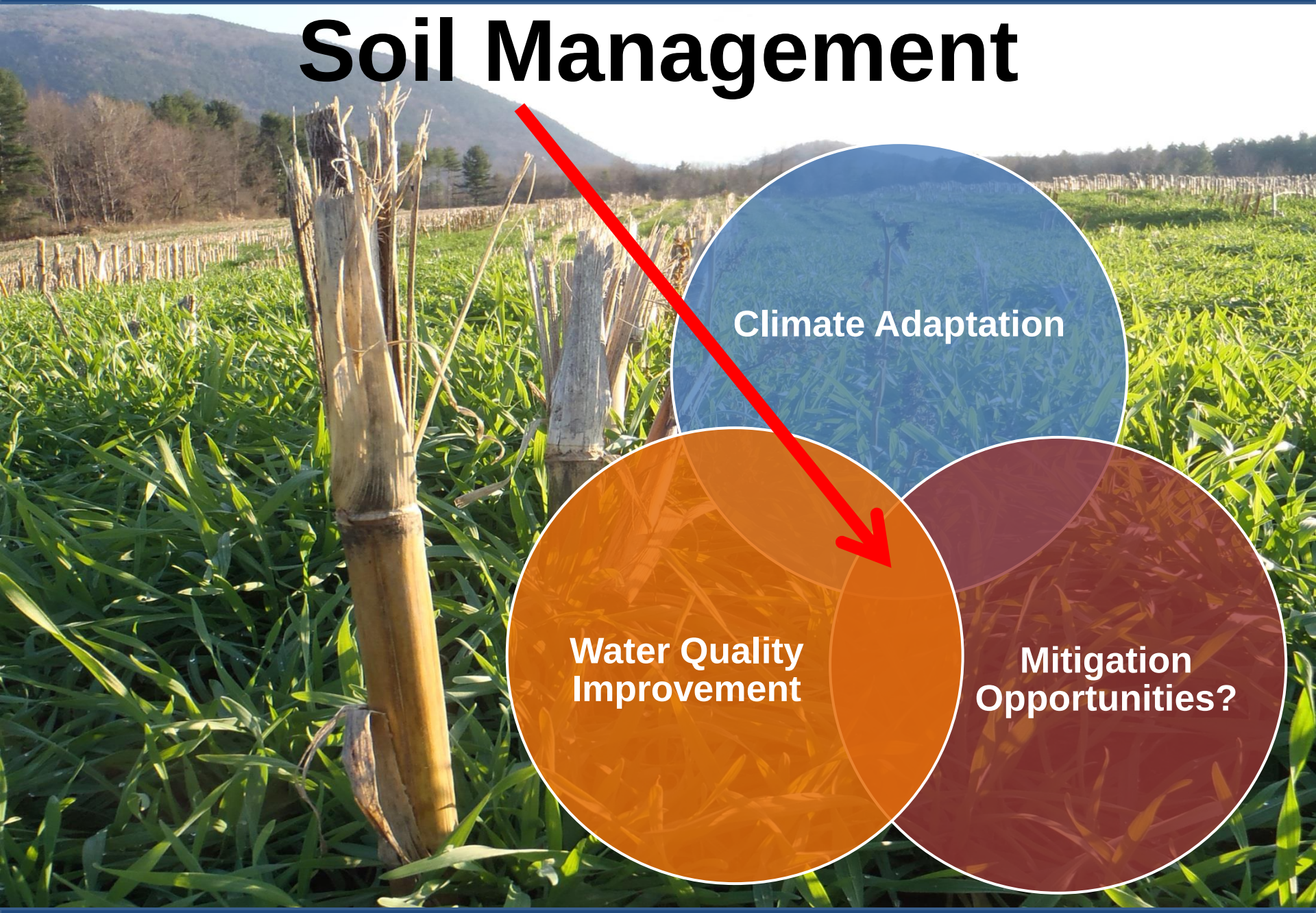
Tile and Ditch Phosphorus Filters



Drainage Ditch

Slide Courtesy of Chad Penn, USDA-ARS

Soil Management



(Photo: Kirsten Workman)

The University of Vermont

U.S. Dairy Soil & Water Regeneration Project: University of Vermont Research