

# Monitoring Impacts of a Sediment Removal Project in the Laguna de Santa Rosa

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**GEP 359 Water Research Methods, Sonoma State University**

## Abstract

In August 2019, Sonoma Water dug tons of sediment out of the Laguna de Santa Rosa where it passes under Stony Point Road in Rohnert Park as part of their Flood Control Maintenance Program.

This part of the Laguna had become progressively shallower over time as nutrient-rich sediment that had been washed downstream slowed down and settled out. The problem with it being wide, shallow, and sunny is that the invasive weed *Ludwigia* thrives in those conditions and has completely overgrown the Laguna in this area. As part of the sediment removal project, a narrow, deeper, more shaded side was carved out within the channel.

We have been characterizing five transects at that site before, during, and after the sediment was dug out. Each time, we have measured channel topography, water depth, amount of canopy cover, and percentage of *Ludwigia* in order to determine if the new deeper channel design is effective at discouraging *Ludwigia* growth.



Sites 2, 4, and 5 were within the sediment removal site (boundaries marked by white lines)



**Looking upstream from Site 1 towards Site 2**

- Left panel: Swampy study area clogged up with *Ludwigia* before sediment removal
- Middle panel: Deepening 8 foot reach from north bank, removing sediment
- Right panel: Deeper side of channel after completion of sediment removal

## Methods

**Creek Morphology** – The shape of the channel bottom was measured every meter using auto level equipment and visualized using Excel.

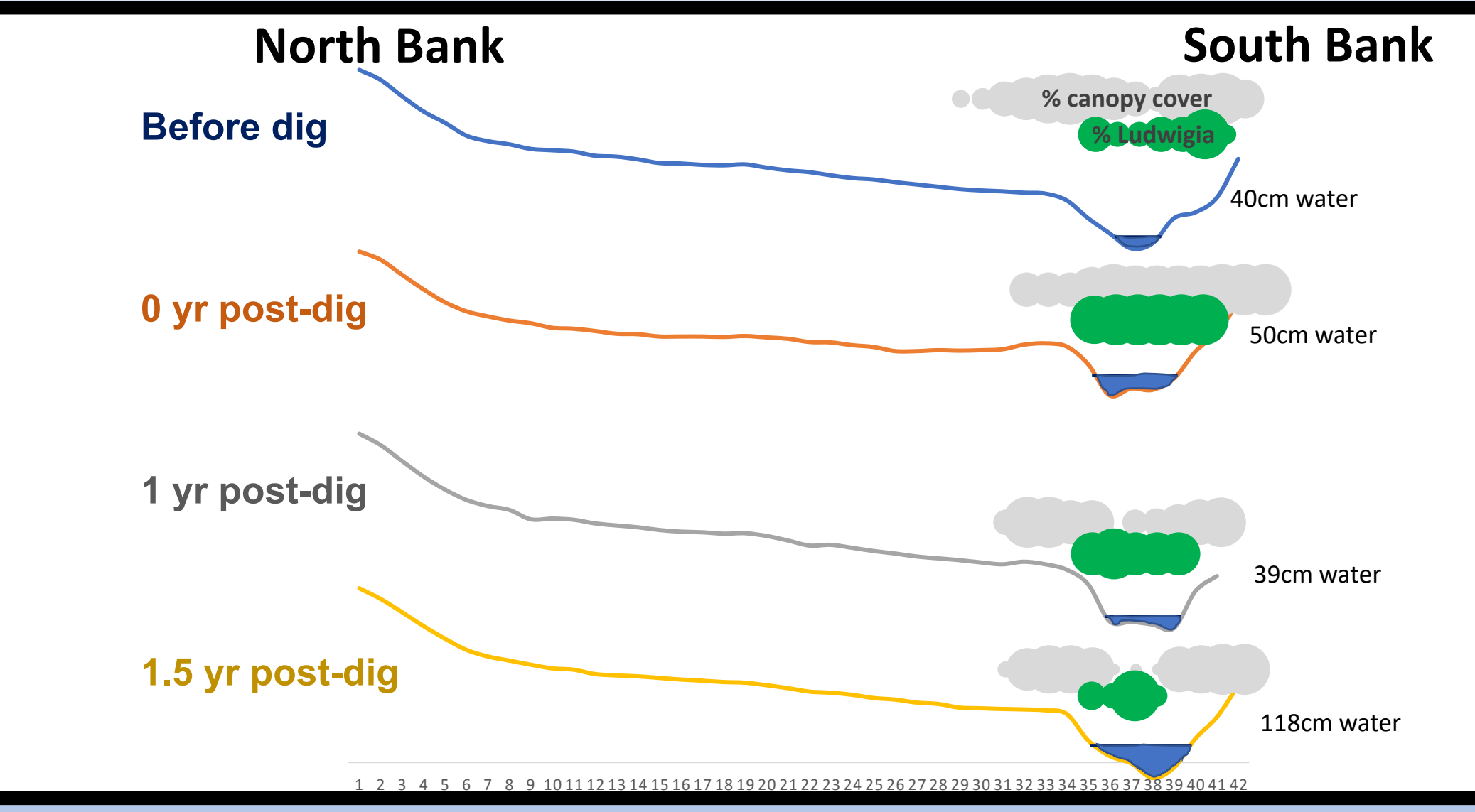
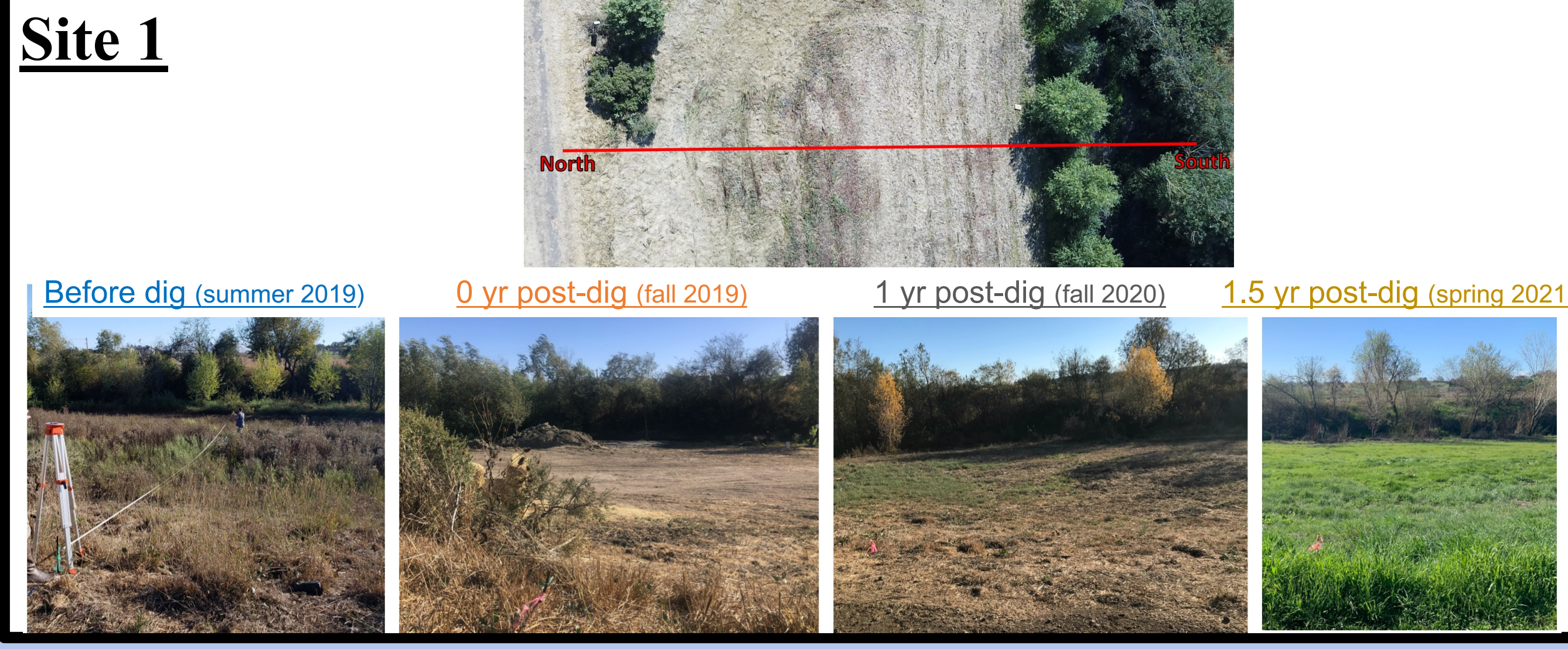
**Water Depth** – Water depth was measured by using a meter stick at every meter along each transect.

**Canopy Cover and Plant Type** – Canopy cover and plant type (*Ludwigia*, and other categories, not shown) were noted every meter along each transect.

## Acknowledgements

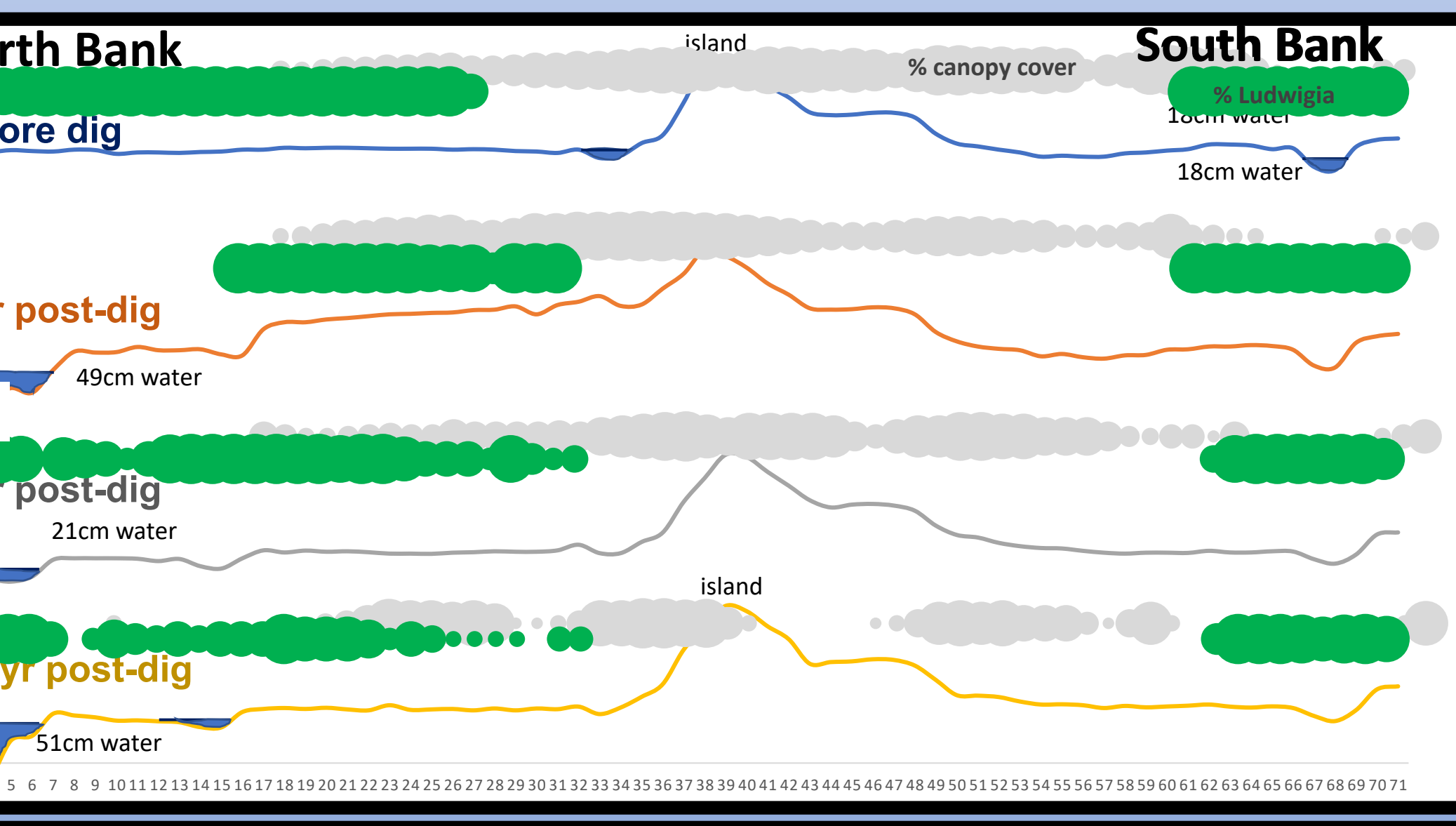
- Funding provided by the SSU WATERS Collaborative and the Koret Foundation
- Chase Takajo and Mike Thompson, Sonoma Water

### Site 1



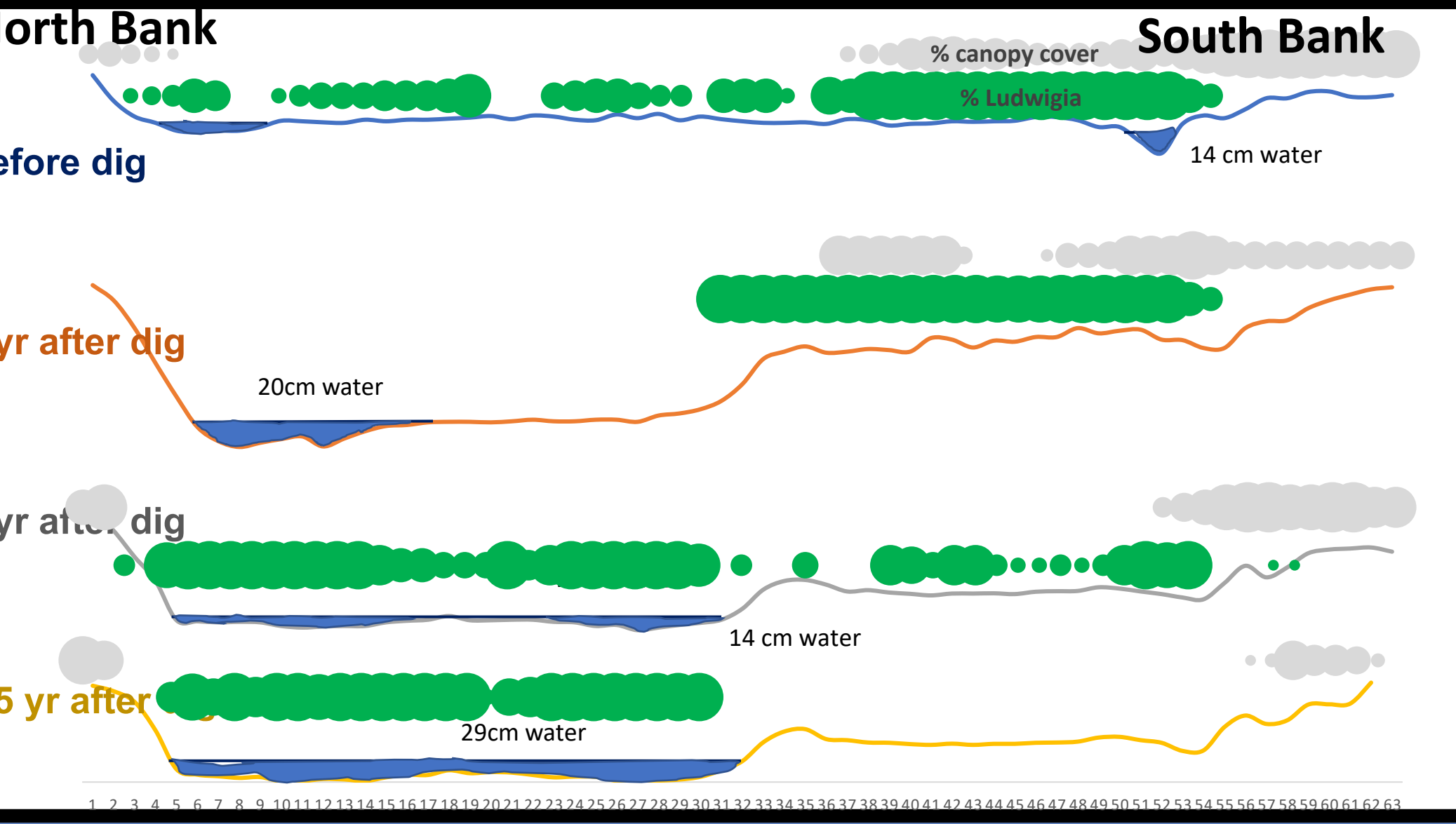
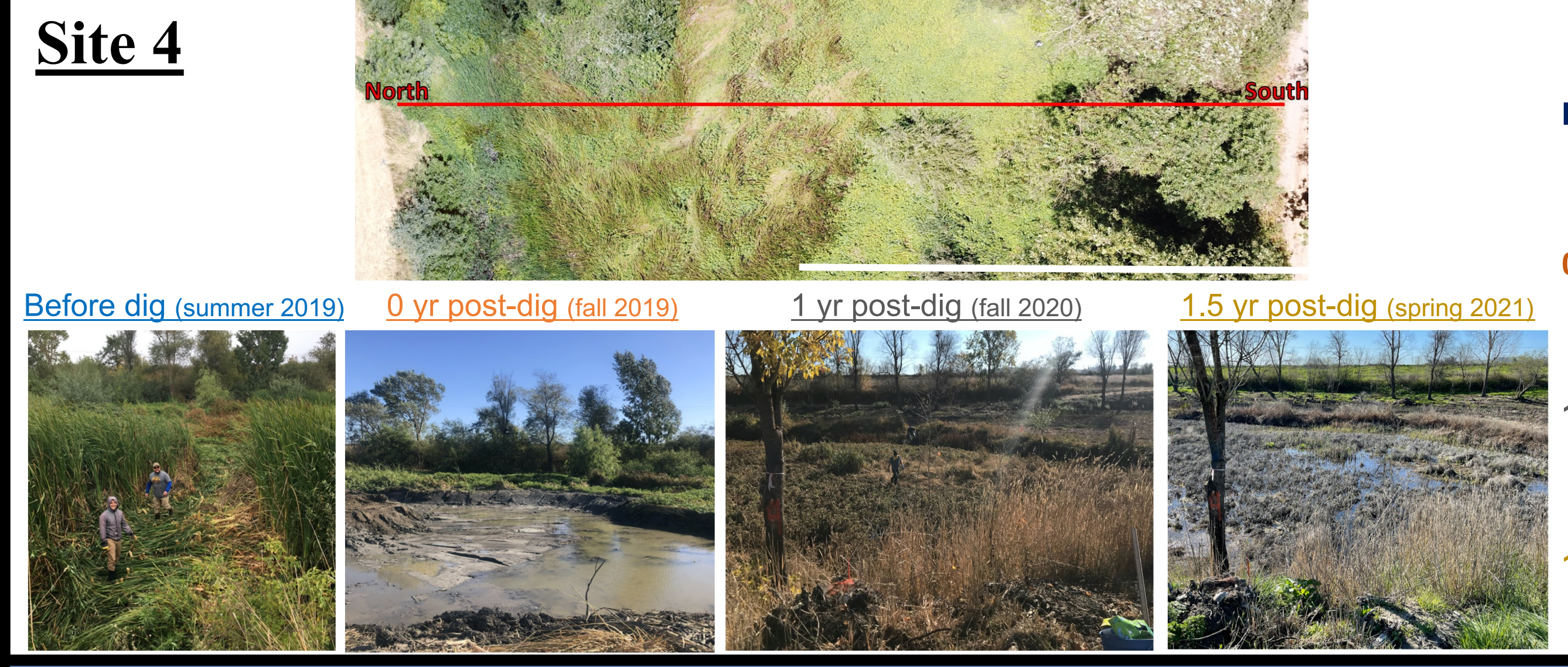
- **SITE ONE:** not modified during the sediment removal
- *Ludwigia* growth is localized to the shaded south side of the channel, where water is present

### Site 2



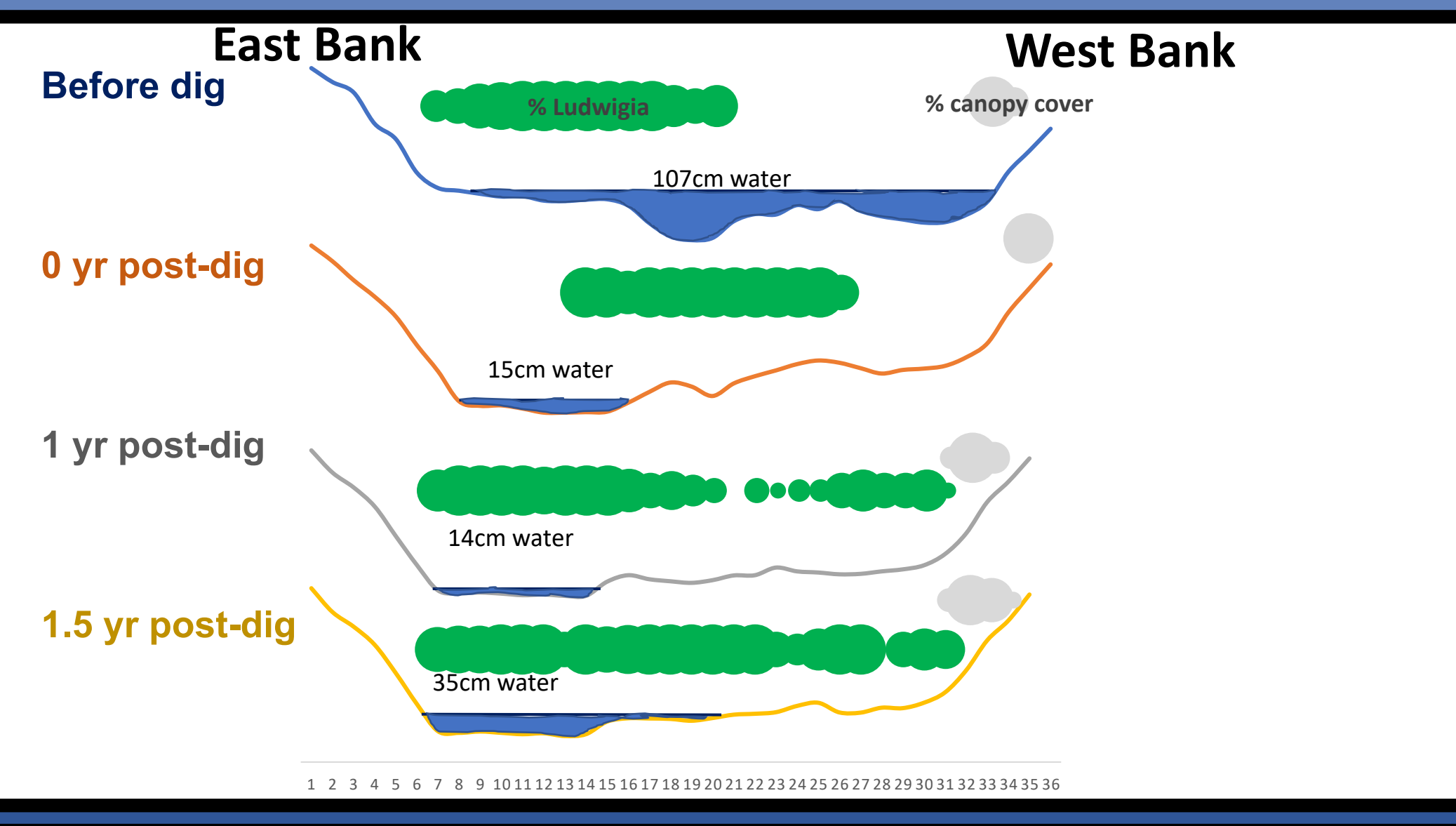
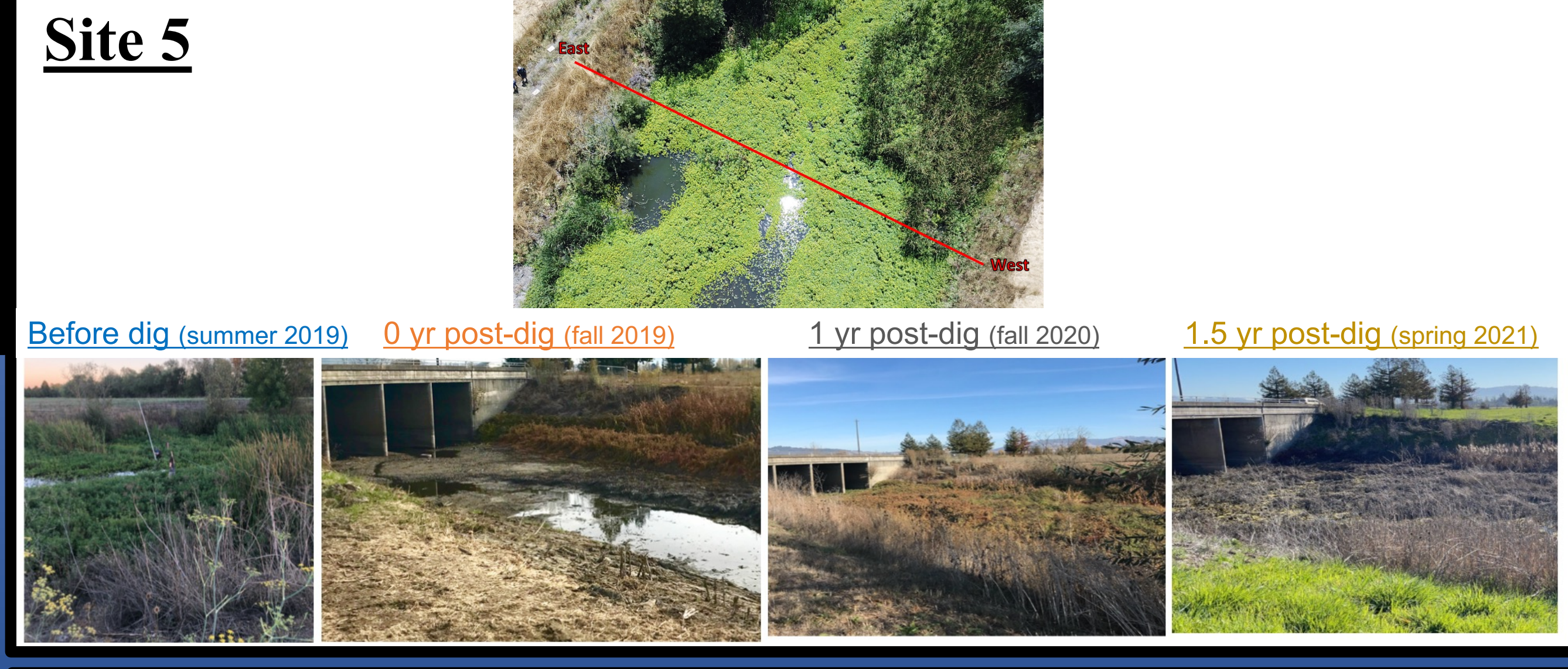
- **SITE TWO:** modified: a deep section was carved along the north bank
- The *Ludwigia* that was removed along the north bank has grown back
- Water from the south bank is now absent but the *Ludwigia* is still present despite the dryer conditions

### Site 4



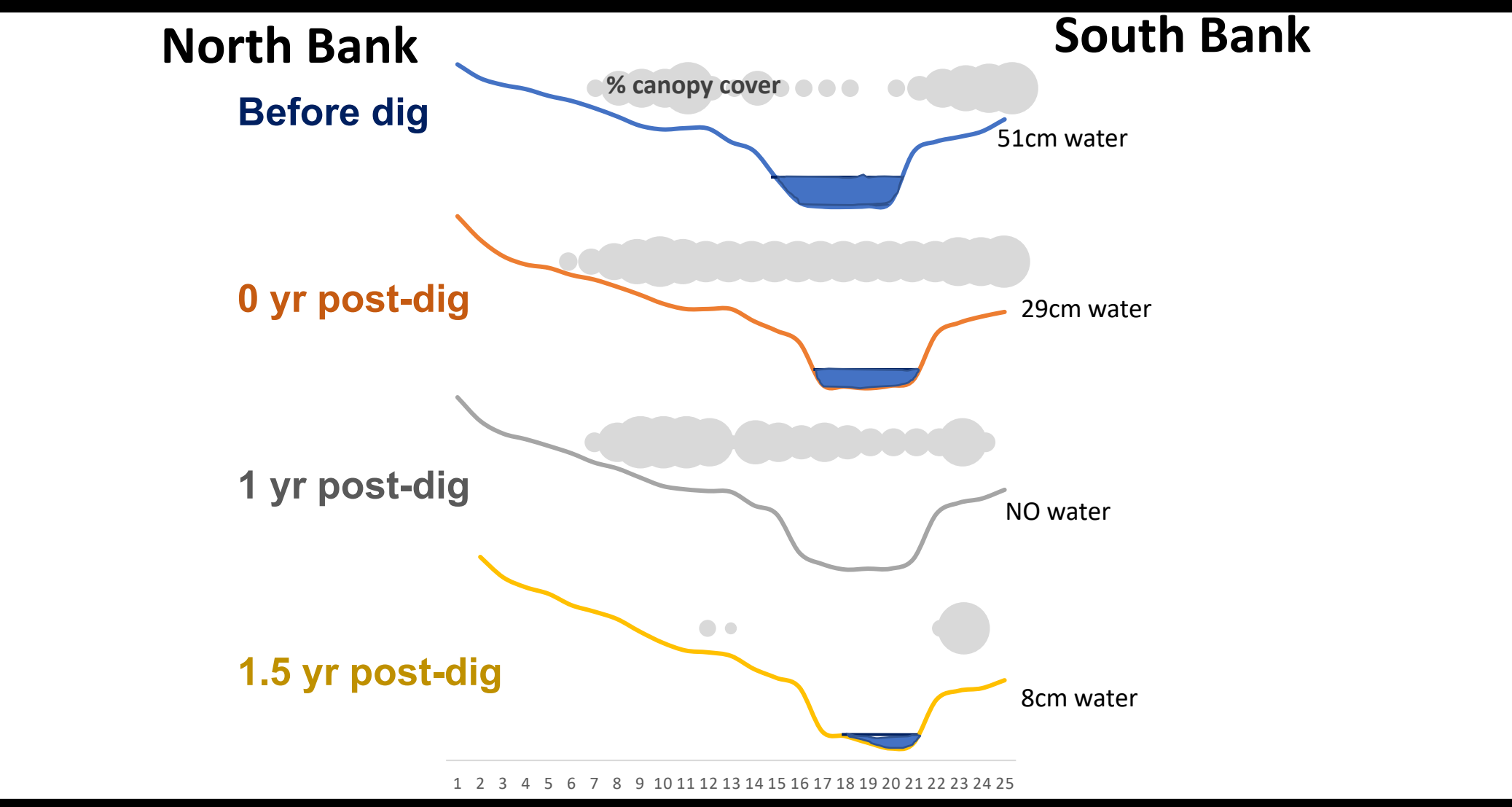
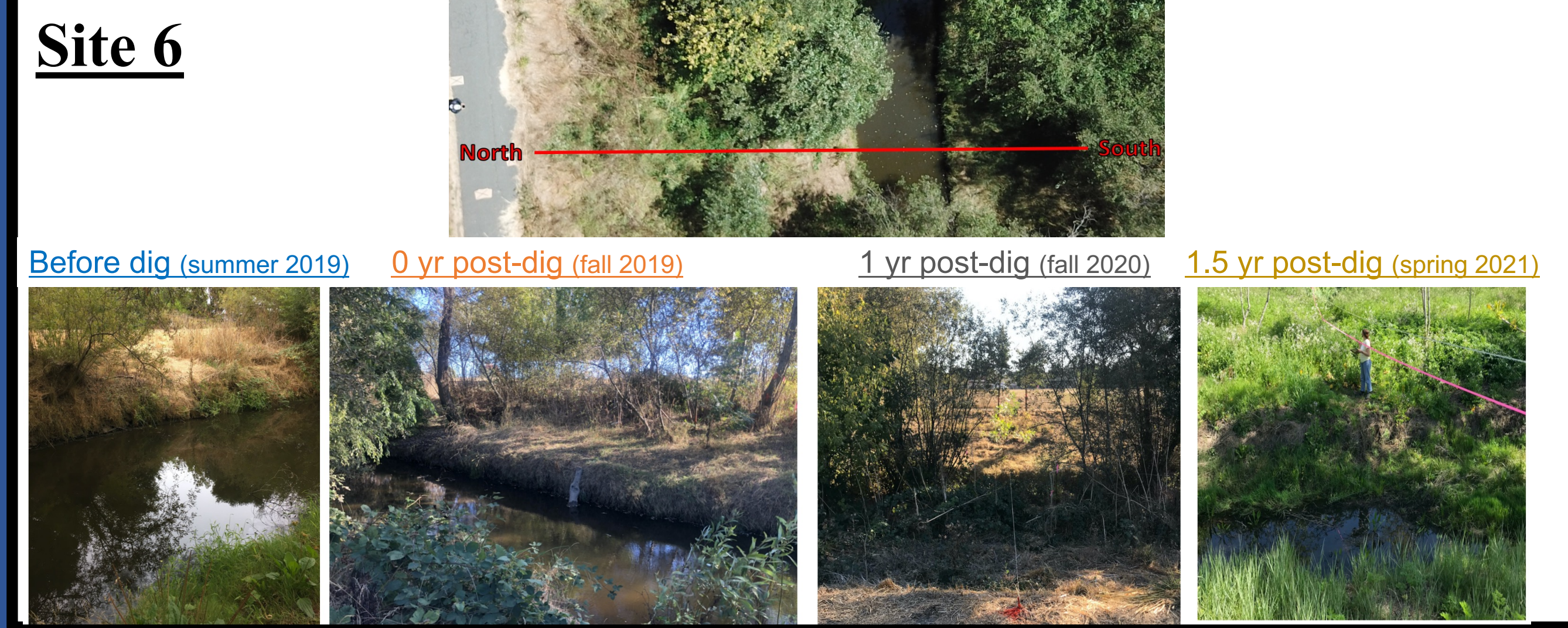
- **SITE FOUR:** modified: the north half now has shallow water and dense *Ludwigia* growth
- *Ludwigia* growth was subsequently reduced on the dryer south side

### Site 5



- **SITE FIVE:** modified to have a deep part along the east bank
- During the sediment removal, previously deep standing water flowed out
- *Ludwigia* has spread as the water has become shallower

### Site 6



- **SITE SIX:** not modified during the sediment removal
- *Ludwigia* is consistently absent from this site
- The sediment removal caused this site to be dry the following summer
- Most canopy cover as recently been removed