

Legacy Lands Stewardship

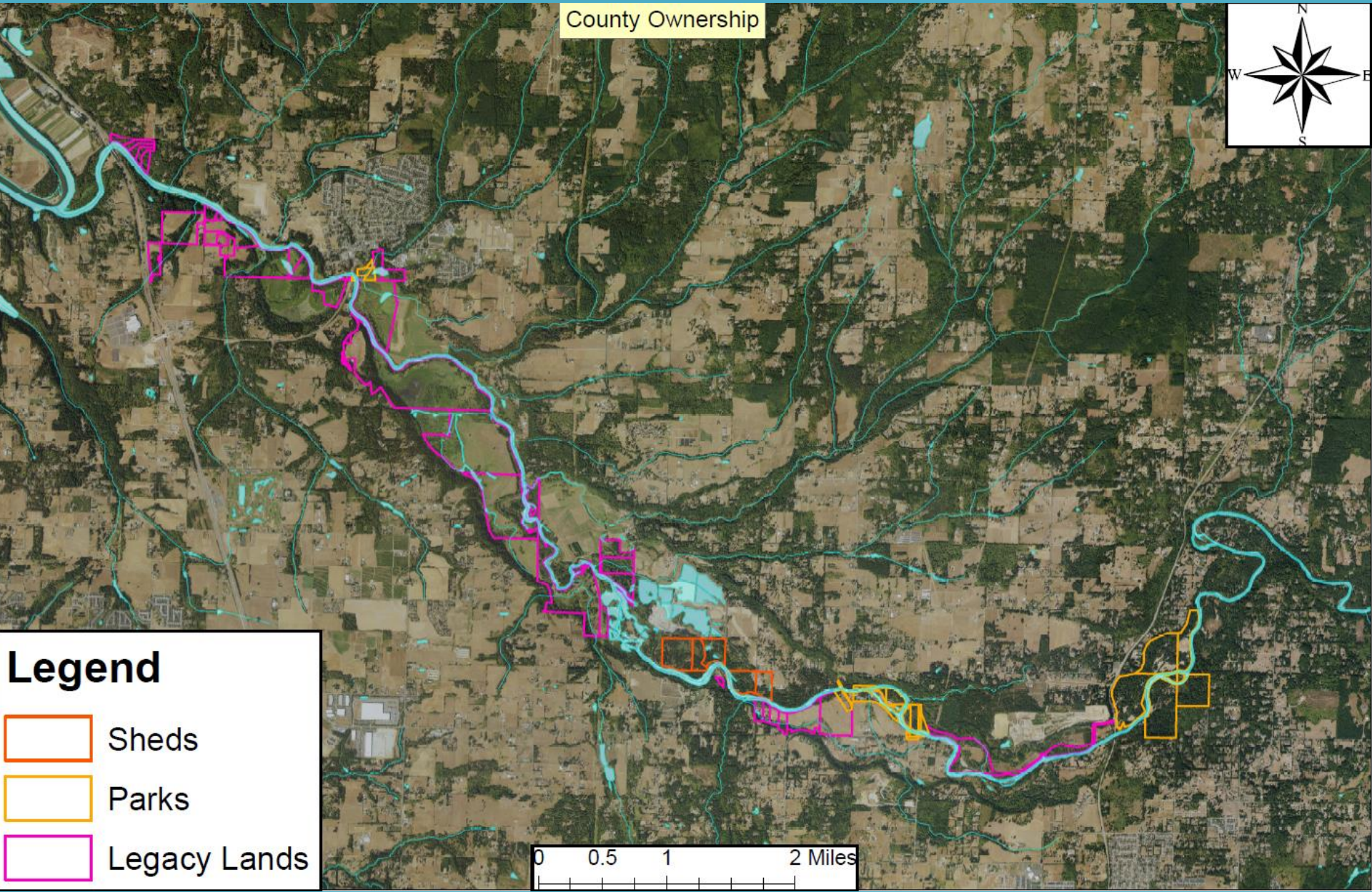
A guide to project opportunities and implementing successful restoration in the lower and middle EFLR watershed.

County Ownership

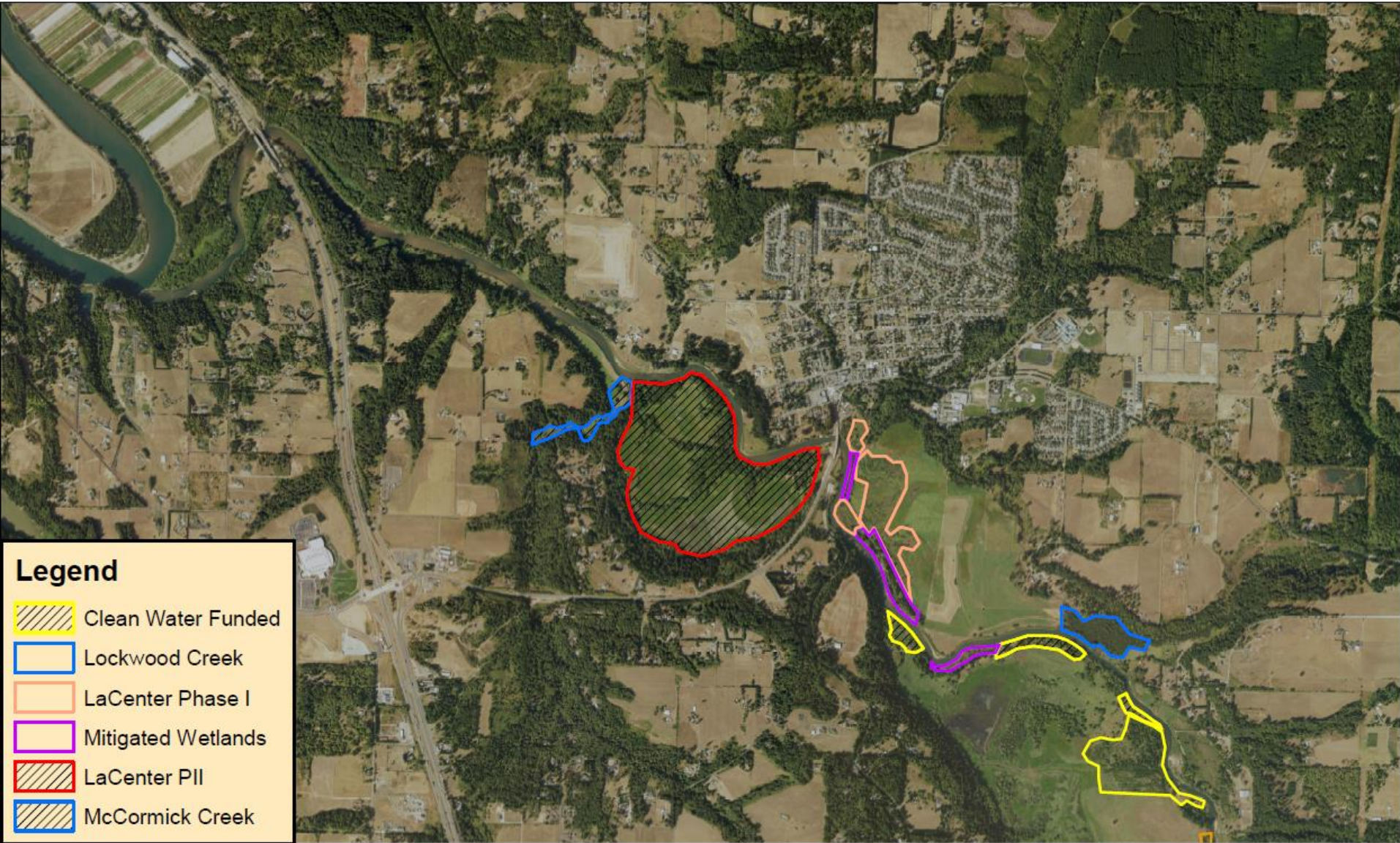


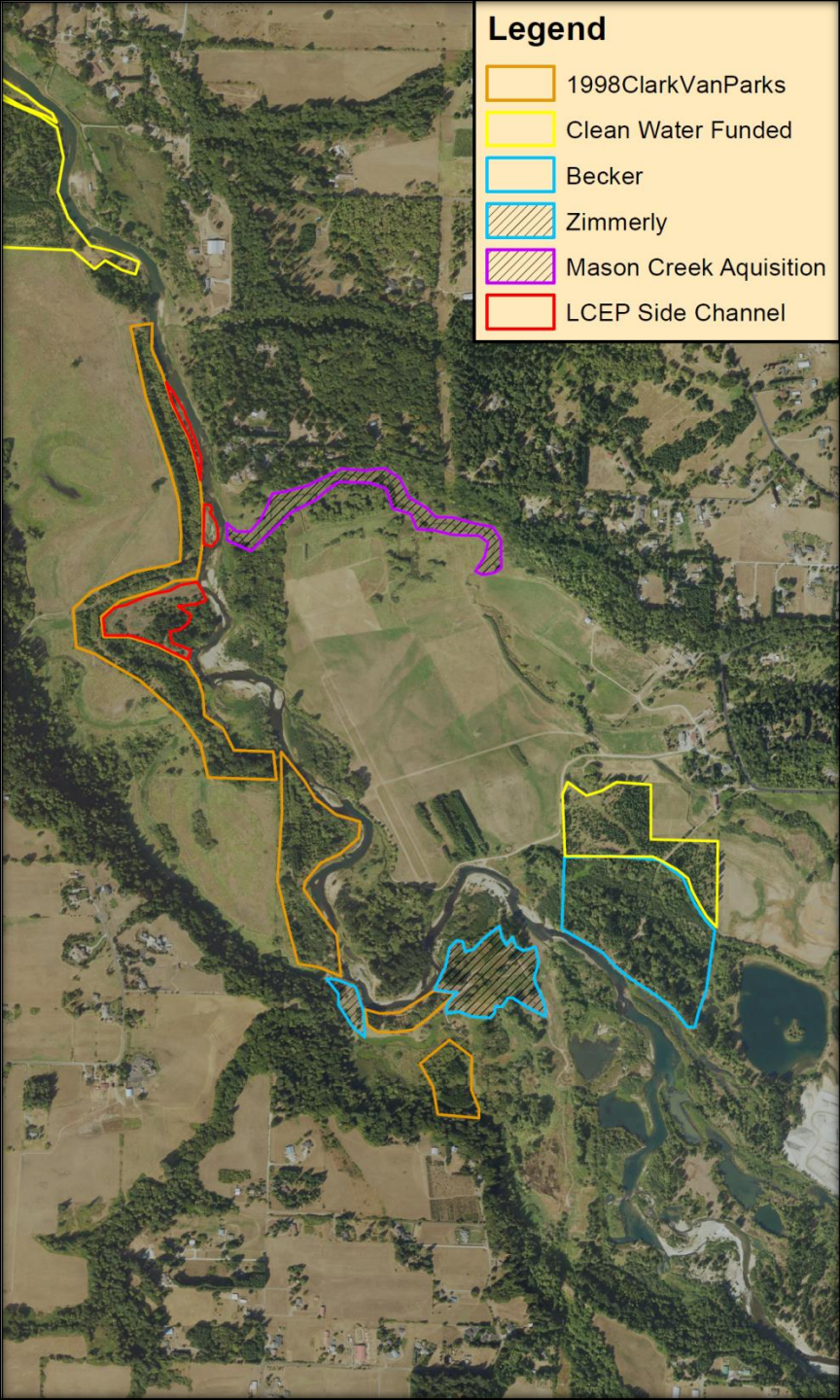
Legend

- Sheds
- Parks
- Legacy Lands



Existing and Proposed Plantings Lower EFLR





Legend

- 1998ClarkVanParks
- Clean Water Funded
- Becker
- Zimmerly
- Mason Creek Aquisition
- LCEP Side Channel

What factors contribute to warming?

- Long riffles with high shade deficits
- Increased width : depth ratios
 - Increases water surface area in contact with ambient air
 - Erosion of outside river bends major contributor
- Pool : Riffle Ratio
 - Longer, wider riffles
 - Less pools
- Lack of groundwater exchange
 - Main stem is bypassing several major groundwater inputs due to recent avulsions
 - Daybreak
 - Ridgefield pits

Lower Daybreak Example

- 3,250 foot riffle
- No shade
- Minimal groundwater exchange
- Average width ~ 110 feet
- Average depth 1-2 feet
- Summer 2018 saw record # of days > 90°F
- Overnight lows barely under 70°F-for only a few hours
- Recorded daily max temperatures > 14 days in upper 70s, low 80s on main stem

Cold Water Inputs

- Tributaries- many tributary temperatures significantly lower than main stem in lower WS
 - Mason
 - Lockwood
 - Mill
 - Manley
 - Charter Oak
- Groundwater- upwelling of groundwater typically around 60°F during summer, at least several locations downstream of SR 503

Using location in watershed to develop planting strategies

- SR 503 – Mason Creek
 - LWD is necessary component for ensuring plant establishment along main stem
- Below Mason Creek Confluence
 - Transition from erosion to deposition
 - LWD not a critical component for success in tidally influenced reach
- Main stem or Tributary?
 - Tributaries require minimal LWD to ensure plant establishment
 - Plantings quicker to effect stream temperatures

Lewis River Ranch Avulsion



Legend

Daybreak Park

Engineered LWD Structures

Natural LWD Structure



700 ft

Google Earth

Daybreak Park

Legend



Engineered LWD Structures

Natural LWD Structure

NE 255th Ave

NE 255th Cir

NE 254th St



Daybreak Park

Legend



Engineered LWD Structures

Natural LWD Structure

NE-255th Cir

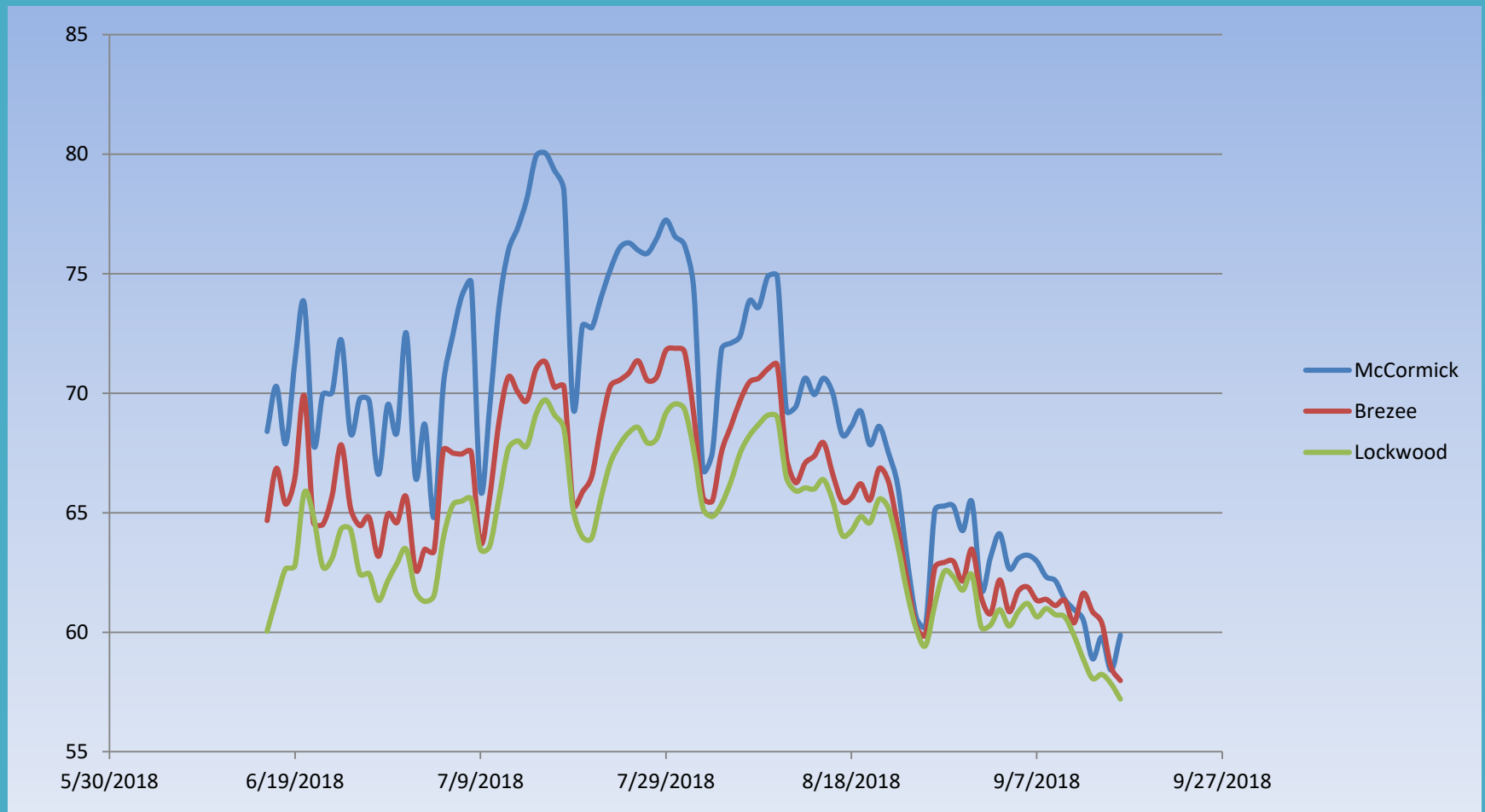
NE-254th St



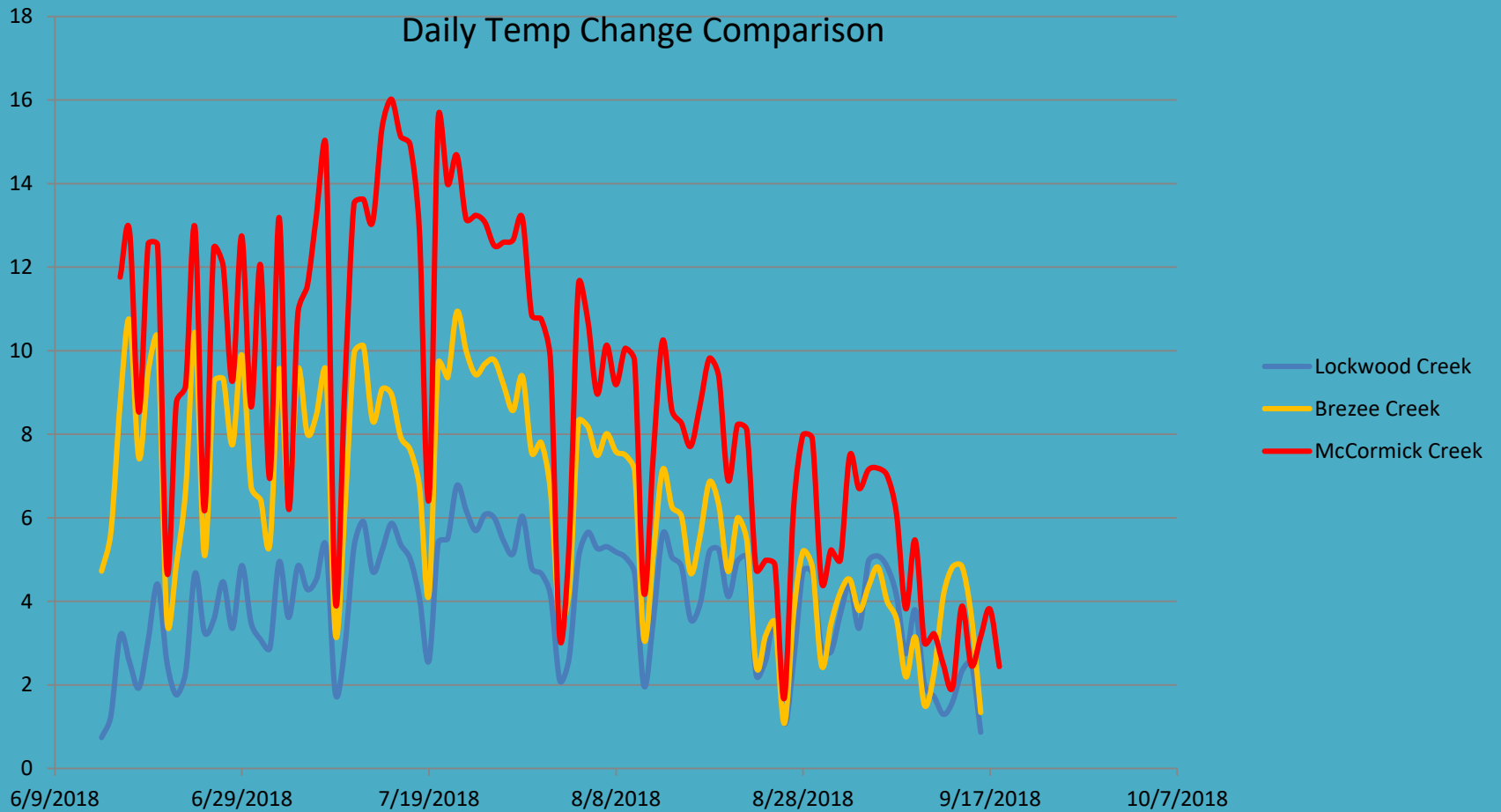
Preserving existing mature riparian canopy versus plant installation

- Focus on shade deficits on main stem EFLR might lead to unintended consequences
- Loss of existing mature canopy will create shade deficits in areas currently shaded
 - LRR demonstrates serious risk of losing established riparian canopy without introduction of LWD
- Plantings on main stem much slower to effect temperatures than tributary plantings.
 - Time needed to establish shade?
 - Growing medium
 - Difficult for plants to establish on main stem gravel bars
 - LWD placements can allow for establishment of ‘volunteers’
 - Much more cost effective than planting gravel bars

Reduction of direct solar radiation from riparian plant establishment



Buffering of Temperature Swings



LWD Placements on outside bends can fix multiple issues

- Prevent continued loss of existing canopy
- Allow for plant establishment in shade deficits
- Swanson Powerline Bend
- Pre-project
 - 24-32' of bank lost along 600' stretch during 2015/16 flood season
- Post LWD placements
 - < 1' bank lost following flood season
- Deepening of thawleg, decrease in width throughout project reach*
- Inside bends?

8/2011

Write a description for your map.

Legend
Untitled Path



NE 290th St

Google Earth



200 ft

5/2017

Write a description for your map.

Legend

Untitled Path

NE 290th St

Google Earth



200 ft



5/2019
Write a description for your map.

Legend
Untitled Path



NE 290th St

Google Earth



200 ft

Project Opportunities

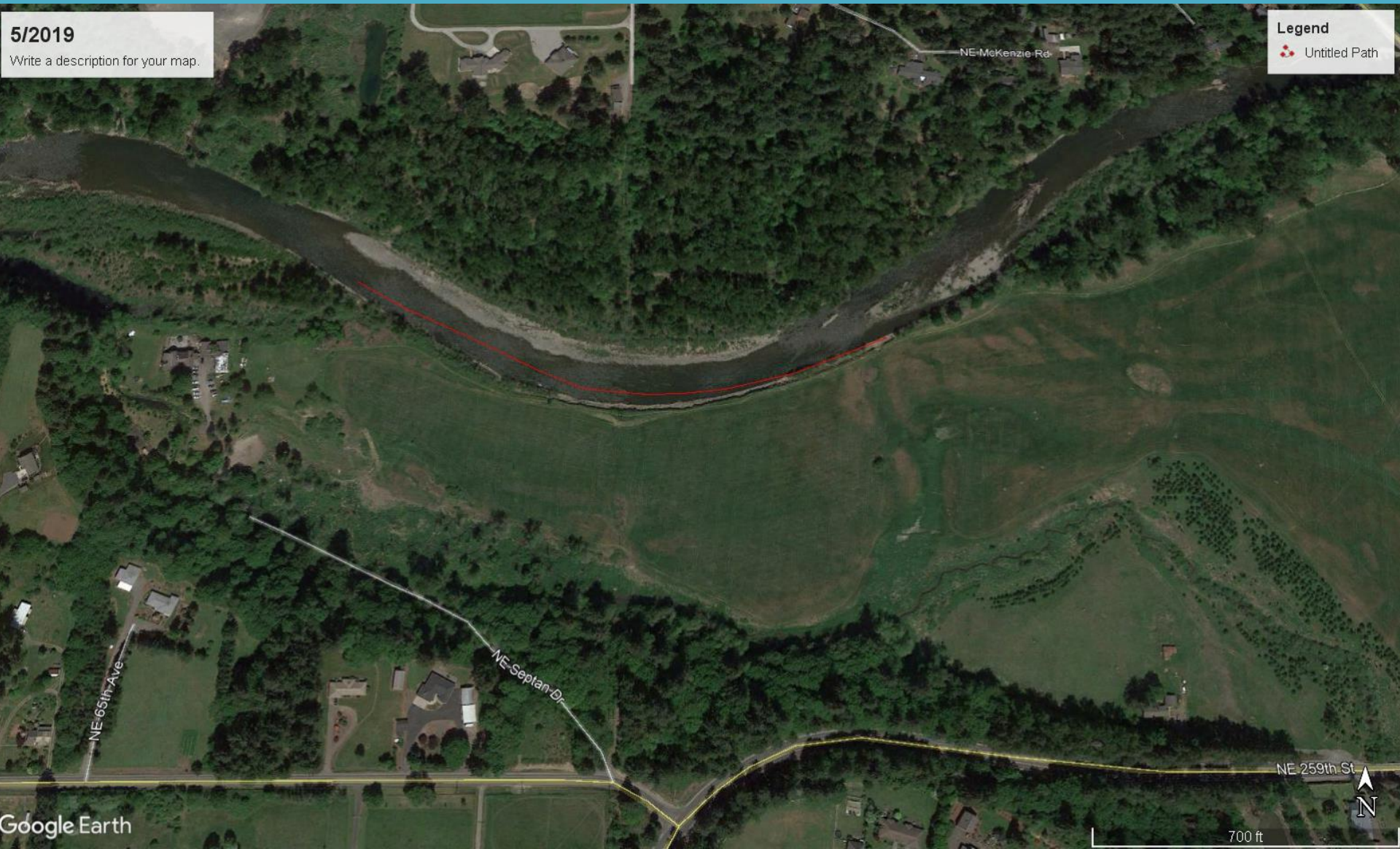


7/2013
Write a description for your map.

Legend
Untitled Path



Lower Daybreak



5/2019

Write a description for your map.

Legend

Untitled Path

NE McKenzie Rd

NE 65th Ave

NE Septan Dr

NE 259th St

Google Earth

700 ft

Upper Daybreak



7/2013

Write a description for your map.

Legend

Untitled Path

Upper Daybreak



5/2019

Write a description for your map.

Legend

Untitled Path

Questions?

