

Integrating Early Detection of Invasive Plant and Rare Plant Management - Rare Monkeyflowers of Ackerson Meadow, Yosemite National Park as a Case Study

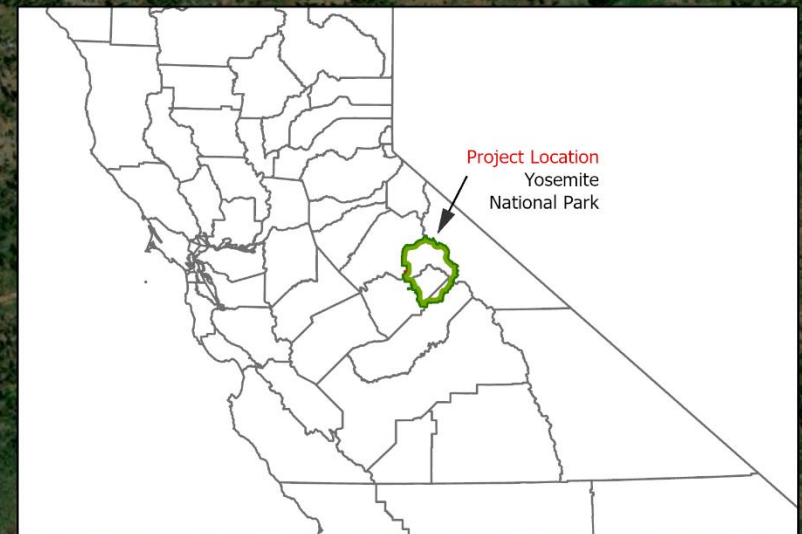
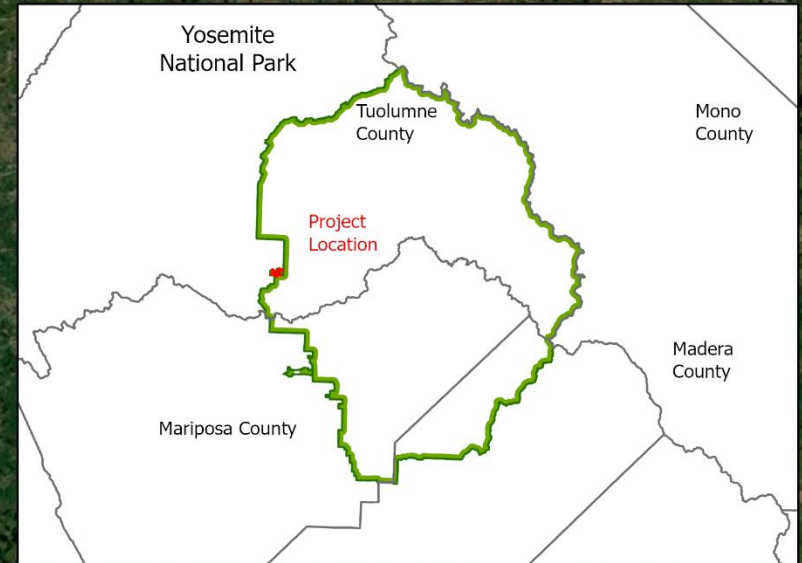
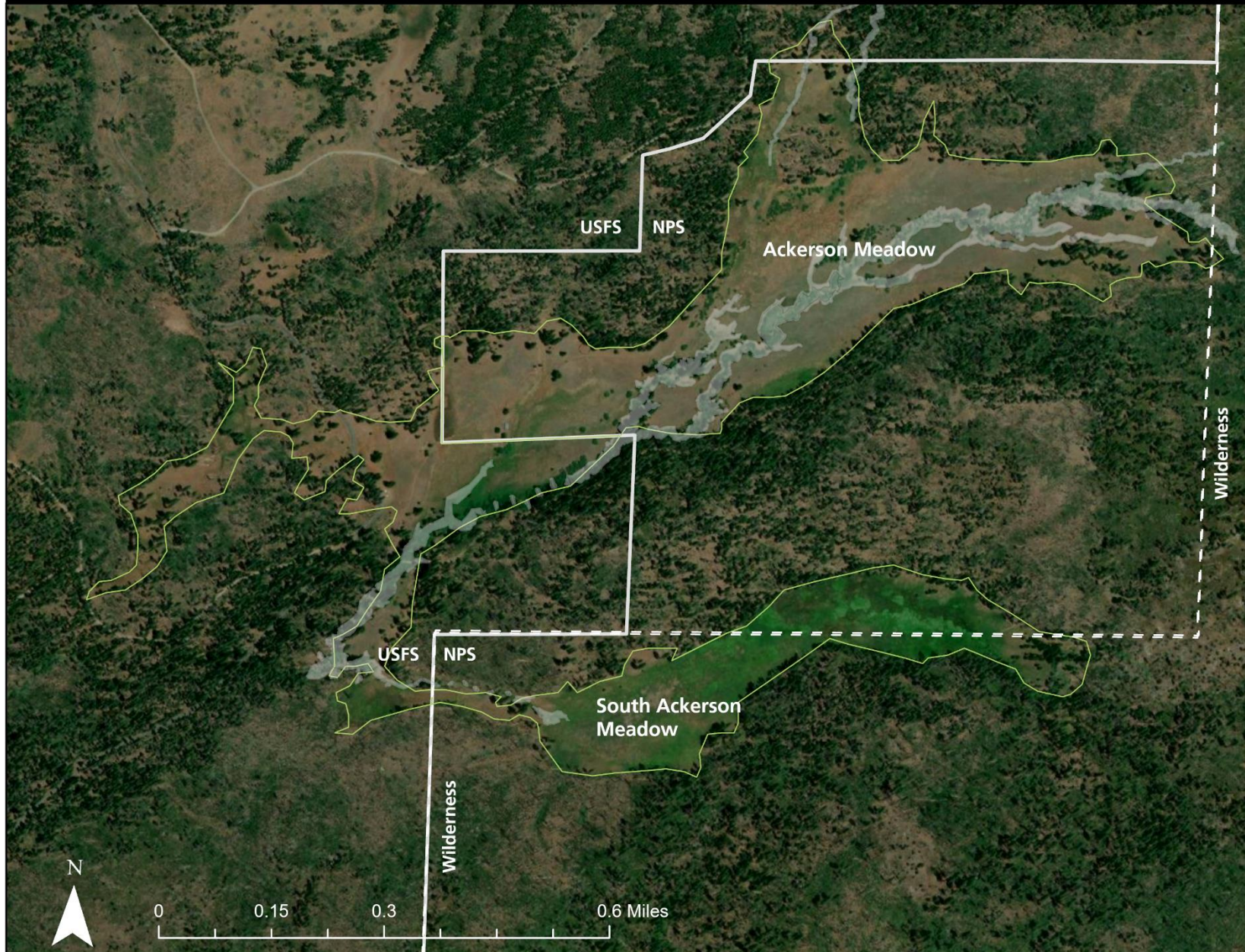
National Park Service
U.S. Department of the Interior
Yosemite National Park
Resources Management and Science

Cal IPC Symposium
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Ackerson and South Ackerson Meadow

Yosemite National Park, California

Yosemite National Park
National Park Service
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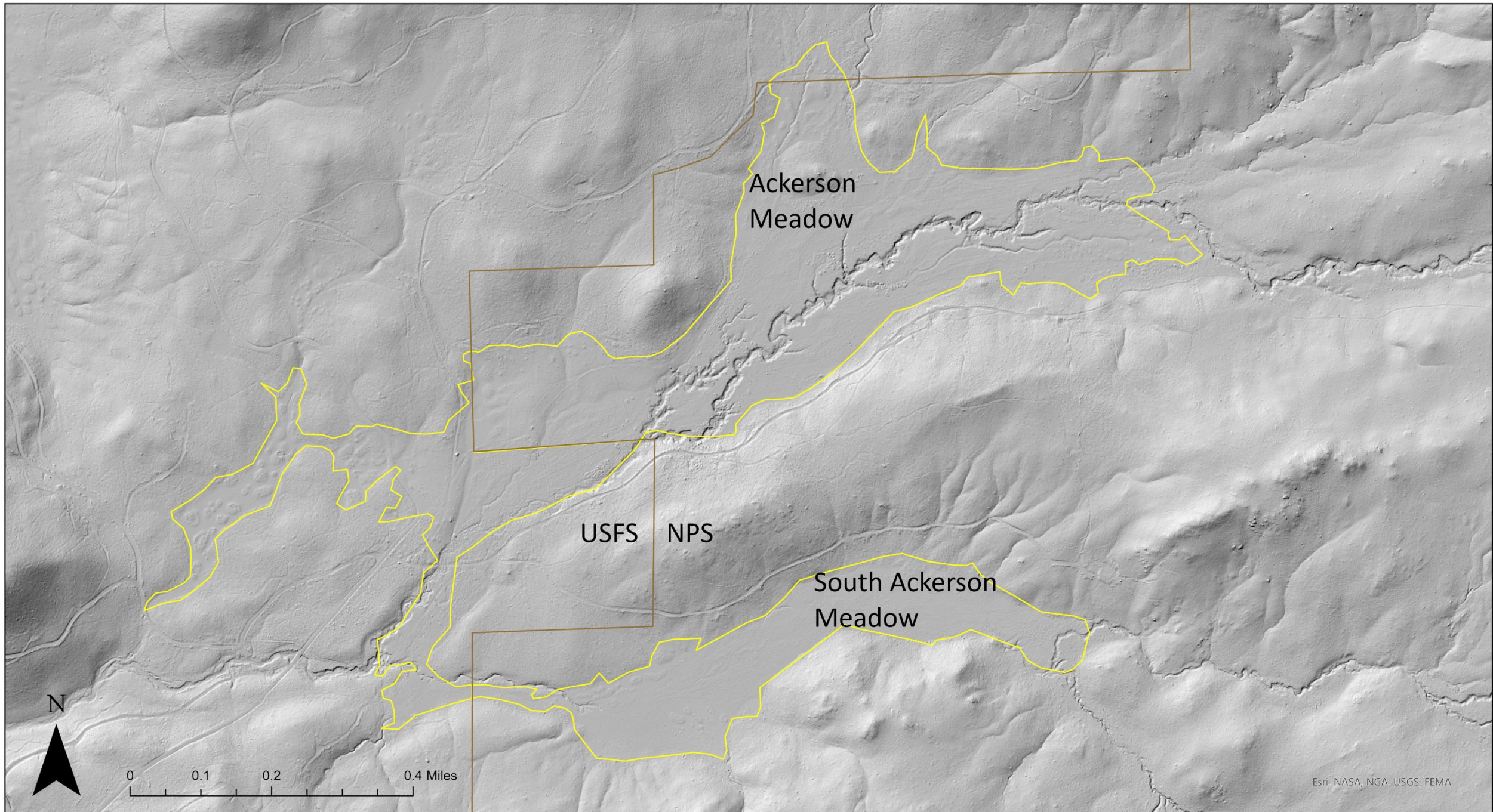




Ackerson Meadow, 2022



Ackerson M.J. A.





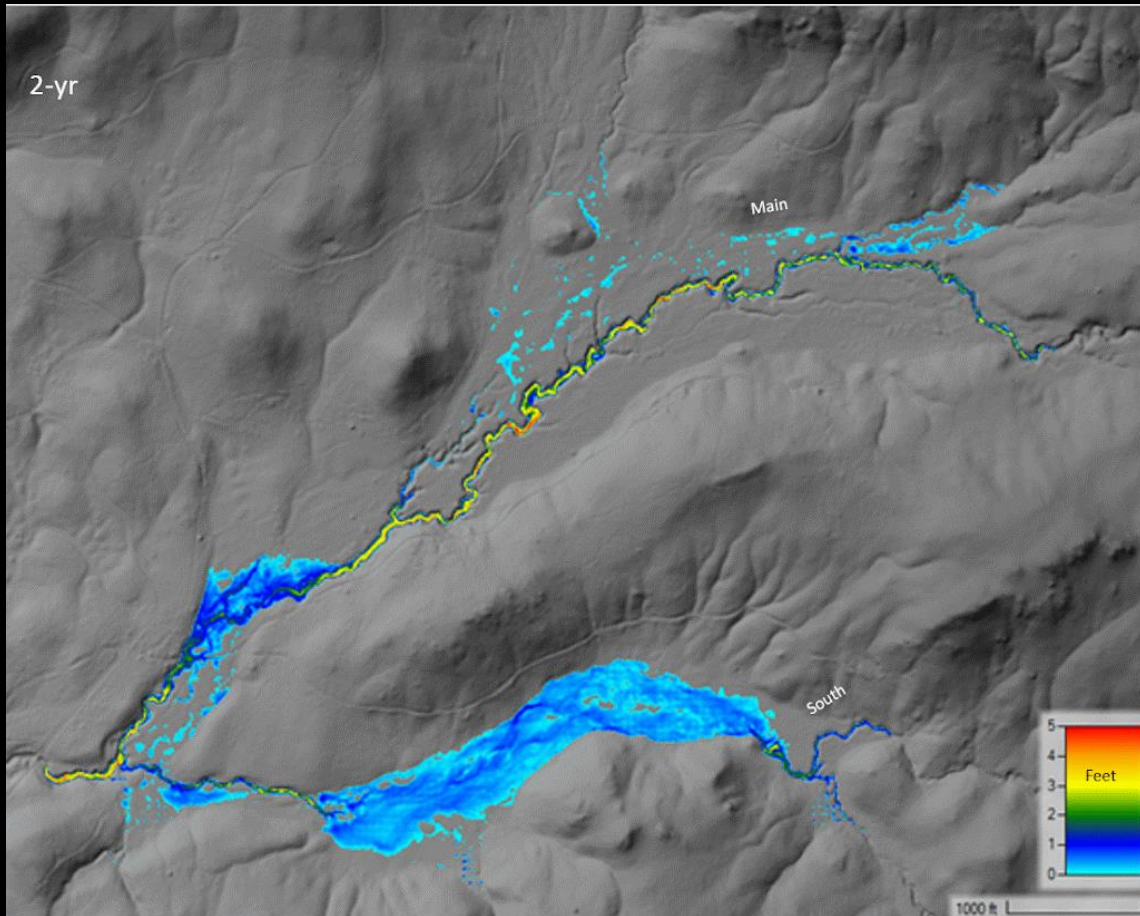


Restoration Goals:

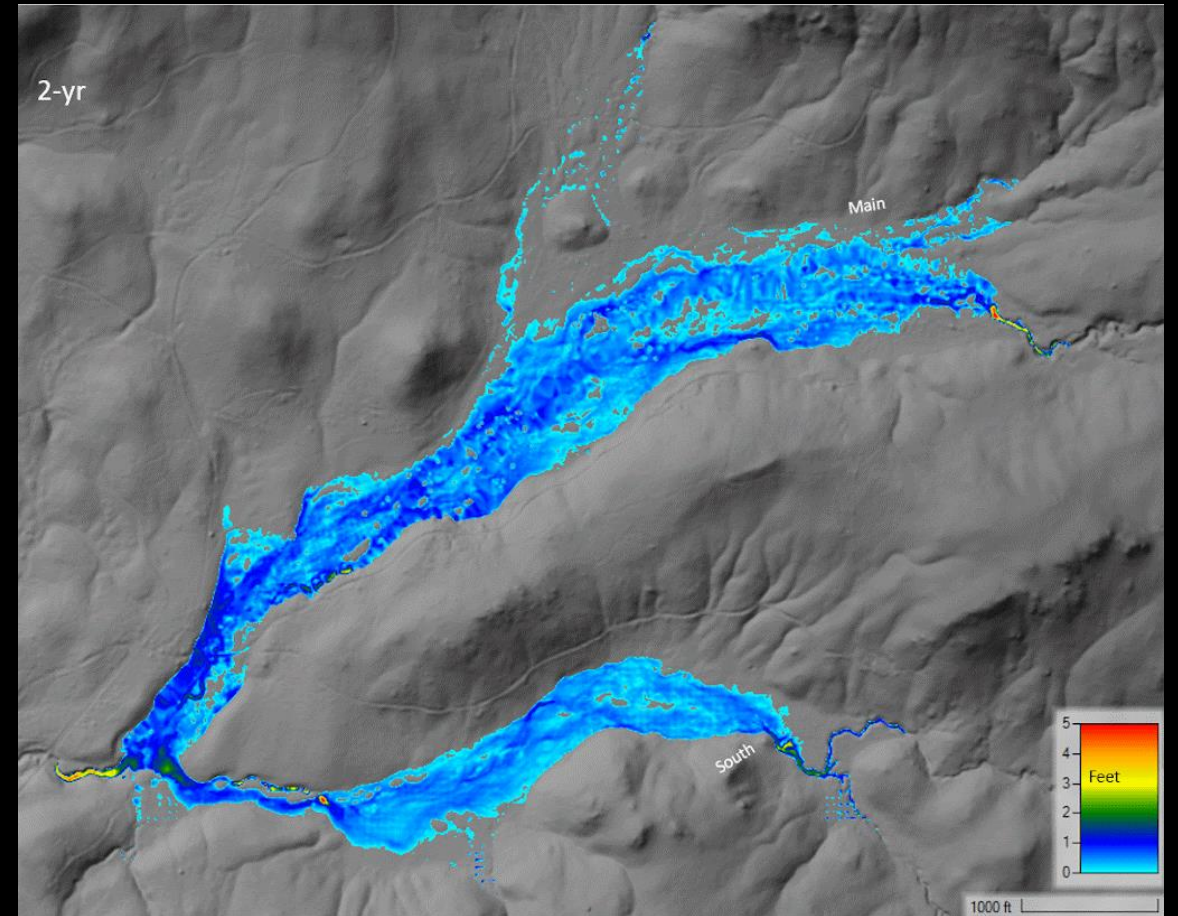
- slow water loss through runoff
- stop excess soil erosion
- reverse habitat conversion

Hec-Ras Models of 2-100 year Floods

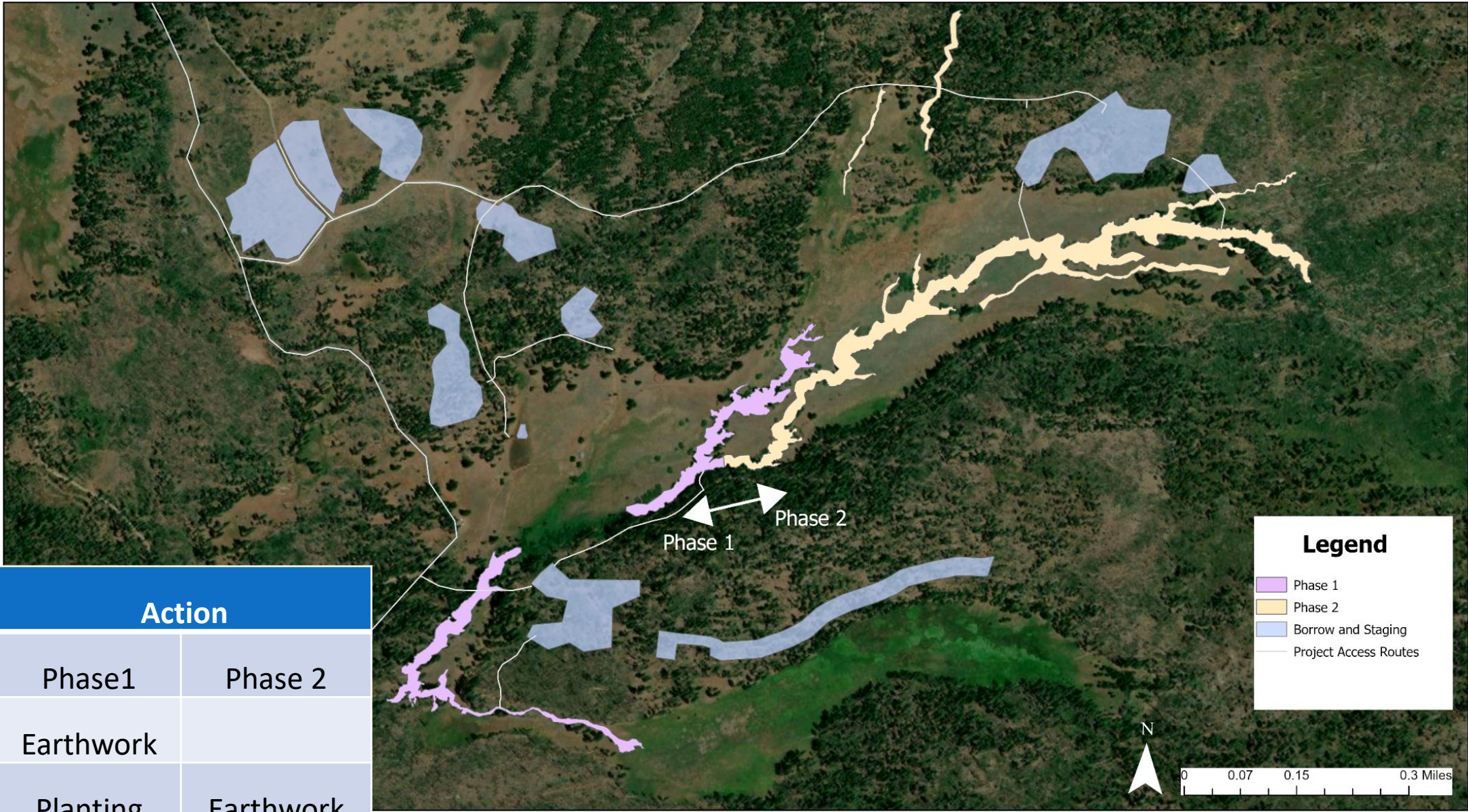
Pre-Restoration



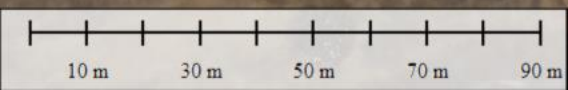
Post-Restoration



Timing		Action	
Year		Phase1	Phase 2
2023		Earthwork	
2024		Planting	Earthwork
2025			Planting
2025-2035		Long-term Monitoring	











South Ackerson Channel
Before & After Phase 1



Adaptive Management Phase 1

- Built 5 BDA, 2 PALS, 2 rock check dams
- Gully stuffing at Upper South
- Additional planting and willow fascines

Phase 2 Update

- Approx. 85,000 cubic yards of fill placed
- 6,800 linear feet of channel is fully to grade
- 3,000 linear feet of channel seeded and blanketed
- 2/3 willow zones replanted





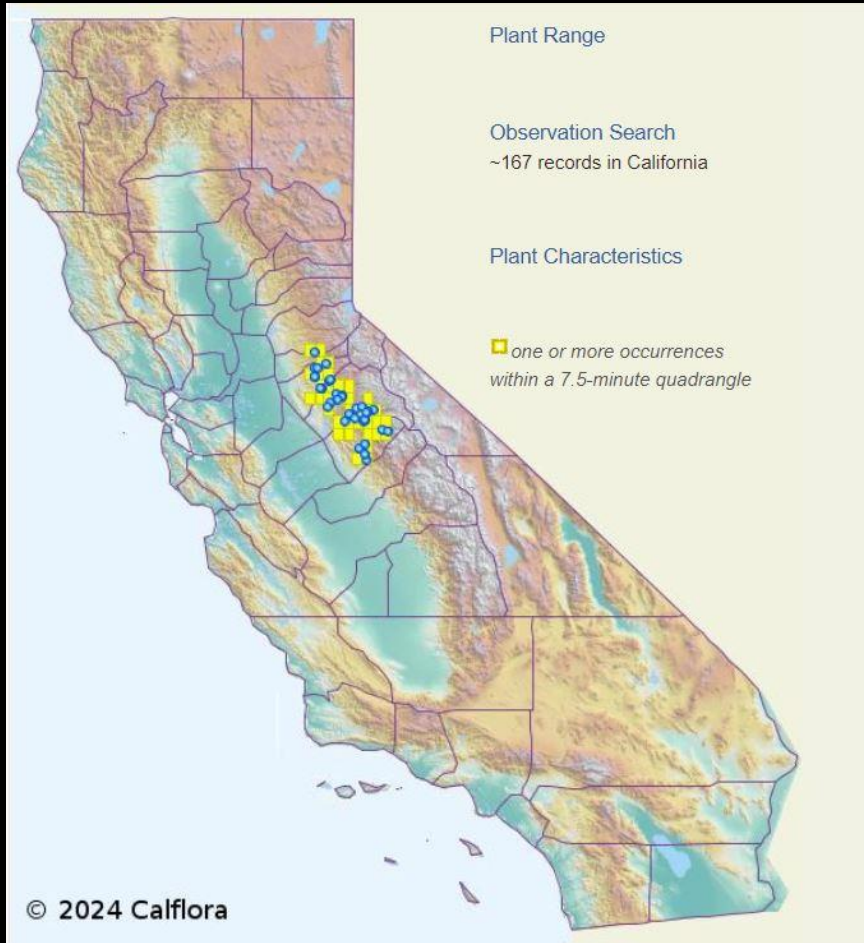


Slenderstem or Hetch Hetchy Monkeyflower, *Erythranthe filicaulis*



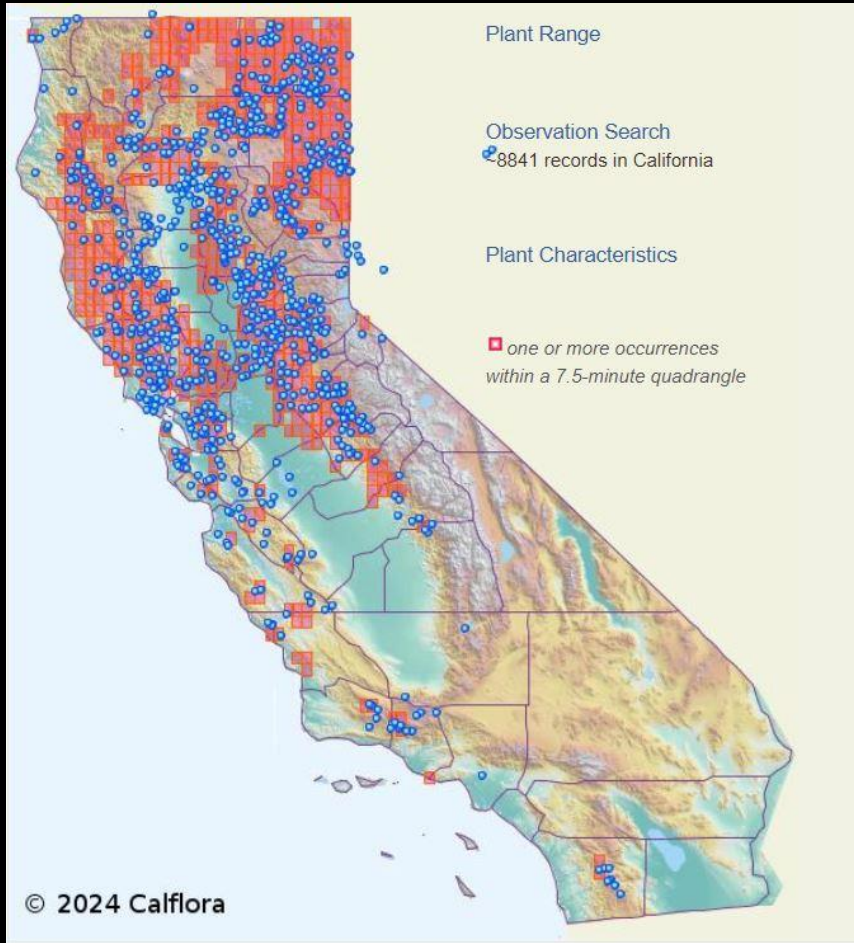
- California Native Plant Society 1B.2 listed species: Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
- Endemic to only two or three counties in California.
- Boom and bust annual that follows fires and disturbance/reduction of annual grass thatch.

Yellow-lip Pansy Monkeyflower, *Diplacus pulchellus*



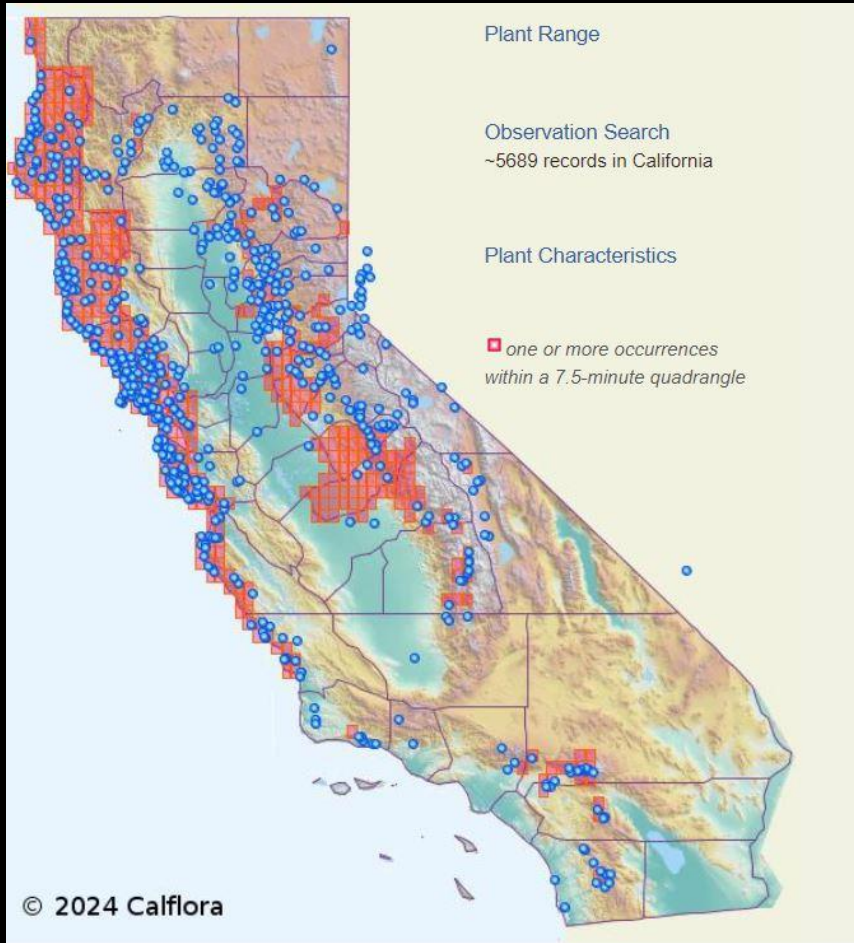
- California Native Plant Society 1B.2 listed species: Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
- Endemic to only four counties in California.
- Boom and bust annual that follows fires and disturbance/reduction of annual grass thatch.

Medusahead, *Elymus caput-medusae*



- California Invasive Plant Council Rating: High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically. Well distributed in California.
- Considered an Early Detection Species in Yosemite, limited to a handful of locations discovered beginning in 2014.
- Most populations have been eradicated in the park, though new introductions have been discovered recently (1 plant in 2024 outside of Ackerson).

Velvet Grass, *Holcus lanatus*



- California Invasive Plant Council Rating: Moderate – These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- Considered High Priority for treatment in Yosemite, though only treated in select locations due to distribution.
- Widespread in mid-elevation (up to 7,200') meadows with historic grazing.

Rare Plant Protection Measures

- Document populations
- Treat co-occurring annual grasses
- Salvage soil where full fill will occur – stage, protect, and redistribute
- Flag avoidance areas where filling is not needed
- Protect seed bank in access routes with track mats
- Reduce further spread of invasive plants to allow for re-seeding and dispersal into newly created habitat



Invasive Plant Management Measures

- Survey and document populations
- Prioritize treatments, and establish treatment plan – Included in Environmental Assessment for the project
- Test treatment impact on rare plants
- Prevent new introductions and spread of existing populations
- Treatment plan for medusahead:
 - Survey and spread awareness with other work groups
 - Fall rimsulfuron treatment w/ backpack and truck mounted sprayer (needed less and less)
 - Spring/early summer aminopyralid treatment
 - Early summer handpull with volunteers where safe to do so



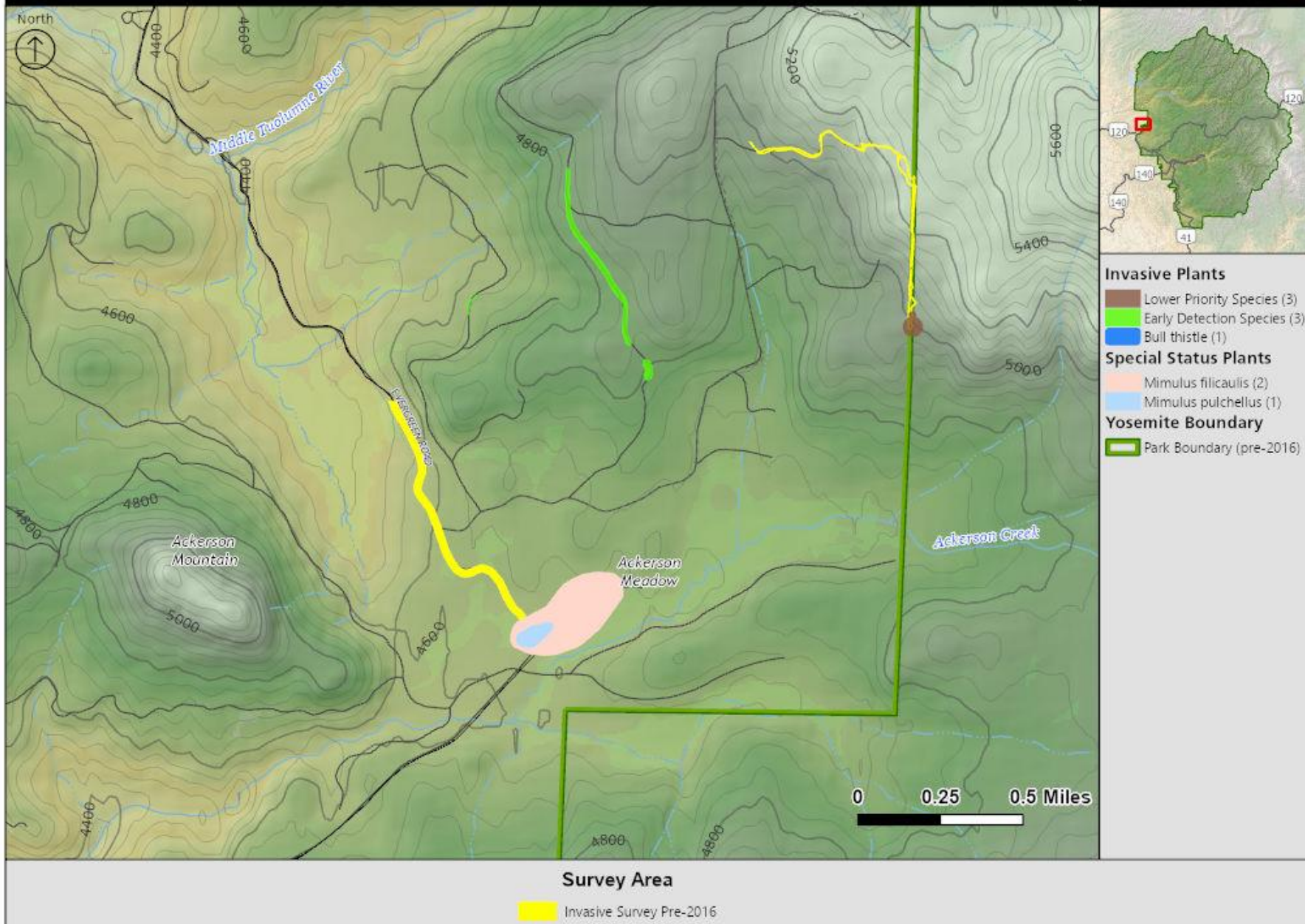
Outcomes So Far...

- 21.2 acres of former wetlands rewetted
- 57 acres of existing wetland protected
- 9 acres of gully restored to meadow
- Since 2018: Survey 216 acres, treat 73 acres of invasive plants, document and protect 39 acres of rare plants
- Significant decrease in medusahead
- Increase of both monkeyflowers in restoration areas



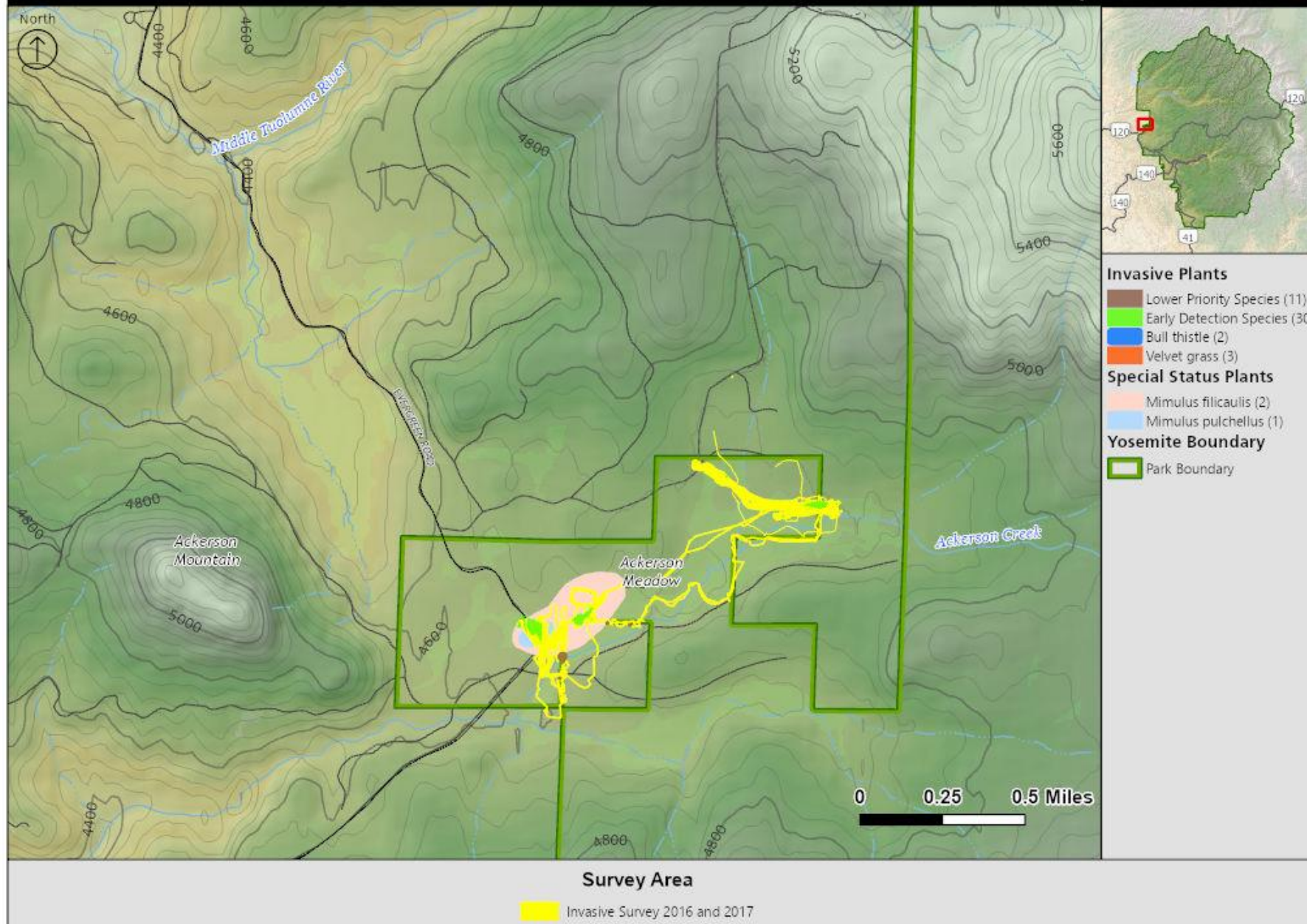
Ackerson Meadow Pre-2016 Vegetation Surveys

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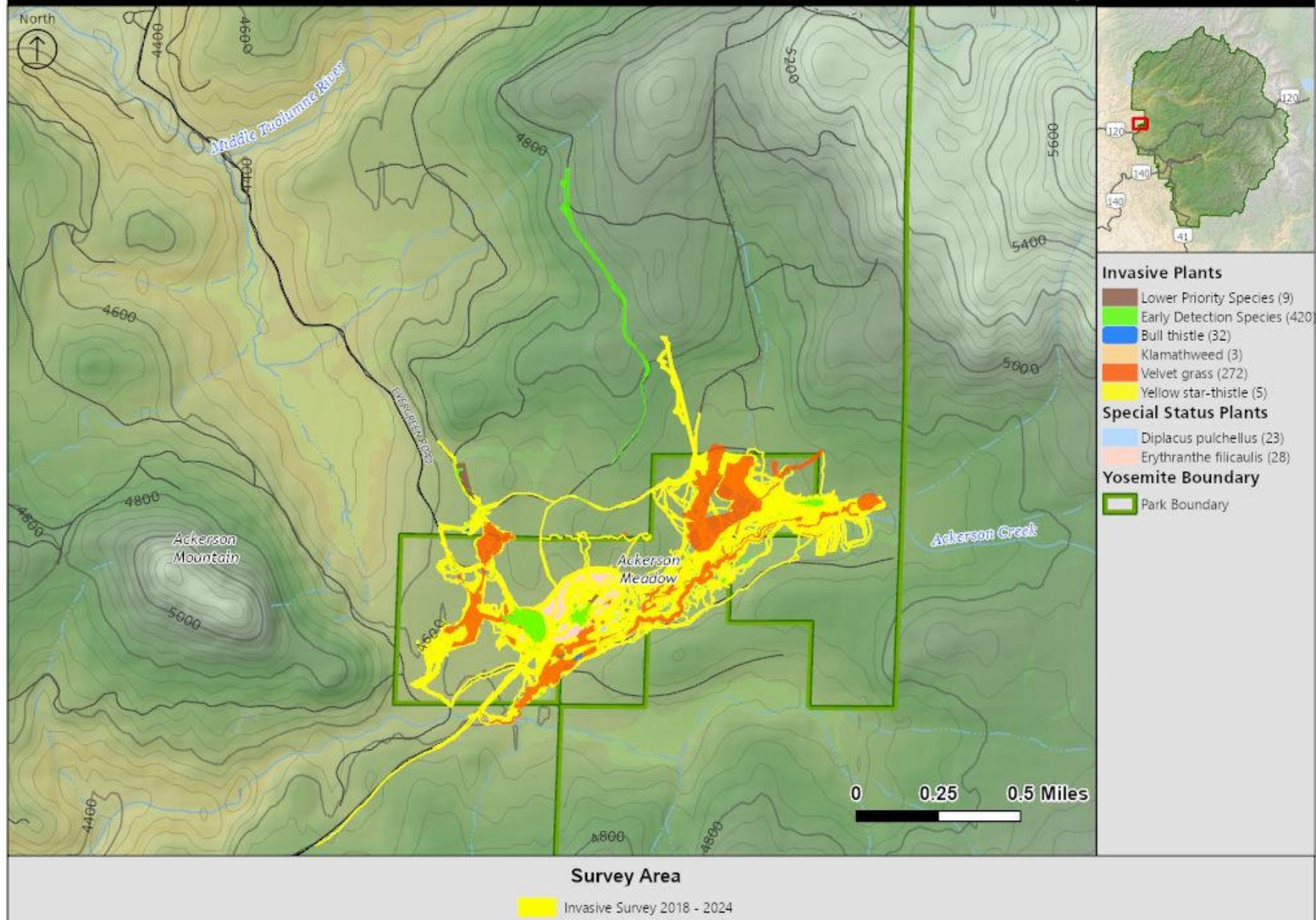
Ackerson Meadow 2016 and 2017 Vegetation Surveys

Yosemite National Park
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Ackerson Meadow 2018 - 2024 Vegetation Surveys

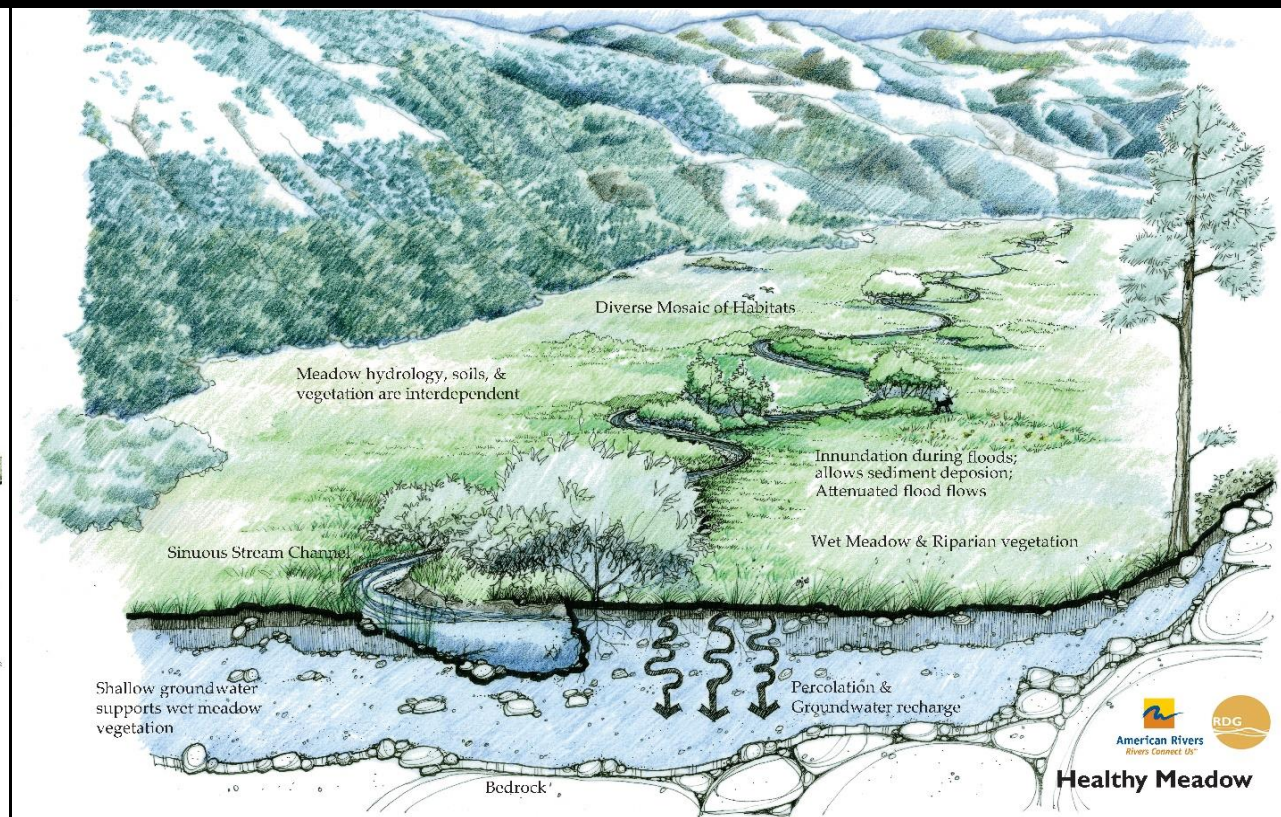
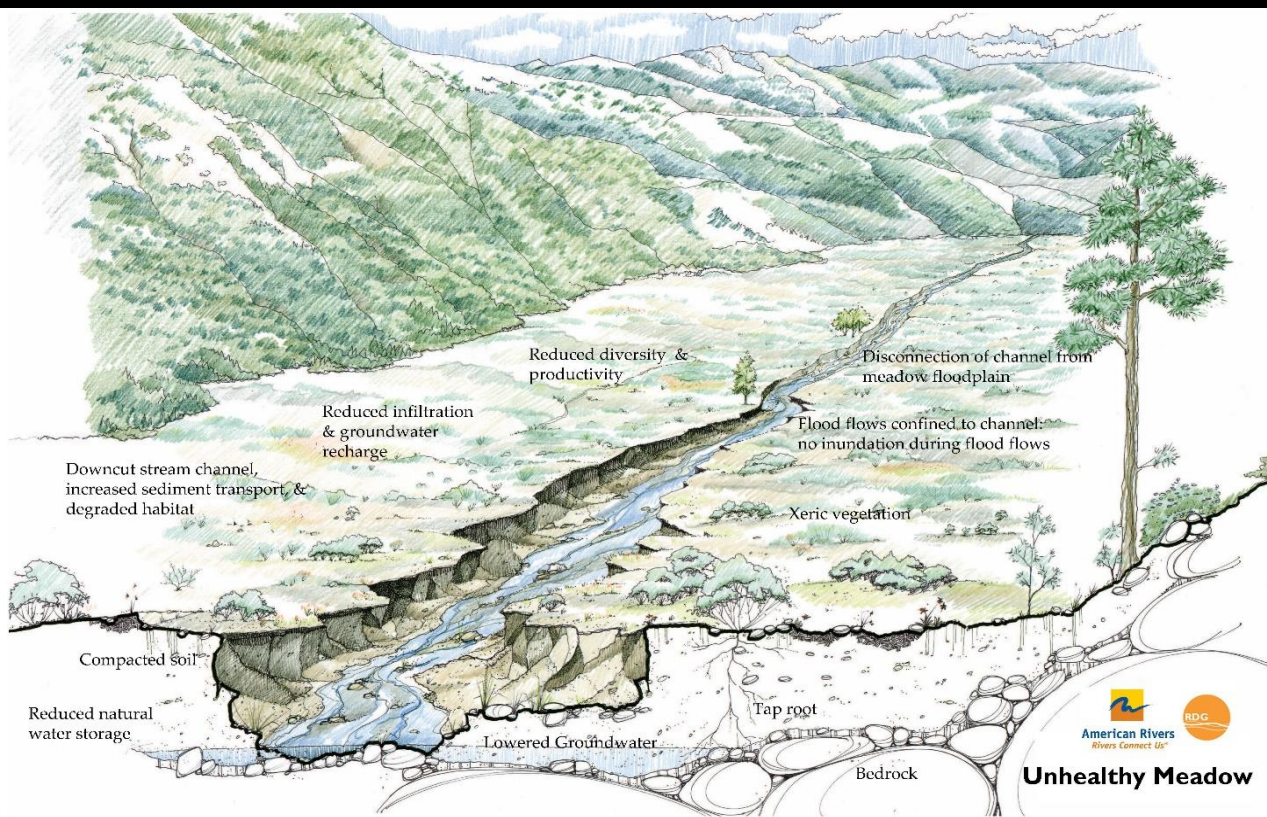
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To learn more visit:

[Ackerson Meadow Restoration Project - Yosemite National Park \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/ackerson/)

[Ackerson Meadow Restoration Project \(americanrivers.org\)](https://americanrivers.org/ackerson/)

Ackerson Meadow Restoration Project

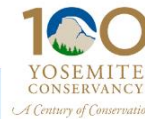


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Ackerson Meadow: Restoration Planning

Additional Links:

[Ackerson Meadow: Restoration Planning — Yosemite Conservancy](#)

[Restoring Ackerson Meadow - USFS](#)

Questions?

Thank you!!



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