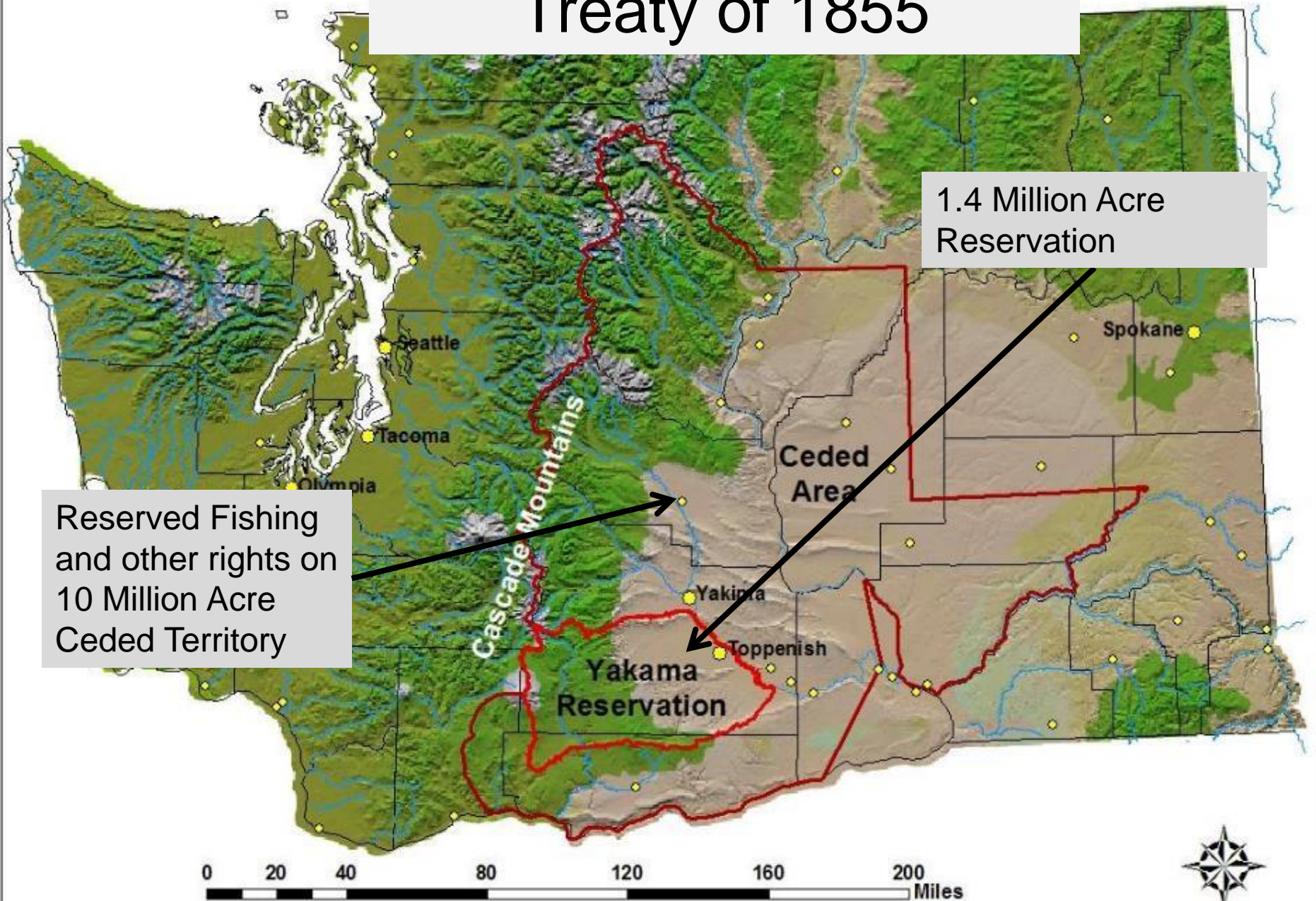


Toppenish Creek Corridor Enhancement Plan



**June 25th 2019, EPA-ASWM Region 10 Tribal
Webinars
Tom Elliott, Yakama Nation Wildlife Program**

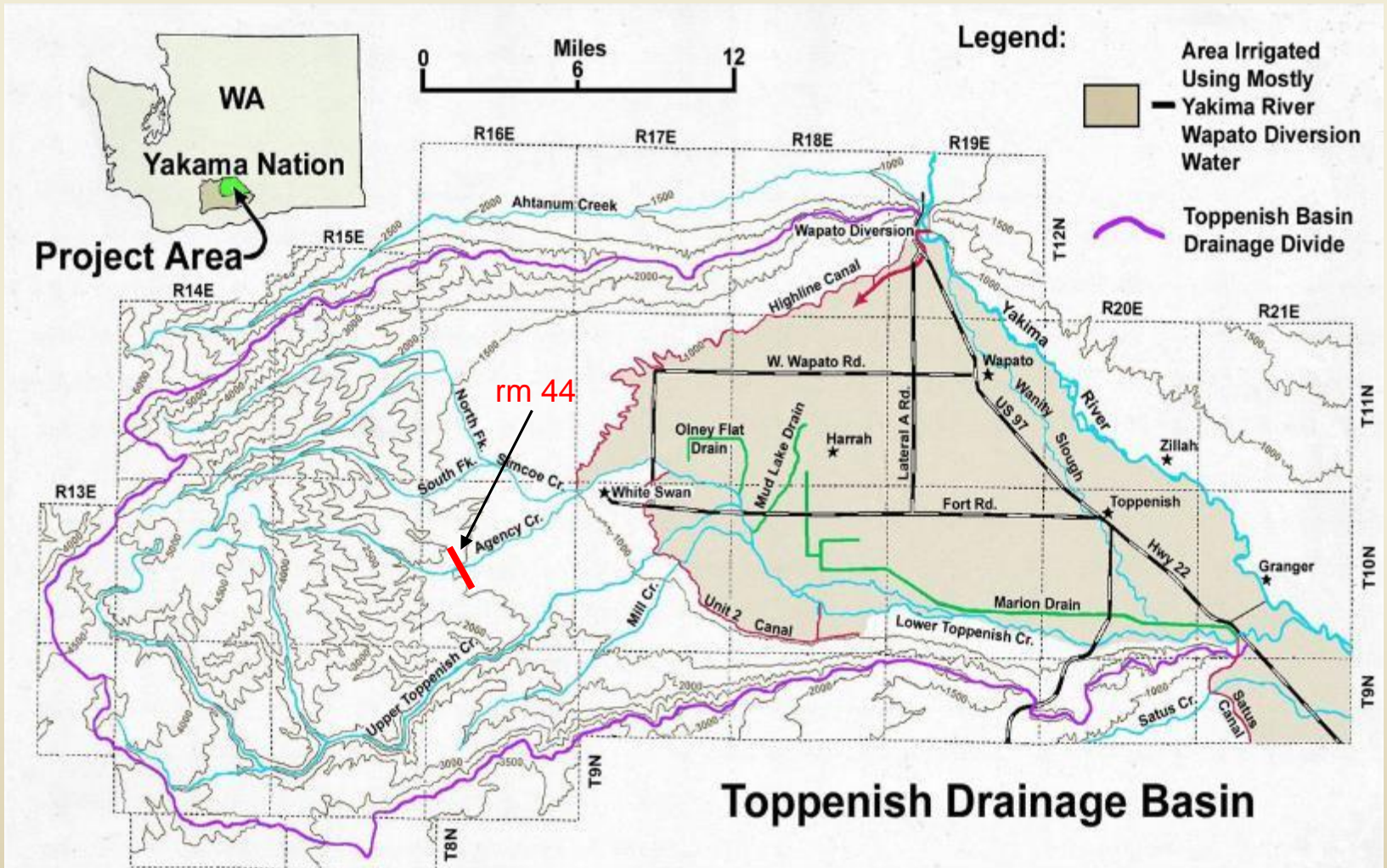
Treaty of 1855



Presentation Outline

1. Toppenish Creek-description and history
2. Toppenish Creek Corridor Plan overview
3. Toppenish Fan aquifer recharge
4. Re-route irrigation water out of creek
5. Shaker Church Road instream habitat
6. Mid-Toppenish wetland restoration
7. Conclusion

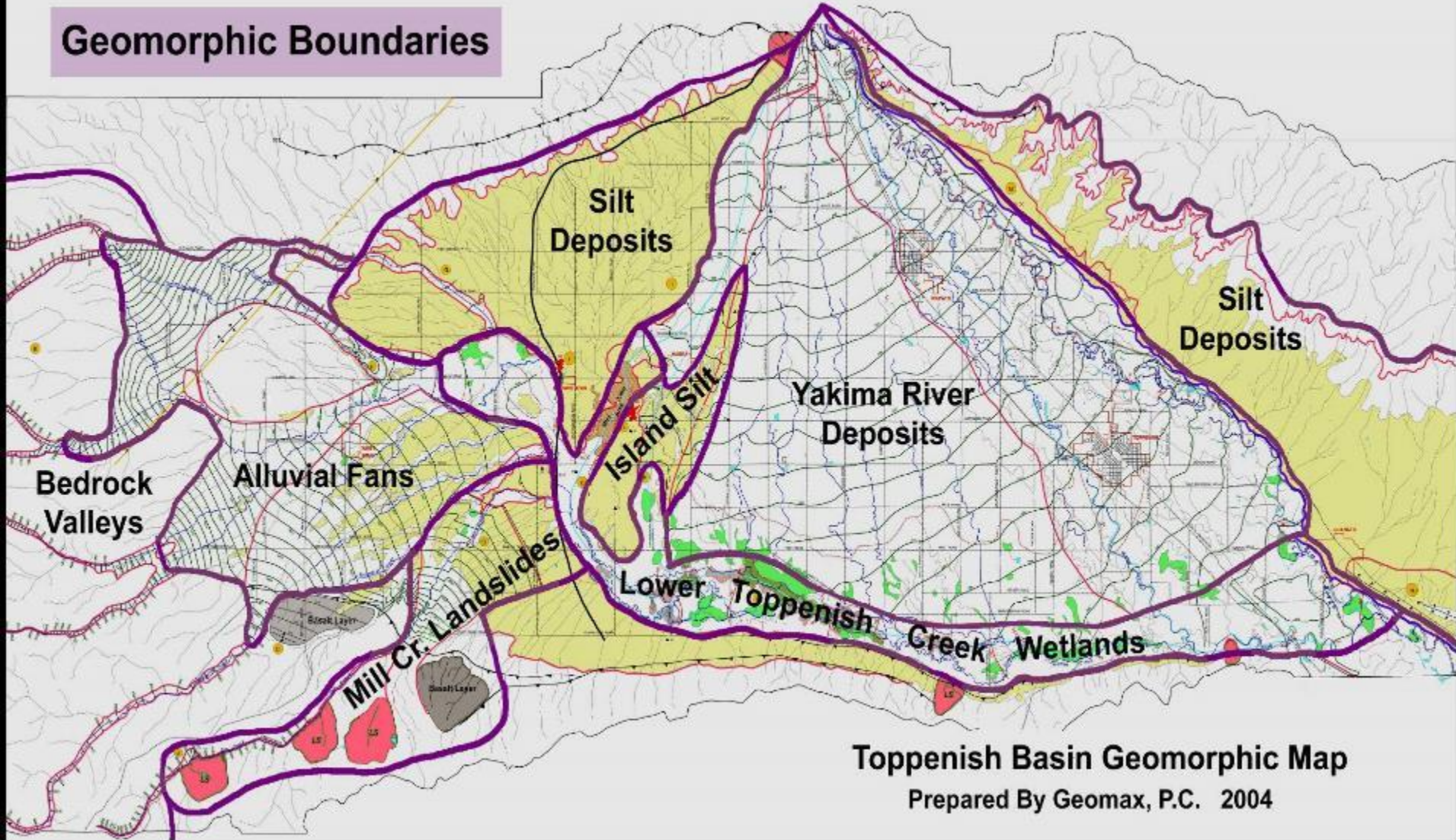
Toppenish Creek-description



- Heads at 5,200 feet in Cascades
- 75 miles to Yakima River
- Corridor plan focuses on Lower Toppenish Creek, rm 44 to 0

Lower Toppenish Creek-fans and wetlands

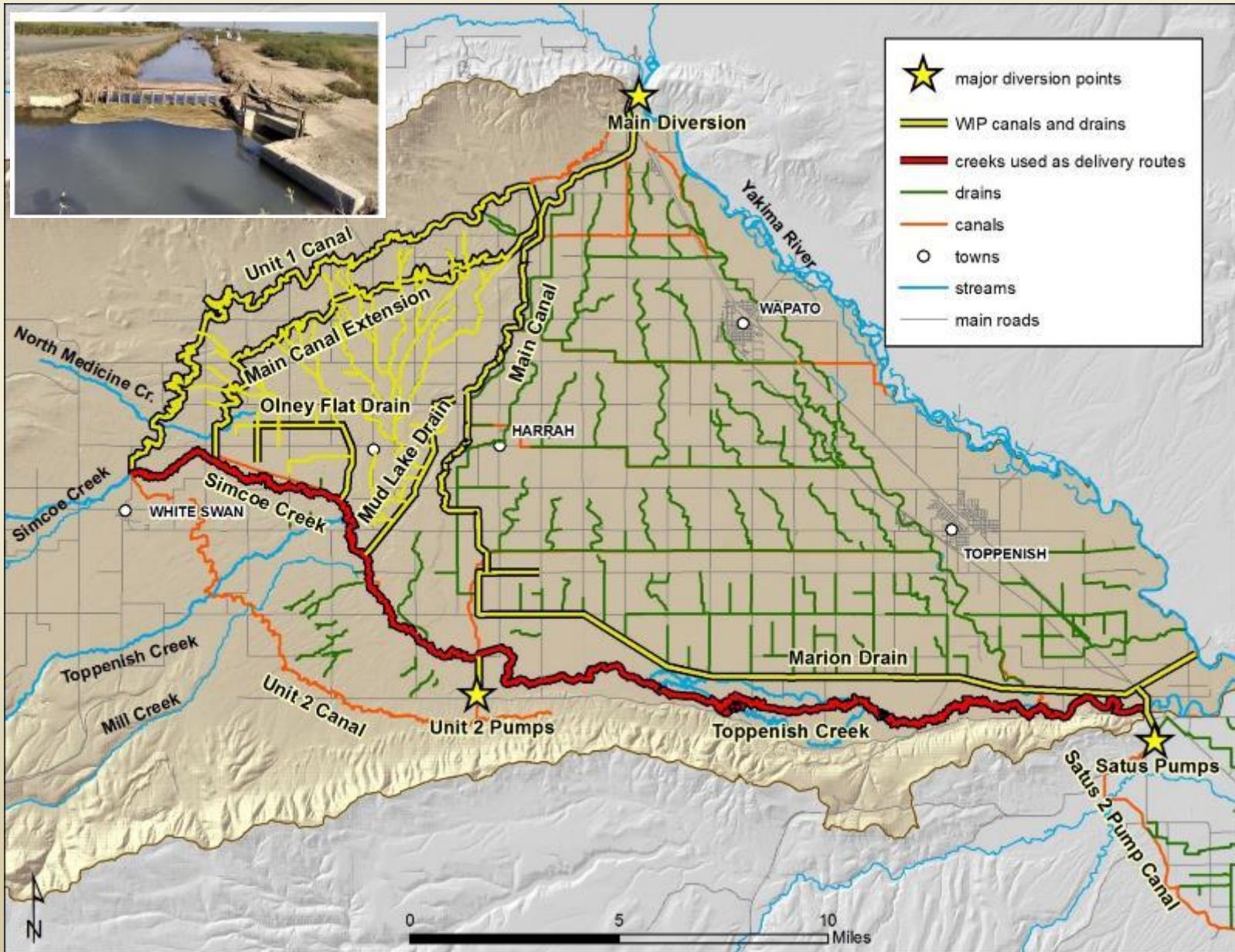
Geomorphic Boundaries



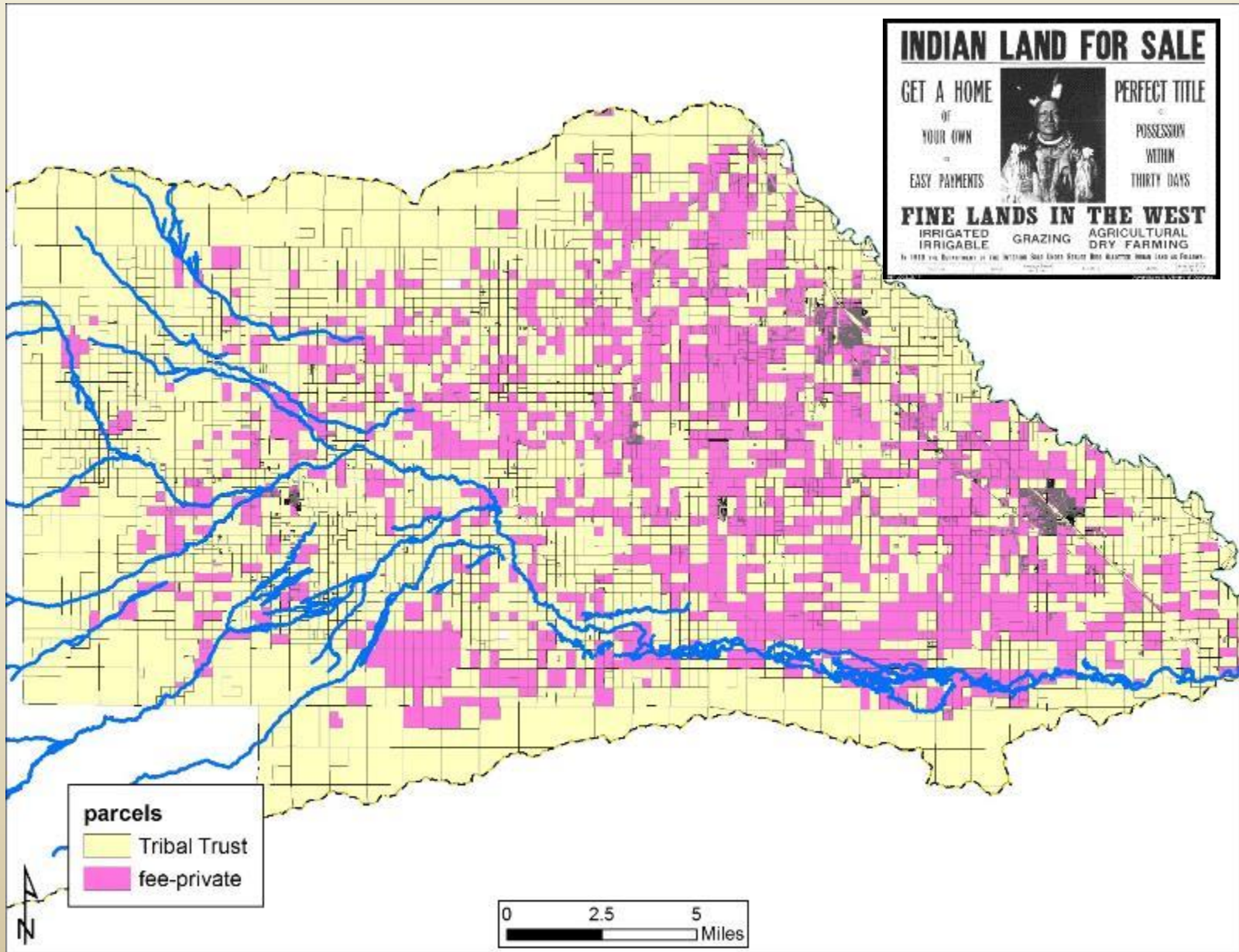
Toppenish Basin Geomorphic Map

Prepared By Geomax, P.C. 2004

Irrigation system dominates

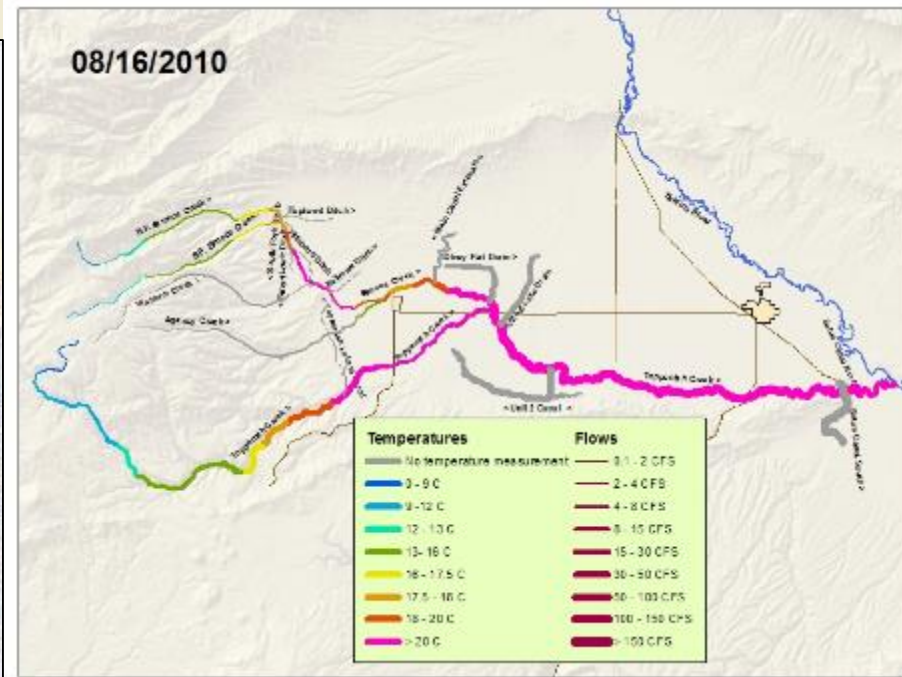
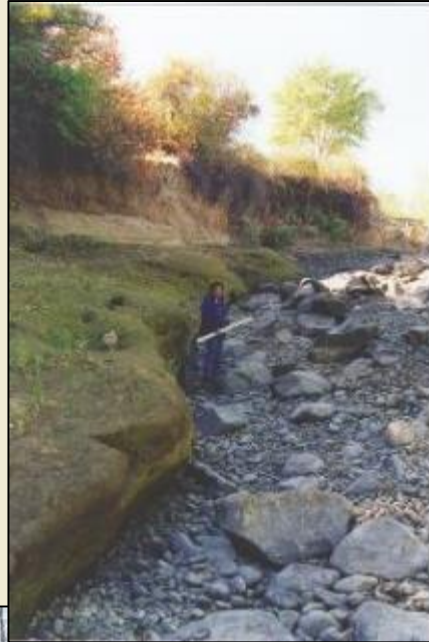


Land ownership checker boarded



Tribal Resources Lost and Degraded

- Water supply
- Water quality
- Fish habitat
- Wildlife Habitat
- Traditional foods
- Flood hazard



Intact floodplain=restoration potential



Presentation Outline

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7. Conclusion

Goal: Restore cultural, fishery, wildlife and water resources of lower Toppenish Creek



CONTRACT NO. 1112456
WIP 7/11/11
YIN 11/11/11
FEB/APRIL 2011

Toppenish Creek Plan History

- **First envisioned by Tribal leadership in the 1970s**
- **Authorized by Congress in 1994**
- **Funding for planning from YRBWEP in 1997**
- **Scoping, assessment, and early drafts carried out by YN DNR and Cultural Resources 1994 through 2011**
- **Final draft prepared 2011-2013**
- **Final version approved by Tribal Council April 2 2019**

Ten Year Action Plan with Budget

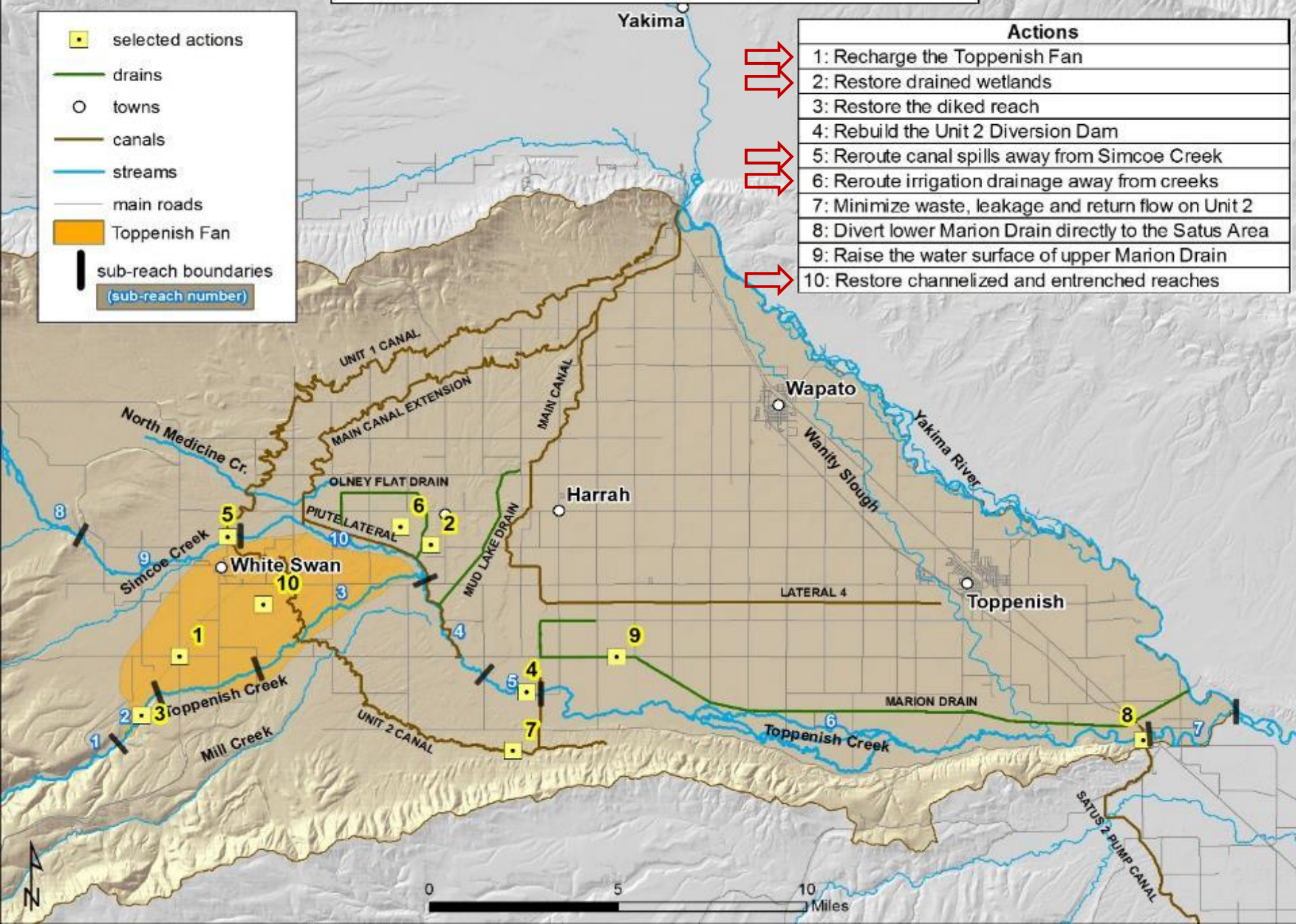
| Action # | Action Title | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Yrs 1-10 |
|----------|--|------------------|------------------|------------------|------------------|------------------|----------------|------------------|----------------|----------------|----------------|-------------------|
| 1 | Recharge the Toppenish Creek alluvial fan (this project is completed and in the monitoring phase) | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$60,000 | \$600,000 |
| 2 | Restore drained wetlands | \$152,000 | | \$500,000 | | | | | | | | \$652,000 |
| 3 | Restore the diked reach between Olney Dam and the 3-Way diversion site (this project has been partially completed) | | | | | \$300,000 | \$80,000 | 1,858,000 | \$636,000 | | | 2,874,000 |
| 4 | Rebuild the Unit 2 diversion dam | \$143,000 | 1,970,000 | | | | | | | | | 2,113,000 |
| 5 | Reroute canal spills away from Simcoe Creek | | 737,000 | | 1,763,000 | | | | | | | 2,500,000 |
| 6 | Reroute irrigation drainage away from Toppenish and Simcoe creeks, while improving Unit 2 water supply | | | \$614,500 | 1,162,000 | \$733,500 | | | | | | 2,510,000 |
| 7 | Minimize waste, leakage and return flow on Unit 2 | | | | \$300,000 | | | | | | | \$300,000 |
| 8 | Divert lower Marion Drain directly to the Satus Area | | | | \$350,000 | 2,650,000 | | | | | | 3,000,000 |
| 9 | Raise the water surface of upper Marion Drain to benefit Toppenish Creek flow | | | \$750,000 | \$750,000 | \$750,000 | | | | | | 2,250,000 |
| 10 | Restore channelized and entrenched sections of Toppenish Creek. | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | | | | | | 5,000,000 |
| * | Implementation Coordinator | 105,000 | 105,000 | 105,000 | 105,000 | 105,000 | 105,000 | 105,000 | 105,000 | 105,000 | 105,000 | 1,050,000 |
| | Actions 1-10 and Implementation Coordinator | 1,460,000 | 3,872,000 | 3,029,500 | 5,490,000 | 5,598,500 | 245,000 | 2,023,000 | 801,000 | 165,000 | 165,000 | 22,849,000 |

* Implementation Coordinator: The Toppenish Creek Corridor Plan will require dedicated project management. An implementation coordinator position will be necessary to oversee, coordinate, and track the various projects, hire and supervise contractors and produce progress reports. This position will be housed with the Yakama Nation Engineering Program. Costs (2019dollars) are based on an initial \$60,000 salary with 50% fringe and indirect costs. In addition, \$10,000 per year was budgeted for a leased vehicle and \$5000 per year for office equipment and supplies.

Toppenish Creek Corridor Plan-Selected Actions

- selected actions
- drains
- towns
- canals
- streams
- main roads
- Toppenish Fan
- sub-reach boundaries
(sub-reach number)

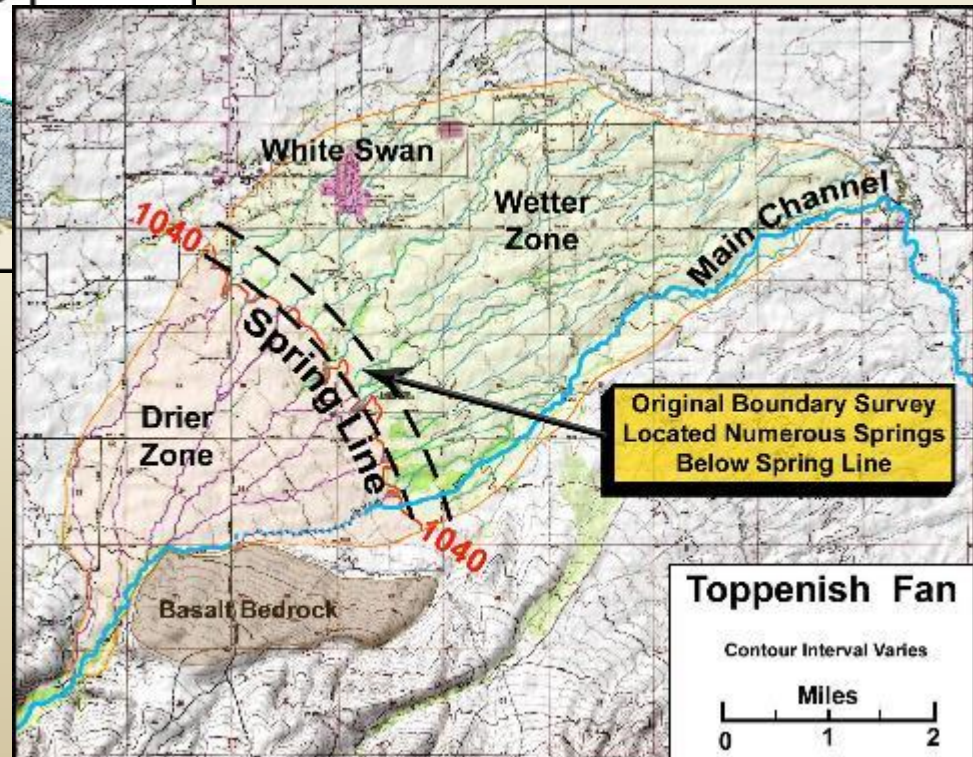
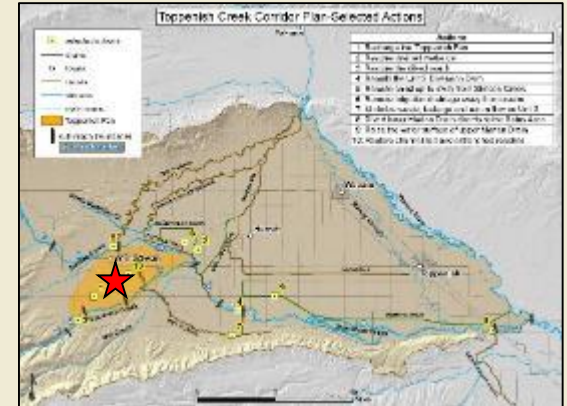
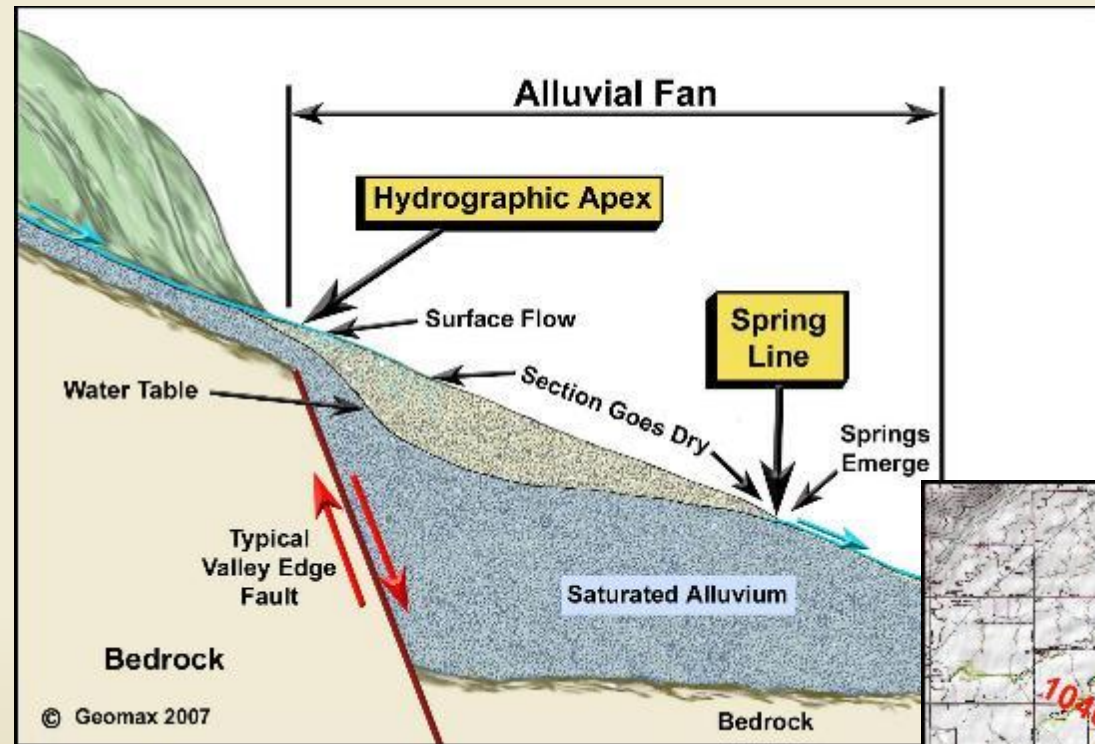
| Actions | |
|---------|---|
| ⇨ | 1: Recharge the Toppenish Fan |
| ⇨ | 2: Restore drained wetlands |
| ⇨ | 3: Restore the diked reach |
| ⇨ | 4: Rebuild the Unit 2 Diversion Dam |
| ⇨ | 5: Reroute canal spills away from Simcoe Creek |
| ⇨ | 6: Reroute irrigation drainage away from creeks |
| ⇨ | 7: Minimize waste, leakage and return flow on Unit 2 |
| ⇨ | 8: Divert lower Marion Drain directly to the Satus Area |
| ⇨ | 9: Raise the water surface of upper Marion Drain |
| ⇨ | 10: Restore channelized and entrenched reaches |



Presentation Outline

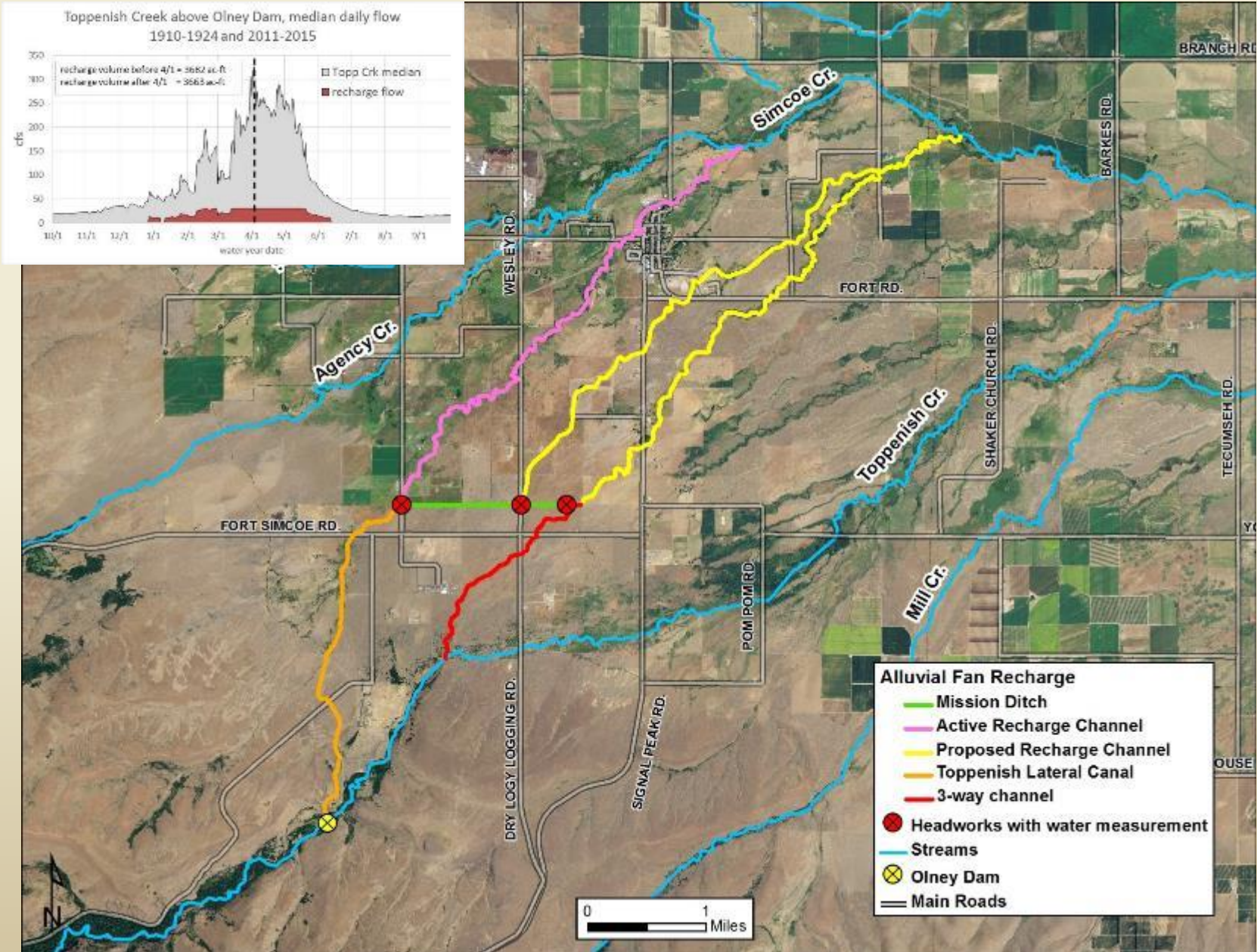
1. Toppenish Creek-description and history
2. Toppenish Creek Corridor Plan overview
3. Toppenish Fan aquifer recharge (decoupling of surface and groundwater systems)
4. Re-route irrigation water out of creek
5. Shaker Church Road instream habitat
6. Mid-Toppenish wetland restoration
7. Conclusion

Toppenish Alluvial Fan



- Levees and canals short circuited the natural recharge
- Springs and wells dry up, downstream water temperature goes up

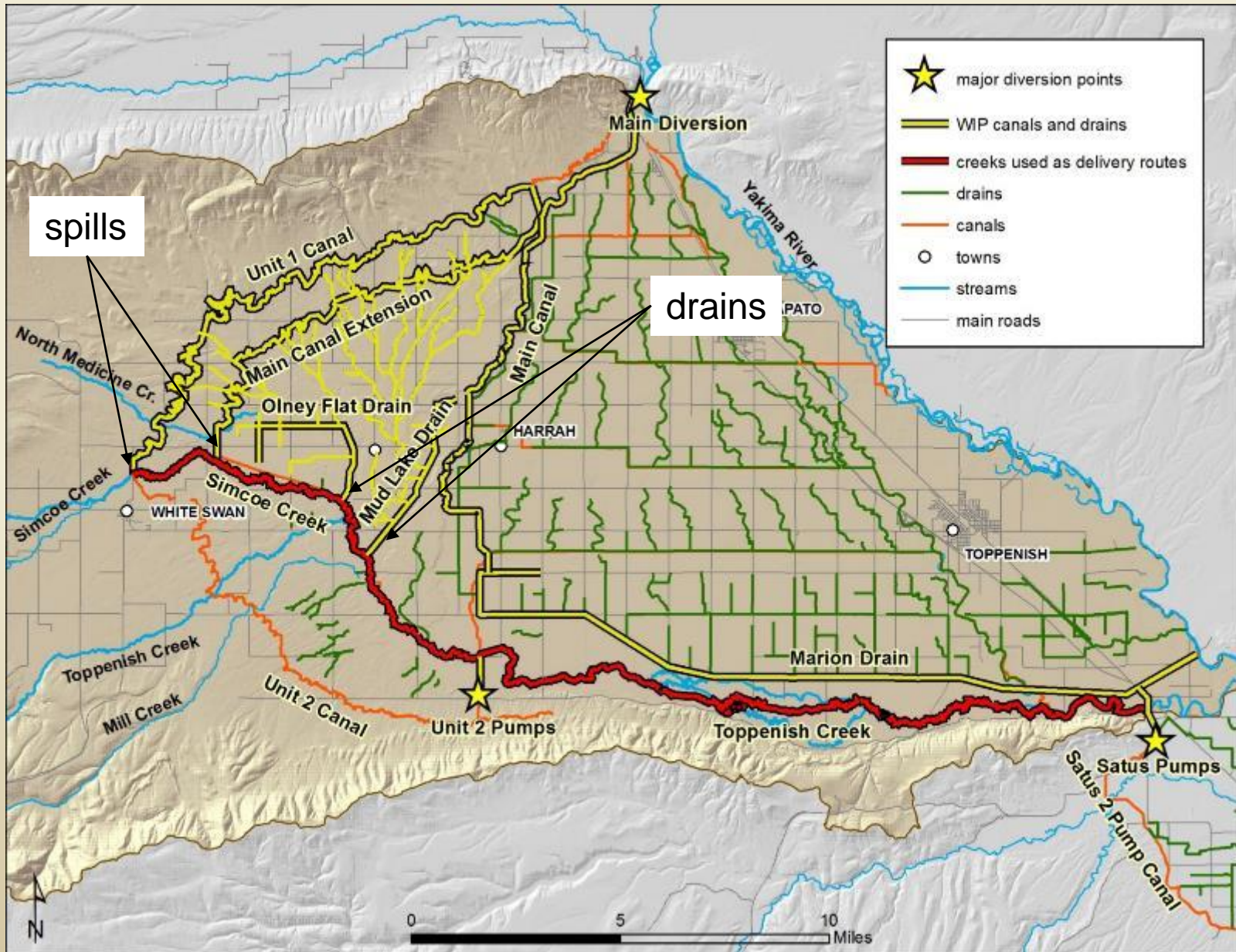
Alluvial Fan re-watered



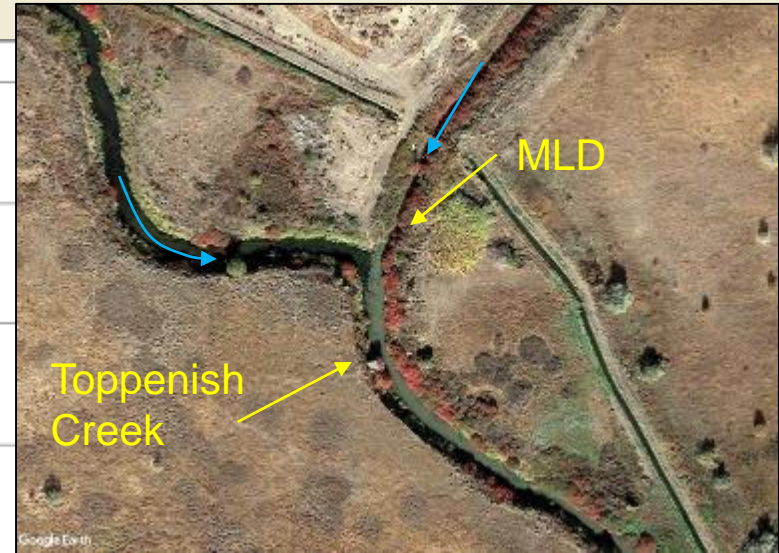
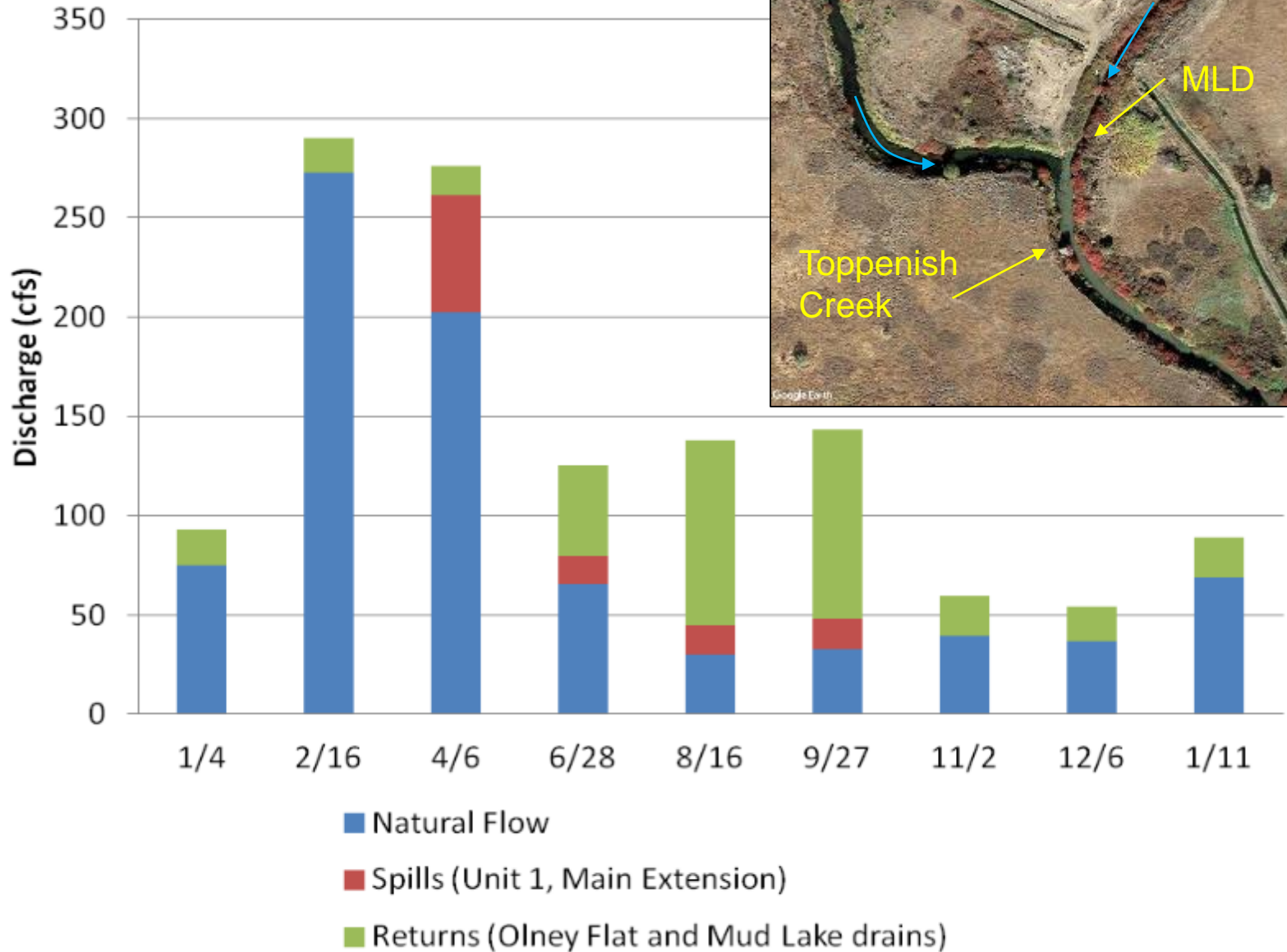
Presentation Outline

1. Toppenish Creek-description and history
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4. Re-route irrigation water out of creek (water quality)
5. Shaker Church Road instream habitat
6. Mid-Toppenish wetland restoration
7. Conclusion

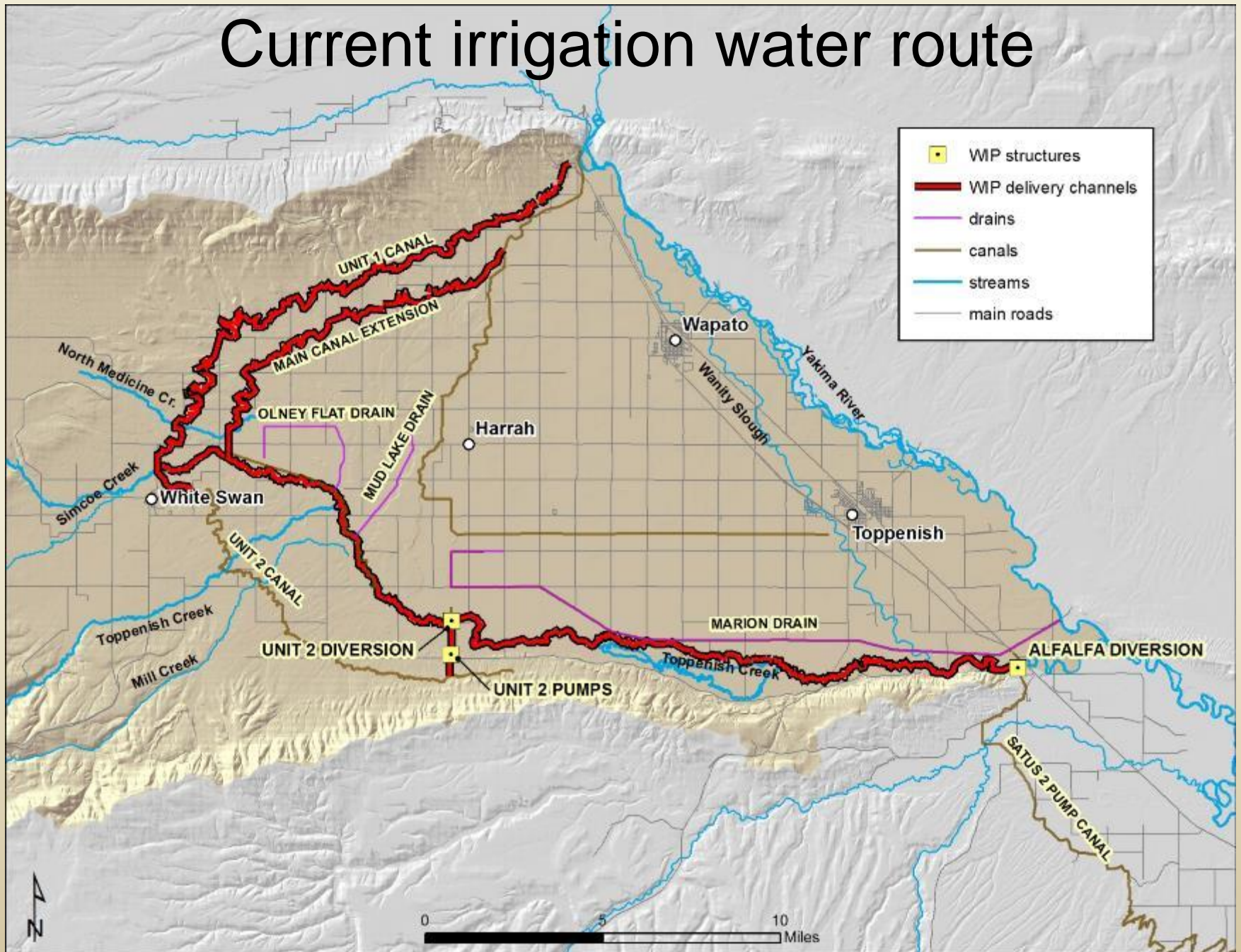
Irrigation system inflows



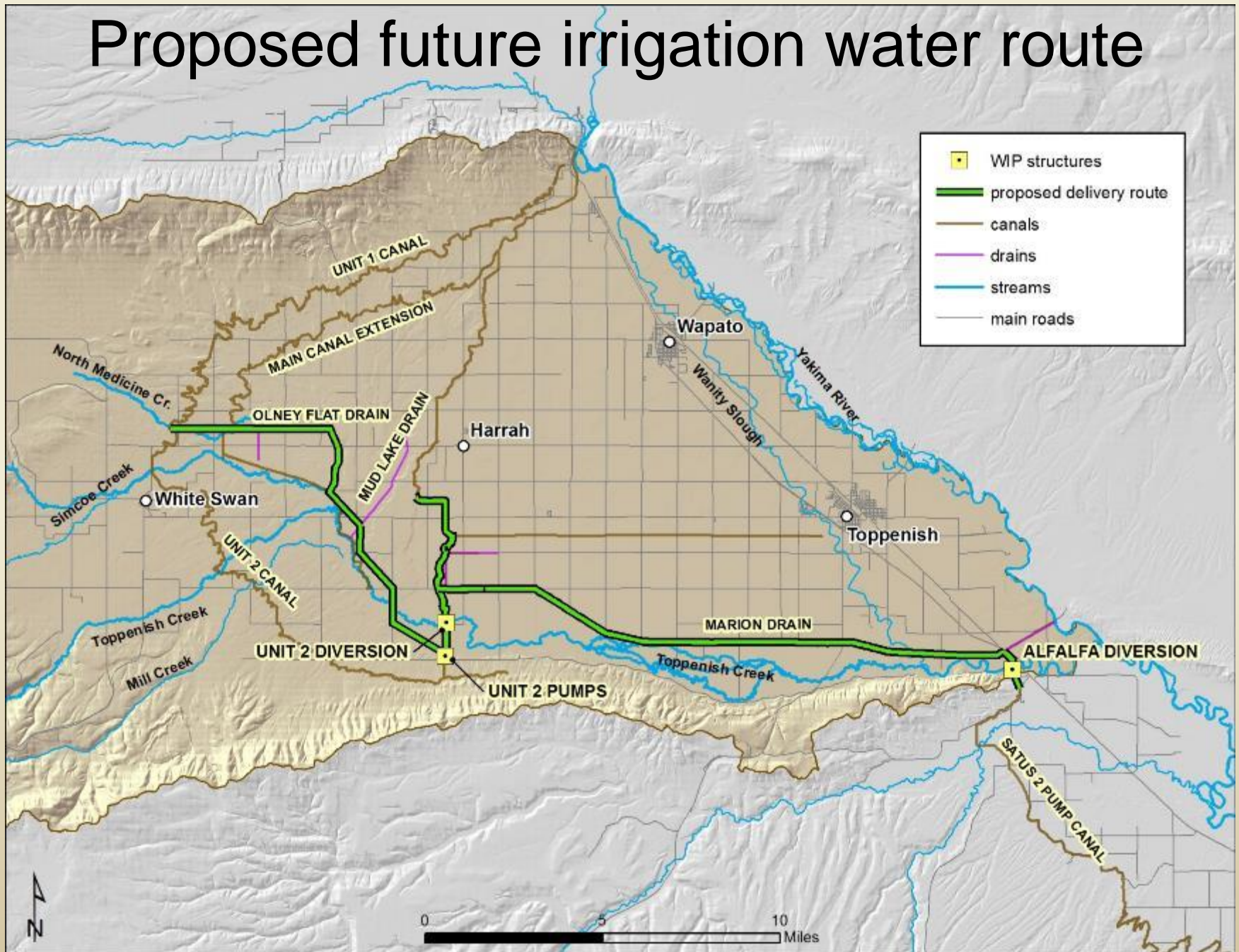
Irrigation spills dominate hydrograph



Current irrigation water route



Proposed future irrigation water route

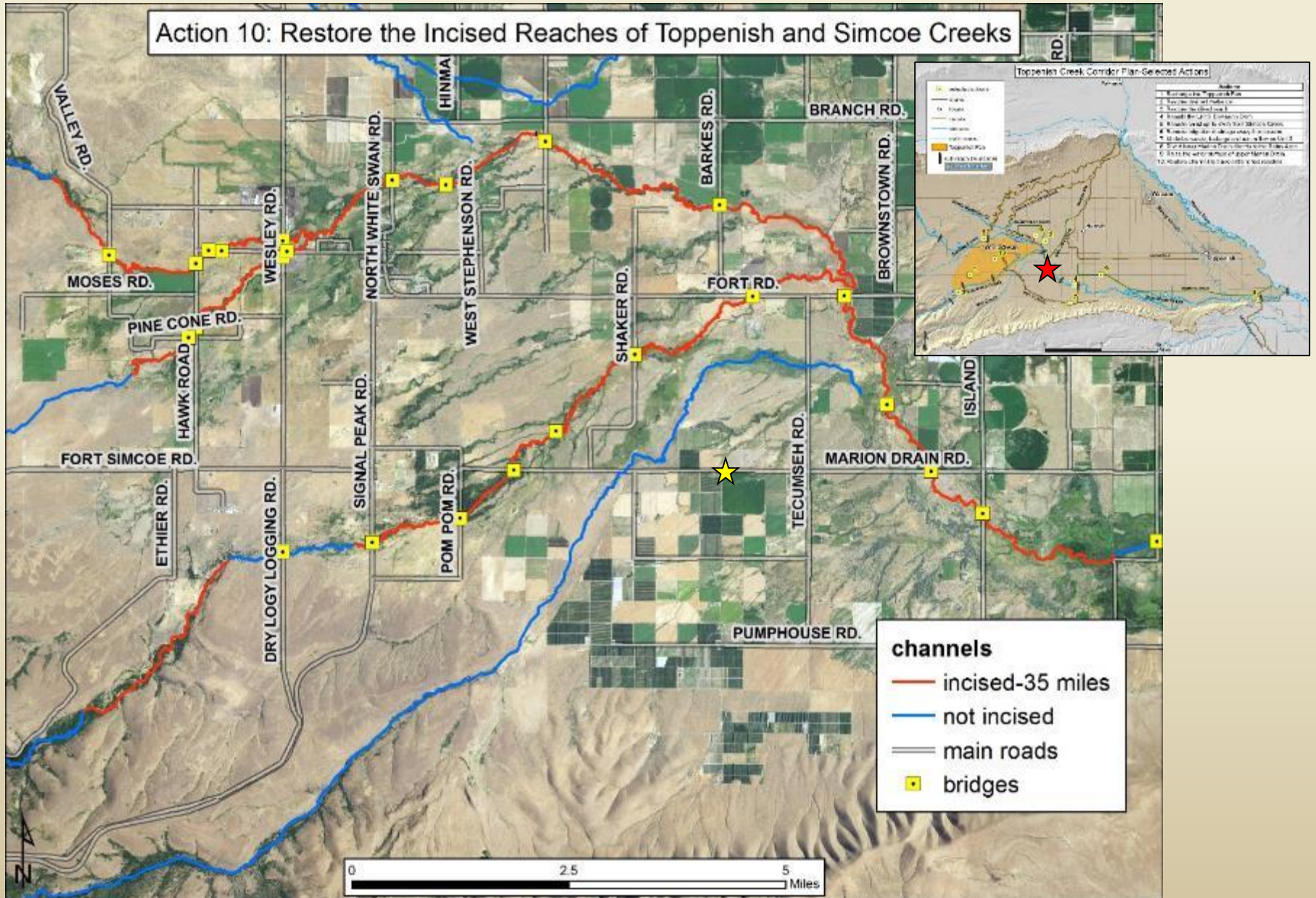


Presentation Outline

1. Toppenish Creek-description and history
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4. Re-route irrigation water out of creek
5. [Shaker Church Road instream habitat \(degraded and simplified aquatic habitat\)](#)
6. Mid-Toppenish wetland restoration
7. Conclusion

Restore Incised Reaches

Action 10: Restore the Incised Reaches of Toppenish and Simcoe Creeks



Instream Habitat Restoration

3. Enhance side channel

1. Aggrade existing channel

2. Stabilize banks

- Stream incision and simplification
- Loss of floodplain connectivity
- Accelerated bank erosion

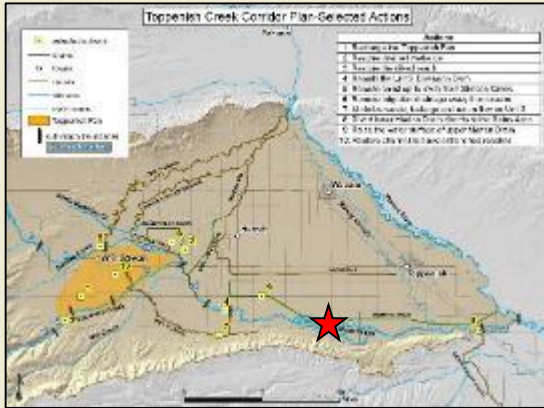
Instream Habitat Restoration



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5. Shaker Church Road instream habitat
6. Mid-Toppenish wetland restoration
(disconnected floodplain wetlands)
7. Conclusion

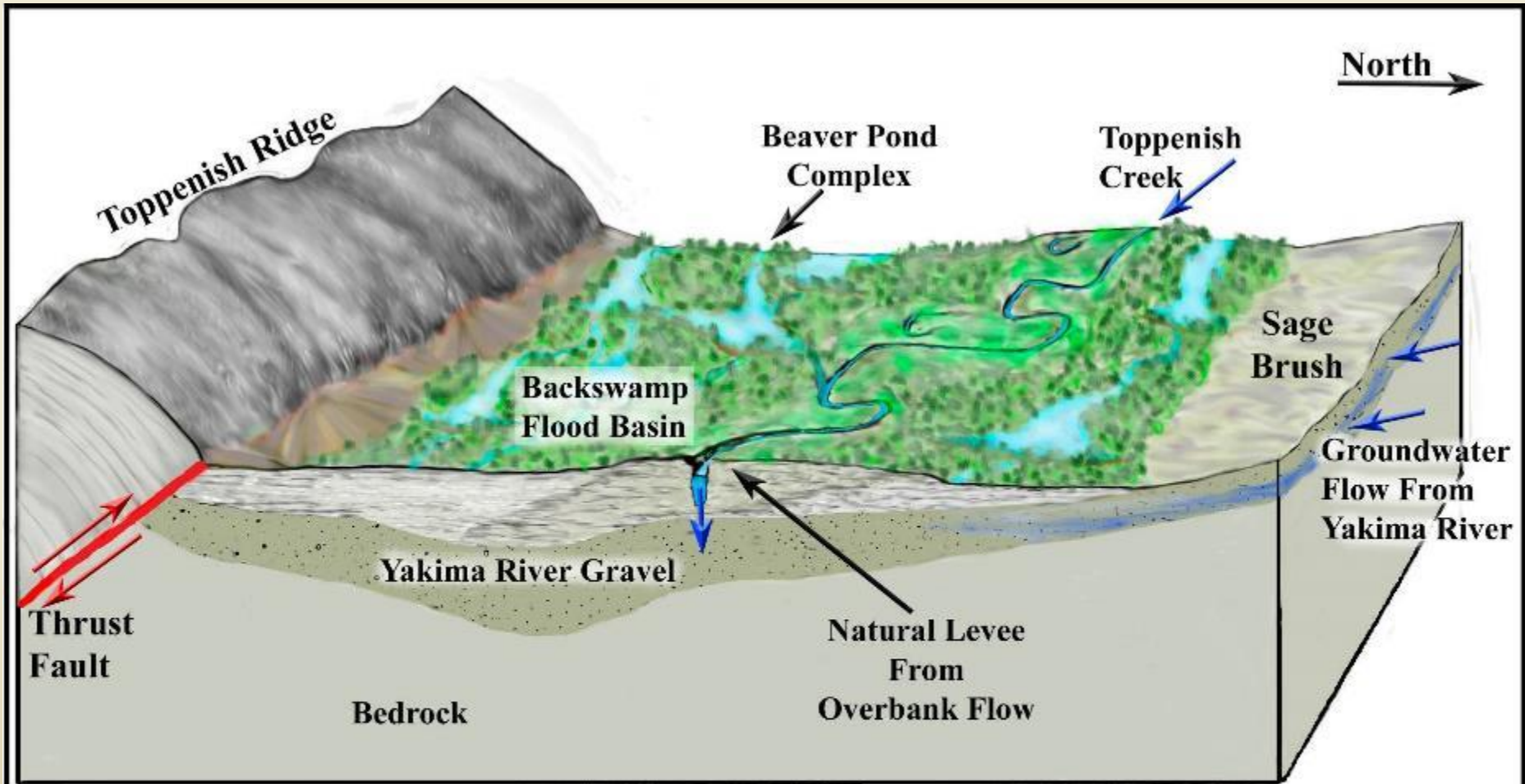
Historical Context



- Drastic land use changes over last 200 years-
- Irrigated Agriculture
 - Beaver trapping
 - Cattle and sheep grazing
 - Railroad and road development



Pre-European

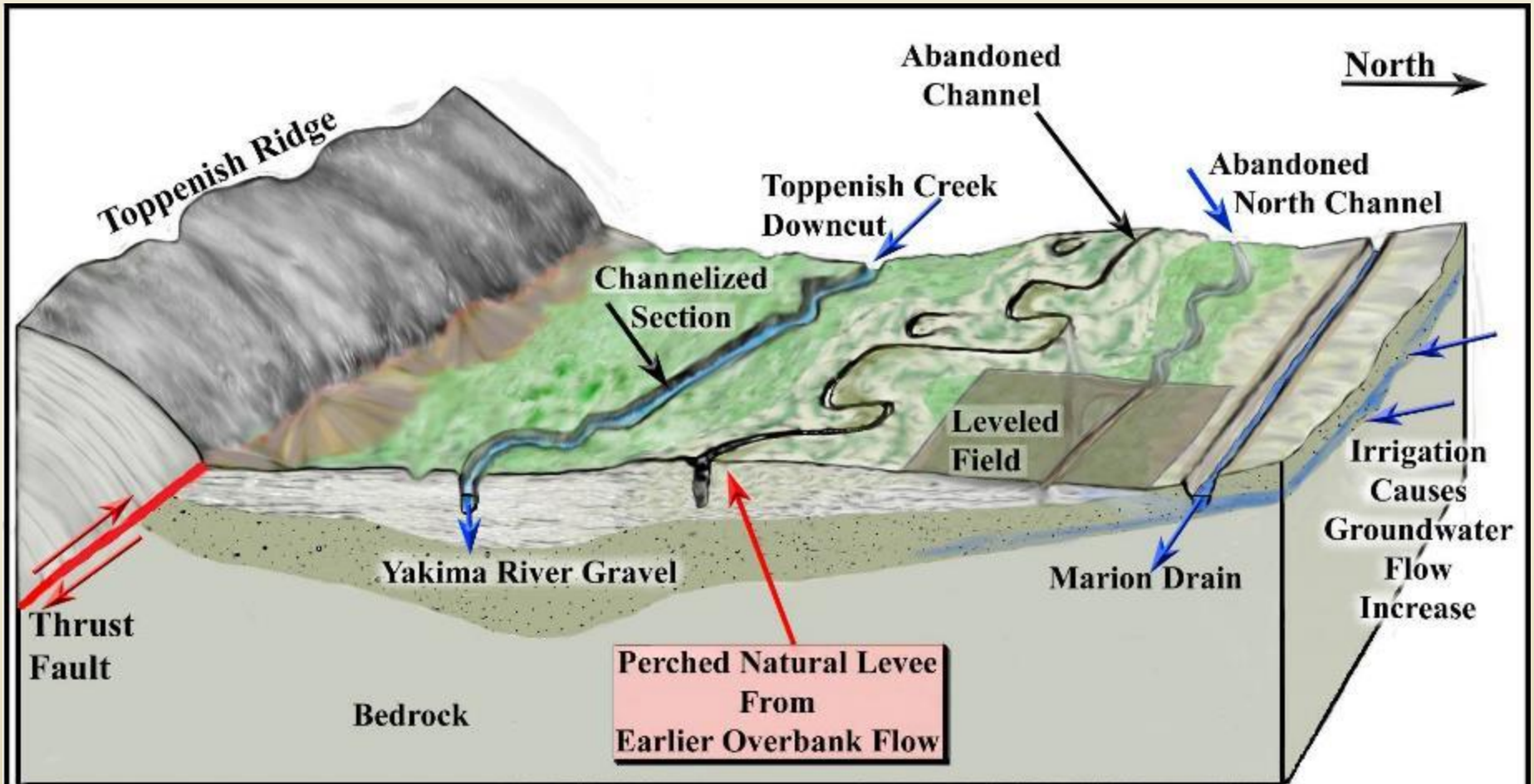


**Lower Toppenish Creek
Before Beaver Removal
Pre-1700 AD (300+ Years Ago)**

Valley Slope:
6.7Ft/Mile (0.13%)

Prepared By:
Geomax, P.C.

1950s

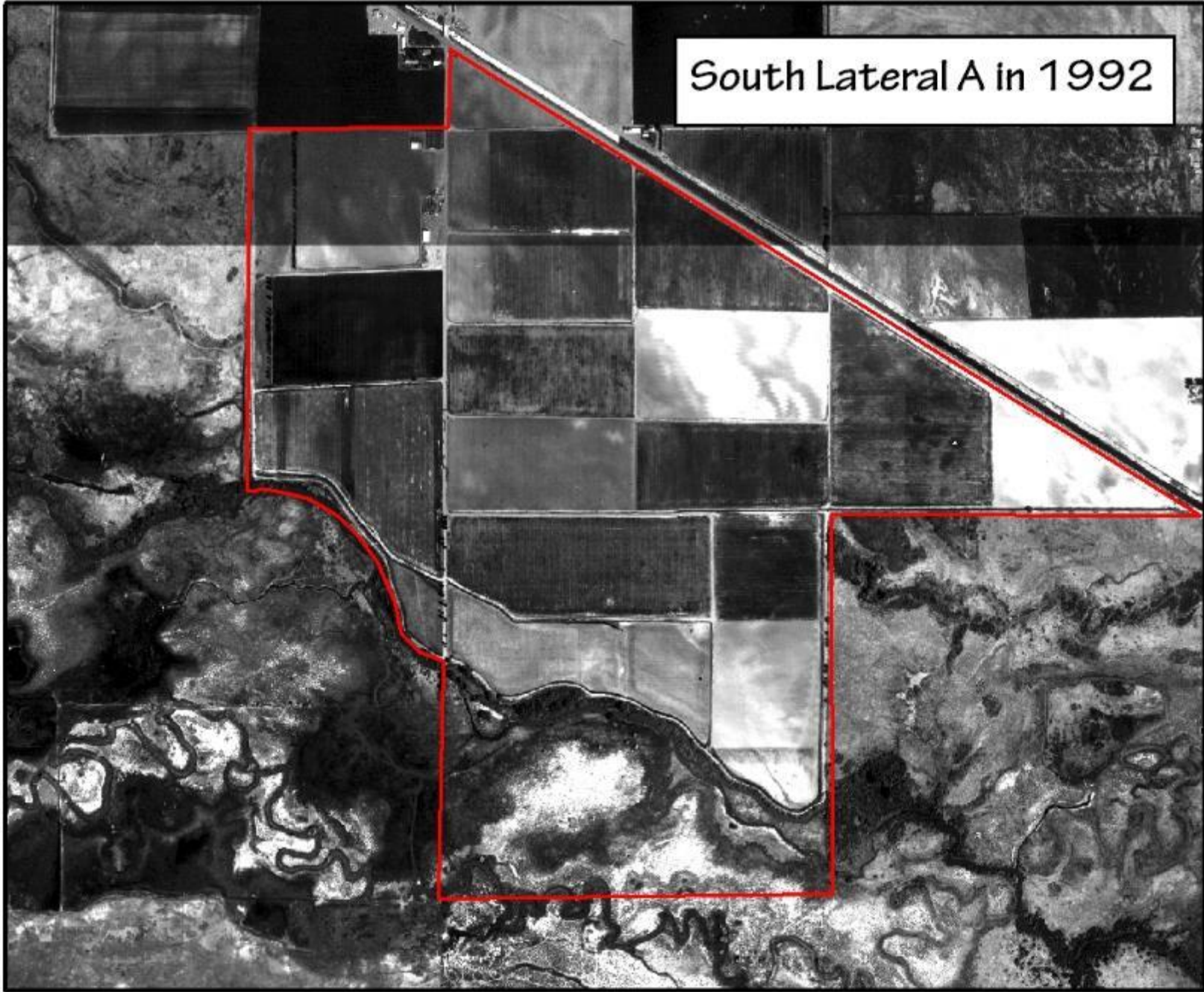


**Lower Toppenish Creek
After Marion Drain Installed
1950 AD (55 Years Ago)**

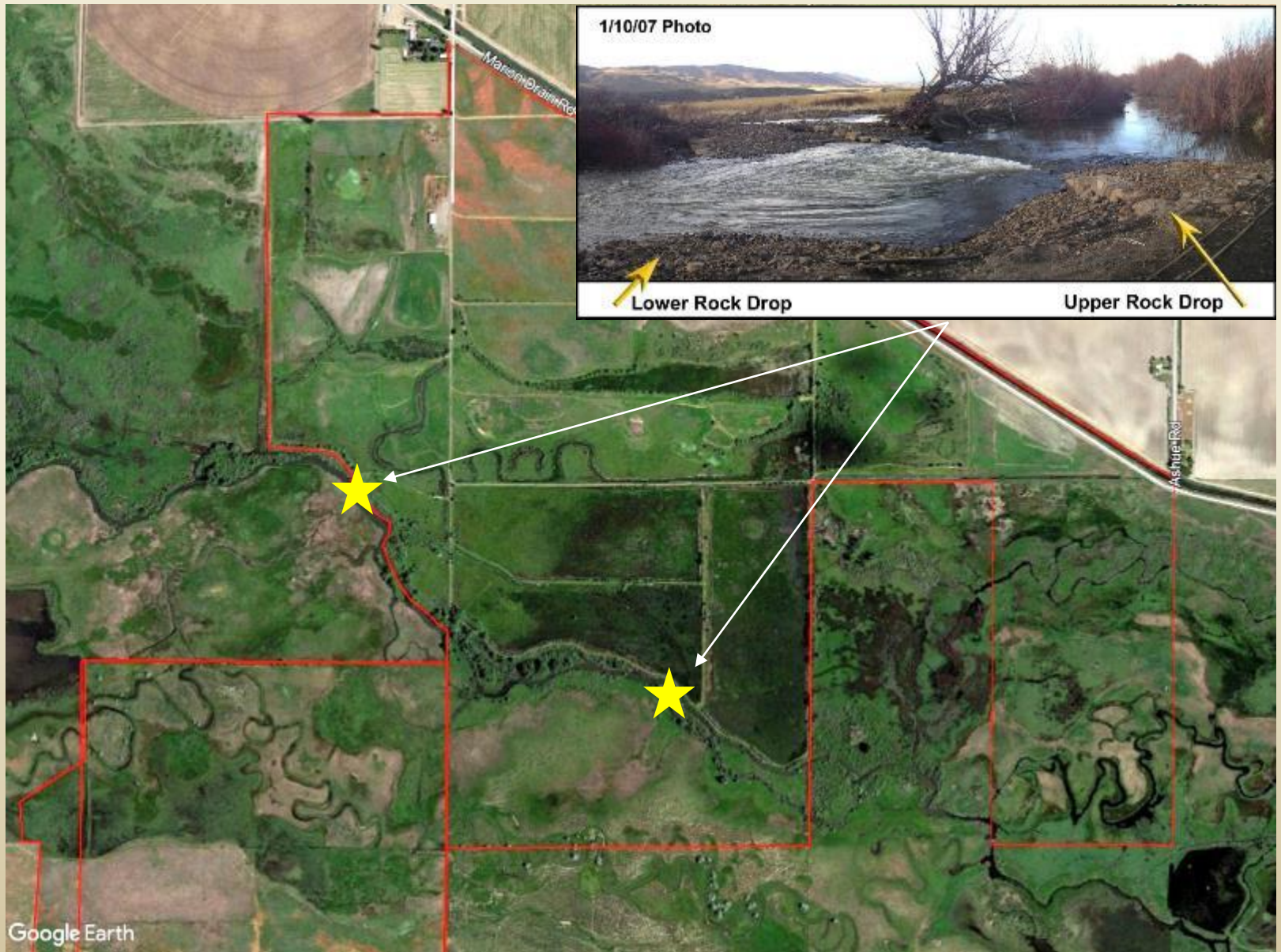
Valley Slope:
6.7Ft/Mile (0.13%)

Prepared By:
Geomax, P.C.

South Lateral A in 1992



South Lateral A 2017



The Return of the Waptú



<https://youtu.be/LNnR3w3N0WI>

Thank You!

- Yakama Tribal Council
- Yakama Nation colleagues
- Bureau of Indian Affairs
- Bonneville Power Administration
- Yakima Basin Integrated Plan
- NRCS
- US Bureau of Reclamation
- U.S. Fish and Wildlife Service
- Yakima Basin restoration community

