Hydraulic Mines and Debris Dams on the Tahoe National Forest

Reclaiming the Sierra, May 2017
Carol Purchase
Watershed Program
Tahoe National Forest
Ancient river beds containing placer gold deposits
Oldest Tertiary Gravels on Top of the Mountain

Present River Valley
Old Bench
Older Bench
Present River Valley
Millions of pounds lost in processing
Hydraulic Mine and Debris Dam Distribution on the Tahoe N.F.
Youngs Hill Diggins

Photo by Alan James
Horse Valley Creek Dam
Old Rock Dam
Youngs Hill Diggins
Horse Valley Creek Dam
Old Rock Dam
Mapping Sites with LiDAR

Satellite Imagery

LiDAR
LiDAR allows more complete mapping
Hydraulic Mine Sites

- Complex Terrain
- Ongoing erosion/ headcuts
- Revegetation variable
Hydraulic Mine Sites

- Drain Tunnels
- Ponds
- Gullies
- Multiple Outflow Points
Hydraulic Mine Sites
Debris Dams
Why were the dams built?

- Early Hydraulic Mining Debris
- Sawyer Decision (1884)
- Caminetti Act (1893)
Debris Dams
Dams are full with hydraulic mine sediments
Preliminary estimate for Willow Creek Dam sediment deposit is over 300,000 cubic meters (Ertis et al, 2017)
40,000 Dump Trucks
Plan Forward

- Map mine and dam locations
- Develop assessment protocols
- Develop and test ‘BMPs’ for remediation
- Implement pilot remediation projects, with rigorous monitoring to determine success
Pilot Project

Alpha Diggins
wood chip project