Photo credit: Elizabeth Carmel

Coordinated Watershed Management Strategy for the Middle Truckee River: Update 2014

Produced by TRWC in cooperation with stakeholders

California Department of Fish & Wildlife
California Department of Water Resources
California Invasive Plant Council
California Department of Transportation
Lahontan Regional Water Quality Control Board
Mountain Area Preservation
Nevada County
Nevada-Placer Weed Management Area
Northstar CSD
Placer County Planning
Sierra County
Trout Unlimited

Tahoe City PUD
Tahoe Truckee Airport District
Town of Truckee
Truckee Donner Land Trust
Truckee Donner Recreation and Park District
Truckee Donner PUD
University of California Sagehen Creek Field Station
US Environmental Protection Agency
US Forest Service
US Army Corps of Engineers

TruckeeRiverWatershedCouncil
Collaborative solutions to protect, enhance and restore the Truckee River Watershed

Topics

1. **Background - Lisa**
2. **Desired Conditions – Jeannette**
3. **Areas of Focus – Lisa**
4. **Sub-Basin Priority - Jeannette**
5. **Project List - Lisa**
6. **Conclusions - Jeannette**

Before

After

Perazzo Meadows Restoration Project

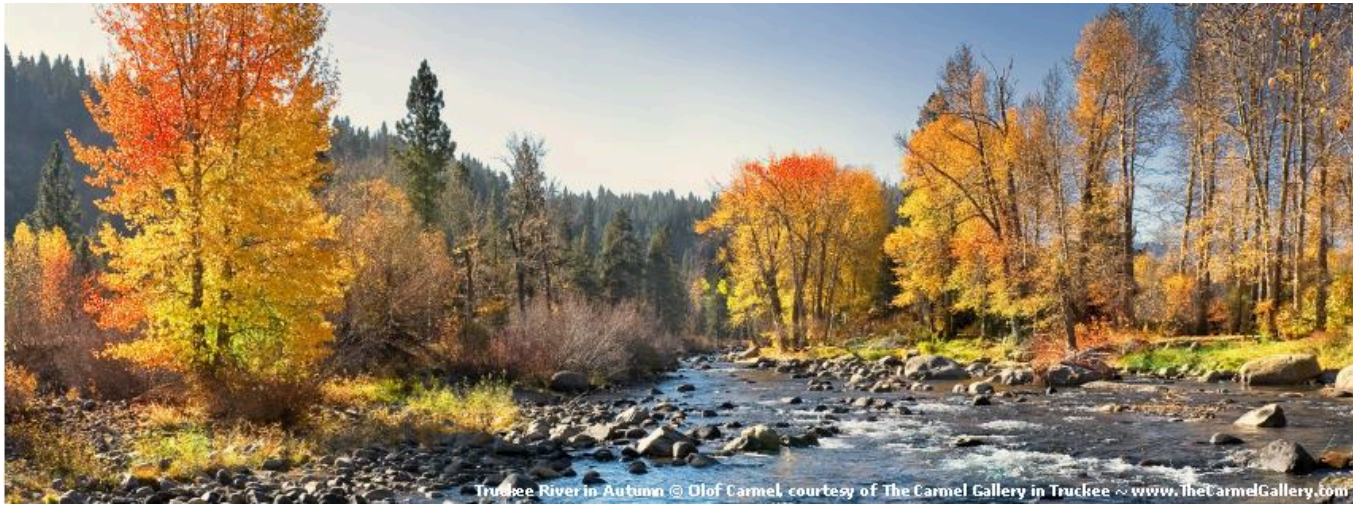
History of Plan

- Coordinated Watershed Management Strategy for the Middle Truckee River – Completed December 2004

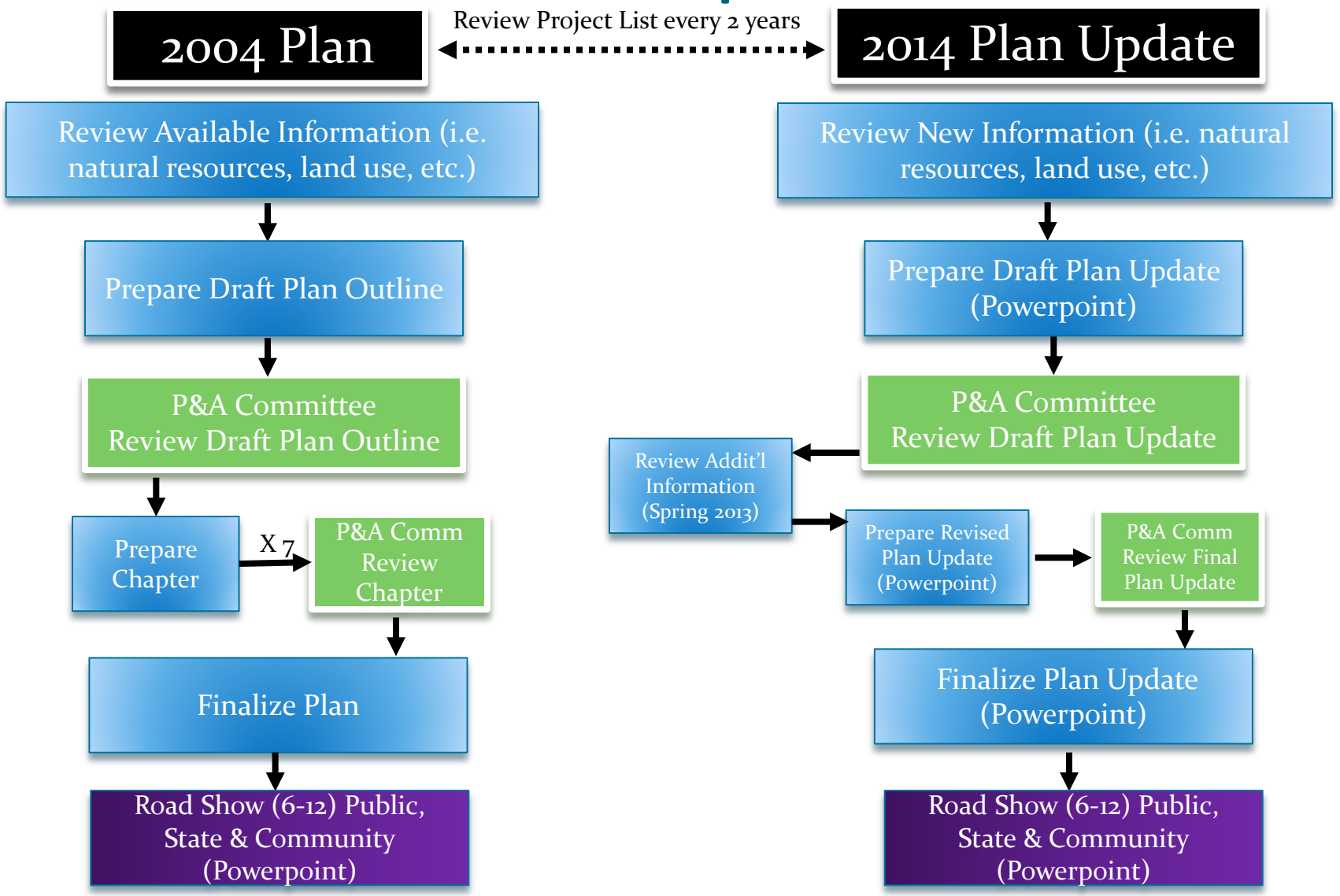
- Prepared by Truckee River Watershed Council (Lisa Wallace) and Sierra Connections (Kerri Timmer)

Plan Goal

To provide guidelines to **Reduce** potentially harmful non-point source sedimentation and **Implement** appropriate restoration of riparian, aquatic and wetland habitat



TRWC Plan Development Process



Stakeholders

- California Department of Fish & Wildlife
- California Department of Water Resources
- California Invasive Plant Council
- California Department of Transportation
- Lahontan Regional Water Quality Control Board
- Mountain Area Preservation
- Nevada County
- Nevada-Placer Weed Management Area
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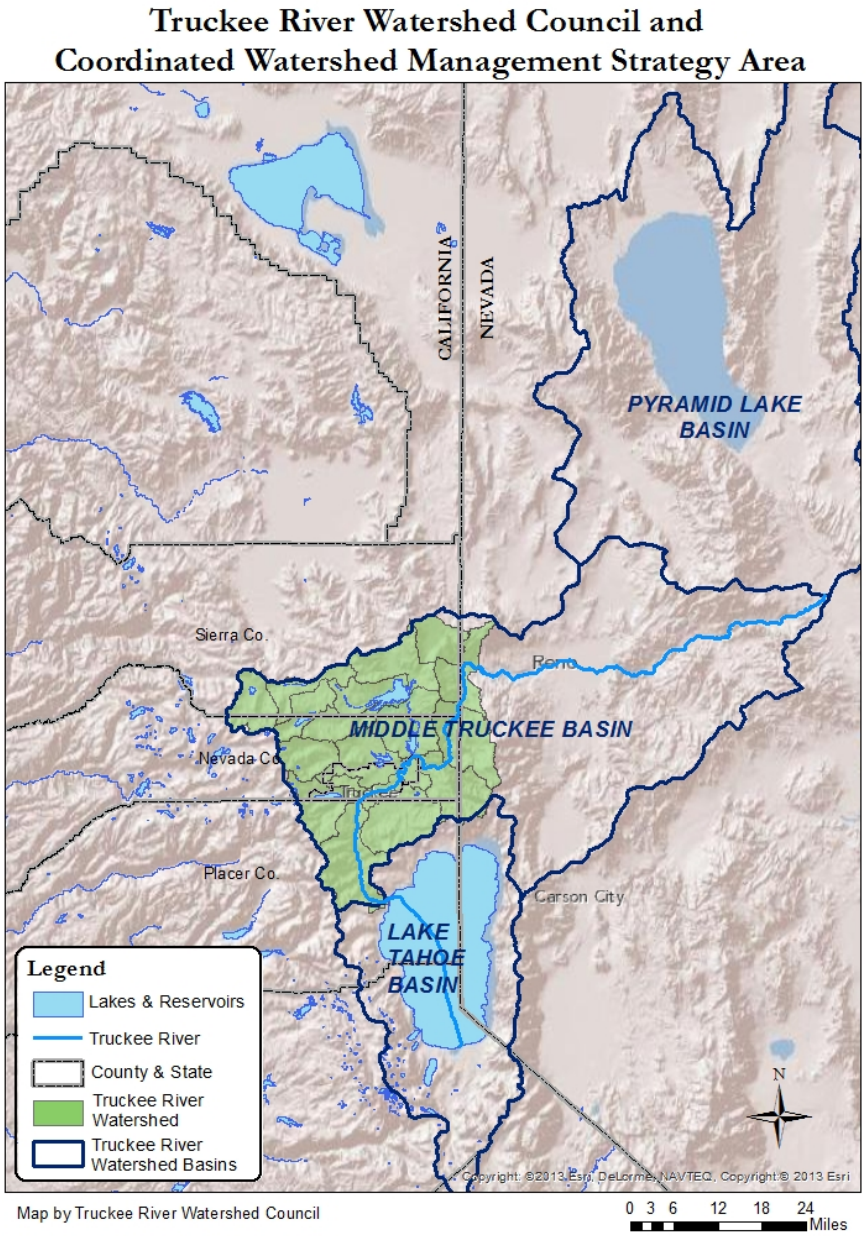
Strategy Area

- ≈ 435 square miles
- ≈ 285,000 acres
- 3 Counties



Strategies

1. **“Collaborate” with other entities/organizations**
2. **“Keep current” on projects**
3. **“Prevent” introduction of invasive species**
4. **“Manage” recreation uses**
5. **“Restore” degraded habitat increase resiliency – future climate changes**

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Before

After

Perazzo Meadows Restoration Project

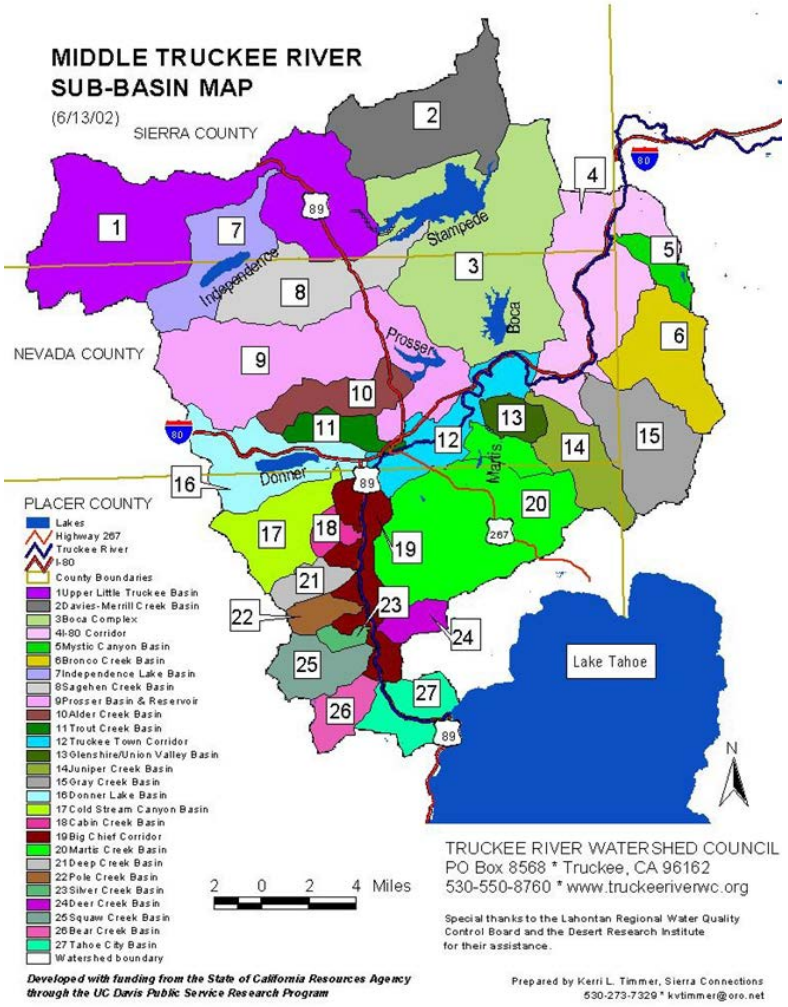
Goals & Strategies "Desired Conditions"

1. Watershed and Sub-Basin Boundaries
2. Land Use and Jurisdiction
3. Soils and Sediment
4. Hydrology, Water Management and Water Quality
5. Riparian, Meadows and Wetland Systems
6. Channel Modification/ Geomorphology
7. Watershed Condition

“Desired Conditions”

Watershed and Sub-Basin Boundaries

1. *State and federal agencies have incorporated and are using amended sub-basin boundaries.*

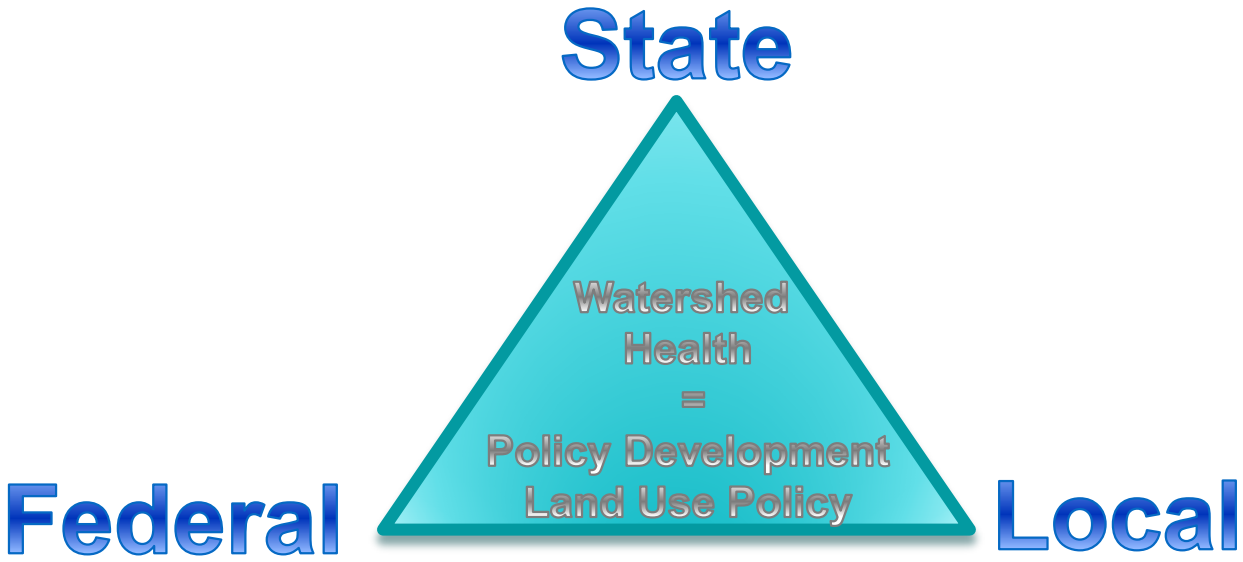


Note: Developed by the University of California at Davis, through the Information Center for the Environment (ICE) and Public Service Research Program (PSRP), analyzed the sub-basins, combining GIS data layers assembled from stakeholders (Truckee River Watershed Council Final Data Index, April 2003). The analysis focused on natural resources of each sub-basin including soils and sediment, hydrology and water quality, and riparian, wetland and meadow habitat. [Note: the analysis did not include socioeconomic data.]

“Desired Conditions”

Land Use and Jurisdiction

2. *Focusing on Watershed Health - Consistency in state, local & federal management*



“Desired Conditions”

Soils and Sediment

3. *Promoting favorable infiltration and diverse vegetative cover; sustain favorable streamflow conditions.*

4. *Minimizing excess sediment runoff - BMP’s, bank restoration.*

“Desired Conditions”

Hydrology, Water Management and Water Quality

5. Improving water quality and quantity through reducing point- and non-point runoff; mitigating impacts; and meeting water quality and habitat protection goals set by State, Federal and local agencies are met.

“Desired Conditions”

Riparian, Meadows and Wetland Systems

6. Protecting and Enhancing riparian, wetland and meadow system structure and ecological function:

- *minimizing disturbance*
- *improving and/or restoring structural diversity*
- *maintaining essential habitats & connectivity between sub-basins*
- *support “no net loss” policies*

“Desired Conditions”

Channel Modification/Geomorphology

7. Improving and restoring channel shape and structure – stream function:

- *using natural or non-structural flood control facilities*
- *preserving integrity of critical water courses*
- *using non-impairing stream crossing techniques*
- *maintaining natural conditions within the 100-year floodplain*

Photo credit: Kevin Fisher

COLDSTREAM CANYON FLOODPLAIN RESTORATION

Before: An eroding bank in the project area before work began. Photo: Jeff Fisher

During: Heavy equipment was brought in to re-grade the project area, moving earth, rocks, trees and other material.

Photo: Beth Christman

Photo credit: Beth Christman

After: The eroding bank in the “before” shot has been re-graded to a sustainable angle and replanted with willows. Note the significant expansion of floodplain area.

Photo: Beth Christman

“Desired Conditions”

Watershed Condition

8. Maintaining and improving native habitats.

9. Preventing new introductions of invasive and non-native species.

10. Collaborating with other agencies and entities to eradicate invasive species.

11. Maintaining or improving habitat connectivity.

12. Identifying academic research, and fill important data gaps in the watershed.

13. Maintaining high level of public interest in the well-being of the Truckee River/tributaries.

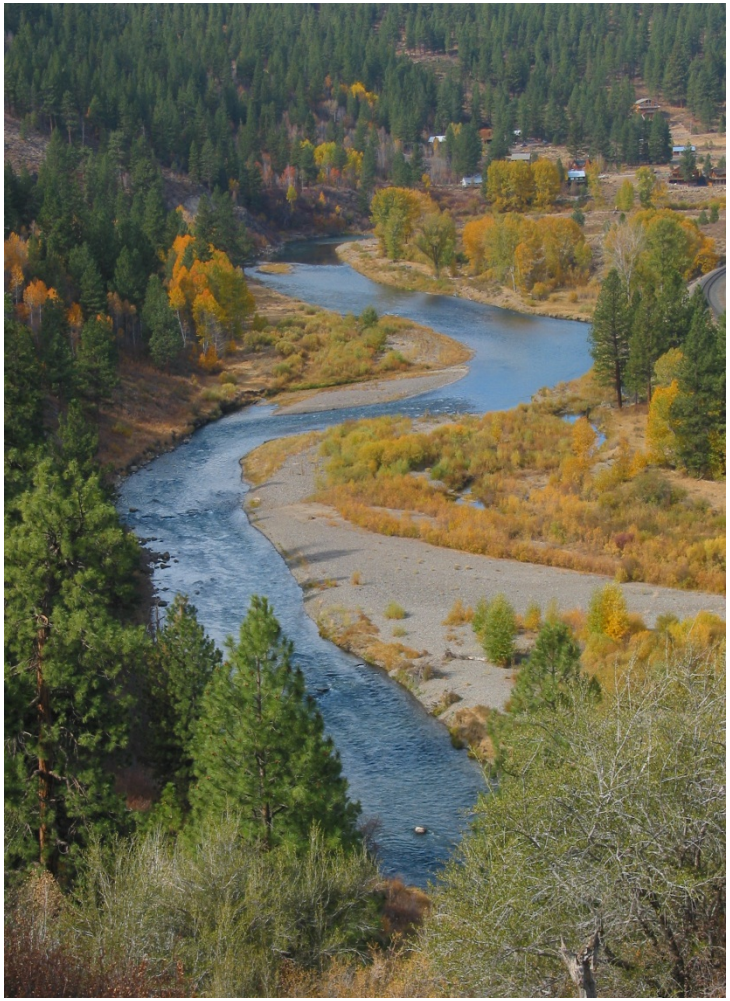


Photo credit: Russ Rosewood

Topics

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Before

After

Perazzo Meadows Restoration Project

Areas of Focus

Watershed Water Quality

- TMDL Listings /Stormwater
- Sedimentation

Recreation

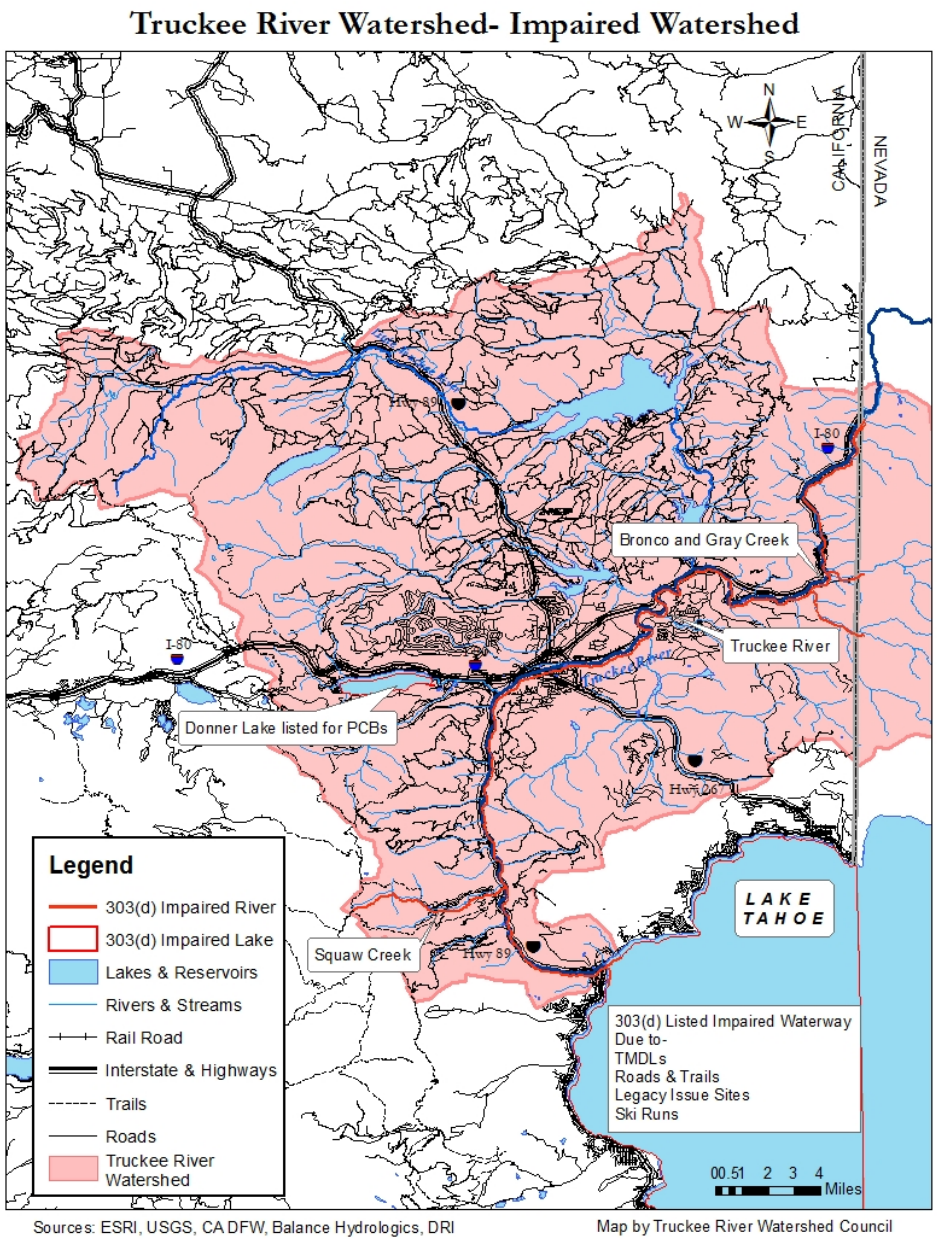
- USFS and State Parks Lands comprise majority of Watershed – potential recreation

Forest Health

- Fire History
- Fire/Fuels
- Habitats
- Plant and Wildlife Species

Groundwater

- Protect Infiltration Area
- Surface/groundwater interaction



Sedimentation

- **Problem:** ***303d listed watershed***
  - High turbidity spikes
  - Macro-invertebrates favor high sediments
  - Increased population/development sedimentation
- **Current Strategy/What are we doing?**
  - Focus - urban runoff, Legacy areas, dirt roads and graded ski runs
  - Implementation of projects
  - CWMS – multi-elemental

Photo credit: Erin Casey

Photo credit: Erin Casey

Ranked Legacy Sites: 1 of 4 controllable sources

Table 5-4. Ranking of Legacy Sites by Subwatersheds.

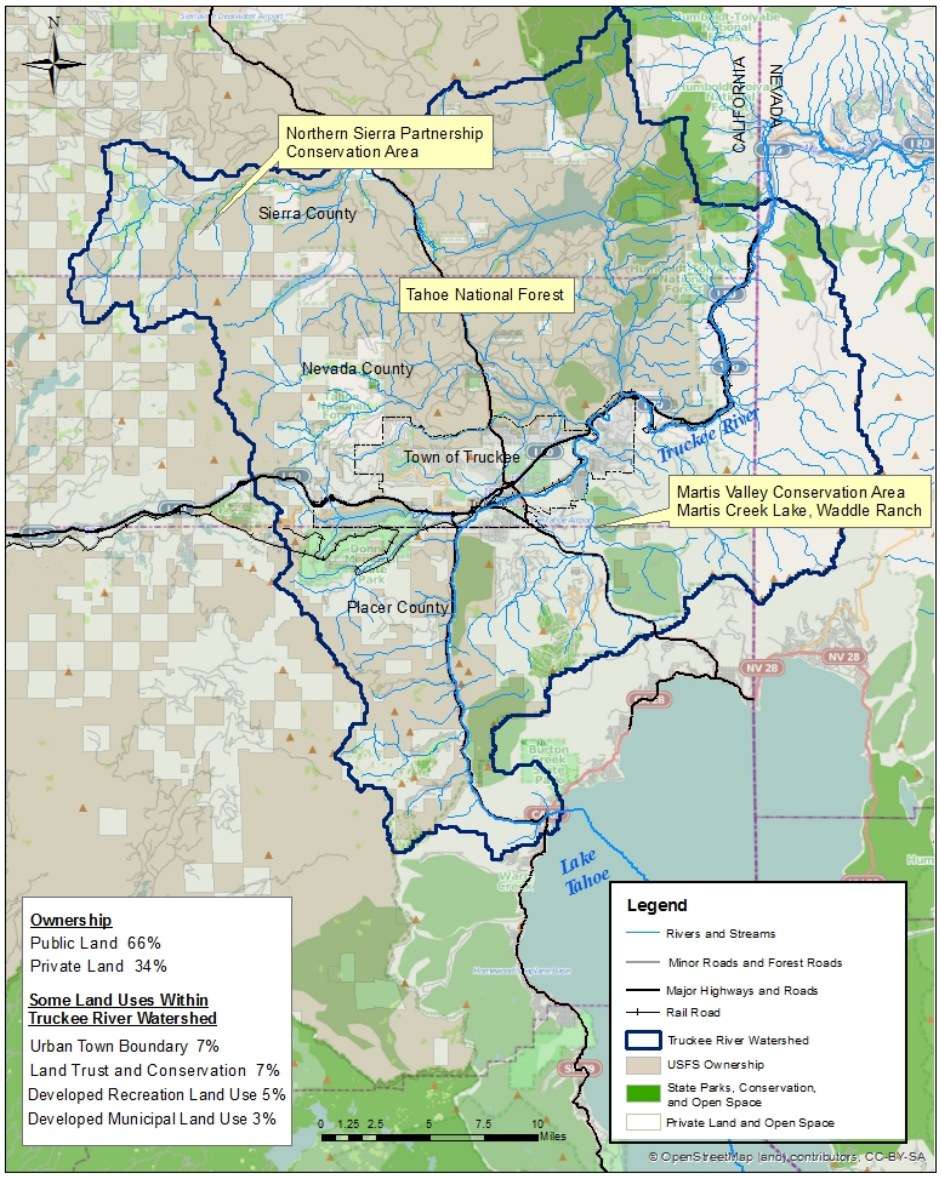
Subwatershed	Legacy Sites Ranking	Comments
Bear Creek	1	Significant legacy sites have not been identified to date.
Prosser Creek	1	Significant legacy sites have not been identified to date.
Juniper Creek	1	Significant legacy sites have not been identified to date.
Gray Creek	1	Watershed was adversely affected by wildfire and historical land uses, but control options are very limited due to the steep terrain and naturally erosive characteristics of the watershed.
Bronco Creek	1	Although the watershed was affected by the 2001 Martis Fire, stream surveys did not identify significant erosion sites from human disturbance.
Martis Creek	2	The Martis Creek watershed has been affected by past grazing and recreational use. Work to restore trails and streambanks, and efforts to conserve open space are ongoing.
Little Truckee River	2	Impacts from past land uses are present in Davies Creek and Merril Creek watersheds, and Perazzo Meadows. Grant-funded restoration projects are planned. Loading to the Truckee River may be buffered by Stampede and Boca Reservoirs.
Squaw Creek	3	Squaw Creek has been realigned to accommodate a parking lot. Just below the confluence of the north and south forks, the stream channel is formed by a man-made trapezoidal channel. The creek alterations have been identified significantly impairing the natural functions of the stream channel.
Donner/Cold Creeks	3	Although the dam at Donner Lake buffers loading to the Truckee River, legacy impacts remain from urbanization and development. Adverse effects from roadway discharges have been identified in the watershed. Coldstream Canyon has a long history of human disturbance including logging, railroad construction, gravel mining, stream realignment, and urbanization. The watershed is still impacted by the past disturbances and has been identified as a significant source of sediment loading to the Truckee River.
Trout Creek	3	Development in the Trout Creek watershed, as well as construction of surface road and highway crossings, has left impacts in the watershed. Restoration projects have been scoped and funding is needed for implementation.
Intervening Zones	3	Significant adverse impacts from historical development and past land uses have been identified. Scoping to mitigate impacts is ongoing under the Railyard Master Plan Improvements, Downtown Specific Plan, and Downtown River Revitalization Strategy.

Source:California Regional Water Quality Control Board, Lahontan Region. May 2008. **Total Maximum Daily Load For Sediment Middle Truckee River Watershed Placer, Nevada, and Sierra Counties, Includes Bronco and Gray Creeks**

Recreation

USFS and State Parks Lands = majority of Watershed = potential recreation

- Signs of increased recreation uses – all forms
- Formal and informal uses
- Informal expediting problems
- Concern: cumulative affect of large-scale events not understood



Forest Health: Fire/Fuels

Fact: Health of forest depends of fire

Fact: Fire threat

Problem: Lack of Fire

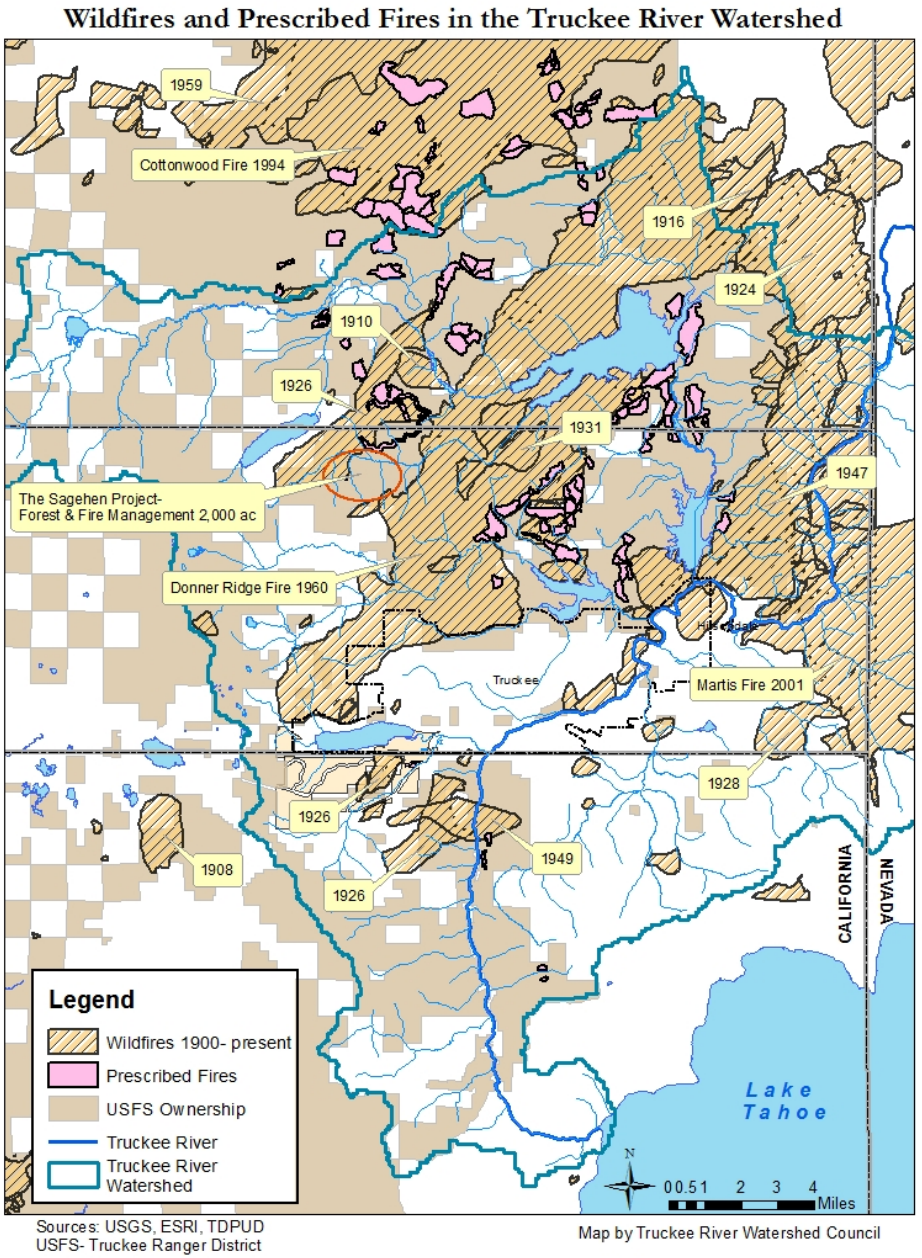
↓ frequency = ↑ temperature = ↑ sedimentation =

↑ introduction of non-native invasive weeds

(shallow rooted, fire loving)

Fire History

- USFS consistently strategizing control burn
- Identify: USFS and State Parks work
- Help: Agencies with the GAP



Groundwater

- Important to Consider
  - Protect infiltration area
  - Ground water/surface water interactions
  - Supply and demand

- Martis Valley Groundwater Management Plan
  - The Truckee Donner Public Utility District (TDPUD), Northstar Community Services District (NCSD), and Placer County Water Agency (PCWA) in partnership with the US Bureau of Reclamation
  - Groundwater Model
  - Goal: To ensure long term quality and availability of groundwater in the Martis Valley Groundwater Basin

Program Strategies

- Resource Protection, Restoration and Conservation
- Education/Outreach – involve public/educate
- Collaboration/Convening
- Monitoring/Data/Research
- Regulatory Framework

Photo credit: Joel Erikson

Topics

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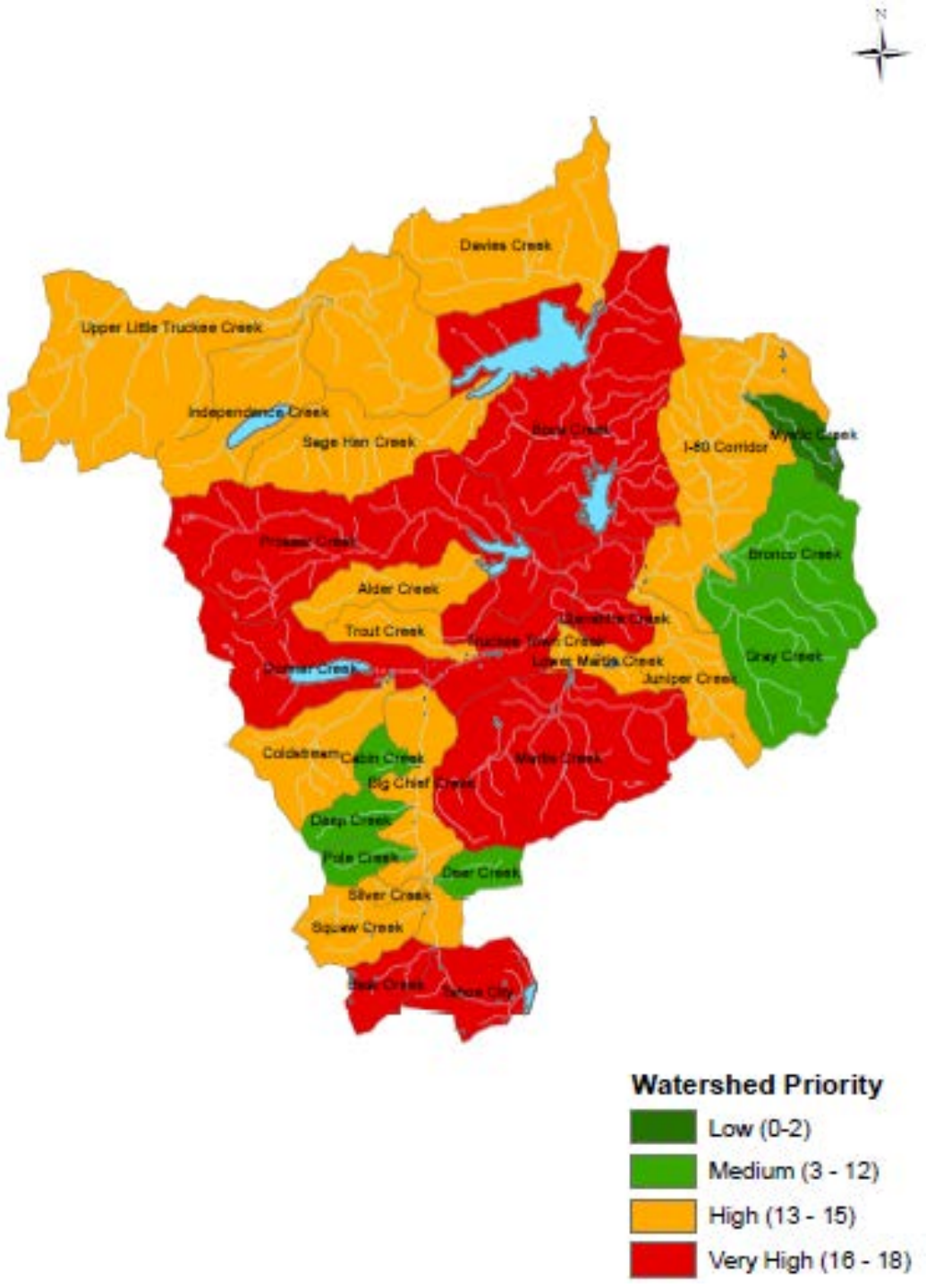
Before

After

Perazzo Meadows Restoration Project

Sub-Watershed Priority Analysis



Sub-Basin Value, Risk, Priority Maps Evaluation

- Goal:
  - Determine if maps are repeatable with available data;
  - Can we develop method easily repeatable to track change over time?
- Results:
  - Created new maps easily repeatable – New Starting Point

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Before

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Perazzo Meadows Restoration Project

Prioritizing the Projects
"if it's on the list, it's important"

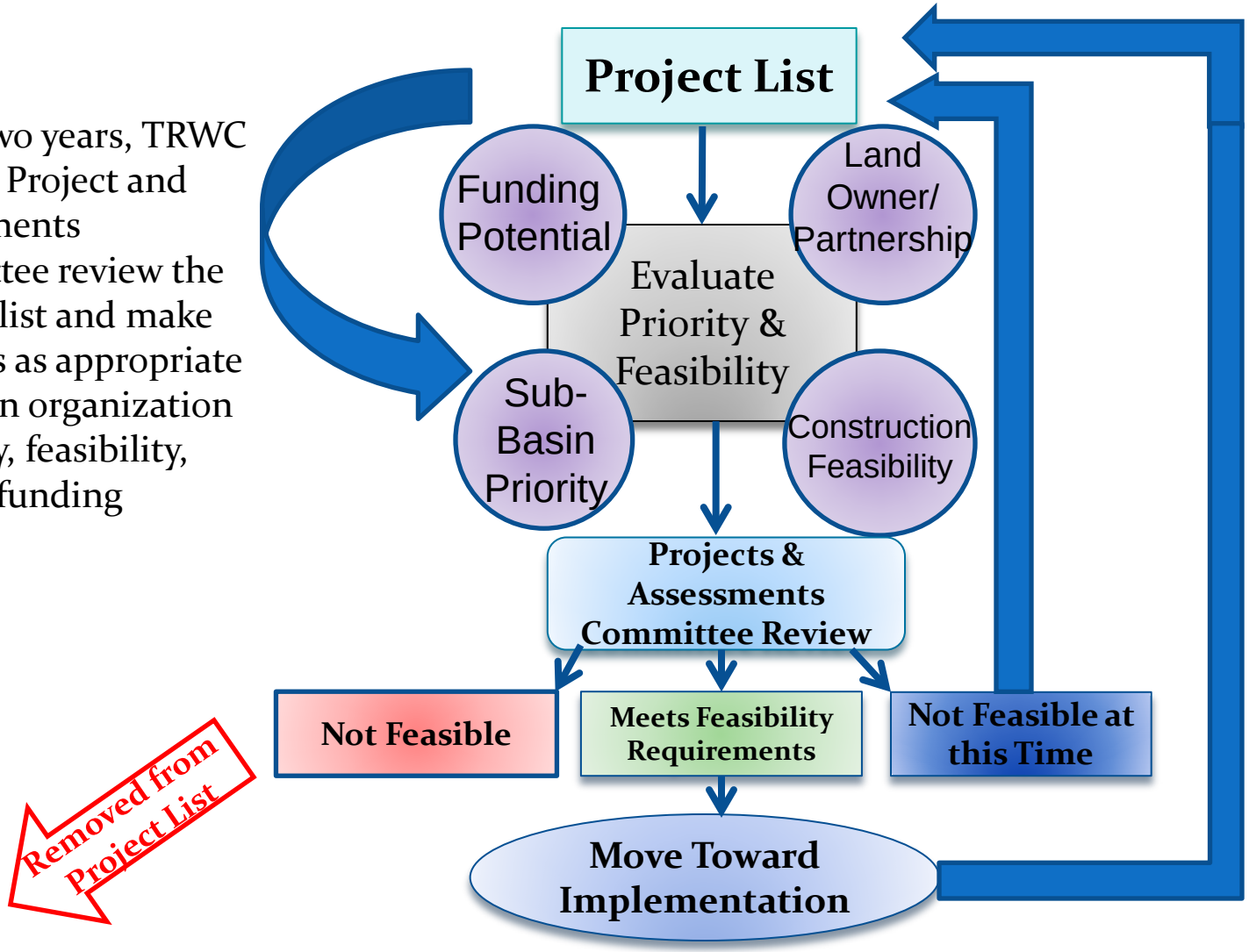
- TRWC- and Stakeholder assessments, studies
- Projects & Assessments Committee
- Screened w/21 criteria
- Reviewed every 2 years
- List has grown significantly in last 2 years
  - Length of project life cycle

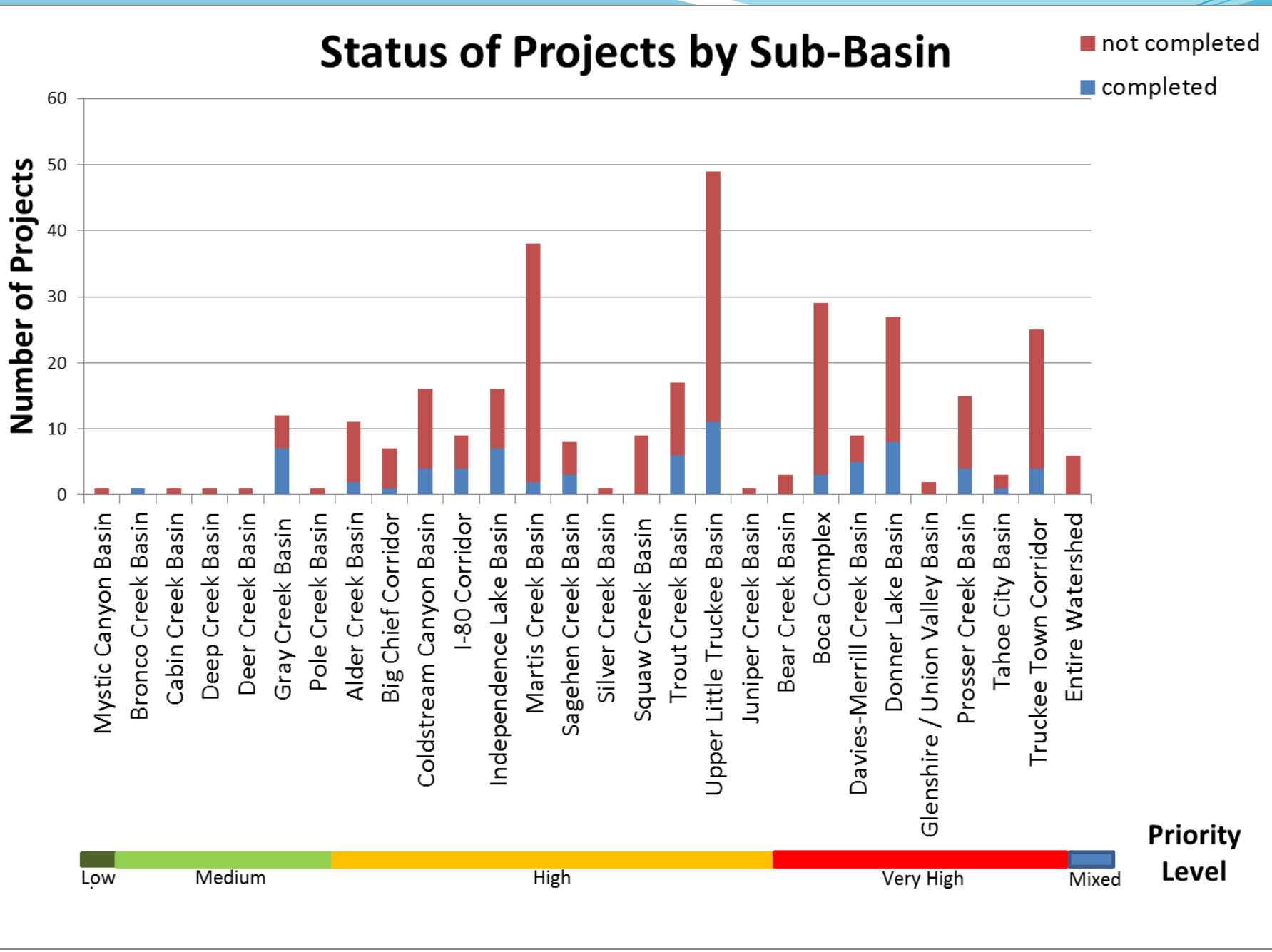
Functions of Project List

- Voluntary
- Available to all
- Ability to Sort
- Demonstrate needs/gaps by sub-basin
- Describes scope and scale of work to be implemented/completed
- Identity & support funding needs
- Identifies areas for community involvement & collaboration

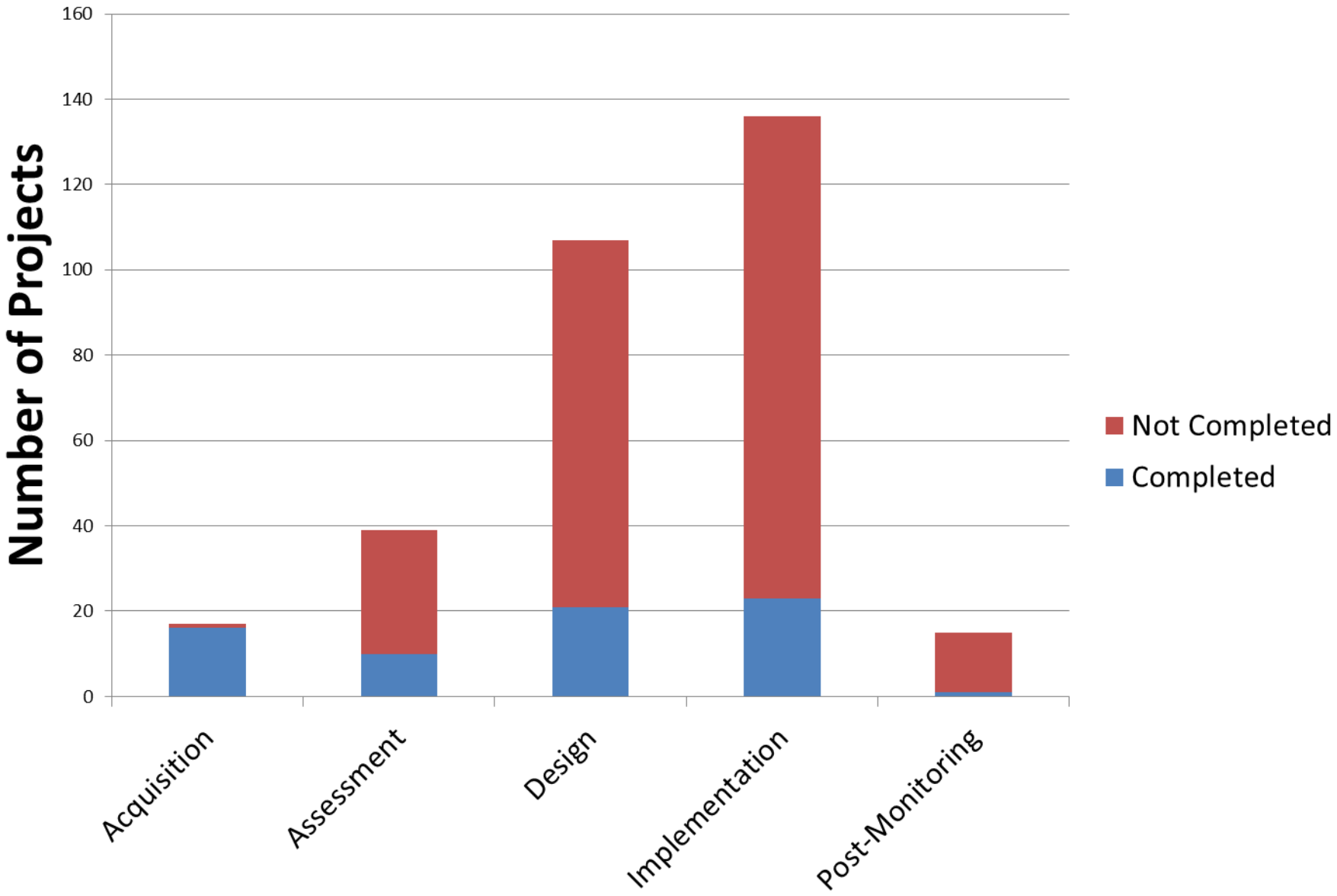
TRWC Project Assessment since 2004

- Every two years, TRWC ED and Project and Assessments committee review the project list and make changes as appropriate based on organization capacity, feasibility, and/or funding

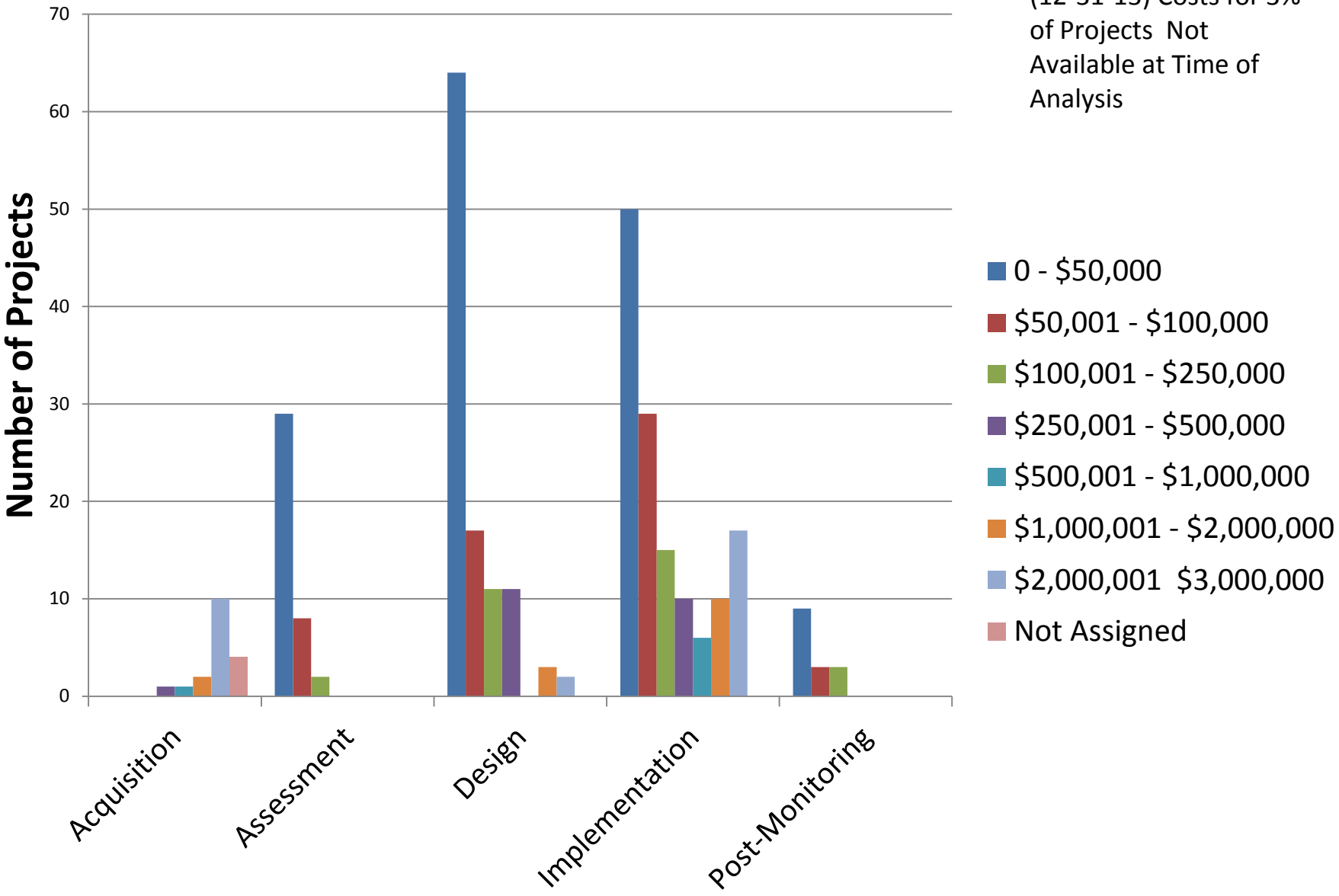



Status of Projects by Sub-Basin
not completed
completed
Number of Projects
60
50
40
30
20
10
0
Mystic Canyon Basin
Bronco Creek Basin
Cabin Creek Basin
Deep Creek Basin
Deer Creek Basin
Gray Creek Basin
Pole Creek Basin
Alder Creek Basin
Big Chief Corridor
Coldstream Canyon Basin
I-80 Corridor
Independence Lake Basin
Martis Creek Basin
Sagehen Creek Basin
Silver Creek Basin
Squaw Creek Basin
Trout Creek Basin
Upper Little Truckee Basin
Juniper Creek Basin
Bear Creek Basin
Boca Complex
Davies-Merrill Creek Basin
Donner Lake Basin
Glenshire / Union Valley Basin
Prosser Creek Basin
Tahoe City Basin
Truckee Town Corridor
Entire Watershed
Low
Medium
High
Very High
Mixed
Priority Level

Project Status Summary by Project Type



Project Cost by Project Type

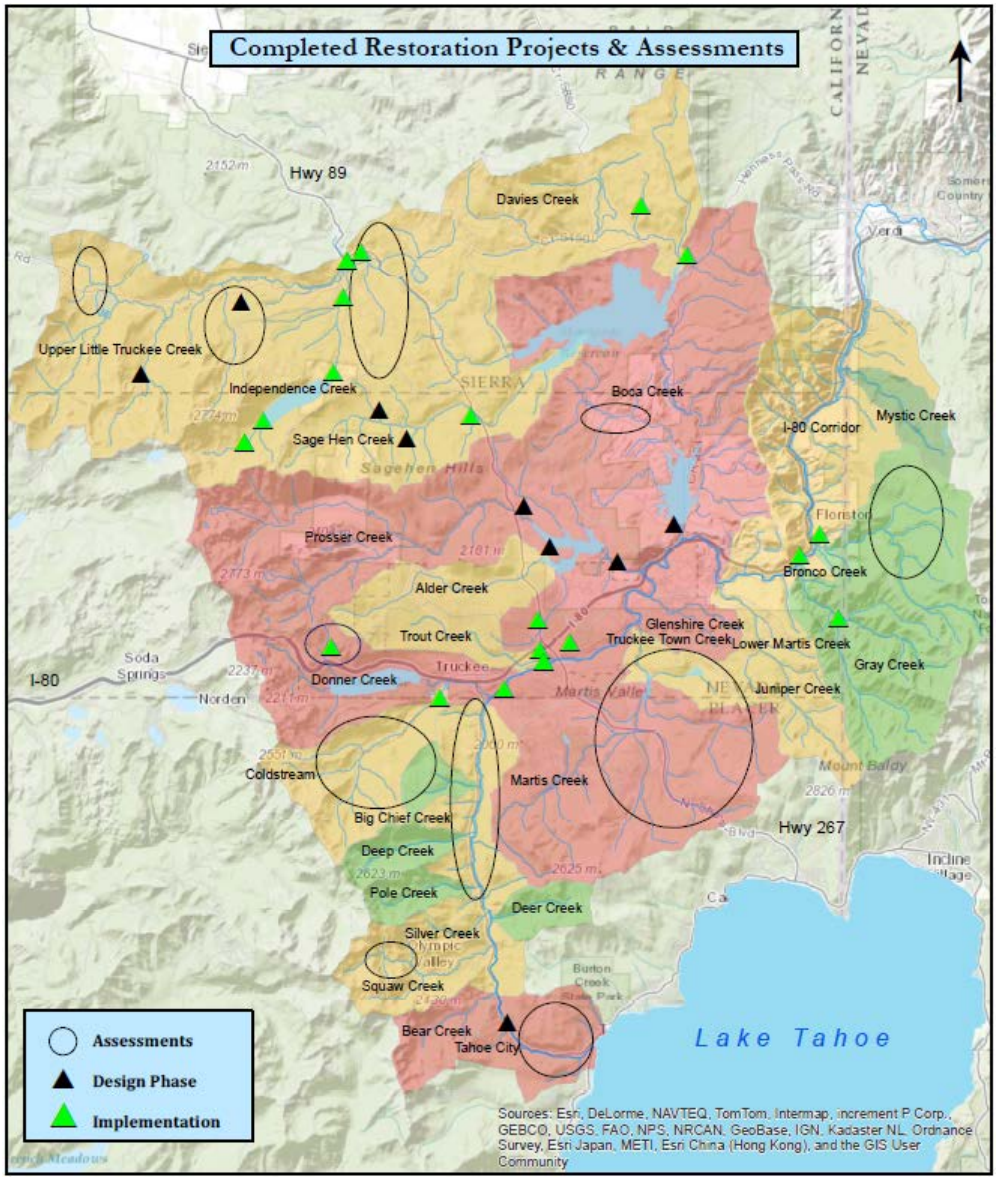


Note: Costs to Date (12-31-13) Costs for 3% of Projects Not Available at Time of Analysis

Summary of Projects to Date

- **Acquisition**
  - 16 completed (of 17) - $31M spent
- **Assessments**
  - 10 of 39 completed (10 partially completed)
  - $1.1M fully funded to date
- **Implementation**
  - 23 of 136 completed ($28M)
  - 19 partially completed
- **Post-Monitoring**
  - 1 of 15 completed - $50K spent

Completed Restoration & Assessment Projects



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Before

After

Perazzo Meadows Restoration Project

Conclusions

- Process
  - Coordinated with all stakeholders;
  - Updated on current projects – reflected in project list;
  - Determined potential future needs for the next decade

Conclusions

- Climate Change
  - Shift snowfall to rain over next century (Coats etal 2010) - projected inc. min and max air temperatures.
  - Shift toward earlier snowmelt and runoff
  - Increased periods of drought
  - Decrease in the annual minimum streamflows
  - Increase in the magnitude of floods
  - Results:
    - Increased threat of wildfire, tree mortality
    - Increase in the # and severity of fires in the SN(Fried 2004)

Conclusions

- Content
  - *Water Quality/TMDL* - very high leverage for next decade
  - *Wildlife/LCT* - very high leverage for next decade
  - *Forest Health* - Greater integration of fuels/fire work with restoration
  - *Water Supply/TROA*
  - *Water Supply* - Identified gaps (i.e. groundwater, etc.)

Thank You!