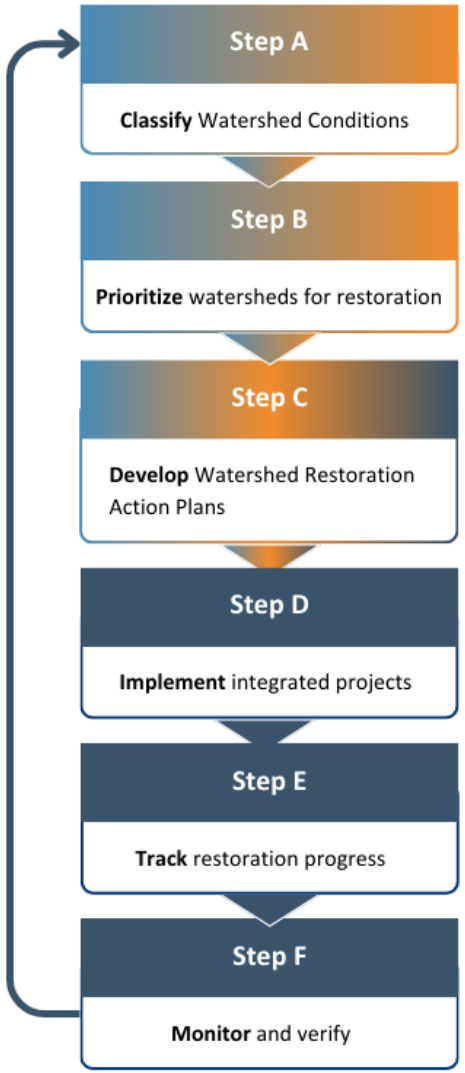
A Post-Fire Restoration Roadmap

After the Flames April 16th, 2024


ROAD CLOSED


Matrix

USFS Watershed Condition Framework



Watershed Assessment of River Stability and Supply (WARSSS)

Reconnaissance Level Assessment (RLA)

Identify Study Area and land use changes
Eliminate areas that are not high priority

Rapid Resource Inventory for Sediment and Stability Consequence (RRISSC)

Classify stream types and fluvial landscapes
Assess hillslope, hydrologic, and channel processes in detail
Assign RRISSC Scores to each HUC 14 Watershed

Bank Assessment for Non-Point Source Consequences of Sediment (BANCS)

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Matrix

WARSSS Stability Indicators

Hillslope Processes

Slope erosion and instability leading to sediment delivery and transport

Hydrologic Processes

Changes in streamflow and bankfull discharge related to surrounding land infiltration, evapotranspiration, groundwater flows, and surface runoff

Channel Processes

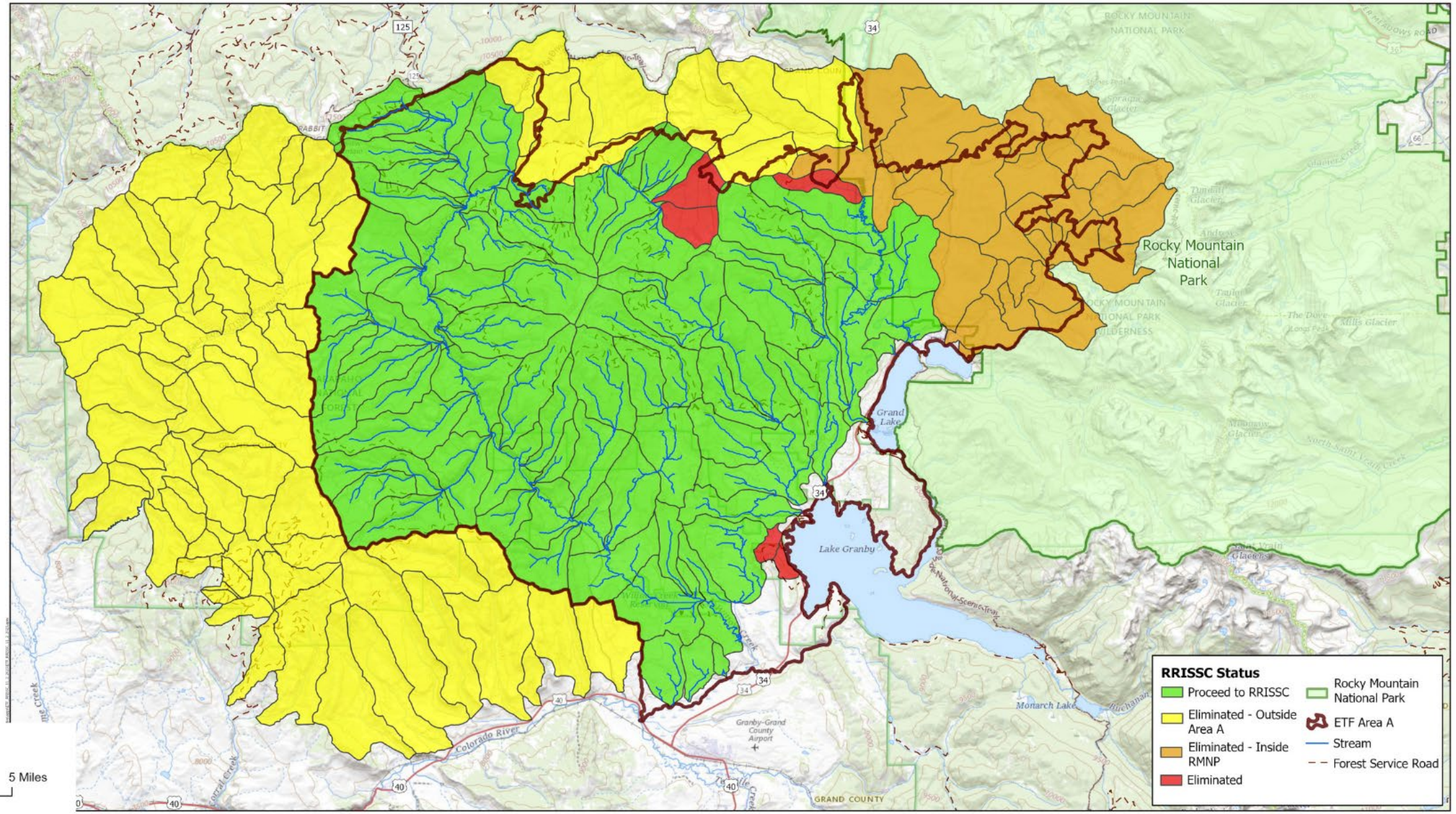
Stream channel adaptation and evolution related to changes in flows, sediment contribution, or vegetation

Matrix

Reconnaissance Level Assessment (RLA)

Matrix

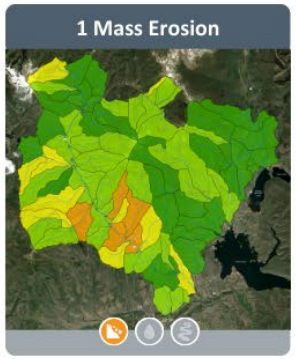
- Project Feasibility Areas
- Hillslope Processes
- Hydrologic Processes
- Channel Processes
- Target Key Watersheds

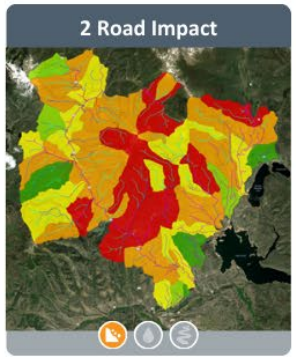


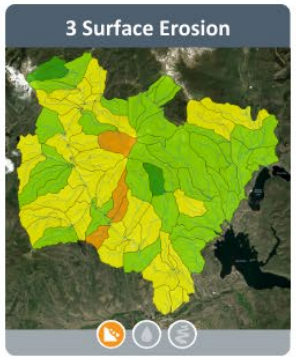
N

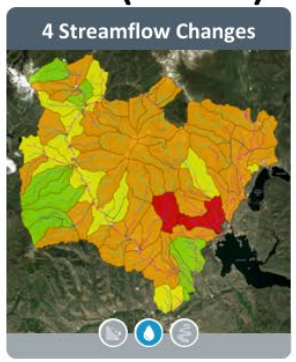
0 2.5 5 Miles

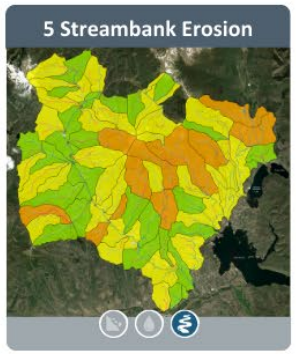
Rapid Resource Inventory for Sediment and Stability Consequence (RRISSC)

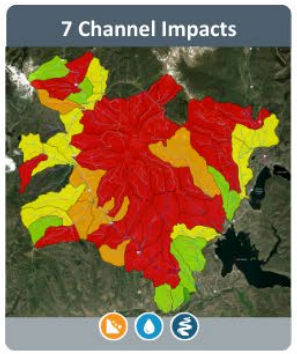


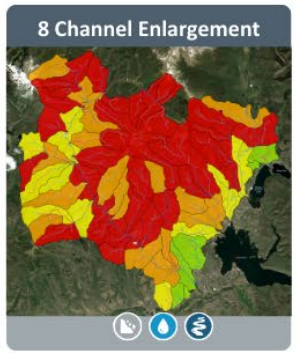


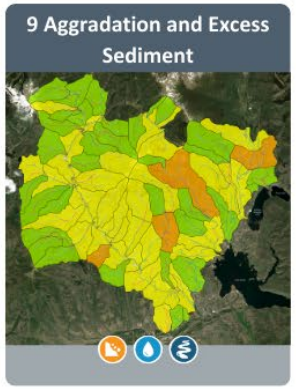


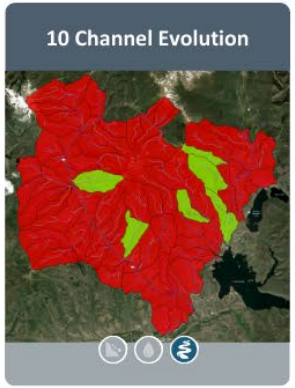


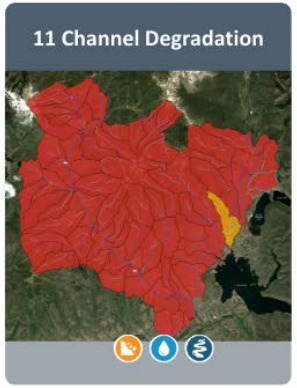


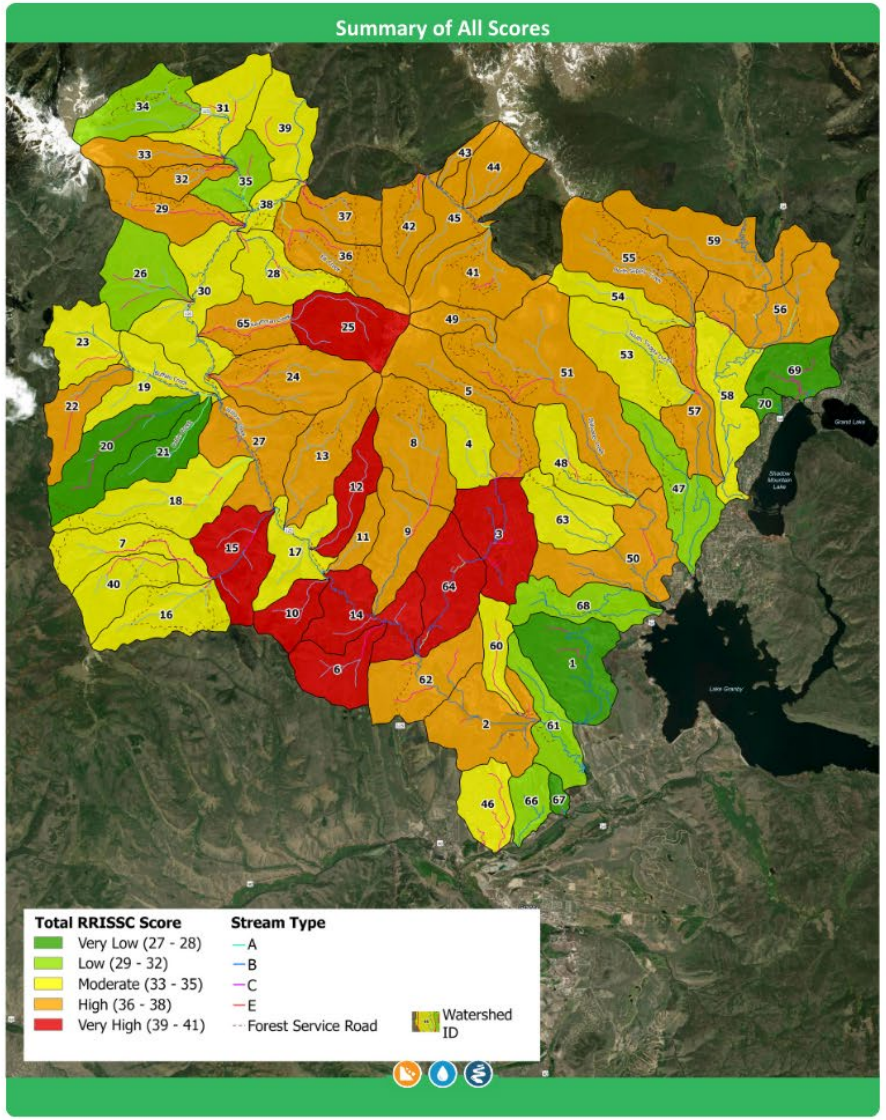










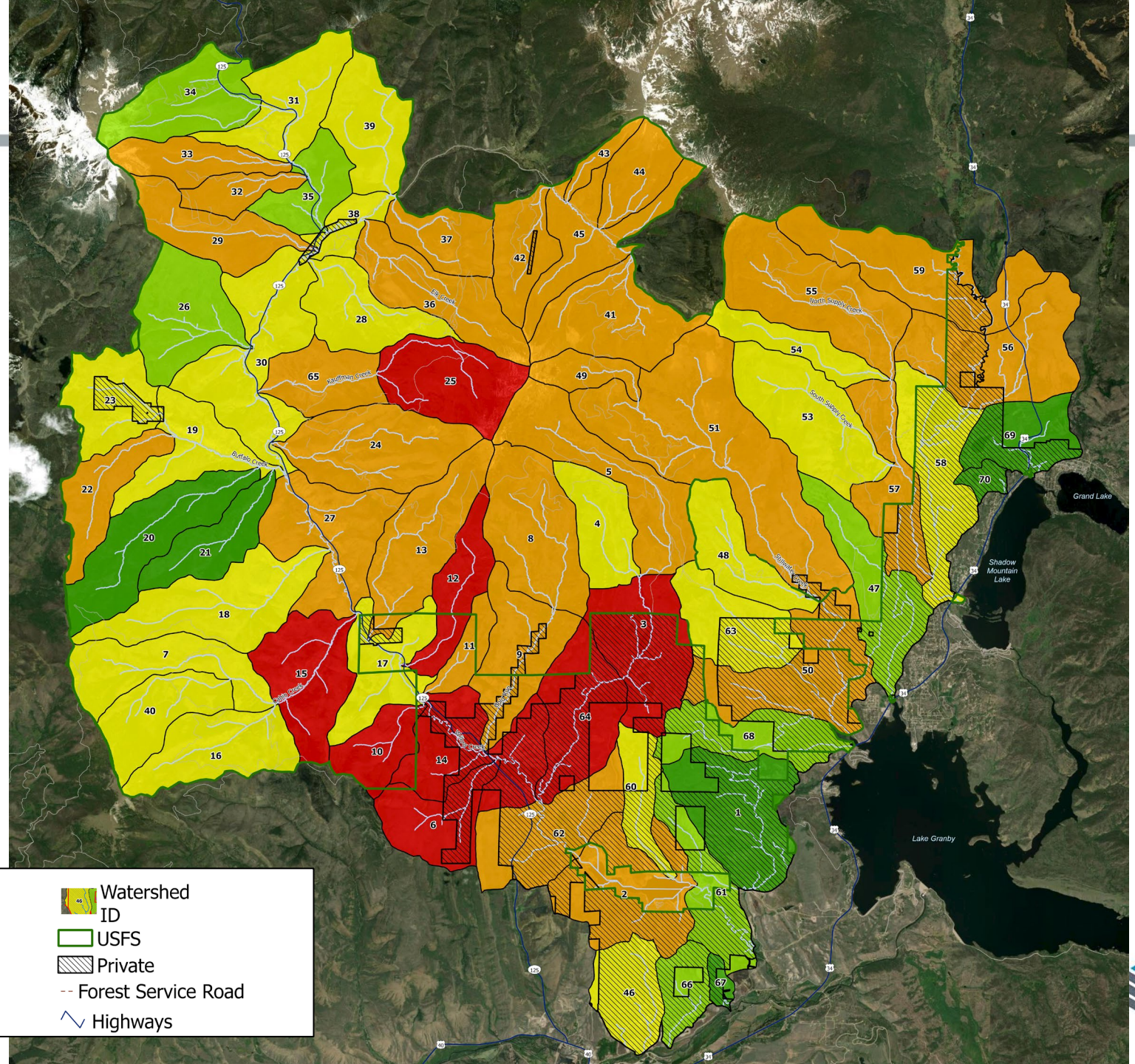


Hillslope Process

Hydrologic Process

Channel Process

Matrix


Total RRISSC Score
27 - 28 (Very Low)
29 - 32 (Low)
33 - 35 (Moderate)
36 - 38 (High)
39 - 41 (Very High)
Watershed ID
USFS
Private
Forest Service Road
Highways
Grand Lake
Shadow Mountain Lake
Lake Granby
Buffalo Creek
Kauffman Creek
Elk Creek
North Supply Creek
South Supply Creek
Stillwater Creek
Willow Creek
Jones Gulch

Matrix

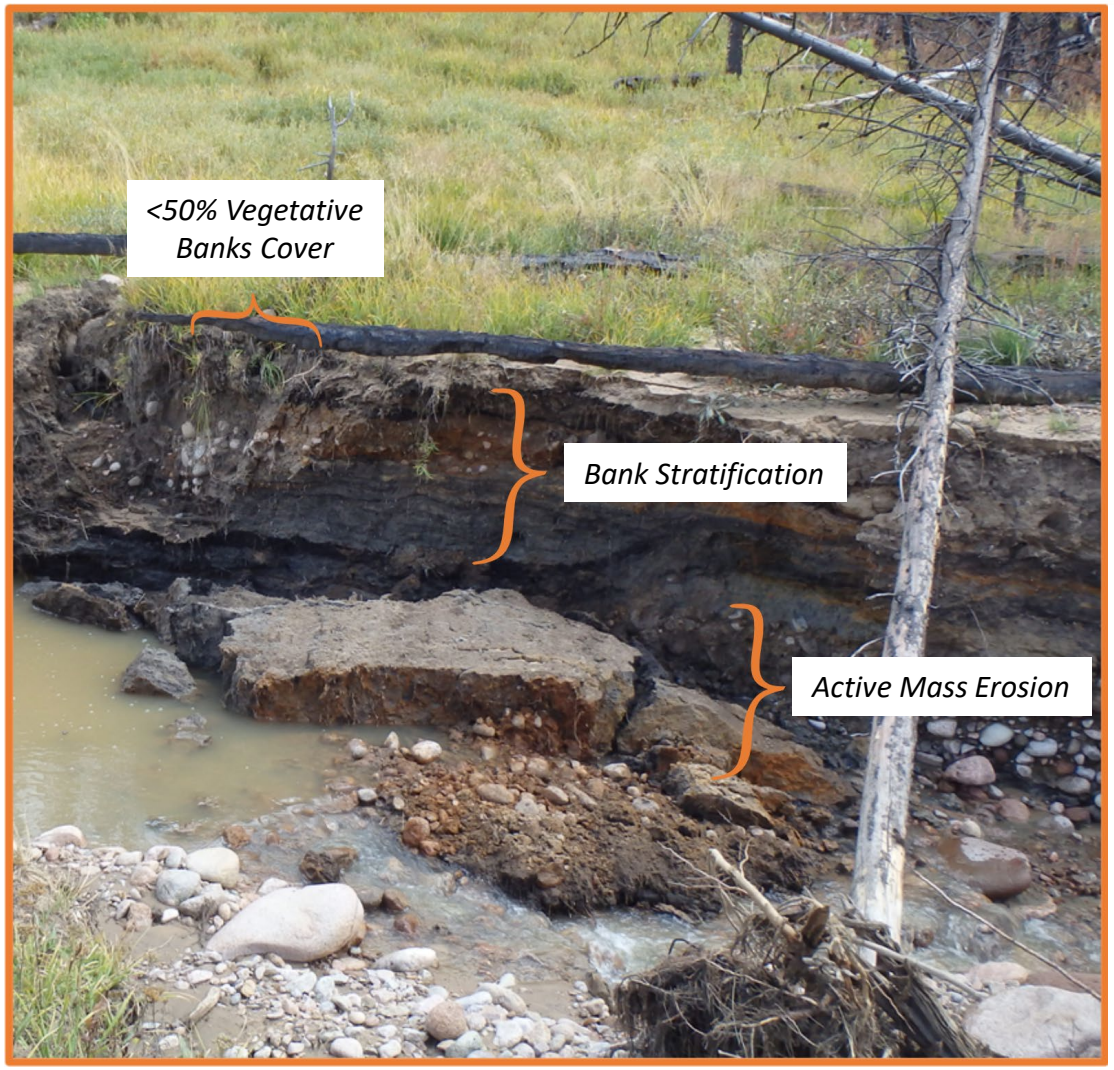
Bank Assessment for Non-Point Source Consequences of Sediment (BANCS)

Matrix

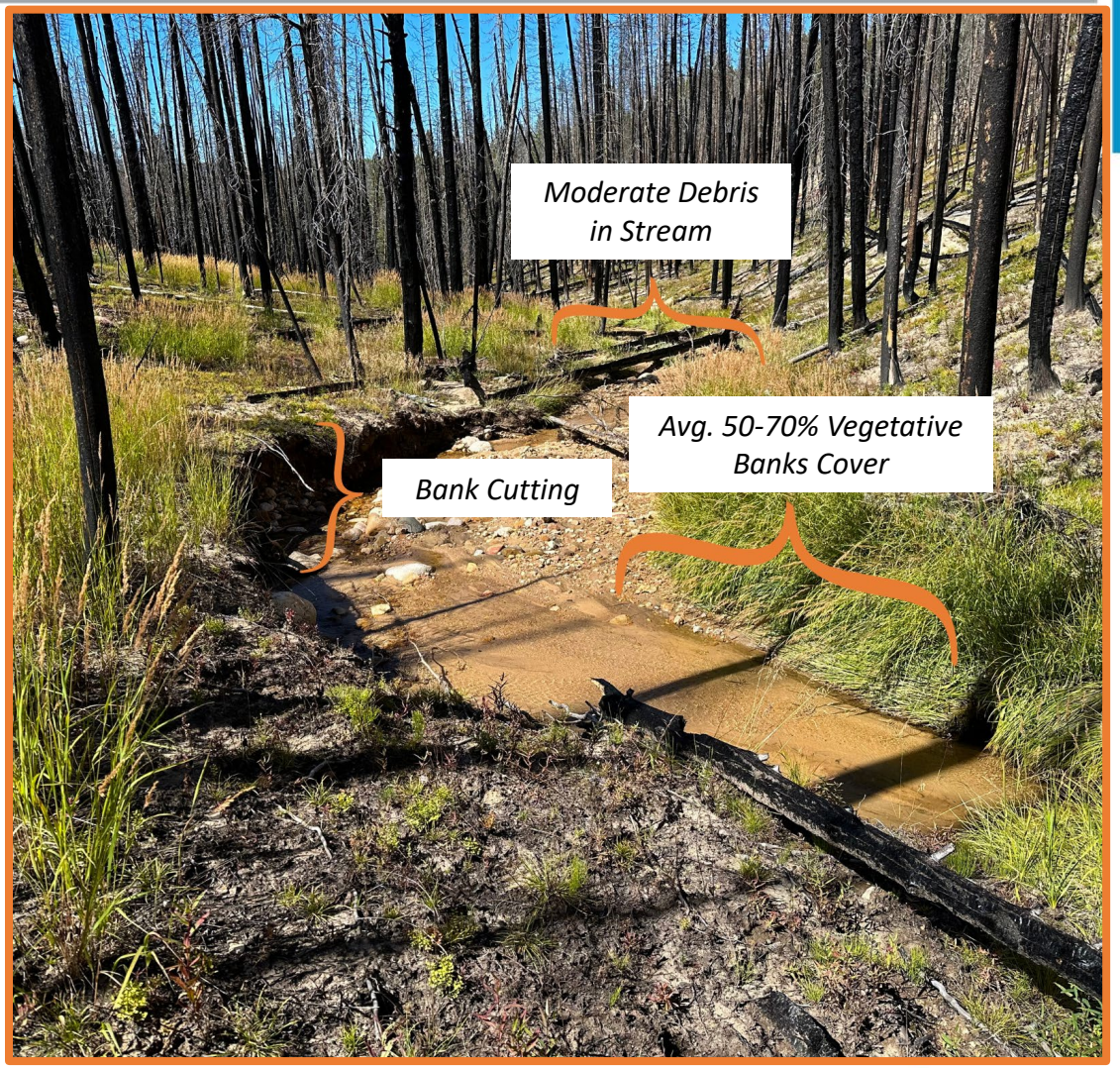

Matrix


Matrix


Matrix

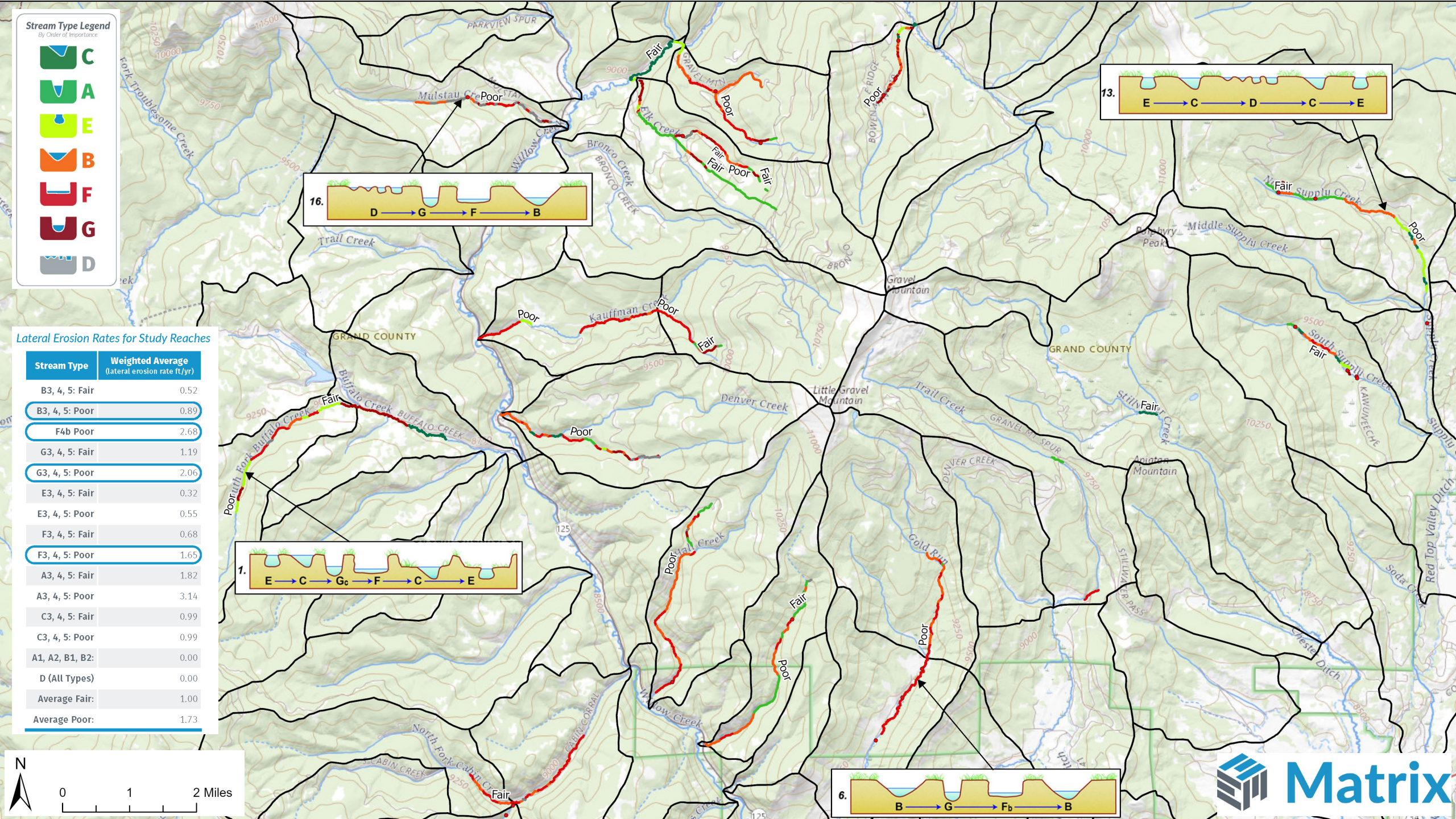


Poor Bank Stability



Fair Bank Stability

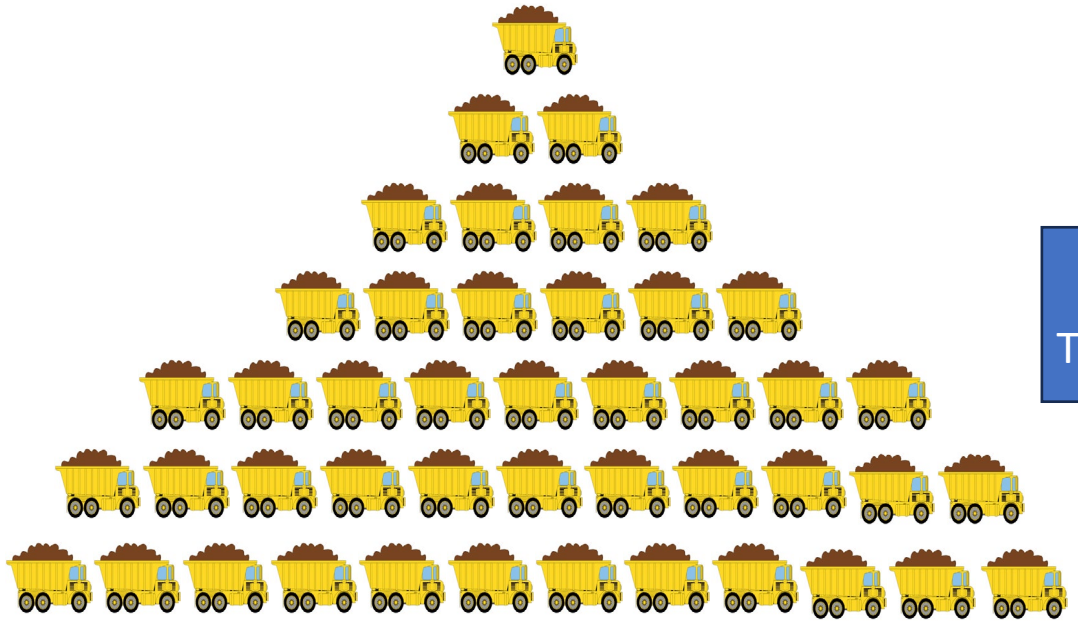
Matrix



Lateral Erosion Rates for Study Reaches

Stream Type	Weighted Average (lateral erosion rate ft/yr)
B3, 4, 5: Fair	0.52
B3, 4, 5: Poor	0.89
F4b Poor	2.68
G3, 4, 5: Fair	1.19
G3, 4, 5: Poor	2.06
E3, 4, 5: Fair	0.32
E3, 4, 5: Poor	0.55
F3, 4, 5: Fair	0.68
F3, 4, 5: Poor	1.65
A3, 4, 5: Fair	1.82
A3, 4, 5: Poor	3.14
C3, 4, 5: Fair	0.99
C3, 4, 5: Poor	0.99
A1, A2, B1, B2:	0.00
D (All Types)	0.00
Average Fair:	1.00
Average Poor:	1.73

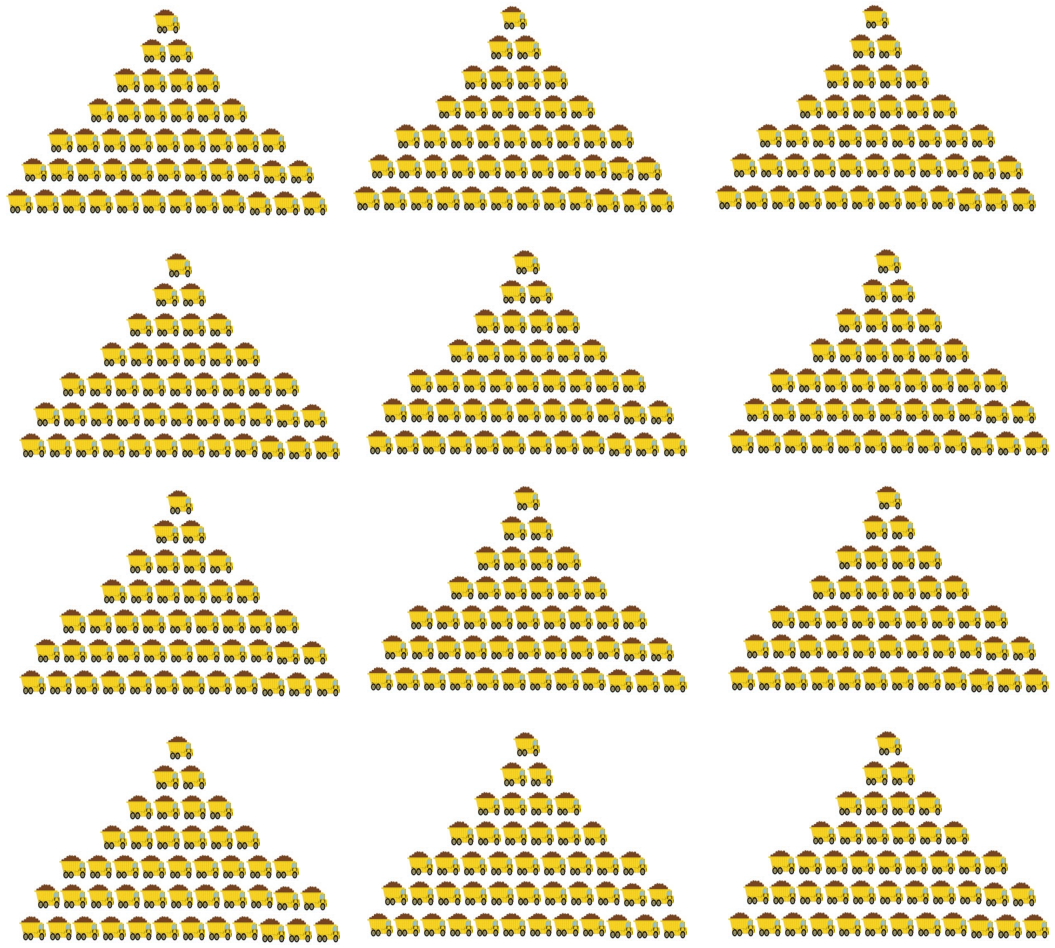
Matrix



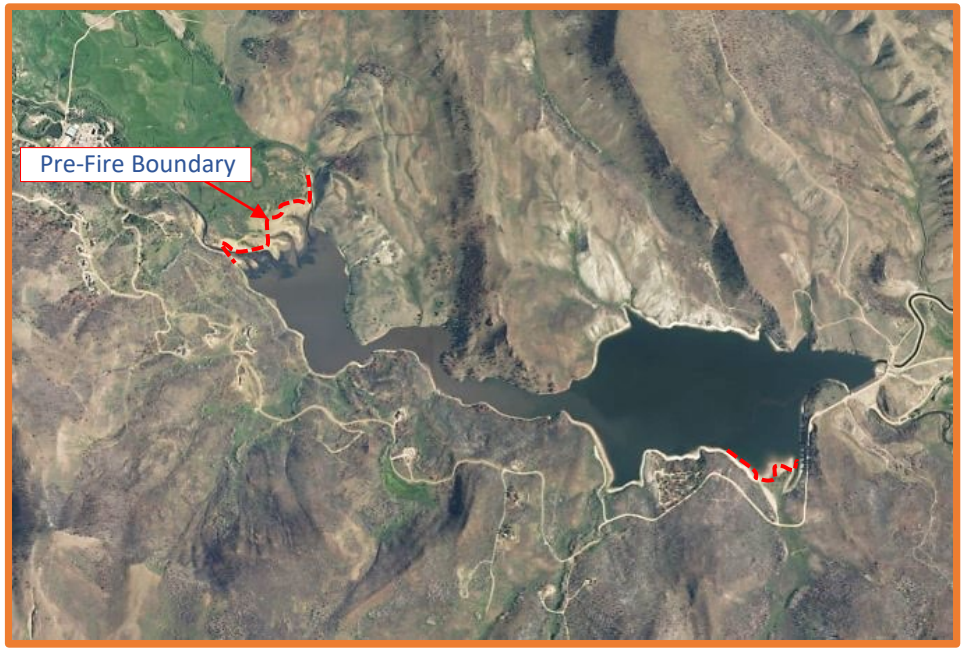
60,000
Trucks Per year

Pre-Fire

Matrix

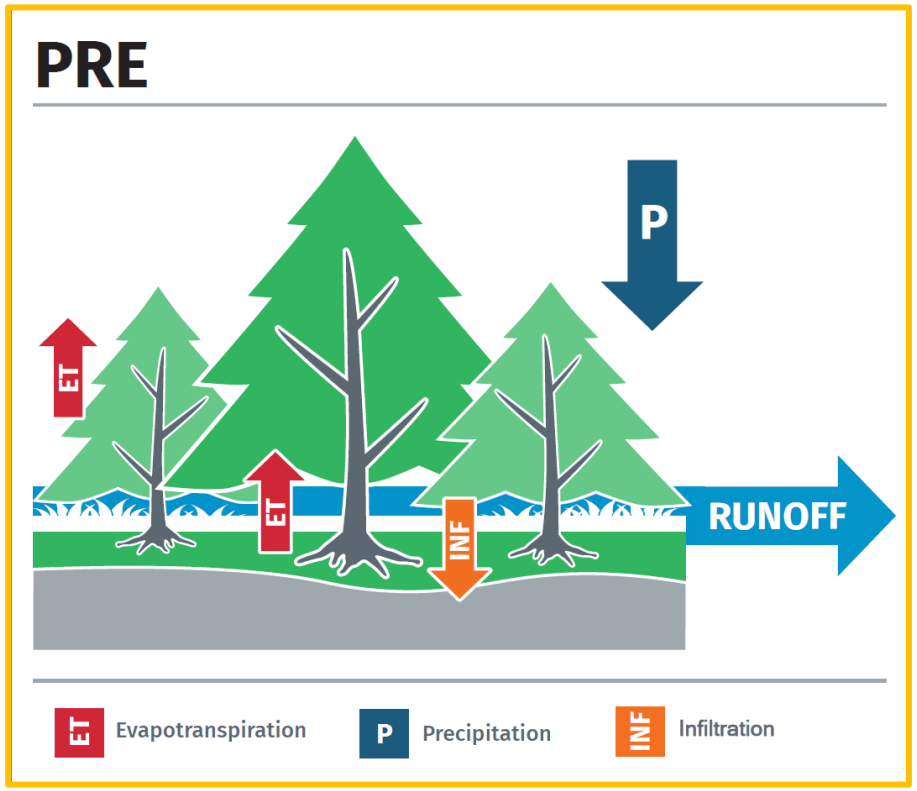


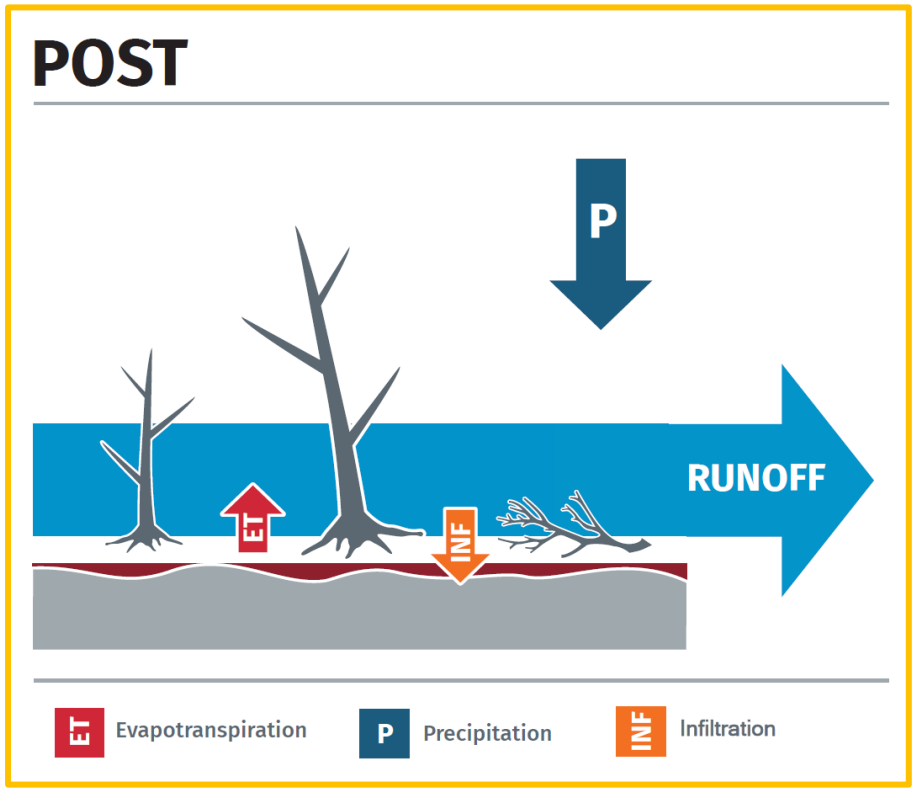
5 Million
Trucks Per year



Post-Fire

Matrix

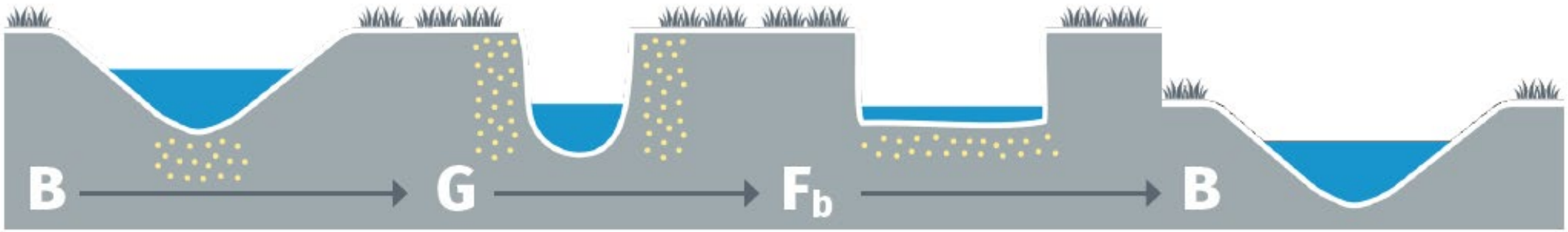

PRE
P
ET
ET
INF
RUNOFF
ET Evapotranspiration
P Precipitation
INF Infiltration


POST
P
RUNOFF
ET
INF
ET Evapotranspiration
P Precipitation
INF Infiltration

Matrix


Matrix


Matrix



B Fair
(0.52 tons/ft/yr)

G Poor
(2.06 tons/ft/yr)

F Poor
(2.68 tons/ft/yr)

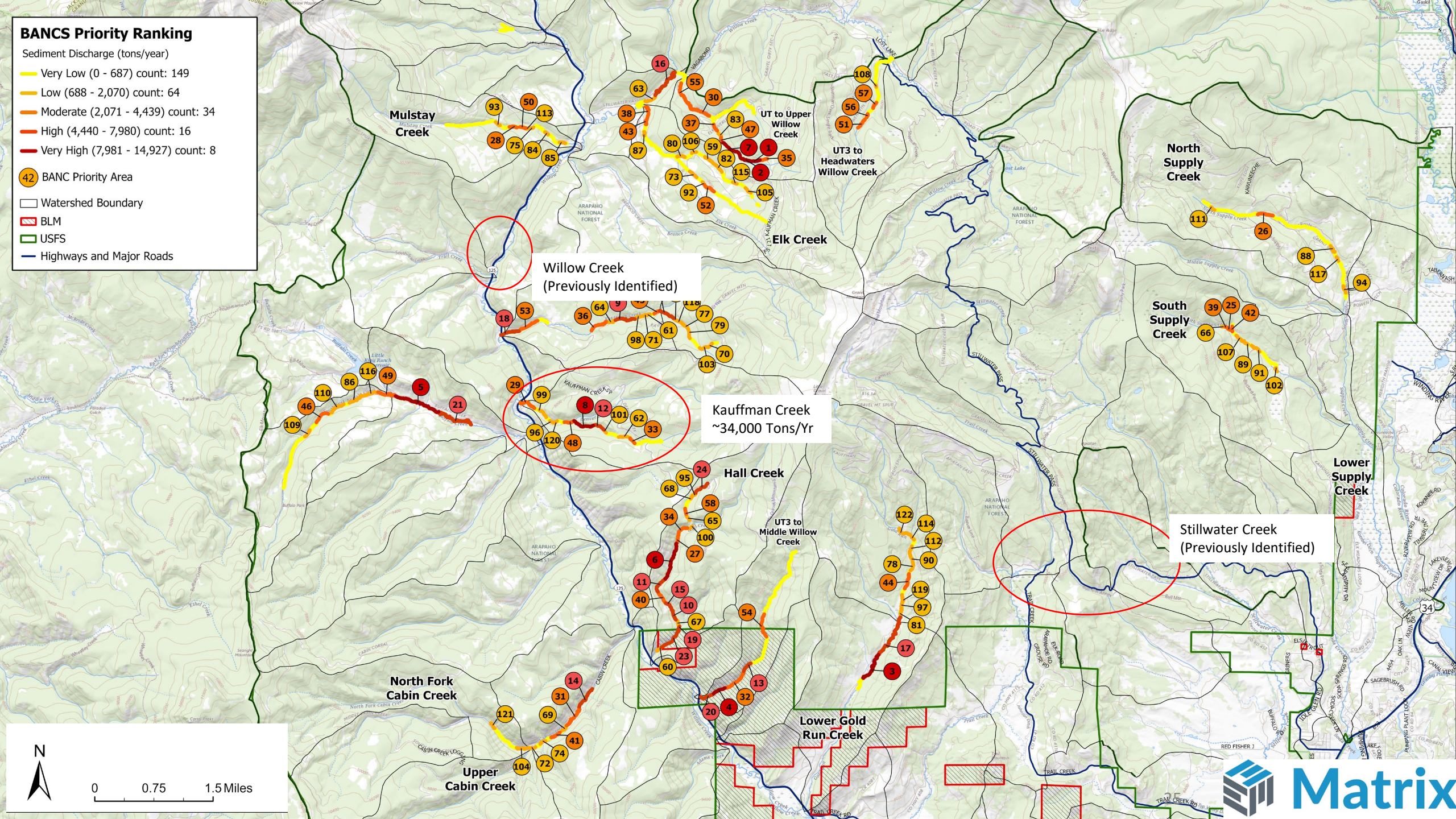
B Poor
(0.89 tons/ft/yr)

Matrix


Matrix


Matrix


Matrix


BANCS Priority Ranking
Sediment Discharge (tons/year)
Very Low (0 - 687) count: 149
Low (688 - 2,070) count: 64
Moderate (2,071 - 4,439) count: 34
High (4,440 - 7,980) count: 16
Very High (7,981 - 14,927) count: 8
42 BANC Priority Area
Watershed Boundary
BLM
USFS
Highways and Major Roads
Mulstay Creek
UT to Upper Willow Creek
UT3 to Headwaters Willow Creek
Elk Creek
Willow Creek (Previously Identified)
North Supply Creek
South Supply Creek
Lower Supply Creek
Kauffman Creek ~34,000 Tons/Yr
Hall Creek
UT3 to Middle Willow Creek
Stillwater Creek (Previously Identified)
North Fork Cabin Creek
Upper Cabin Creek
Lower Gold Run Creek
N
0
0.75
1.5 Miles
Matrix


Pre-Fire 2019
Matrix


Post-Fire 2022


Pre-Construction 2023
Matrix


Post-Construction 2023
Matrix


Matrix

A Post-Fire Restoration Roadmap

Special Thanks to Our Project Partners

Northern Water
Sean Henry
Kimberly Tekavec
Esther Vincent

Blue Mountain Consultants
Jim Nankervis

USDA
Eric Freels
Sarah Beck
Kamber Box
Dan Cinderelli

Watershed Conservation Resource Center
Graham Thompson

Matrix
Mason Haycock
Bennet Madigan
John Hottenstein
Patrick Nicholson

Drew Beck: drew_beck@matrixdesigngroup.com
Julianna Valenzuela: julianna.valenzuela@matrixdesigngroup.com

Matrix