



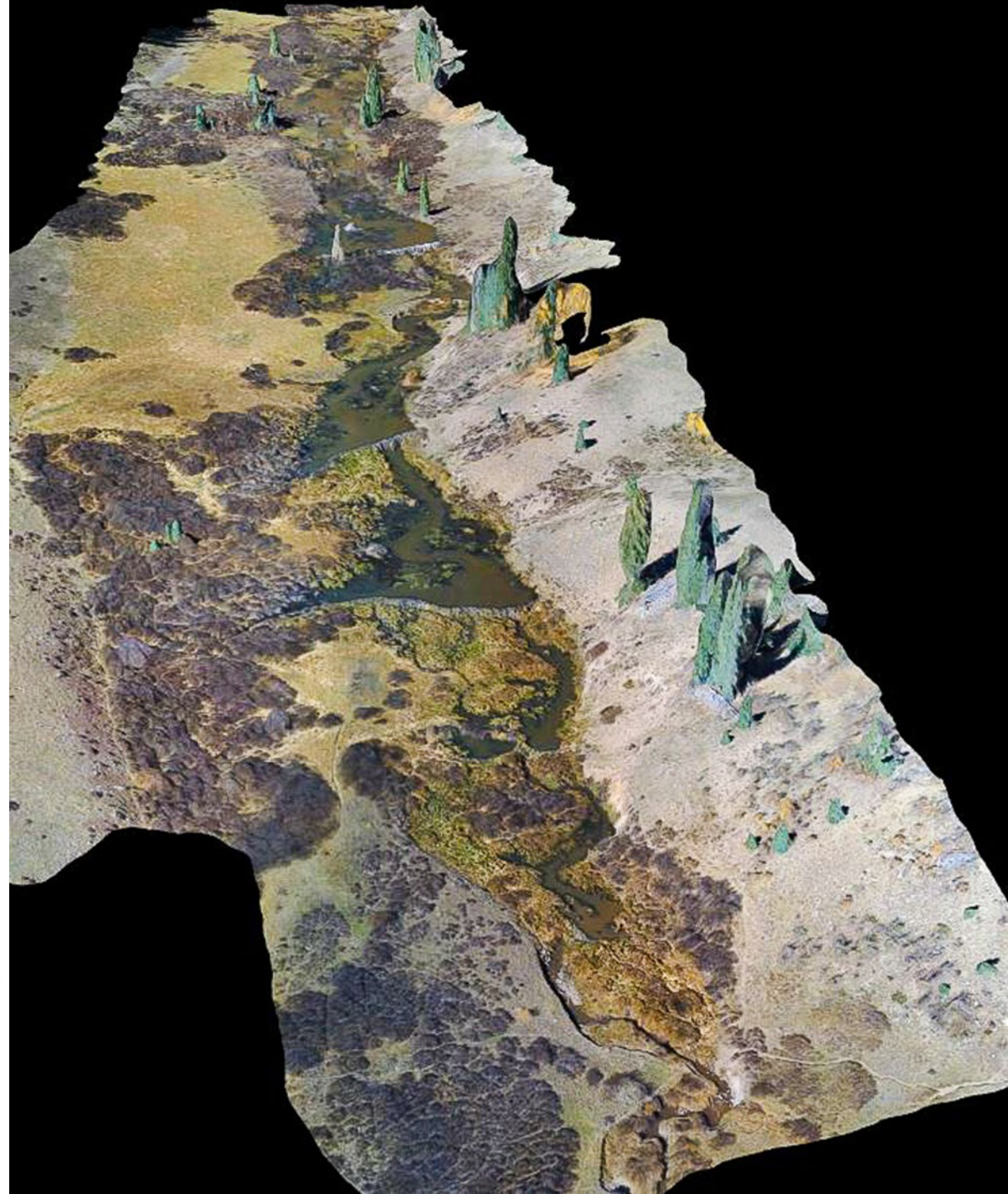
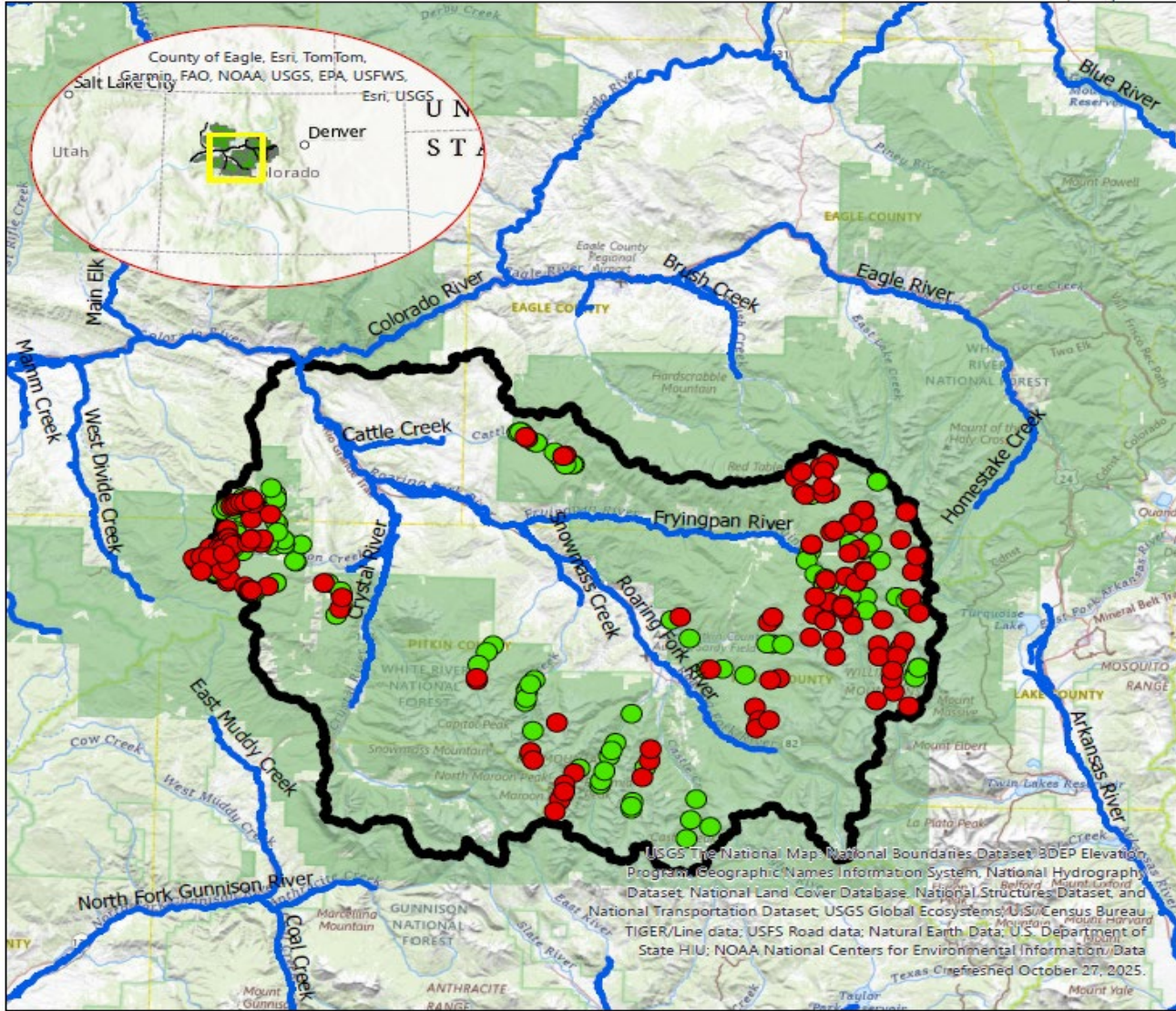
Summary of Roaring Fork Beaver Inventory, 2023-2024

WRNF, Pitkin County Healthy Rivers Board

R. Clay Ramey



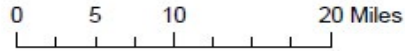
Upper Roaring Fork Beaver Inventory, Aspen-Sopris District,
White River National Forest



Legend



- USFS_Lands
- Colorado_NHDPlus_5plu
- Roaring Fork HUC 8



USGS The National Map: National Boundaries Dataset, BDEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; US Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HUI; NOAA National Centers for Environmental Information Data Texas. Refreshed October 27, 2025.

Study Design:

< 10% slope, on the Forest

Random sites, 100 m radius buffer

Desktop veg estimate, %

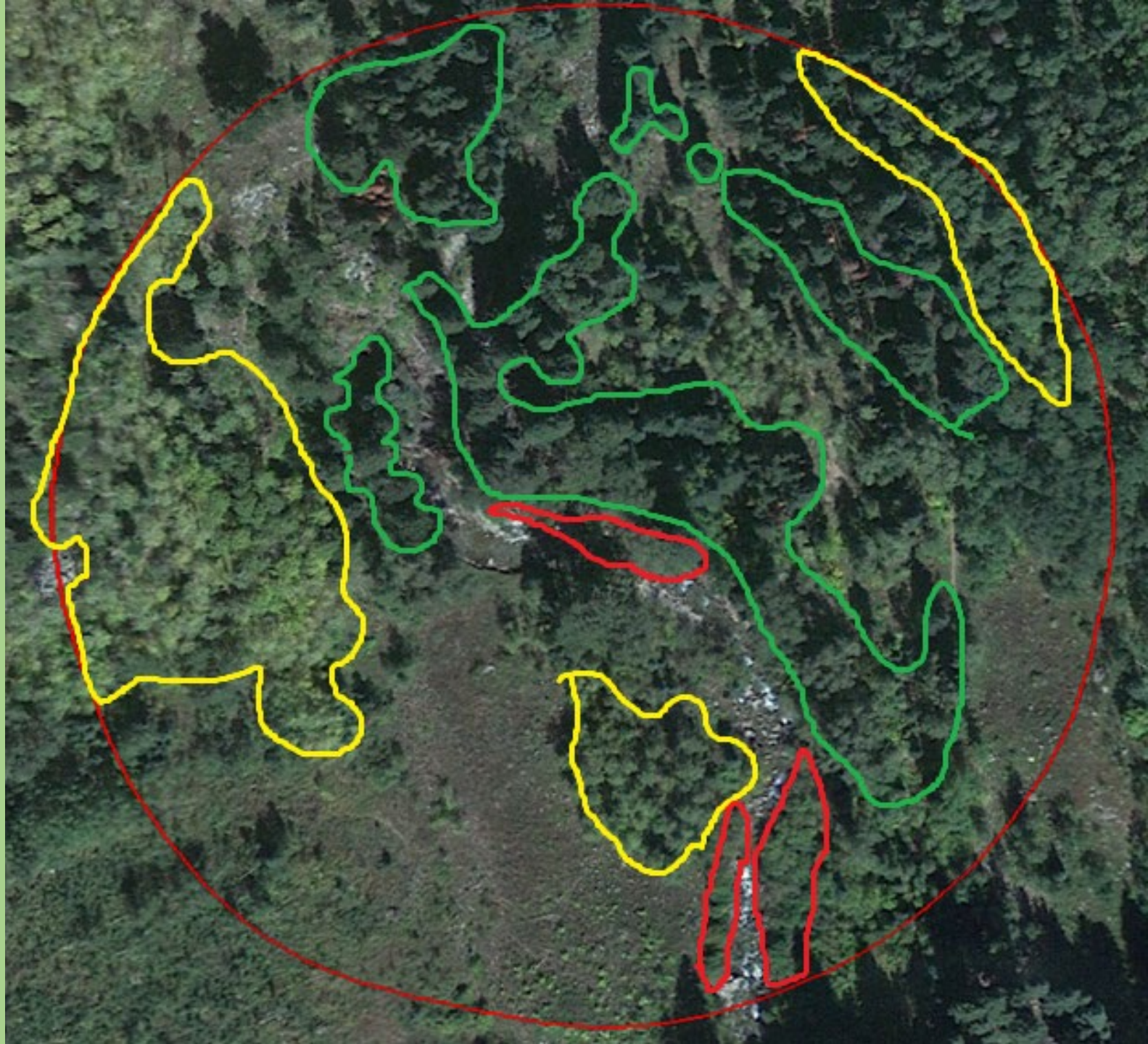
- aspen
- willow
- alder
- cottonwood
- conifer

Channel slope, BFW/FPW = Confinement,
Rosgen type

Beaver sign, yes or no,
new/current/past/unoccupied

Dams/lodges

Elevation, MA, grazing, fire, road density



Randomly Selected Sites, cont.



Summary:

June – October, 2023-24

296 sites surveyed. 48 (17%)
new/current.

~353,016 acres

15 HUC 12s, 66 streams

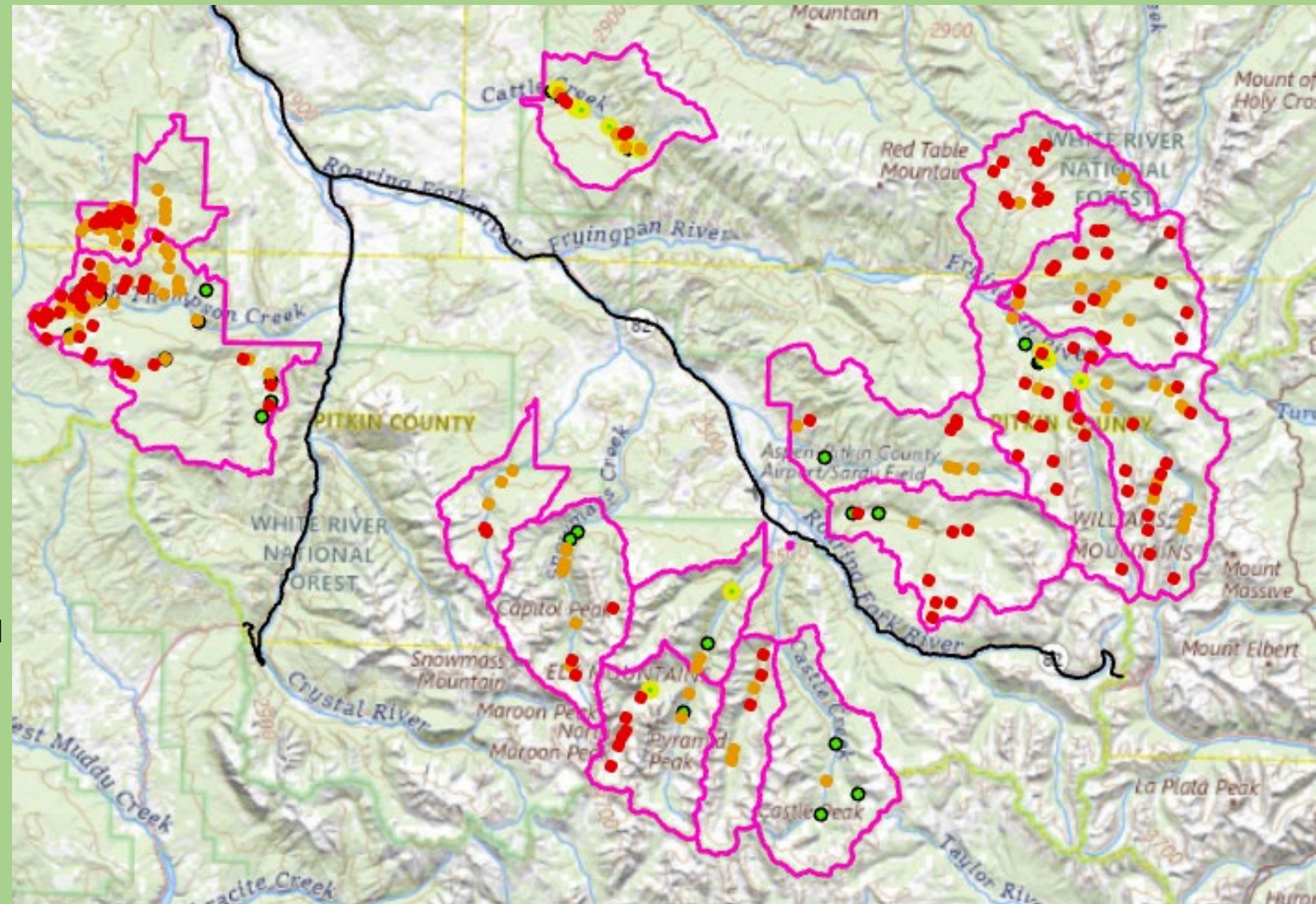
Current occupation in 11/15 HUCs

Beaver sign in all 15 HUCs; 96/281
random sites (34%)

37% of sites with “past” sign – used
to be more beaver.

~15,000 road miles, ~700 on foot

Subwatersheds with past sign, no
current sign



Habitat Used: Veg

Included 15 non-random sites (known to be occupied)

Sig. diff. (ANOVA/Tukey's)

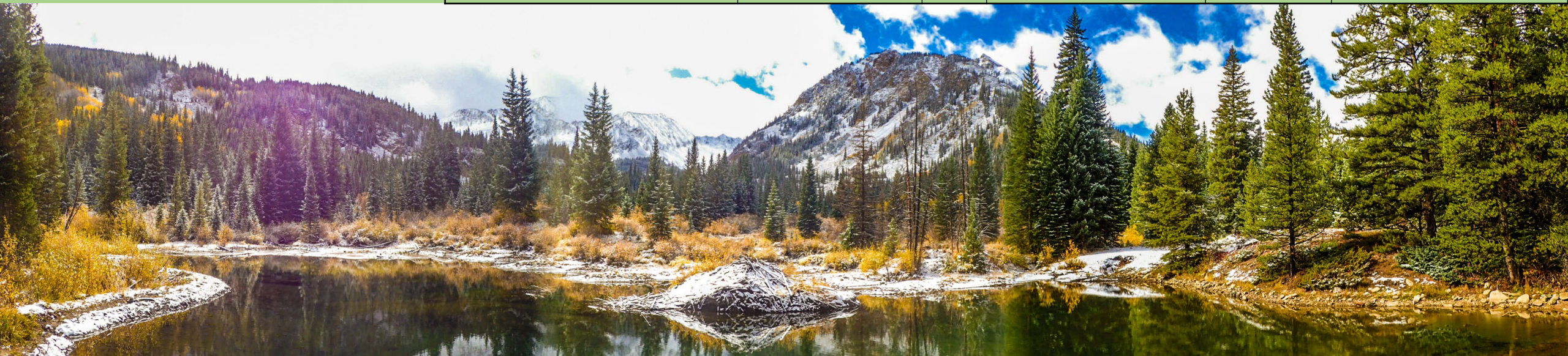
- New/current/past always different than unoccupied* = "occupied"

Aspen most important (assumes willow?)



Habitat Metric	Group	n	Min	Mean	Mean + Sd.Dev
Willow (%)	Occupied	158	0	16	30
	Unoccupied	138	0	10	24
Aspen (%)	Occupied	158	0	11	26
	Unoccupied	138	0	5	15
Alder (%)	Occupied	158	0	1	4
	Unoccupied	138	0	0	2
Cottonwood (%)	Occupied	158	0	1	4
	*Not sig. diff.	Unoccupied	138	0	0
Conifer (%)	Occupied	158	0	27	48
	Unoccupied	138	0	41	72

Habitat Used: Physical Habitat Lower, flatter, wider Relative to Forest conditions GLM – Probability of occupation: + willow + aspen - stream slope and elevation = higher probability of beaver	Habitat Metric	Group	n	Min	Mean	Mean + Sd.Dev
	Elevation (ft)	Occupied	132	7,444	9,222	9,954
		Unoccupied	129	7,531	9,791	10,565
	Channel Slope (%)	Occupied	132	0	4	7
		Unoccupied	129	0	6	9
	Bankfull Widths (ft)	Occupied	56	1	7	12
		Unoccupied	61	1	5	7



HUC6	# Sites Surveyed (n > 10)	# Sites with Beaver Sign	% Sites with Beaver Sign	# Dams	# Lodges
Headwaters Fryingpan River	23	2	9%	1	1
Lime Creek	13	2	15%	0	0
North Fork Fryingpan River	27	6	22%	0	0
Fourmile Creek	38	9	24%	17	3
Deeds Creek-Fryingpan River	25	7	28%	21	1
Hunter Creek	10	3	30%	3	0
Thompson Creek	79	27	34%	45	6
Headwaters Maroon Creek	10	4	40%	11	1
Mill Creek-Cattle Creek	19	12	63%	13	1
Headwaters Snowmass Creek	12	9	75%	17	3



Cattle Grazing

No effect on distribution

Occupancy	n	Cattle	No Grazing	% Cattle Grazing
Current + New	37	20	17	54%
Past	106	63	43	59%
Unoccupied	134	71	63	53%
Total	277	154	123	56%

Vegetation effect

Beaver sign = GLM

+ willow

+ aspen

+ NO grazing

-elevation, slope

Habitat Metric	Group	n	Min	Mean	Mean + Sd.Dev
Willow (%)	Cattle	173	0	10	20
	No grazing	123	0	17	35
Aspen (%)	Cattle	173	0	10	23
	No grazing	123	0	6	19

Are there effects of grazing other than veg effects?

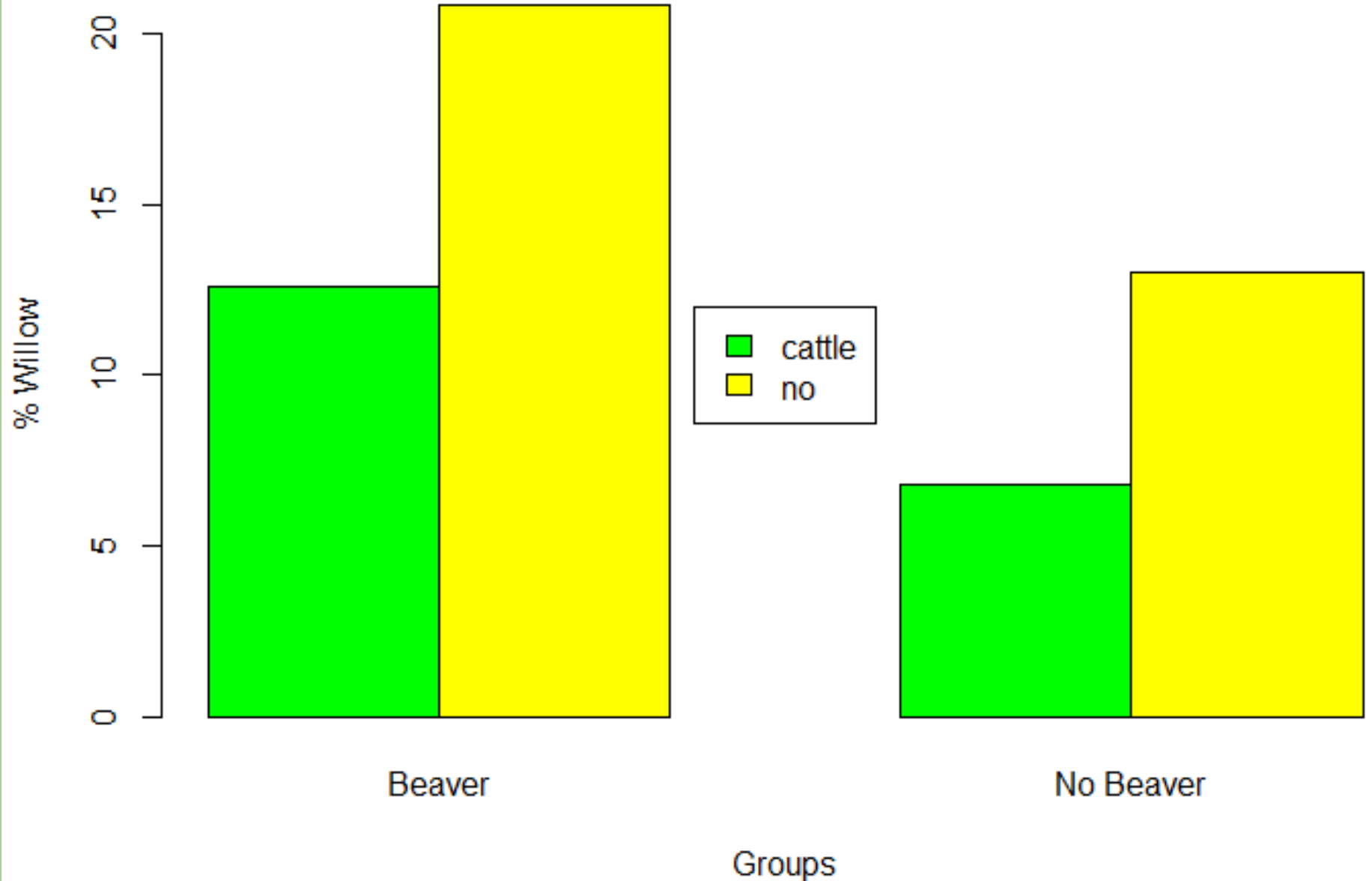
Grazing, cont.

“No beaver” in grazing allotments with only 6.8% willow vs. 5% for HSC

= continue to focus on veg conditions within grazing allotments

- This work provides a tool to do so and some context

- May be some underutilized capacity



Habitat Suitability Criteria: HSC

Simple model

Factors other than habitat?

- mortality?
- patch size?
- recruitment/dispersal?
- habitat quality/availability?
 - known unknowns

Habitat Metric	Lower bound	Upper bound
Willow (%)	5.0	NA
Aspen (%)	1.0	NA
Channel Slope (%)	NA	5.5



Underutilized
habitat?

HUC6	Surveyed Sites	% HSC all sites	% Past	% New-Current	Avg % Willow	Avg % Aspen
Lime Creek	13	7%	15%	0%	9%	4%
North Fork Fryingpan River	27	7%	26%	0%	6%	2%
Headwaters Fryingpan River	23	8%	52%	4%	25%	0%
Thompson Creek	79	18%	46%	23%	11%	8%
Headwaters Maroon Creek	10	18%	20%	20%	25%	18%
Deeds Creek- Fryingpan River	25	19%	8%	20%	19%	1%
Fourmile Creek	38	24%	61%	3%	8%	17%
Hunter Creek	10	27%	10%	20%	18%	8%
Headwaters Snowmass Creek	12	38%	58%	17%	16%	19%
Mill Creek- Cattle Creek	19	47%	21%	58%	8%	3%
Averages		21%	32%	16%	14%	8%

Available
Habitat

-

+

Next Steps:

Work with NFF at Fourmile, Mid Thompson parks – informed by this inventory.

BOR Funds – approved for \$1.9 mill – “90-day review period”, about 365 days ago.

Utilizing SB 270

Range, willow, and Wilderness – We need to examine given what we know.

