

CONSERVATION LANDS PROGRAM:

Season Highlights 2015



Morgan Valliant
Missoula Parks & Rec.
March 9, 2016

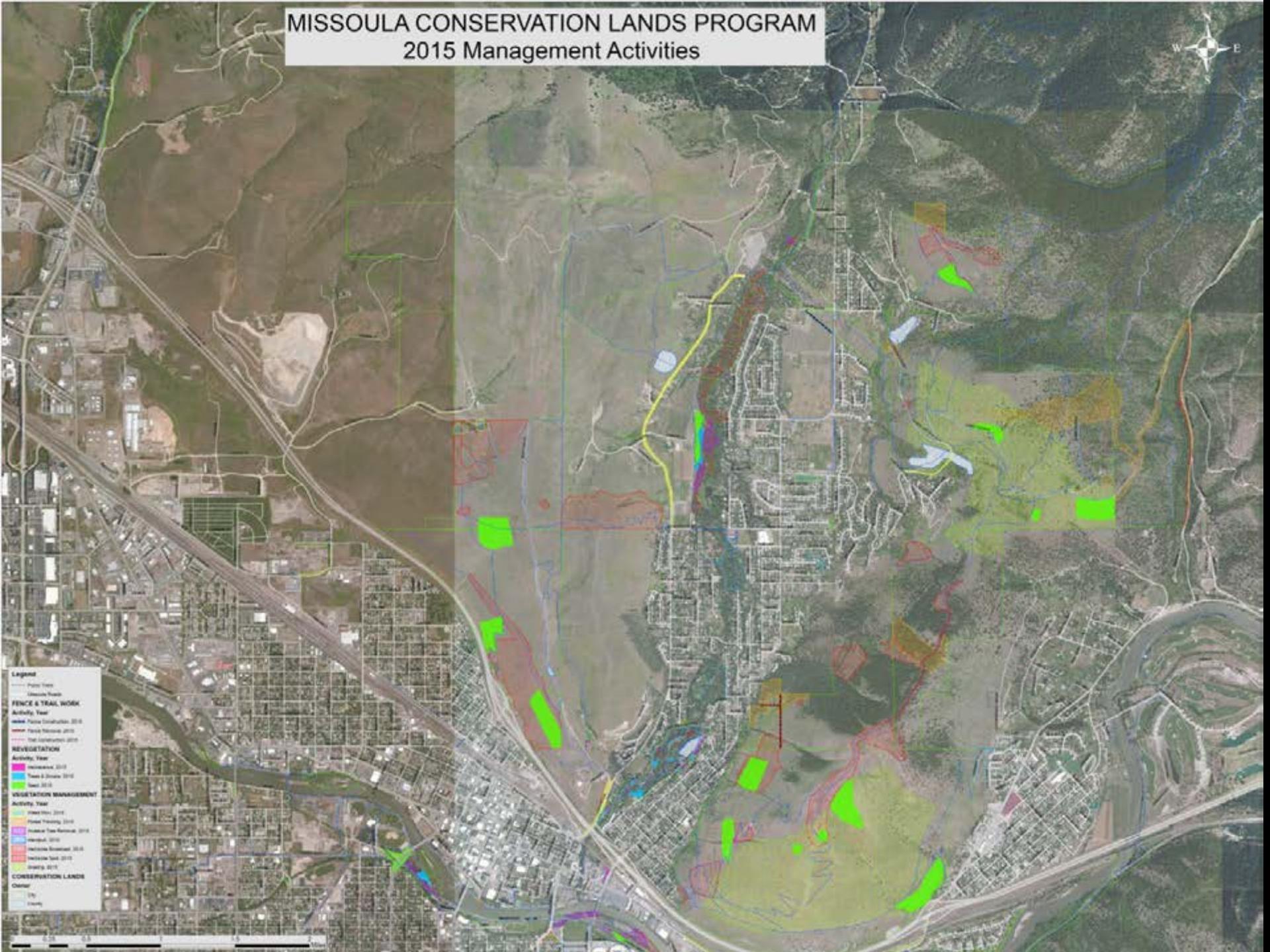
The Numbers

- **ROW and Parkland Mowing:** 140 acres (113.5 ac. in 2014)
- **Revegetation :**
 - Seeded 2450 lbs. seed across 143 acres!! (*1400 lbs./84 ac. in 2014*)
 - Planted 4418 native trees, shrubs and herbs across 9 acres!! (*3694 across 13.5 ac. in 2014*)
- **Herbicide Applications:**
 - 105 ac. weeds sprayed across 525 ac. of land. (*84.2 ac. Across 885 ac. in 2014*)
- **Handpulling:**
 - Dames rocket, Hemlock, Houndstongue, knapweed & buckthorn across 42 acres!! (*17 ac. in 2014*)
- **Sheep Grazing:**
 - 600ac. in 77 days (*1099 ac. in 106 days in 2014*)

The Numbers Cont.

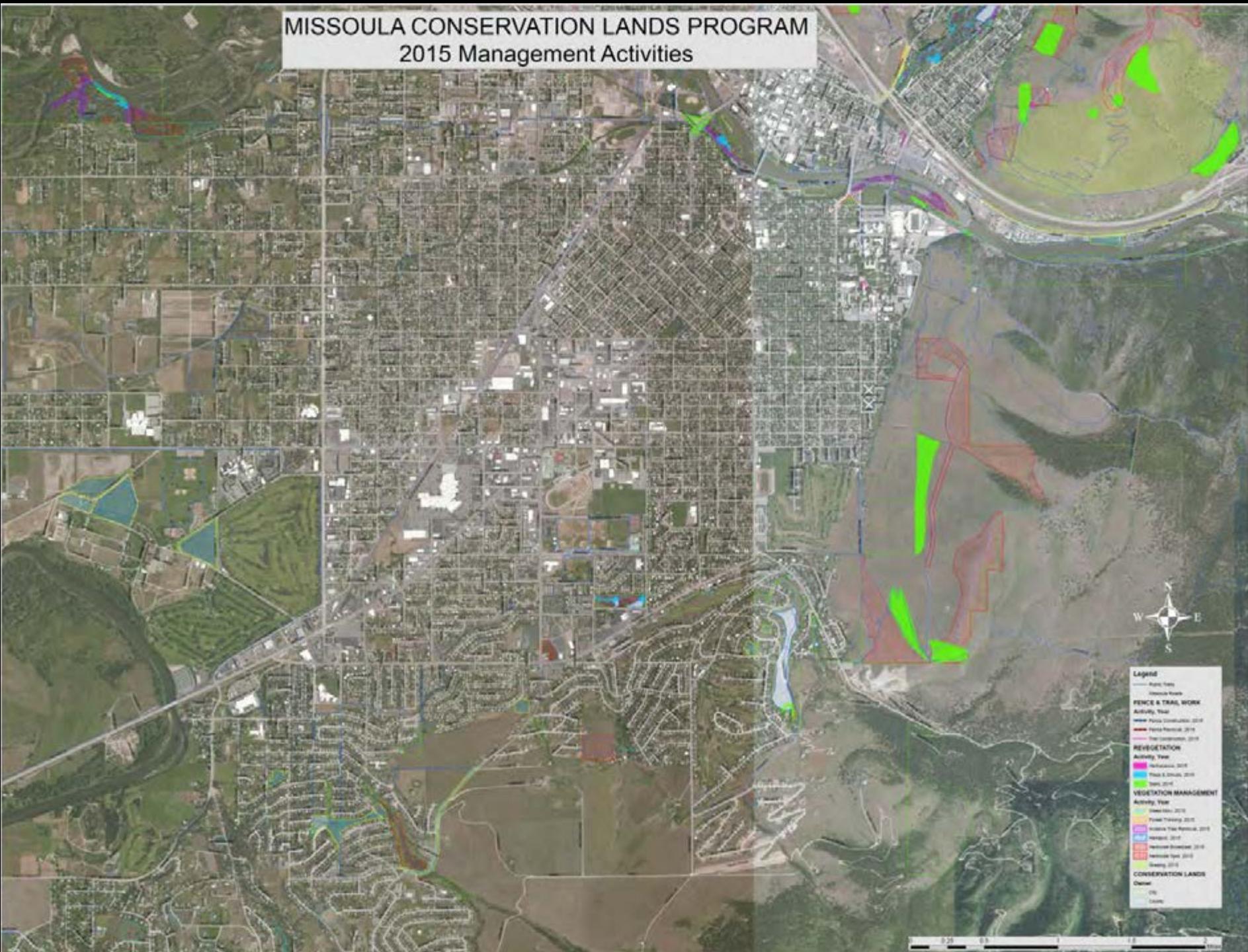
- **Volunteers :**
 - 755 people, 4180 hrs. for approx. \$50,160 in labor (*1634 hours in 2014*)
 - *Clark Fork Coalition Coordinated 2118 hours!!!*
- **Trail Construction:** 0.25mi. of new trail. (*1.05 mi. in 2014*)
- **Fencing:**
 - Repair/construction 0.27mi. (427ft. in 2014)
 - Removal .35 mi. (.61 mi. in 2014)
- **Forest Thinning:** 96.6 ac. on Mt. Jumbo (*33 ac. in 2014*)
- **Invasive Tree Removals (N. maple, S. Elm, G. Willow & C. Buckthorn):**
 - Removed Invasive trees from 21 acres in the Tower St. C.A., Rattlesnake GB, and along the Clark Fork River! (*6.8 ac. in 2014*)

MISSOULA CONSERVATION LANDS PROGRAM
2015 Management Activities



MISSOULA CONSERVATION LANDS PROGRAM

2015 Management Activities



The Numbers Cont.

- **Grants, Donations, Fees:**

- Awarded \$50,000, Clark Fork River Planning (Mt. DNRC)
- Awarded \$15,000, Vegetation Management (Msia Co. Weed District)
- Awarded \$10,200, Weed Manage. & Seed, Mt. Sentinel (Dept. or Ag. NWTF)
- Awarded \$5,000, Winch Shed Restoration (Msia. County History Grant)
- Awarded \$3000, Ben Hughes HOA for park improvements (Neighborhood grants)
- Awarded \$1000, Landon Edwards for knapweed research (The Garden Club of America)
- Generated \$5,682.17 from the Special Use Permits on CL (Elk Ramble, Pengelly DD, MOLA)

- **2015 Total: \$89,880.17** (2014 Total: \$53,071.76)

Leveraging Your Dollars in 2015

- From 2008 to 2015 the CLM Program budget has grown from \$253,067 to \$394,395 (includes all salaries, supplies and contracted services)
- Since 2008, the CLM Program has been awarded \$690,254 in grants and donations.
- On average the CLM Program has brought in \$0.28 for every dollar received!

2015 Major Accomplishments

- Completed a Trails Inventory and Assessment
 - GPS all system and user made trails
 - Quantified conditions of all trails
 - Data directs work plans to address trail issues
- Implemented a Herptile Monitoring Program
 - Revisited historic areas of occurrence
 - Develop accurate list of Herps that utilize City Conservation Lands
 - Identified important habitats and areas with restoration potential
- Commencement of Clark Fork River Access Project Planning

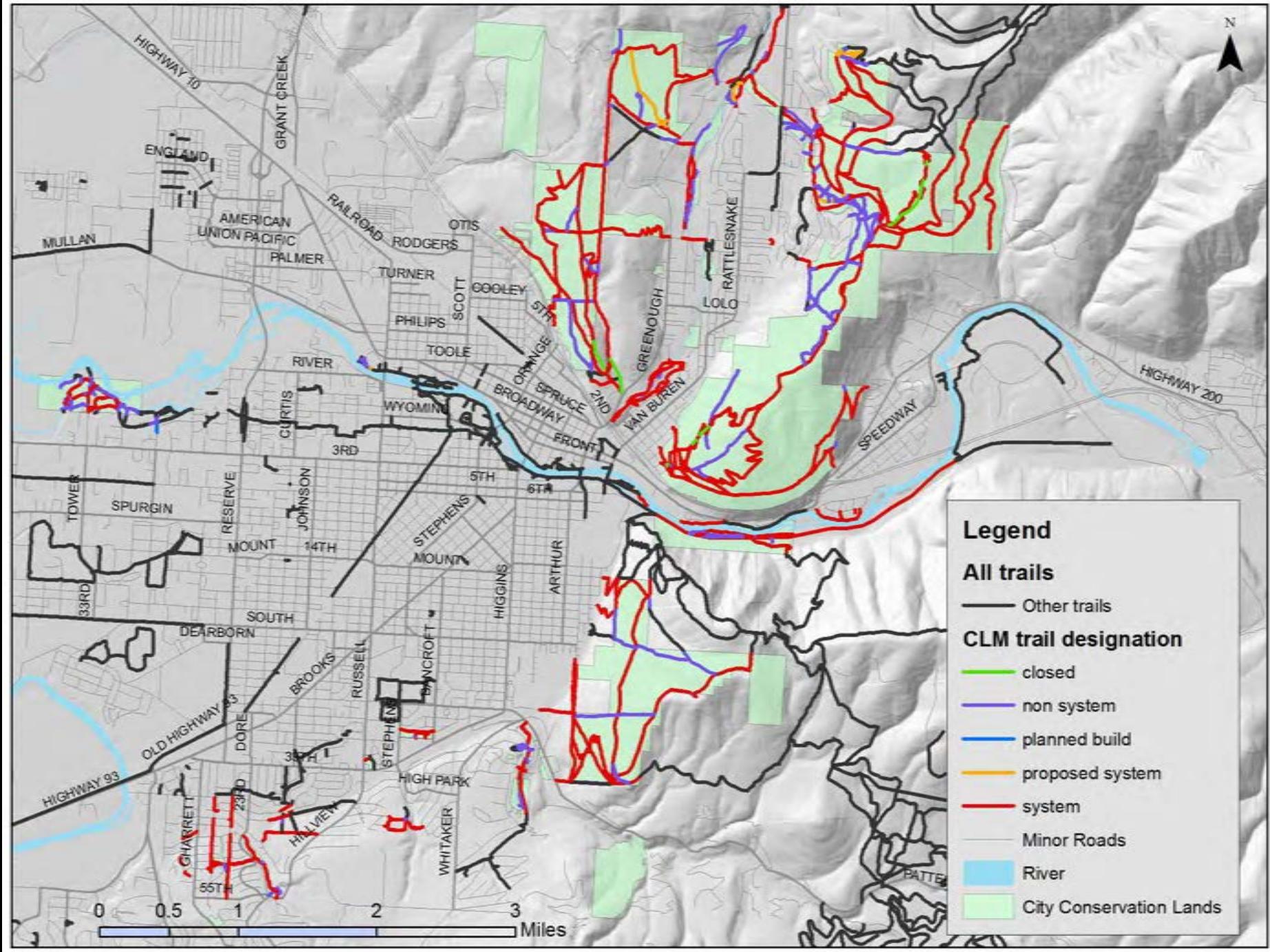
2015 Trails Inventory

- GPS all System and Non-System (aka. user- made trails) trails and all trail infrastructure (eg. signs, benches, waterbars stairs)
- Document trail conditions
 - Characteristics= slope, cross-slope, width, surface type
 - Problems= erosion, widening/braiding, cupping, clearance
- First accurate depiction of trails and trail conditions on CL's!

Trail Mileage

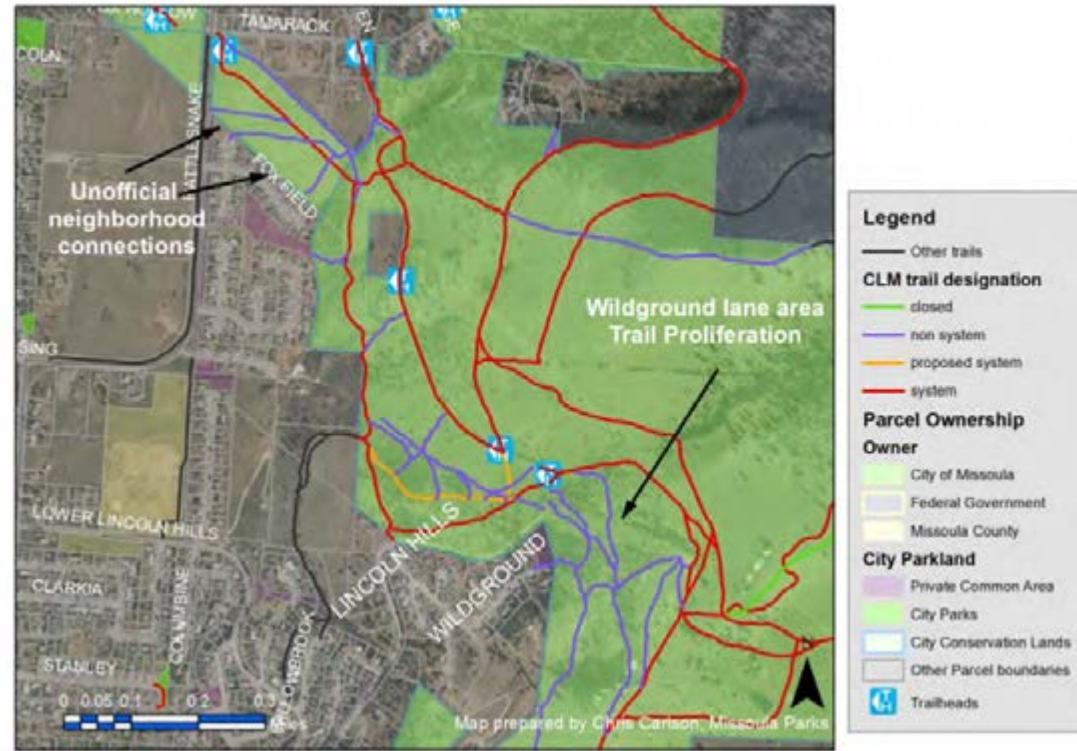
2015 CLM Trail mileage (2008 mileage)	System	Non-System	Area Total
Hellgate / Rattlesnake	7.33 (8.19)	2.82 (0.65)	10.15 (8.84)
Mt Jumbo / Marshall	22.25 (17.79)	8.43 (4.94)	30.68 (22.73)
Mt Sentinel	6.72 (6.55)	2.42 (0.82)	9.15 (7.37)
North Hills	11.46 (9.72)	3.86 (1.75)	15.33 (11.47)
South Hills	4.35 (2.52)	0.76 (0.30)	5.11 (2.82)
Tower Street	1.52 (0.79)	1.60 (1.48)	3.12 (2.27)
Total 2015 Trail Miles (2008 miles)	53.63 (45.56)	19.89 (9.94)	73.53 (55.50)





Challenge Areas

Challenge Area: Lincoln Hills neighborhood trails, Wildground Lane area



Challenge Area: Tower St. Conservation Area

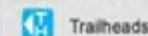


Legend

- Other trails
- CLM trail designation
- closed
- non system
- proposed system
- system

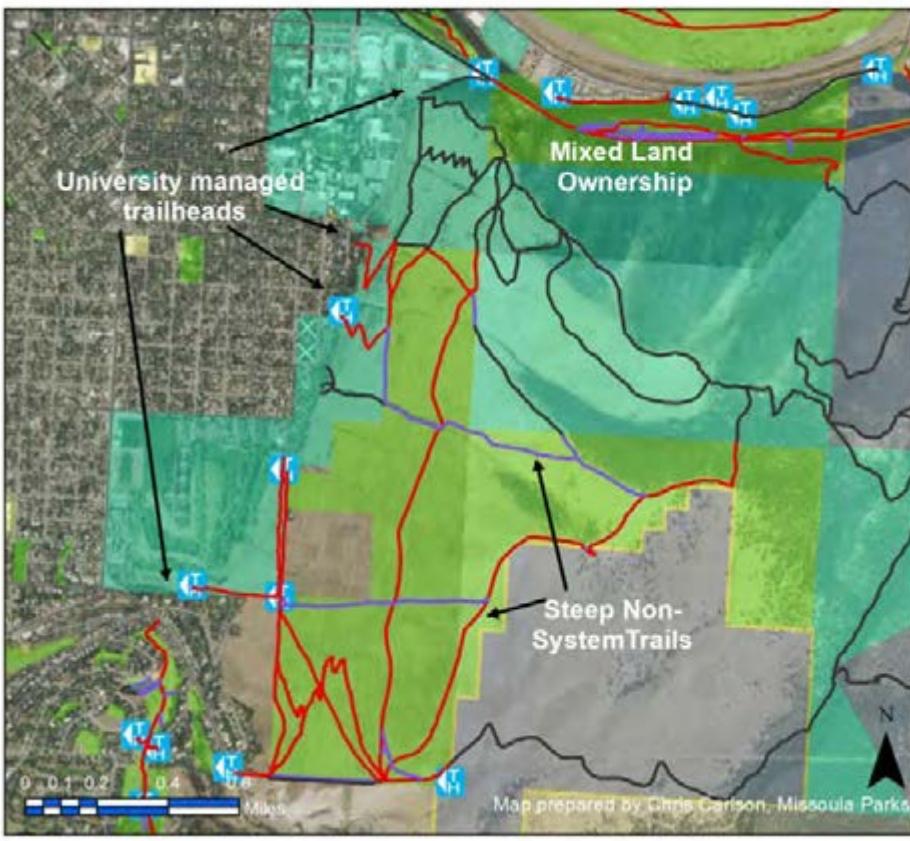
Parcel Ownership

- Owner
- City of Missoula
- Missoula County
- State of Montana
- Other Parcel boundaries

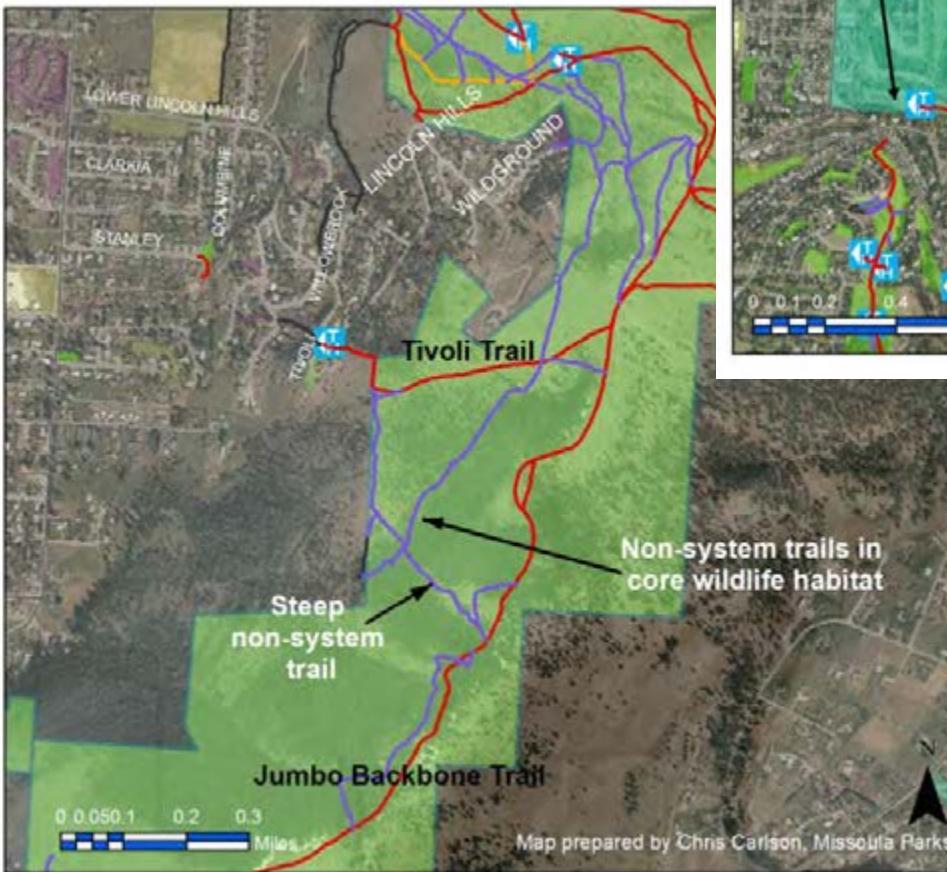


Challenge Areas

Challenge Area: Mt. Sentinel



Challenge Area: Tivoli Trail, Jumbo Backbone Area



Desired Trail

Conditions

CLM Plan Trail Construction Guidelines

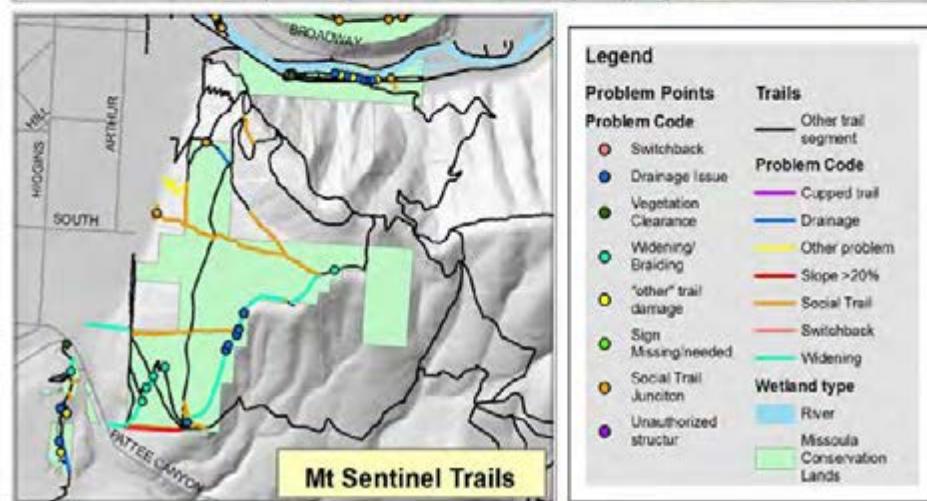
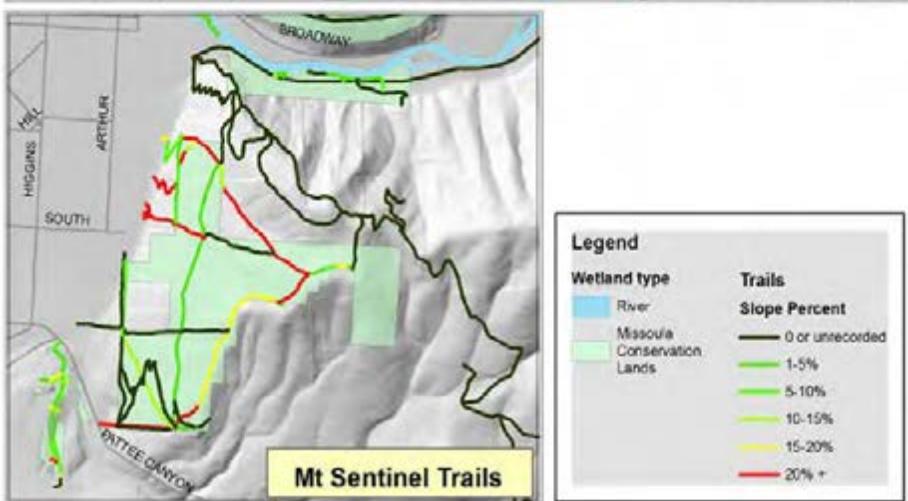
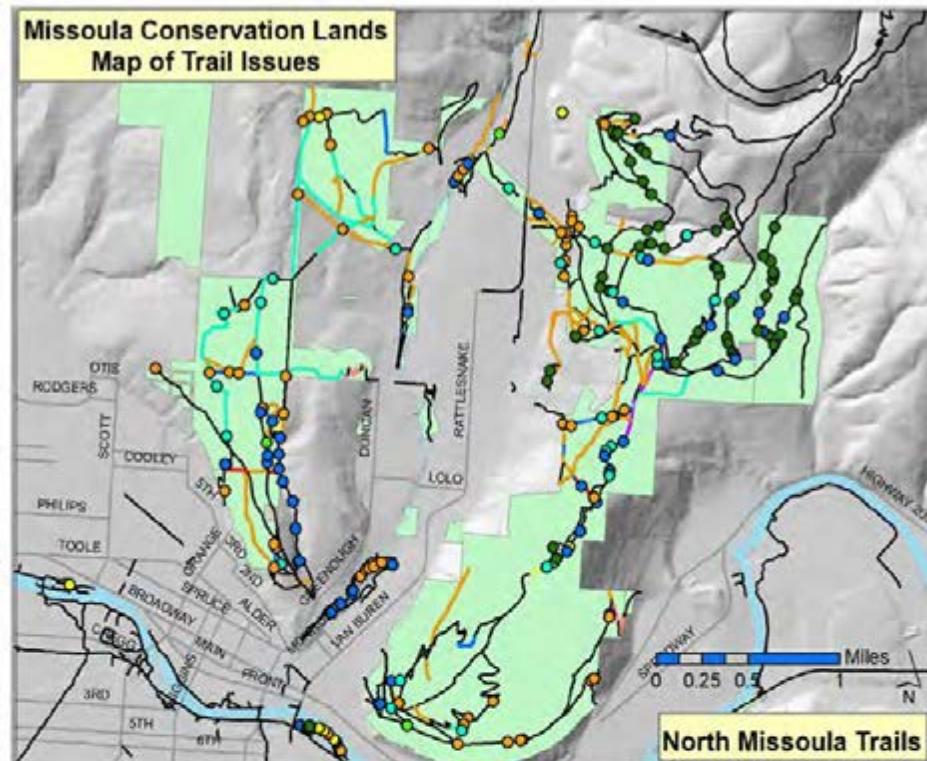
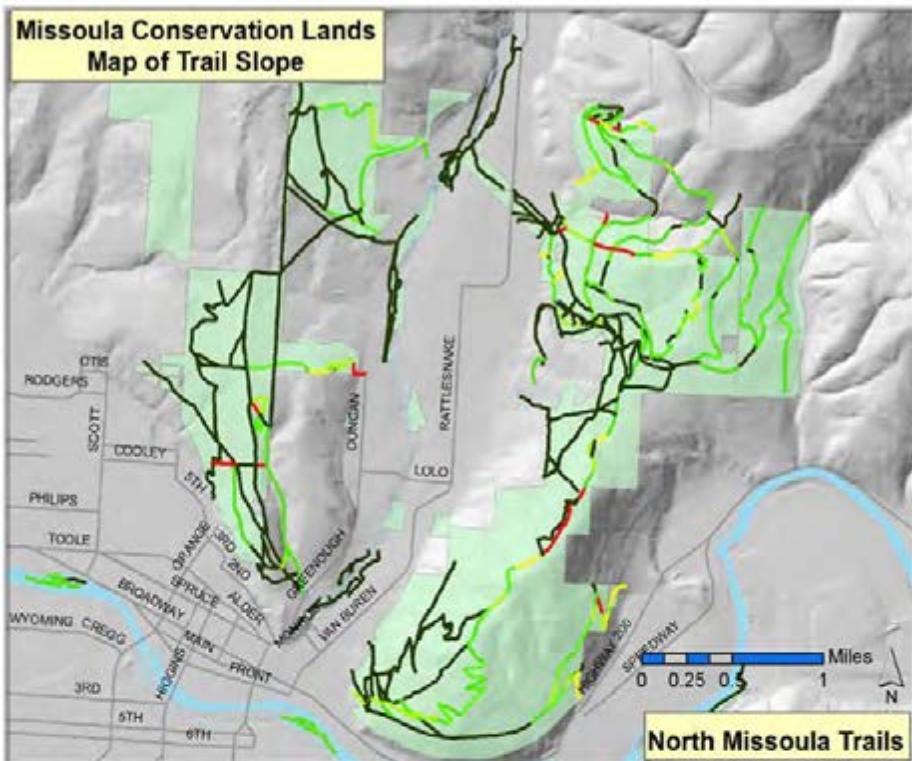
Designated Use	Hiker	Biker	Equestrian
Tread Width	18" – 48"	24" – 48"	48" – 96"
Target Grade (% slope)	Desirable 1 – 10% Max 20%	Max 15%	5% Max 10%
Target Cross-slope Range	3 – 7% Max 10%	3 – 7% Max 10%	5% Max 10%
Vegetation Clearing Width	12" – 18" outside of tread edge	36" – 72" outside of tread edge	36" – 76" Outside of tread edge
Clearing Height	8'	8'	10 – 12'
Minimum switchback Radius	4'	8' – 12'	10' – 12'
Surface type	Native or imported materials		
Surface obstacles	Smooth with few obstacles. Occasional protrusions 2-3" above trailbed		



Current Trail Conditions

%SLOPE OF TRAILS:	0% or unrecorded	1-5%	6-10%	11-15%	16-18%	20-25%	26-30%	31%+	Grand Total
Hellgate / Rattlesnake	6.84	0.47	0.03						7.33
Mt Jumbo / Marshall	8.69	6.00	4.26	1.91	0.82	0.35	0.16	0.05	22.25
Mt. Sentinel	1.97	1.86	0.60	0.63	0.12	1.18	0.23	0.13	6.72
North Hills	7.46	1.67	1.29	0.79	0.02	0.16	0.07		11.46
South Hills	0.93	2.08	0.76	0.43	0.04	0.09			4.35
Tower St.	0.97	0.55							1.52
TOTAL SYSTEM:	26.86	12.62	6.94	3.77	1.00	1.79	0.46	0.19	53.63
TOTAL NON-SYSTEM:	14.29	2.14	0.71	0.65	0.37	0.60	0.64	0.50	19.89

PROBLEM POINTS:	drainage	switchback	widening
Hellgate / Rattlesnake	0	0	0
Mt Jumbo / Marshall	0.58	0.19	1.12
Mt. Sentinel	0.10	0.03	1.59
North Hills	0.38	0.18	3.64
South Hills	0.38	0	0.44
Tower St.	0	0	0
GRAND TOTAL:	1.44	0.41	6.79



How will we use this Inventory?

- Non-System Trails work plan
 - Some provide tail connections that make sense and should be considered for adoption as System Trails
 - Majority are unsustainable (eg. steep & eroded), redundant (access areas already served by System trails), and/or impact important wildlife areas. These should be closed.
- System Trails work plan
 - Address minor issues (eg. clearance and drainage/erosion) in 2016
 - Prioritize major issues (slopes, cupping, widening, braiding) and begin implementing solutions.
- Development of public education
 - Updated trail maps, directional signage, Trailhead improvements
 - Target campaigns to increase responsible recreation







Trail Usage Data

From 2014 User Surveys

Trailhead	Users Per week		Users Per year (*50)	
	Low	High	Low	High
Orange Street	230	1033	11500	51650
Waterworks Hill	700	1700	35000	85000
Cherry Street	475	700	23750	35000
Mt. Jumbo Saddle	150	250	7500	12500
Gasworks	400	700	20000	35000
Mt. Sentinel Fire Road	650	1300	33800	67600
Tower Street	130	350	6760	18200
Total:	2735	6033	138,310	337,550

TLC for our Trailheads

"Trailheads are the last place where we can manage our users"



Missoula's Trailhead Guidelines

8 Primary Trailheads- *major gateways to our trail system at a minimum provide: kiosk, parking for over 10 cars, trail maps, bike racks, bear can, mutt-mitt, possibly restrooms and picnic facilities*

ONLY 1 COMPLYS

25 Secondary Trailheads- *A “side entrance” to our trail systems. Less developed with less use than major TH at a min. provide: rules & reg signs, trail maps, parking for 2-10 cars, trash & muttmutt*

ALL LACK MAPS, MANY NEED BEAR CAN UPGRADES

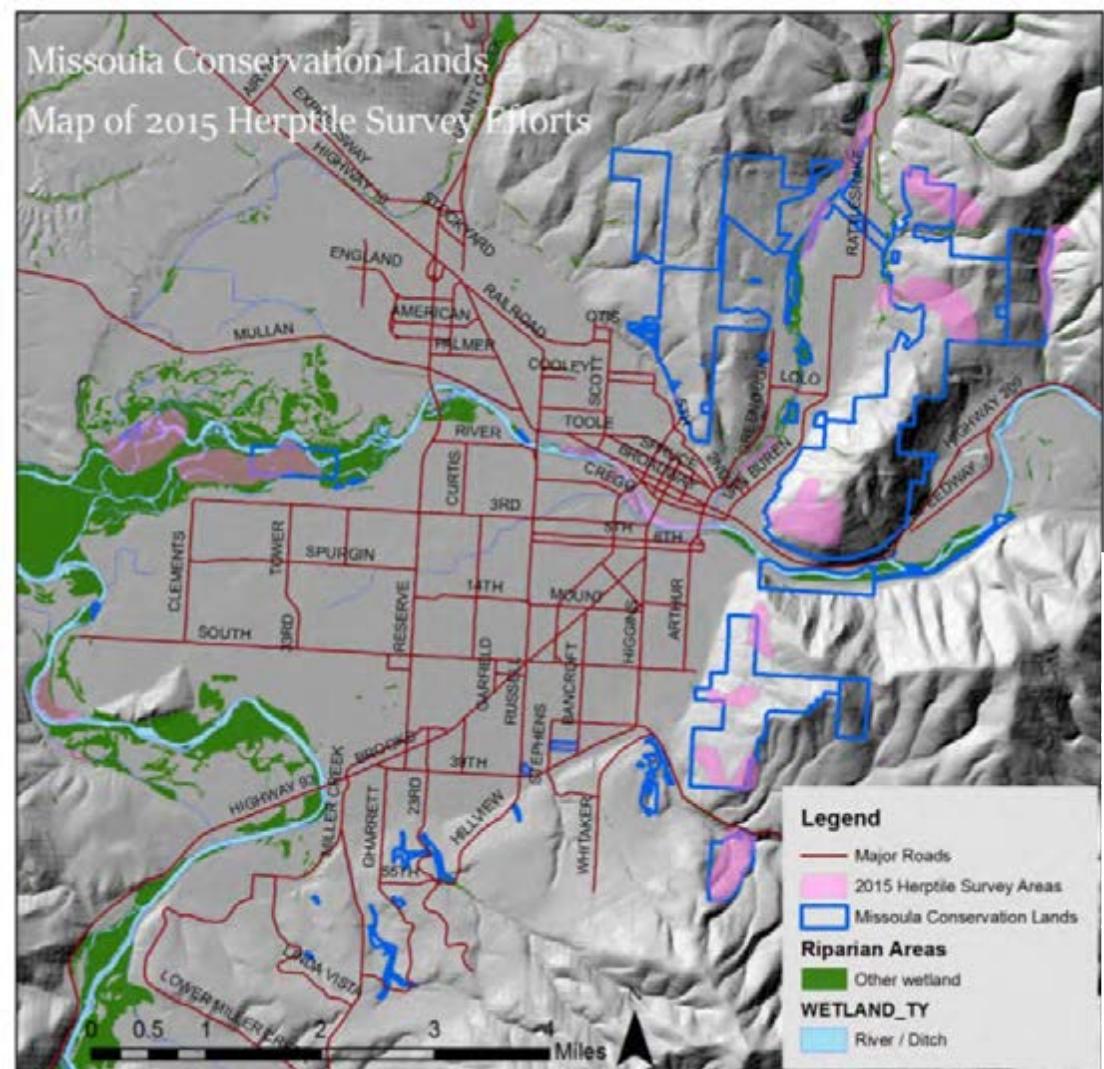
30 Local Access Points- *provide neighborhood access or mark ownership boundaries. At a min. provide: rules & reg sign, fencing/access gate may provide: trail map, trash & muttmutt*

ABOUT ½ LACK BASIC SIGNAGE



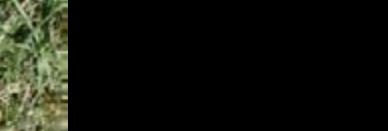
2015 Herptile Monitoring Program





Species Found	# of records	total # individuals
American Bullfrog	2	2
Columbia Spotted Frog	21	20
Gophersnake	4	4
Long-toed Salamander	7	1109
North American Racer	9	12
Northern Leopard Frog		
S.O.C.	1	1
Northern Rubber Boa	3	7
Red Eared Slider	1	1
Terrestrial Gartersnake	25	36
Western Painted Turtle	2	9
Western Skink*S.O.C.	1	8
Western Toad S.O.C.	2	2
Grand Total	78	1211

The Reptiles



The Amphibians

INVASIVE



Plans for 2016

- Expand monitoring efforts
 - Visit unsurveyed areas and newly acquired properties
 - Increase number of night surveys
- Use data to direct recreation management (eg. trails on new parcels, trail reroutes/closures, educational awareness)
- Assess habitat suitability where amphibians are found
 - Begin development of appropriate restoration & enhancement plans (*immediately remove 2 American bullfrogs from Bancroft Ponds!*)
 - Identify areas where habitat creation may be feasible

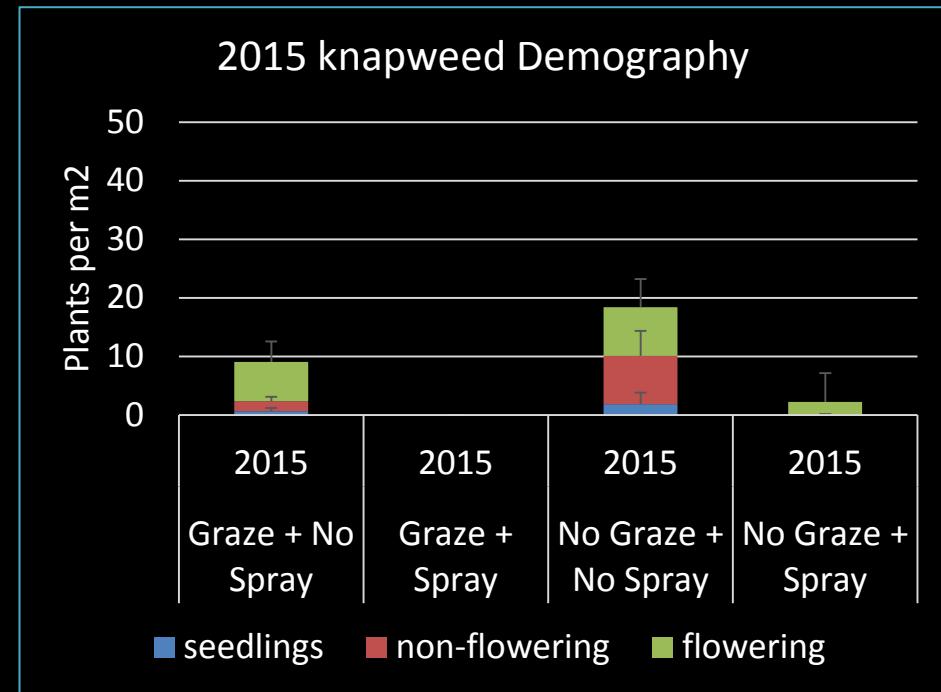
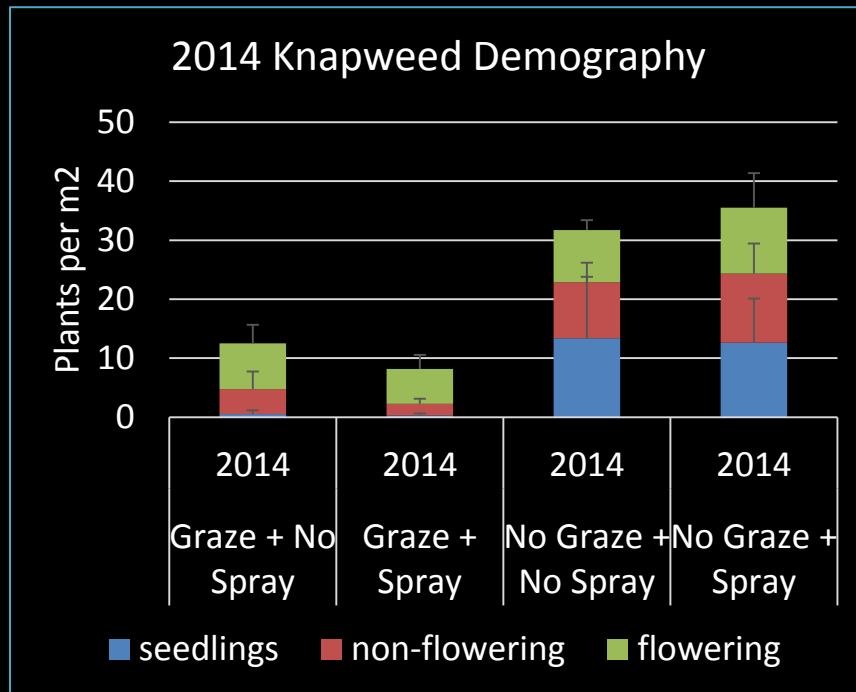
Integrated Spotted Knapweed Control

Background: Grazed knapweed on Saddle for 5-7 years
Released Cyphocleonus 10+ yrs ago
We have seen big reductions in knapweed on Jumbo,
apparently due to grazing

Questions: Is a 1 time spray an effective “exit strategy” from grazing?
What is the role of bio-control insects in the observed
knapweed decline?

2015 activities: Volunteer university intern surveyed bio-controls
Surveyed vegetation plots for 2nd year

Integrated Spotted Knapweed Control



2014 Findings: Grazing is impacting knapweed via demographic process

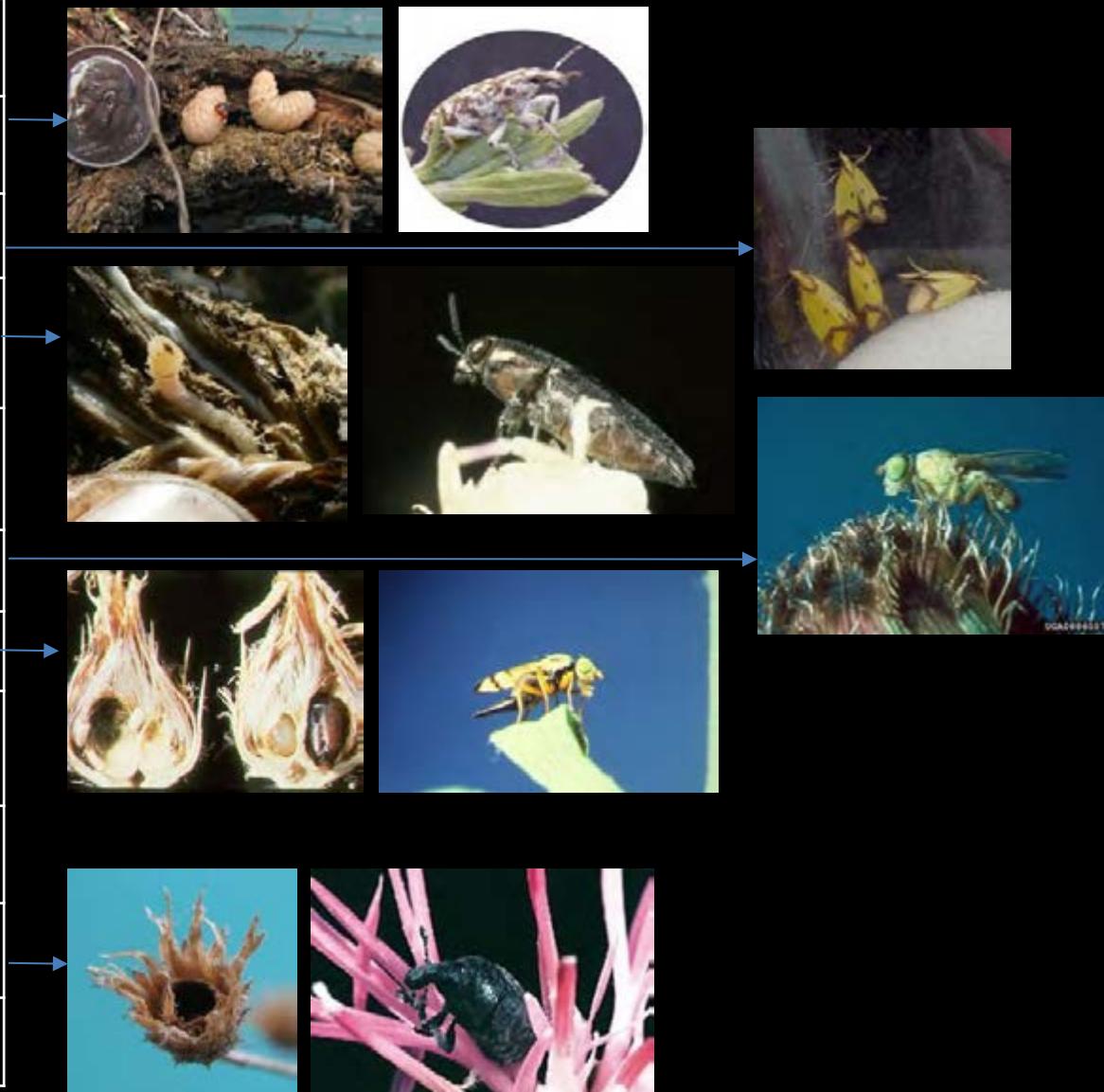
2015 findings: Many fewer seedlings in 2015 (drought?)

Spraying reduced knapweed, but also impacted sensitive natives.

2016 steps: Monitor for secondary invasion, recovery of knapweed in sprayed plots

Integrated Spotted Knapweed Control

Biocontrol Species	% of plot pairs (n=10)
<i>Cyphocleonus achates</i>	100%
<i>Agapeta zoegana</i>	80%
<i>Sphenoptera jugoslavica</i>	80%
<i>Metzneria paucipunctella</i>	0%
<i>Terelia virens</i>	20%
<i>Urophora affinis</i>	70%
<i>Urophora quadrifasciata</i>	0%
<i>Bangasternus fausti</i>	0%
<i>Larinus minutus</i>	0%
<i>Larinus obtusus</i>	10%



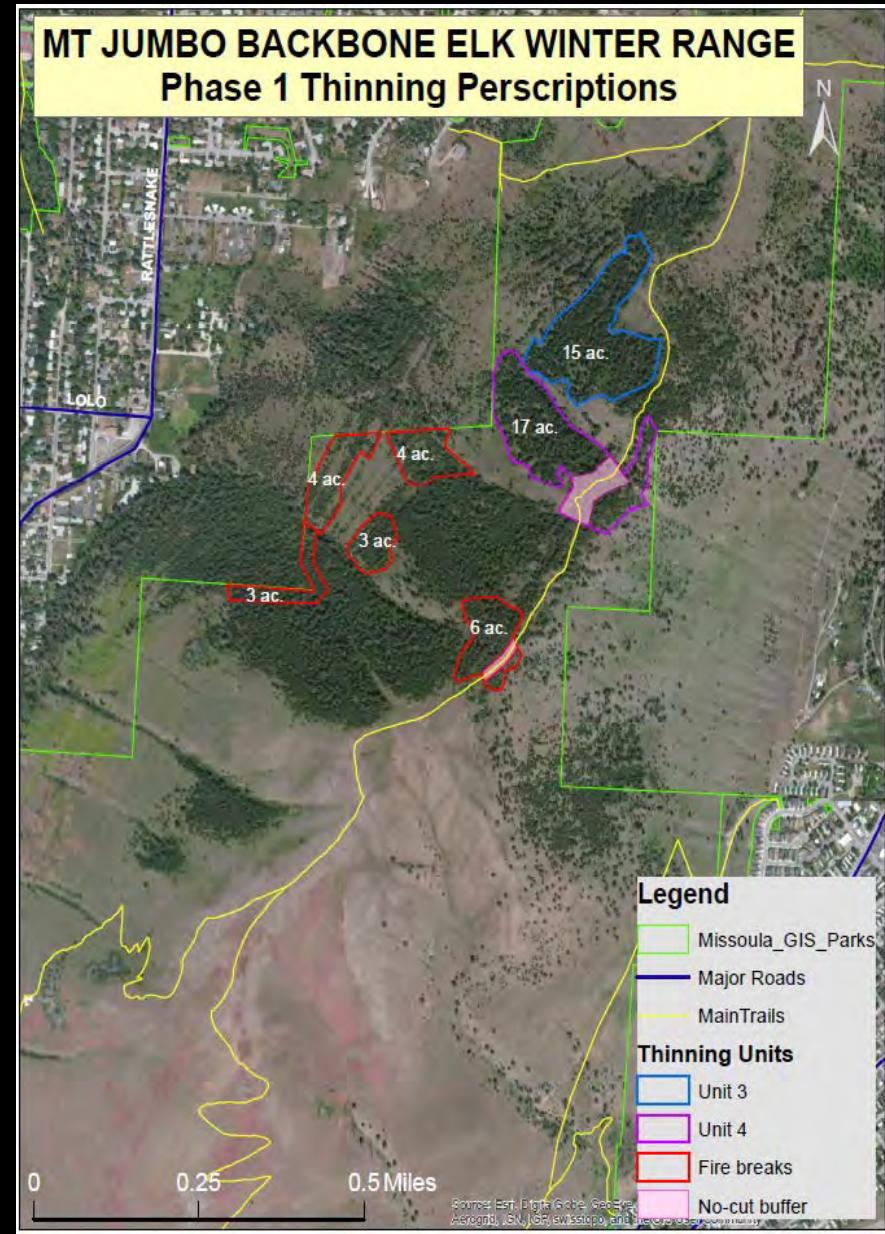
Other Accomplishments



Jumbo Forest Management Plan

PHASE 1 (2015-2016)

- Establish long-term monitoring plots across all units. *Completed in 2014*
- Thin Units 3 & 4 = 32ac.
 - Mark units to ensure visual and snow intercept cover along elk trails & bedding areas. *Completed in 2014*
 - Thinned Unit 3 in 2014 and Unit 4 in 2015
- Create strategic vertical and horizontal fuel breaks between units (*hopefully in 2016*)



Unit3 point D....2014



Unit3 point D....2015



Unit3 point D....2014



Unit3 point D....2015



Unit 3 point 352 south....2014



Unit 3 point 352 south....2015



Unit 3 point 343 north....2014



Unit 3 point 343 north....2015



Unit 4 point 704 east....2014

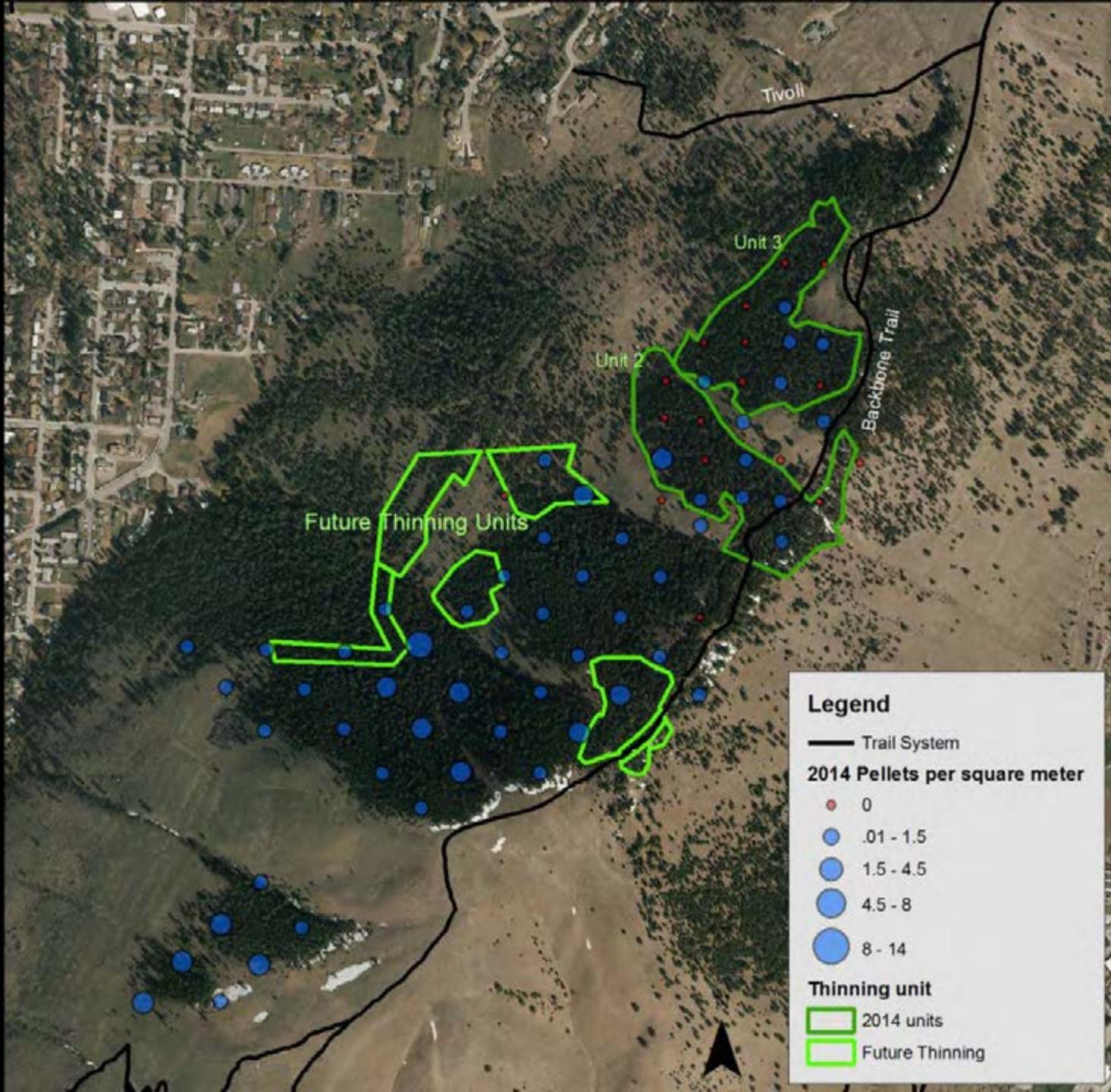


Unit 4 point 704 east....2015



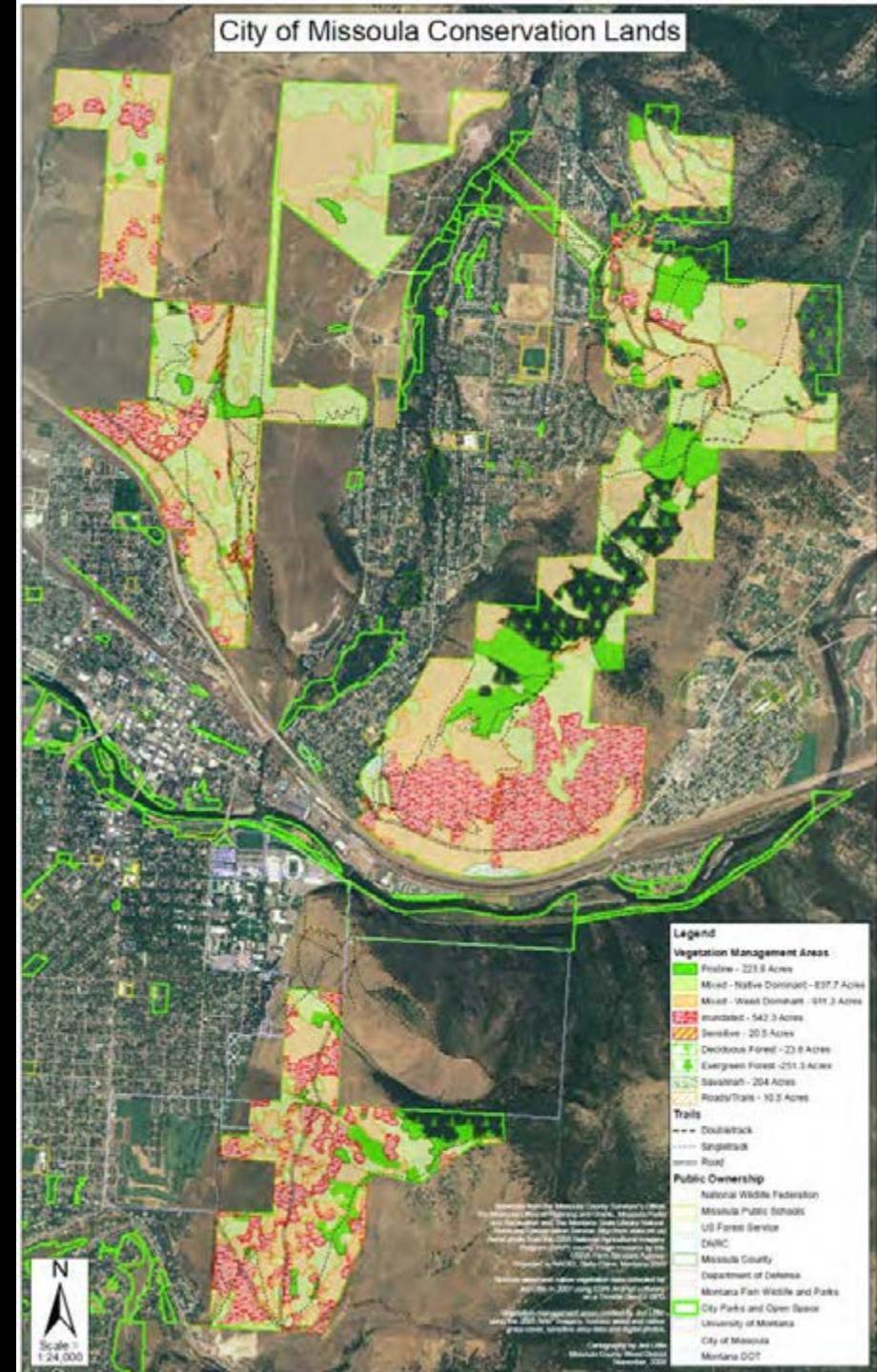
2 units thinned in 2014

Monitoring shows: Elk use of these units did not decrease between winter of 2013 and winter of 2014

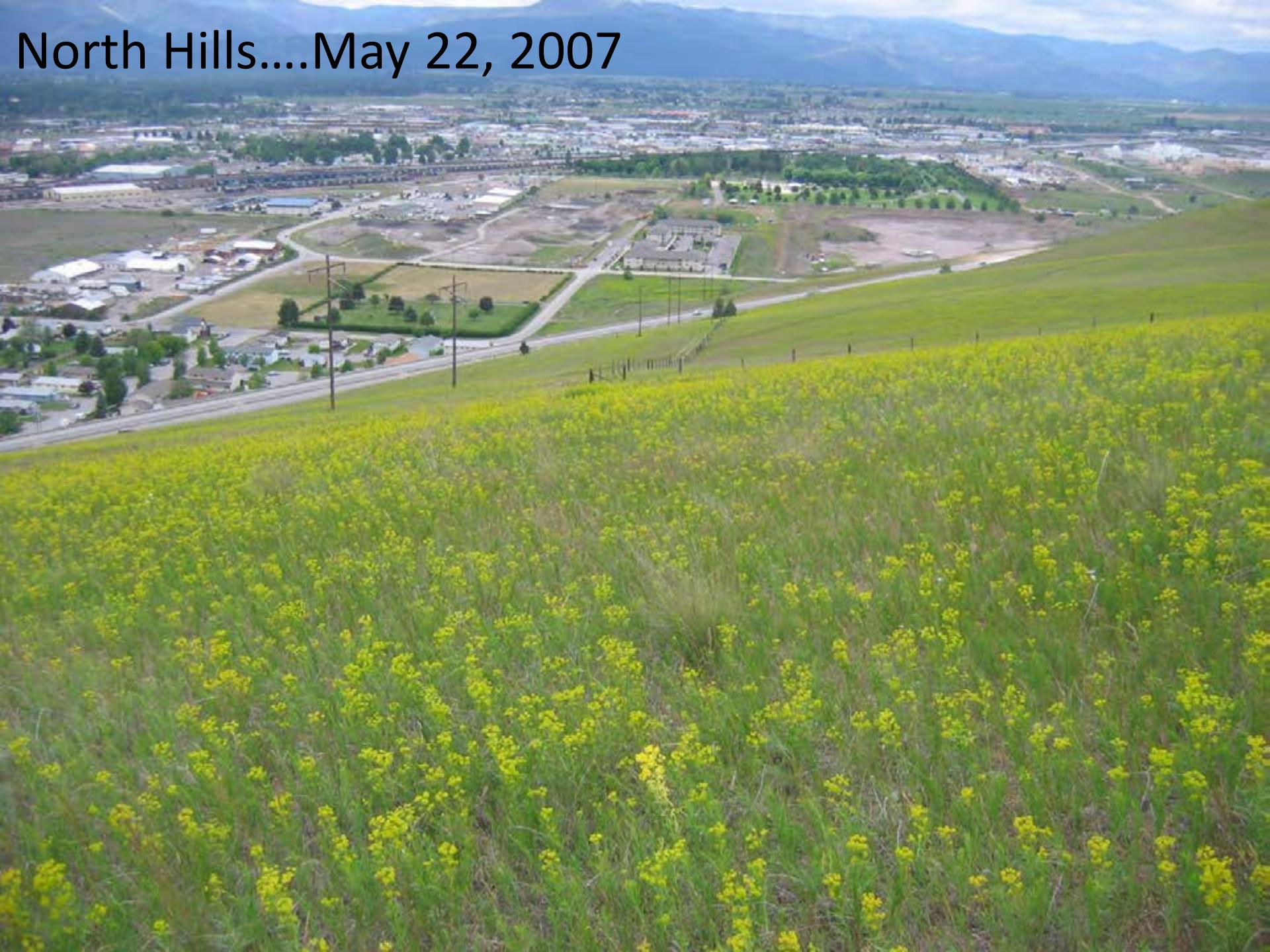


Remapping Grassland VMAs

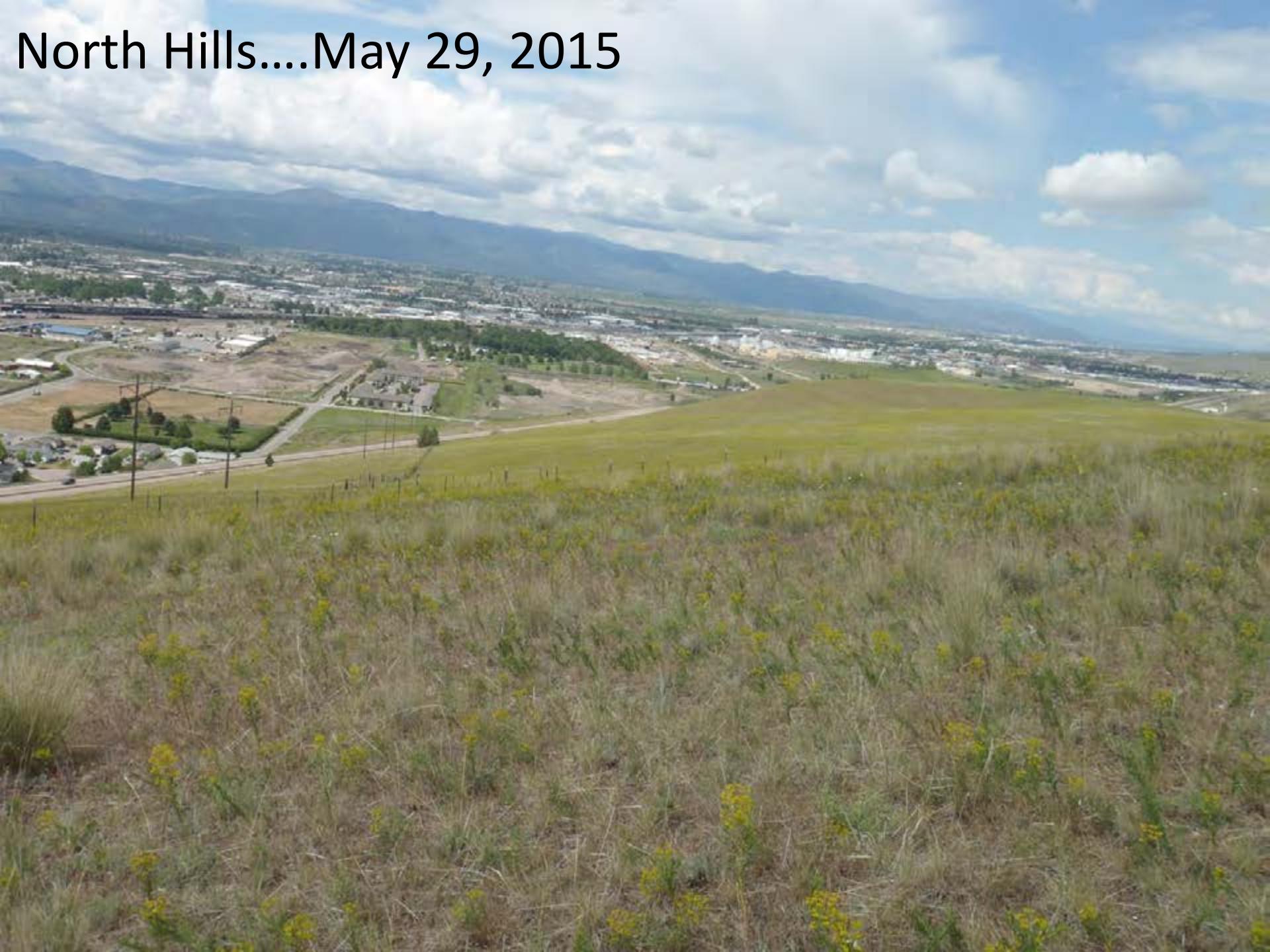
- Provides critical information about:
 - Weed densities
 - Location of new invaders
 - Native grass densities
- Depicts a broad interpretation of grassland health
- Sets weed management and restoration goals



North Hills....May 22, 2007



North Hills....May 29, 2015



Priorities for 2016

- Develop a system for CLAC to score and rank newly acquired parcels
 - Provides baseline information on natural, cultural and recreational resources
 - Helps define broad management goals
 - Assists w/ subsequent development of recreational infrastructure
- Develop maintenance plans for Missoula's CL trail system
 - Address deferred maintenance needs
 - Close and restore the most deleterious Non-System Trails
 - Prioritize solutions to major trail issues
- Complete mapping grassland health across CLs.
- Restoration of the Homestead winch shed
- Clark Fork River Access Project Planning and Fundraising

FY 15 Budget Requests

- CLM Operating Budget: \$24,829
 - Primary use is to provide materials and services for repair and upgrades of trails and trailheads (\$15k) but also add hours to seasonal staff (\$9829)
 - Upgrade CL maps and trail signage, install directional signage across trail system, Improve and maintain TH parking areas.
 - This is a component of the Park Asset Management Plan

THANK YOU



Special Thanks to: Ms. Water Quality Dist., Clark Fork Coalition, Ms. Co. weed District, North Ms. Community Development Coalition, Ben Hughes HOA, Mt. DNRC, Mt. Conservation Corps, Landon Edwards and multiple CLM crew members