Restoration Update
November 14th

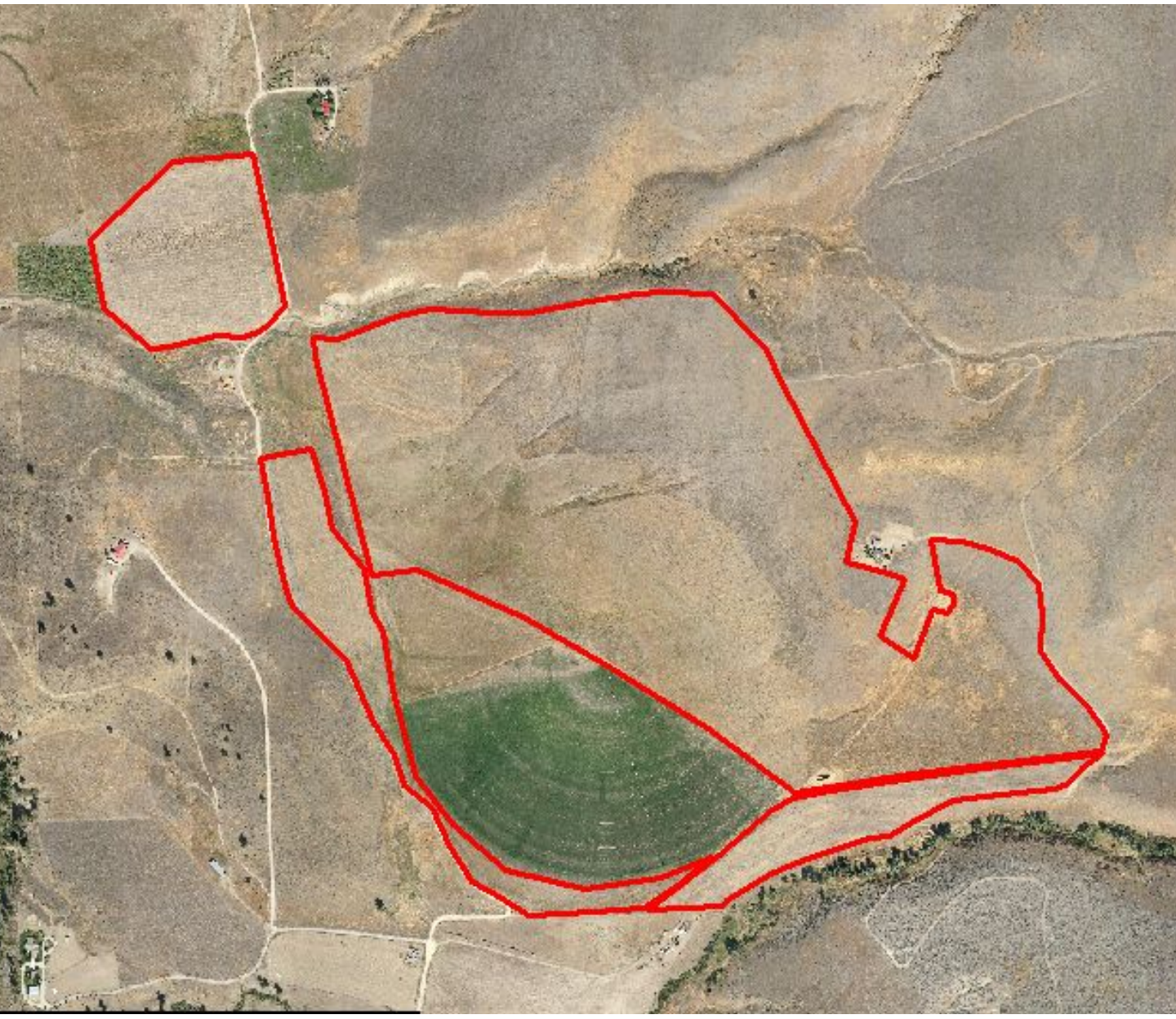
2013

By Dan Mummey

Weather conditions change fast in the fall. Snow halted seeding for an afternoon and morning last week. We are apprehensive about next week's weather forecast that calls for snow and cold temperatures. We need two full days of good conditions to finish fall seeding.

Weed Control **Entrance Area**

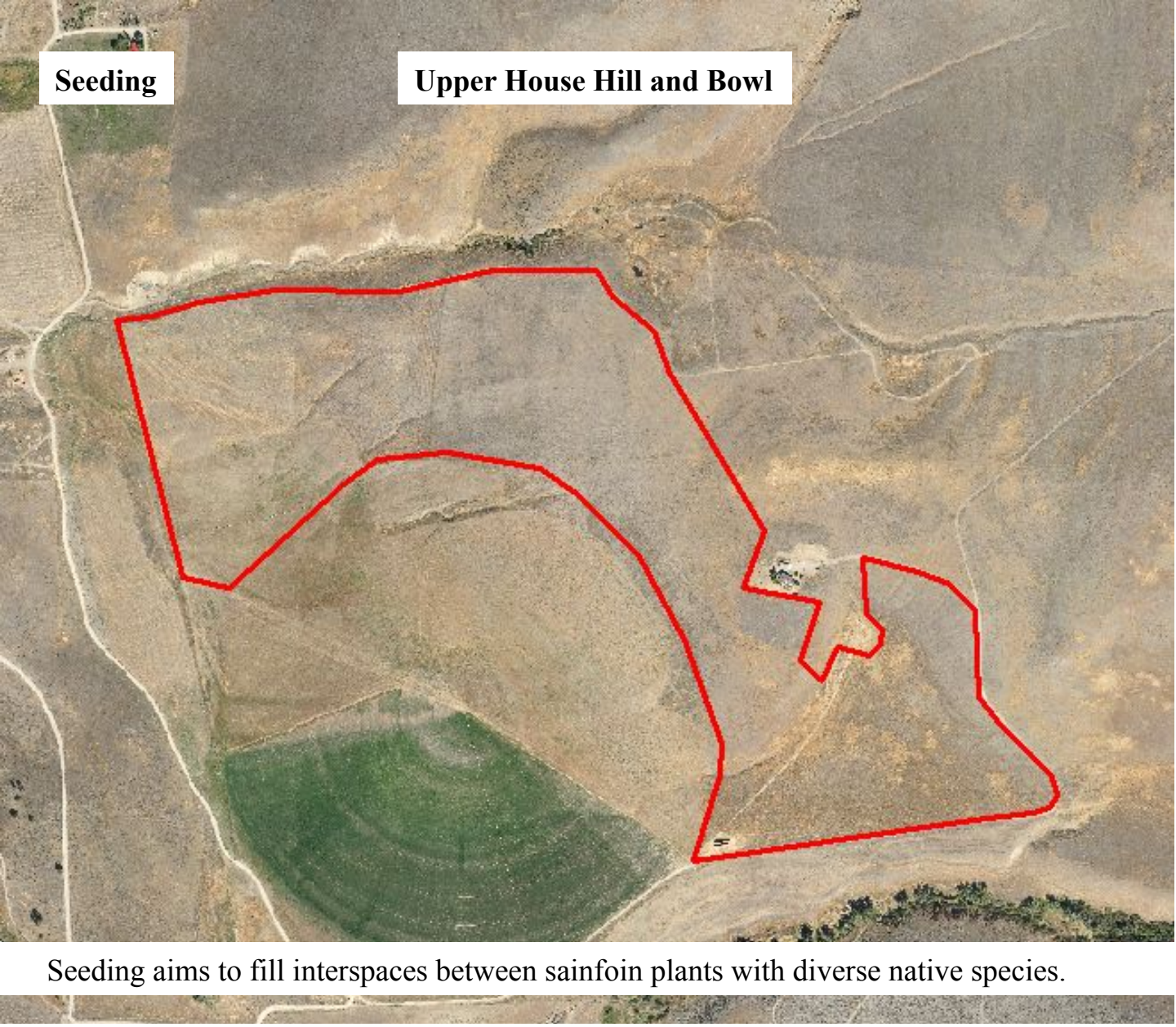
We sprayed low amounts of glyphosate on seeded areas near the entrance to control winter annual seedlings. Last year, spraying glyphosate and imazapic the day before an abrupt temperature drop caused stunting and mortality in non-target species in the north center pivot area. Plants were not able to metabolize or excrete the chemical. We avoided this problem by spraying when cool, but not freezing, conditions were forecast for two days after treatment.



Seeding **North Sainfoin and Cheatgrass Fields**

North Cheatgrass (red polygon): We used glyphosate to control *Poa bulbosa* and winter annuals before seeding natives. Louie Bouma tried to disk the field to bury weed seeds but rocky soils made disking ineffective. Sown seed amounts, and the relative amount of fast-growing ruderal species, was increased to suppress weeds.

North Sainfoin (green polygon): Three different seeding treatments are being evaluated for sainfoin field diversification. Using the same species mix as the north cheatgrass field, we seeded forbs only, grasses only, and grasses with forbs to different areas of the northern sainfoin field.



Seeding aims to fill interspaces between sainfoin plants with diverse native species.

Seeded species

Broadcast species	Drilled species
Sandburg's bluegrass	Bluebunch wheatgrass
Lewis flax	Slender wheatgrass
Deerhorn clarkia	Bottlebrush squirreltail
Western yarrow	Sandburgs bluegrass
Littleflower penstemon	Idaho fescue
Cutleaf daisy	Indian ricegrass
California poppy	Winter wheat
Plains coreopsis	Sainfoin
Prairie coneflower	
White prairie clover	

Seeding

South Crested

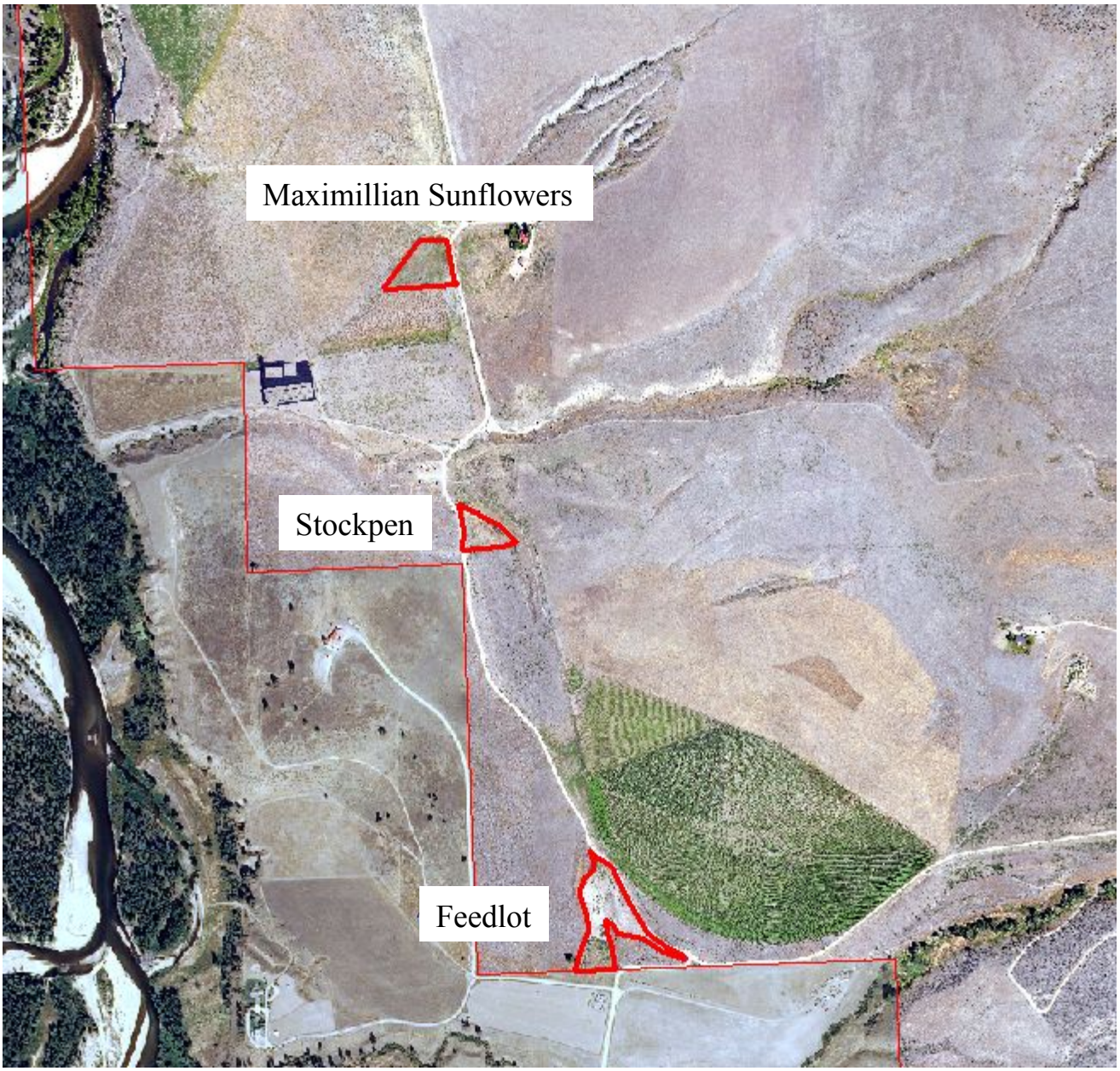
Soils on this site contain more clay and less gravel than is typical on the ranch. Good first year seedling growth is expected.

Seeded Species

Broadcast	Drilled
Prairie coneflower	Sandbergs
Oregon sunshine	Bluebunch wheatgrass
Hairy evening primrose	Idaho fescue
Holboell's rockcress	Slender wheatgrass
Maximillian sunflower	Prairie junegrass
Cutleaf daisy	Bottlebrush squirreltail
Rosy pussytoes	Thickspike wheatgrass
Purple prairie clover	Great basin wildrye
White prairie clover	Winter wheat
Fringed sage	Sainfoin
Blanketflower	
Penstemon procerus	
Firecracker penstemon	
Showy goldeneye	
California poppies	
Purple prairie clover	

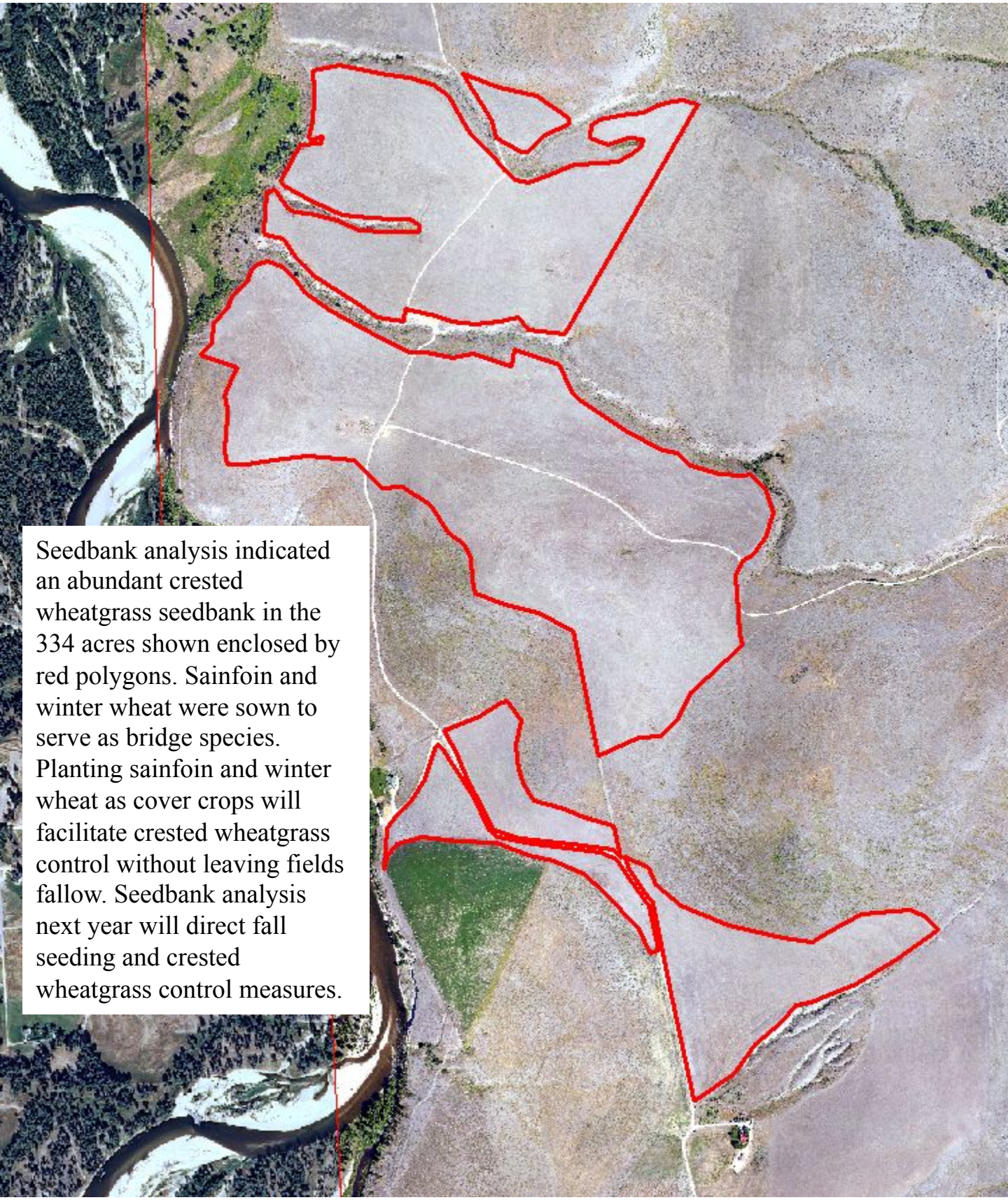
Seeding **Feedlot, Stock pen, and Maximillian Sunflower Areas**

Grasses established after spring and fall seeding in these areas. The goal for these areas is to introduce forbs and increase native cover to displace ruderal grasses. We used the south crested mix supplemented with small seed leftover from other areas. Over 120 seeds were sown per square foot. This is more than twice the typical seeding rate.

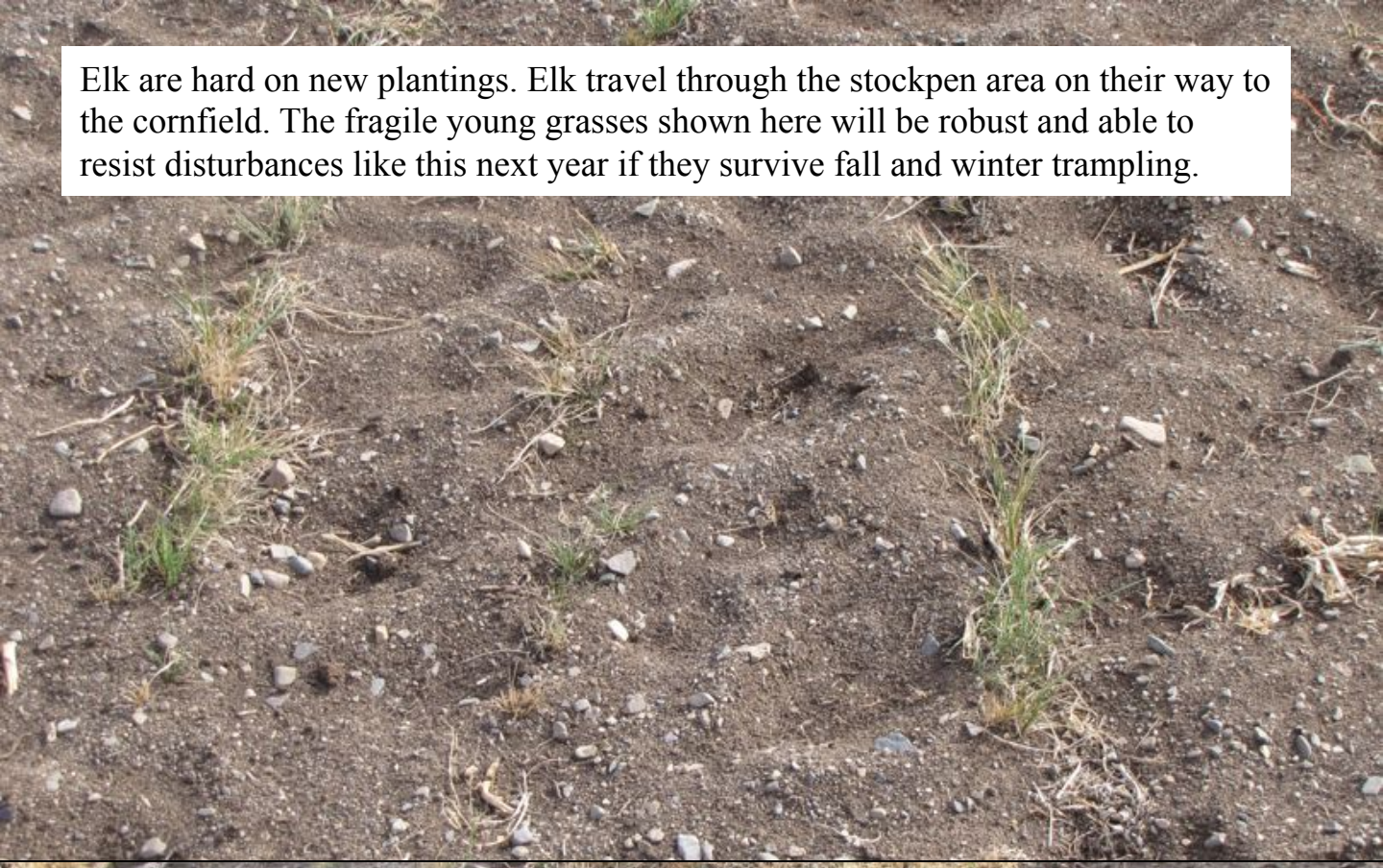


Seeding

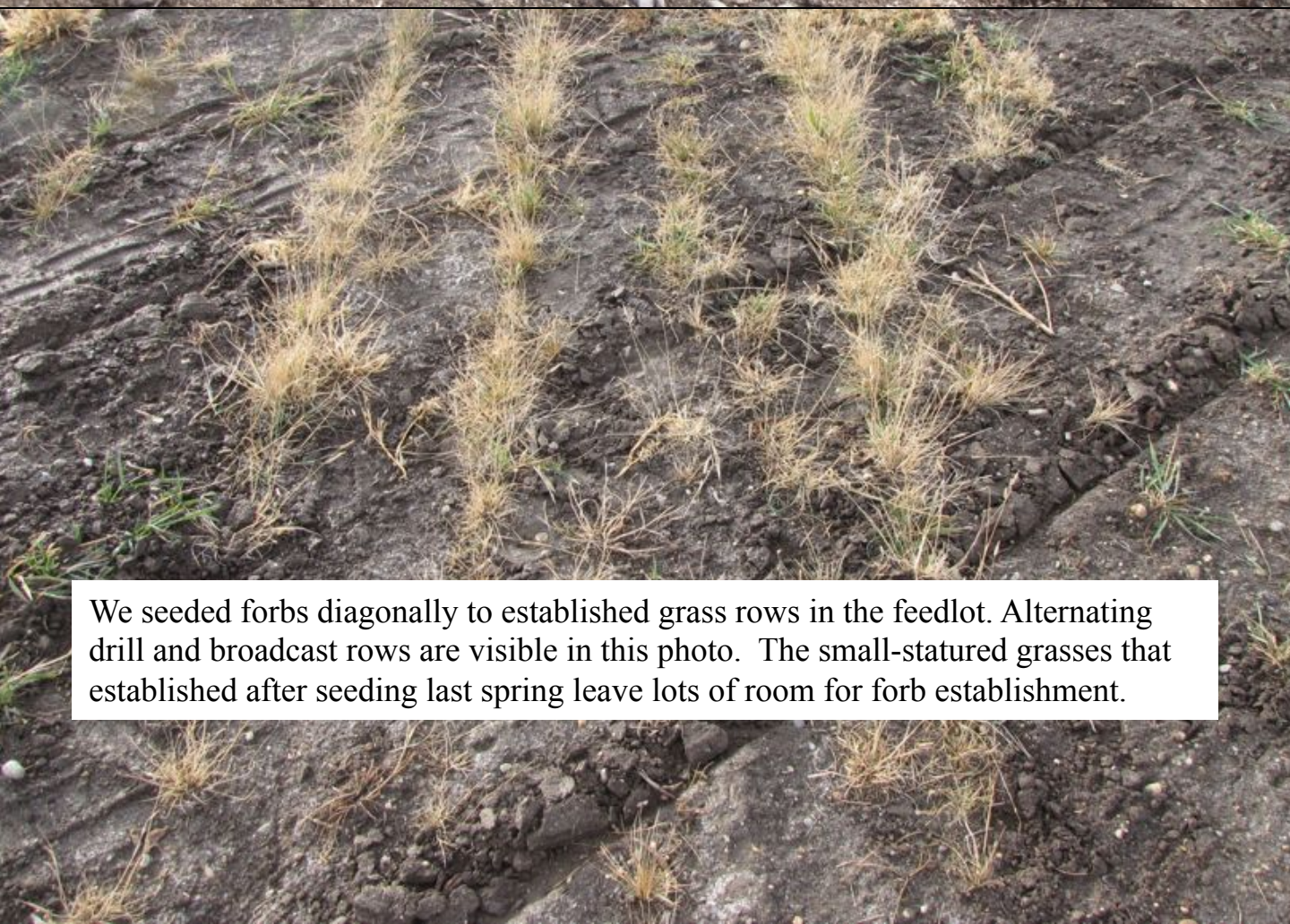
Crested Wheatgrass Control Areas



Seedbank analysis indicated an abundant crested wheatgrass seedbank in the 334 acres shown enclosed by red polygons. Sainfoin and winter wheat were sown to serve as bridge species. Planting sainfoin and winter wheat as cover crops will facilitate crested wheatgrass control without leaving fields fallow. Seedbank analysis next year will direct fall seeding and crested wheatgrass control measures.



Elk are hard on new plantings. Elk travel through the stockpen area on their way to the cornfield. The fragile young grasses shown here will be robust and able to resist disturbances like this next year if they survive fall and winter trampling.



We seeded forbs diagonally to established grass rows in the feedlot. Alternating drill and broadcast rows are visible in this photo. The small-statured grasses that established after seeding last spring leave lots of room for forb establishment.

Seed Technologies

Seed predation decreases broadcast seeding efficacy. Pepper coating seeds to limit predation is an old idea that has not been tried in a restoration setting. Squirrel repellent sprays containing pepper are marketed for bird seed. Mammals, but not birds, are irritated by peppers.

We coated Clearfield wheat seeds with a hydrophobic polymer and cayenne pepper. Predator-resistant wheat seed may be useful on slopes where rapid seedling establishment is needed to stabilize soil and add organic matter. Clearfield wheat is resistant to imazapic and compatible with chemical weed control strategies.

Larger native seeds, such as antelope bitterbrush and large grasses, can be coated using this technology.