



How I learned to stop worrying and love bare ground



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Metro – Conservation Program



Metro | *Making a great place*

Occupy the Ground

Axiom: a statement or proposition that is regarded as being established, accepted, or self-evidently true

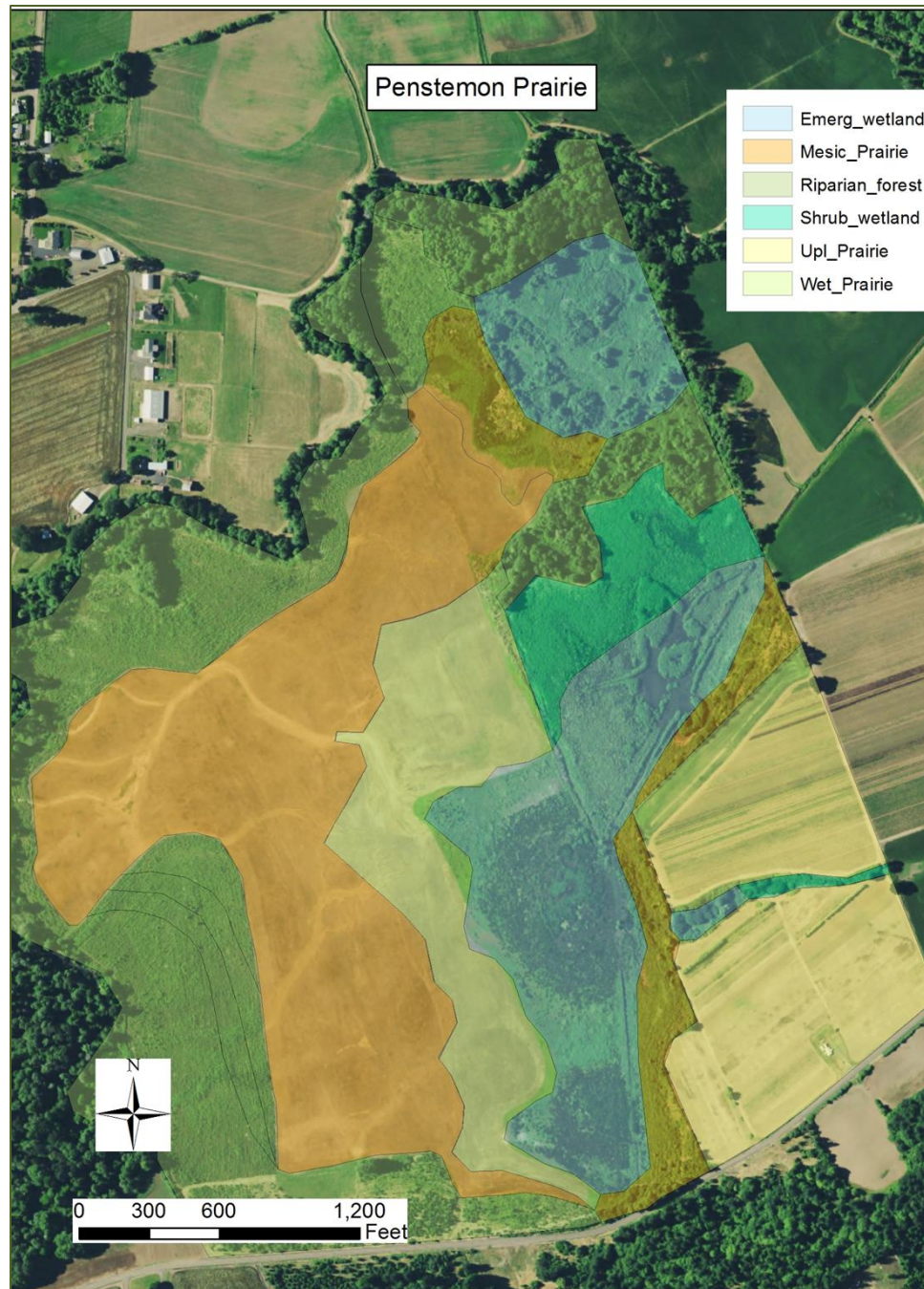


Why?

- Fight off the evil invasive plants, aka weeds.
 - Reduce competition.
 - Prevent infestations.
- Bare ground is wasted space.
 - It could be growing something good.
 - Riparian areas need to provide shade.
 - It provides space for weed invasions.

Occupy the Ground

- Does it keep weeds out?
- Is it compatible with other objectives?
 - Species diversity?
 - Structural diversity?
- Is there a need for bare ground?
 - Native bees
 - Some birds
- How to optimize the ecological value?





Poorly maintained agricultural fields
No seed bank left

Weed legacy



Site prep – 2005-2007

- Multiple sprays
- Contracted farming for oats (2 yrs)



Seeding - 2007

Species	lbs./ac
Agrostis exarata	3.50
Alopecurus geniculatus	1.29
Boisduvalia (Epilobium) densiflora	0.15
Camassia leichtlinii	0.15
Carex densa	0.70
Carex scoparia	0.70
Carex stipata	0.03
Carex unilateralis	0.70
Deschampsia caespitosa	4.71
Deschampsia elongata	3.50
Downingia elegans	0.10
Grindelia integrifolia	0.36
Hordeum brachyantherum	1.72
Juncus ensifolius	0.03
Lotus purshianus	0.10
Plagiobothrys figuratus	0.10
TOTAL	17.84

What grew?



2010 photo

Why just grass?

Species	pct by wt	pct by seeds
<i>Agrostis exarata</i>	19.6	45.4
<i>Alopecurus geniculatus</i>	7.2	1.7
<i>Boisduvalia densiflora</i>	0.8	0.3
<i>Camassia leichtlinii</i>	0.8	0.0
<i>Carex densa</i>	3.9	0.8
<i>Carex scoparia</i>	3.9	2.1
<i>Carex stipata</i>	0.2	0.0
<i>Carex unilateralis</i>	3.9	1.8
<i>Deschampsia caespitosa</i>	26.4	27.3
<i>Deschampsia elongata</i>	19.6	15.1
<i>Downingia elegans</i>	0.6	0.5
<i>Grindelia integrifolia</i>	2.0	0.1
<i>Hordeum brachyantherum</i>	9.6	3.0
<i>Juncus ensifolius</i>	0.2	1.7
<i>Lotus purshianus</i>	0.6	0.0
<i>Plagiobothrys figuratus</i>	0.6	0.2
GRASS PERCENTAGE	82.5	92.5

But it's native, right?

- Indicators for prairie include:
 - Species richness
 - Frequency of occurrence of natives



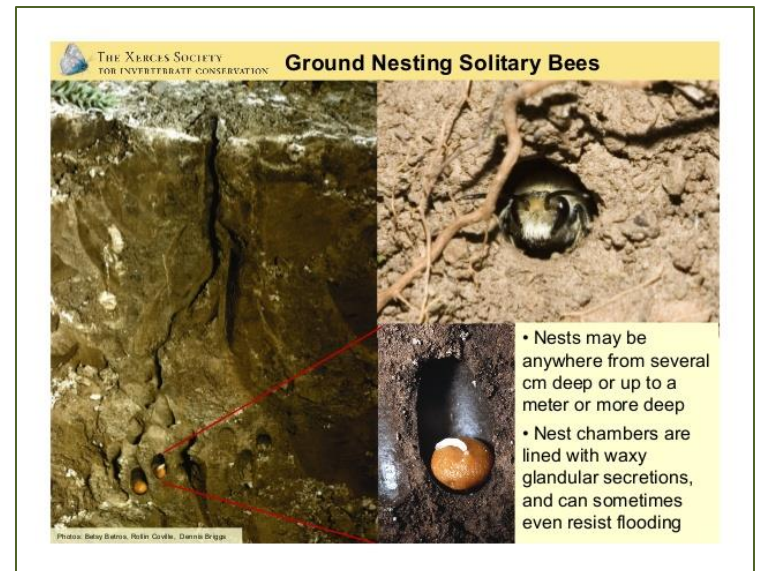
Look familiar?



But no weeds, right?



But we can't leave it bare...



Now what?

Goals

- Conservation targets
- Measurable attributes

Prep

- Clear grasses
- Address weed seed bank

Seed 1

- Focus on graminoids
- Light on grasses

Grow

- Build up graminoids
- Weed treatments

Seed 2

- Add forbs

Goals and objectives!

- Conservation targets
 - Grassland birds, pollinators
 - Wet and mesic prairie habitat
- Metrics
 - Species diversity
 - Frequency for prairie associates
- Informed restoration
 - LH needs of associated wildlife
 - Use lessons learned from last time

Legacy of grass cover



Site prep – 3 more years

- Hay and sell grass
- Herbicide treatments





Goals

- Conservation targets
- Measurable attributes



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Seed 1

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Grow

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Seed 2

- Add forbs

Back to seed mixes



Sedge and rush mix

Wet Prairie Mix	Seeds/sf desired	Lb. for 27 ac.	Seeds/lb.
Carex densa	5	12.00	508,000
Carex scoparia	1	1.00	1,280,000
Carex stipata	5	10.00	570,000
Eleocharus ovata	7	21.00	430,000
Juncus acuminatus	7	0.50	20,000,000
Juncus bufonius	7	0.50	20,000,000
Juncus tenuis	4	0.25	20,000,000
Combined seed (count Carex only)		70.00	varies
TOTAL	60-80	4.2 lb/ac	

Grass mix

	Seeds/sf desired	Lb. for 27 ac.	Seeds/lb.
Wet Prairie Grass mix			
Agrostis exarata	5	1.00	5,600,000
Beckmannia syzigachne	2	3.00	800,000
Camassia leichtlinii	0.5	12.00	50,000
Camassia quamash	0.5	6.00	100,000
Deschampsia elongata	3	1.50	2,300,000
Sisyrinchium idahoense	1	6.50	182,000
TOTAL	12	1.1 lb/ac	

5 grass, 15 sedge nozzles



Questions

- Will the graminoid community thrive?
- Will there be room for forbs?
- Can weeds be brought under control?
- What weeds pose great threat?
- What are the treatment thresholds for them?

Lessons learned

- The urge to occupy bare ground can cause a loss of perspective.
- “Native dominance” does not guarantee habitat quality.
- Projects implemented without clear goals and objectives can leave you with a hot mess to clean up.
- It’s OK to have some bare ground, and some really cool animals need it.

Penstemon Prairie

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