

SRHP Bioassay Report

October-December 2024

by Sherry Meador, Smith River Habitat Project

In collaboration with USFS, MT FWP, and Gardenwerks (a Helena nursery), SRHP conducted bioassays from soils collected by West River Land Management along Smith River corridor the dates of October 10-13, 2024. The soils collected were from sites treated as follows:

Sample #1 Table Rock

Treated October 2023 for leafy spurge, houndstounge, Canada and Musk thistle

1qt Tordon, 1qt 2,4D, 1 oz Escort

Sample #2 Cow Coulee

Treated October 2023

1qt Tordon, 1qt 2,4D, 1 oz Escort

Treated June 2024

8oz Method, 1oz Escort

Sample #3 Meadow Bend

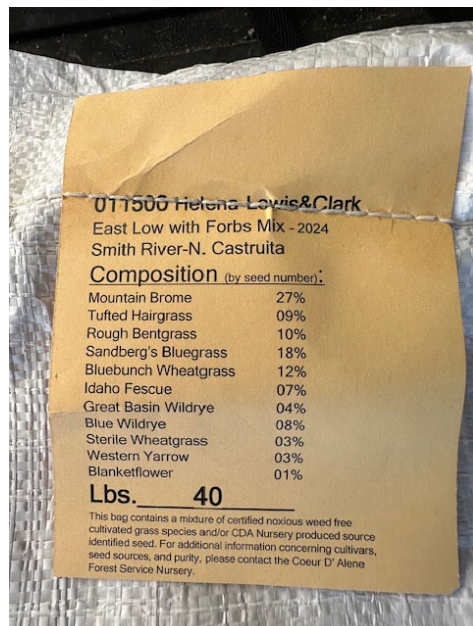
Treated October 2024

1qt Tordon, 1qt 2,4D, 1 oz Escort

Sample #4 area outside of Meador Bend treatment area

Never treated

The seed mix used was recommended by USFS and obtained from the IPNF CdA Nursery





The soils were collected from several spots within a 20 sq ft area for each site, GPS referenced, and placed in individual plastic containers.

The bioassays were conducted by Mike Hiel of Gardenwerks, in his greenhouse and set up as seen here.

On October 29th, 60 grams of seed mix provided by USFS was spread across four tins and covered with 1/4 in soil.

Re resulting growth in the soils sampled is as follows:



Sample #1 Table Rock



Sample #2 Cow Coulee



Sample #3 Meadow Bend treated



Sample #4 Meadow Bend untreated

After reviewing the pictures, Nathan Robertson, Bareroot and Seed Horticulturist with Forest Service At IPNF CdA Nursery, responded:

Definitely a lot going on in those dishes!! Based on the size and artificial growing conditions, it's very tough for me to decipher species, other than to lump them into general categories. There are certainly a lot of heavier grass germinates in there, and those would be either mountain brome or sterile wheatgrass. Nearly impossible for me to tell those apart at this stage. As they progress, the brome leaves will flatten out more along the horizontal plane, while the sterile wheat will continue to grow with strong vertical inclination.

There are also a lot of medium sized leaves there, and those would be the bluebunch, blue wildrye, and basin wildrye seedlings. They are a little slower to get going, and express as thinner leaves than the brome and wheat, but still flat leaves (not rolled like fescue). They are nearly indistinguishable from each other at this point.

It's tough to tell whether the smaller grasses are represented, but those will mostly show up as sharp rolled leaves for the fescue and bentgrass, and very small, thin, flattened leaves for the sandbergs and tufted. These are also the slower, less-vigorous grasses that take longer to germinate, grow, and become a significant presence. Also, if the seed was incorporated deeply into these dishes, the tufted hairgrass and rough bentgrass may be too deep in the soil to get up to the surface. They really need to be at or near the surface to do well, which is why they do not show up very well in a heavy hydromulch application. The large and medium grasses appear to be very well represented though, which is encouraging!

Proposed Seed Mix for Smith River

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Here is a recipe for the mix with the 7 species based on the discussion of bioassays and revegetation goals

Common Name	Species	Seeds/lb	Purity %	PLS lbs	Target seedling density/ft2	Target composition %
Mountain brome	<i>Bromus marginatus</i>	65,000	90	40,950	3.6	34
Sandberg's bluegrass	<i>Poa secunda</i>	925,000	90	582,750	2.4	23
Bluebunch wheatgrass	<i>Pseudoregneria spicata</i>	130,000	90	81,900	1.6	15
Idaho fescue	<i>Festuca idahoensis</i>	450,000	90	283,500	1	10
Blue wildrye	<i>Elymus glaucus</i>	135,000	90	85,050	1.1	10
Sterile wheatgrass	<i>Triticale x Secale</i>	13,000	90	8,190	0.36	3
Great basin wildrye	<i>Leymus cinereus</i>	130,000	95	86,450	0.55	5
Total:					10.61	100



Nathan Robertson
Bareroot and Seed Horticulturist

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