

12/1/95

Restoration Site 1, Year 1 Post-Treatment Data Interpretation

The dataset (see attached) are LTER line transect and only a subset of the total study plots were sampled (see dataset summary). The data compare pre-treatment (Fall 1994) status with post-treatment (Fall 1995) status across treatment and control plots. This preliminary dataset is only useful for interpreting the effects of overstory removal and use of the slash as a surface mulch; it cannot be used to evaluate differences between the various seeding and soil preparation treatments.

Tree cover was reduced from around 34% cover (adjusted relative to control) to .2% cover on treatment plots relative to control plots; the reduction of tree cover reported for control plots was probably due to sampling bias between different observers in subsequent years (tree overstory measurements are a relatively crude estimate).

Overstory litter cover increased from less than 1% cover to 37% cover on treatment plots primarily due to the slash generated from overstory removal; controls showed relatively little change.

Basal litter cover increased from 56% to 73% relative to control which showed a one percentage point decrease.

All soil (cryptogamic+bare) cover decreased from 40% to 23% on treatment plots compared with a slight increase of less than one percentage points on controls. Cryptogamic and bare soils were combined due to sampling bias between different observers in subsequent years (cryptogamic soils are also more apparent when the soil is moist).

There was a slight decrease of nearly one percentage point in basal intercept of herbaceous (herbs and grass) cover on treatment plots compared with almost no change on control plots.

Overstory herbaceous cover increased six percentage points on treatment plots from 12% to 18% cover compared with a decrease on control plots of three percentage points from 17% to 14% cover. The increase in overstory cover on treatment plots relative to controls was around nine percentage points.

In summary, overstory removal and slash mulching in the spring of 1995 produced significant effects on treatment plots relative to both pre-treatment data and controls. Exposed soil coverage decreased while litter and herbaceous coverage (overstory only) increased. Germination success from plant materials seeded onto selected plots is generally not represented in these data; these results are presented under a review of the quadrat data. Vegetative response will continue to be assessed over a five year period in order to factor out year to year differences and validate whether restoration treatments provide for a sustained recovery.

Preliminary Results of 1994 transects vs. 1995 transects
on selected plots from Res. Site 1 (Frijoles Mesa)
10/20/95

	% Basal Intercept					% Overstory				
TREAT PLOTS	'94 AVE	'94 VAR	'95 AVE	'95 VAR	DIFF	'94 AVE	'94 VAR	'95 AVE	'95 VAR	DIF
tree	0.62	2.43	0	0	-.62	43.73	17.6	0.17	0.30	-44
herbs	2.82	1.65	2.0	1.46	-.82	11.69	4.09	17.87	7.48	6.2
bare	36.59	14.43	23.16	12.13	-13	--	--	--	--	0
litt	55.92	15.55	73.0	13.46	17.1	0.63	1.08	37.0	11.6	36
crypt/ moss	4.01	2.96	0.17	0.28	-3.8	--	--	--	--	0
CONT. PLOTS										
tree	0.1	0.25	0	0	-0.1	41.9	11.0	31.87	12.0	-10
herbs	2.17	1.23	2.08	2.19	-0.1	16.65	7.23	13.92	6.60	-2.7
bare	33.33	10.03	37.2	17.33	3.87	--	--	--	--	0
litt	62.0	13.22	60.67	16.53	-1.3	0.18	0.26	0.27	0.43	0.1
crypt/ moss	2.38	3.22	0.05	0.08	-2.3	--	--	--	--	0

Experimental plots = 21, 22, 23, 24, 25, 31, 32, 33, 34, 35 (20 transects)

Control plots = 10, 20, 30 (6 transects)

file: c:\dave\Res194vs.95

Restoration Site 3, Year 1 Post-Treatment Data Interpretation

The dataset (see attached) are LTER line transect and only a subset of the total study plots were sampled (see dataset summary). The data compare pre-treatment (Fall 1994) status with post-treatment (Fall 1995) status across treatment and control plots. This preliminary dataset is only useful for interpreting the effects of overstory removal and use of the slash as a surface mulch; it cannot be used to evaluate differences between the various seeding and soil preparation treatments.

Tree cover was reduced from around 20% cover (adjusted relative to control) to 3.5% cover on treatment plots relative to control plots; the reduction of tree cover reported for control plots was probably due to sampling bias between different observers in subsequent years (tree overstory measurements are a relatively crude estimate).

Overstory litter cover increased from less than 1% cover to over 20% cover on treatment plots primarily due to the slash generated from overstory removal; controls showed relatively little change.

Basal litter cover increased slightly from 60% to 70% relative to control which showed a three percentage point decrease.

All soil (cryptogamic+bare) cover decreased from 37% to 19% on treatment plots compared with a slight increase of four percentage points on controls. Cryptogamic and bare soils were combined due to sampling bias between different observers in subsequent years (cryptogamic soils are also more apparent when the soil is moist).

There was almost no change in basal intercept of herbaceous (herbs and grass) cover on treatment plots compared with a slight decrease on controls of nearly one percentage point.

Overstory herbaceous cover increased slightly on treatment plots from 30% to 33% cover compared with a sizable decrease on control plots from 36% to 19% cover. The increase in overstory cover on treatment plots relative to controls (which showed a significant decrease) is around 20 percentage points.

In summary, overstory removal and slash mulching in the spring of 1995 produced significant effects on treatment plots relative to both pre-treatment data and controls. Exposed soil coverage decreased while litter and herbaceous coverage (overstory only) increased. Germination success from plant materials seeded onto selected plots is generally not represented in these data; these results are presented under a review of the quadrat data. Vegetative response will continue to be assessed over a five year period in order to factor out year to year differences and validate whether restoration treatments provide for a sustained recovery.

Preliminary Results of 1994 transects vs. 1995 transects
on selected plots from Res. Site 3 (Guaje)
10/20/95

	% Basal Intercept					% Overstory				
TREAT PLOTS	'94 AVE	'94 VAR	'95 AVE	'95 VAR	DIFF	'94 AVE	'94 VAR	'95 AVE	'95 VAR	DIF
tree	0.19	0.31	0	0	-.19	34.49	16.32	3.44	5.3	-31
herbs	7.12	8.12	7.2	3.8	0.08	30.29	10.83	33.58	18.8	3.3
bare	22.17	24.27	15.4	10.7	-6.8	--	--	--	--	0
litt	62.3	12.3	73.5	12.6	11.2	0.61	0.45	23.83	8.35	23
crypt/ moss	14.6	8.83	3.9	3.5	-11	--	--	--	--	0
CONT. PLOTS										
tree	0.17	0.41	0	0	-.17	30.17	12.37	21.48	9.44	-9
herbs	6.47	3.16	5.65	2.17	-0.8	36.48	11.57	19.32	9.13	-17
bare	8.98	5.3	19.25	7.03	10.3	--	--	--	--	0
litt	71.08	10.3	68.12	12.30	-3	1.82	1.7	0.55	0.65	-1
crypt/ moss	13.32	8.9	6.95	4.59	-6.4	--	--	--	--	0

Experimental plots = 14, 21, 22, 24, 25, 32, 35 (14 transects)

Control plots = 10, 20, 30 (6 transects)

file: c:\dave\Res394vs.95

MEMO MEMO

to: Brian

from: Dave

subject: Restoration site 3, Forest Service. Observations on 8/21

date: 9/1

Here are the observations I made on seed germination at the Forest Service restoration site as of 8/21/95:

Seeds broadcast/raked in: 7/31/95

Definitions:

"little seed germination": signifies that grass seedlings are not easily seen from a crouching position. One must observe 5 or more areas to see grass seedlings

"good seed germination": signifies that grass seedlings are easily seen from a crouching position at half of the areas inspected.

"excellent seed germination": signifies that grass seedlings are easily seen from a crouching position at nearly all areas inspected and are sometimes very thick.

PLOTS

- 11 (rake/seed) - Excellent, many in rake marks
- 12 (imprint/seed) - Excellent, many in inprints
- 13 (seed only) - very little
- 22 (rake/seed) - EXCELLENT! (in some areas but not in others)
- 23 (seed only) - little
- 24 (imprint/seed) - very good, mostly in imprints
- 31 (imprint/seed) - good to excellent
- 33 (rake/seed) - little
- 34 (seed only) - very little

All other plots, which were not seeded, had no visible germination.