

# Randomly Placed Permanent Vegetation Plots in the Big Gypsum Monitoring Site: Dolores River, CO

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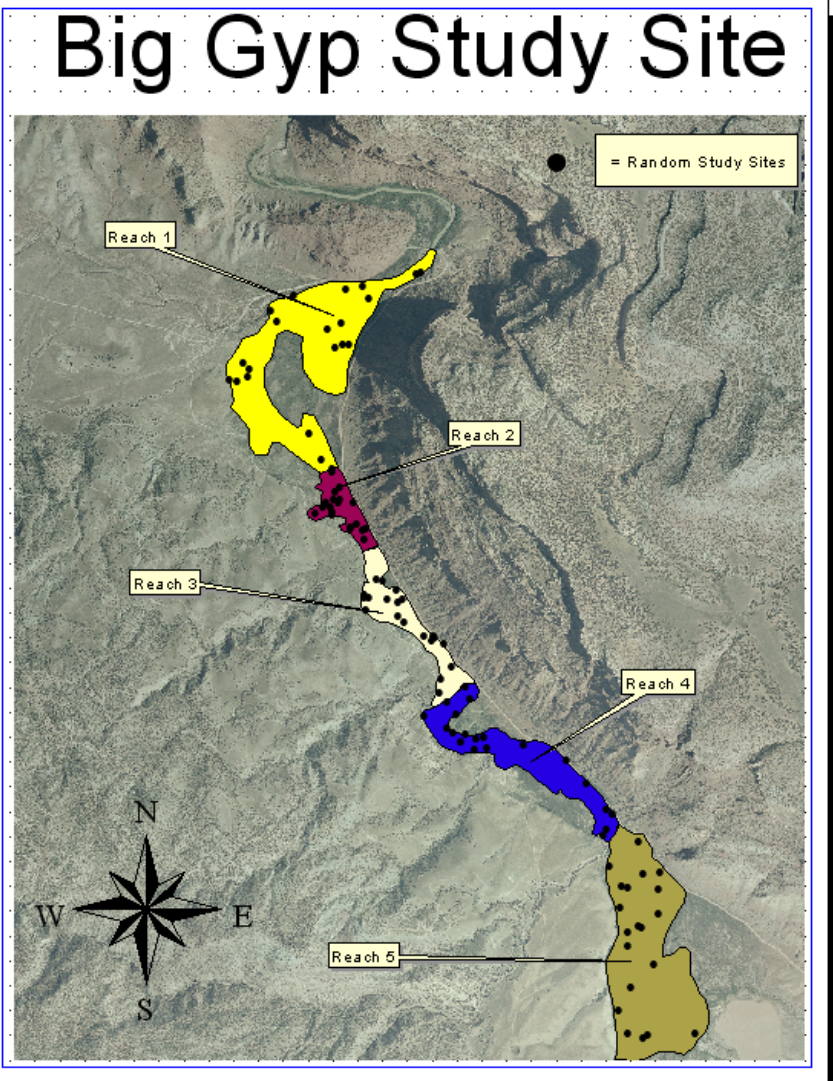
## Materials and Methods

### Study site

The Big Gypsum Study Area (BGSA) is located 72 miles downstream of McPhee Dam at an elevation of 5300 ft. Big Gypsum Valley is also 18.5 miles downstream from the confluence of Disappointment Creek, a major contributor of sediment to the Dolores (Richard et al. 2007).

The Big Gypsum Study Area has been divided into five reaches (Figure 1). The reaches were identified so that each reach has characteristics similar to those of five distinct reaches of the Lower Dolores River between McPhee Dam and the confluence with the San Miguel River.

Figure 1: The Big Gypsum Study Area Divided into five reaches.



### Random Vegetation Sampling

During the late summer of 2009, twenty random plots were sampled in Big Gypum Reaches 1,4 and 5. Each randomly selected plot was located using a Garmin GPS unit. At the center of each plot, we recorded an estimated percentage cover of woody species within a 78.5 m<sup>2</sup> plot. The circular plots had a radius of 5 meters. We decided that this plot size would allow us to estimate a representative percent cover in an efficient manner. The ranges used in estimating percent cover are provided in Table 1. A photo of each plot was taken upstream from the plot so that the photos are viewed downstream.

Table 1. Ranges used for estimating percent cover in each permanent vegetation plot.

Code	% Cover Range	Mid-point
T	0-1.0%	0.5%
3	1.1-5.0%	3.0%
10	5.1-15%	10.0%
20	15.1-25%	20.0%
30	25.1-35%	30.0%
40	35.1-45%	40.0%
50	45.1-55%	50.0%
60	55.1-65%	60.0%
70	65.1-75%	70.0%
80	75.1-85%	80.0%
90	85.1-95%	90.0%
97	95.1-99%	97.0%
X	99.1-100%	99.5%

Table 2 provides the coordinates of each point sampled.

. Table 2. Coordinates of each point sampled

Waypoint	Rnd_x_crd	Rnd_y_crd
r1-1	684936.6754	4224644.801
r1-2	684786.908	4224458.436
r1-3	684725.9965	4224378.257
r1-4	684813.9285	4224428.799
r1-5	685139.7621	4224017.977
r1-6	685013.0025	4224760.703
r1-7	685230.8408	4224632.166
r1-8	685201.9439	4224523.181
r1-9	685253.0403	4224785.205
r1-10	684914.2738	4224693.437
r1-11	685085.317	4224139.721
r1-12	684808.9344	4224396.365
r1-13	684759.57	4224374.845
r1-14	685236.7587	4224539.874
r1-15	685588.5736	4224860.403
r1-16	685353.0392	4224742.995
r1-17	685570.3867	4224855.7
r1-18	685165.2815	4224611.137
r1-19	685266.464	4224538.983
r1-20	685328.7612	4224799.593
Waypoint	Rnd_x_crd	Rnd_y_crd
r4-1	685765.8217	4222745.499
r4-2	686244.9013	4222664.556
r4-3	686407.9928	4222327.478
r4-4	685838.3218	4222764.669
r4-5	685731.7485	4222790.296
r4-6	685706.7074	4222808.39
r4-7	686424.0829	4222354.181
r4-8	685747.7845	4222875.498
r4-9	685703.2731	4222927.982
r4-10	685869.7178	4222765.679
r4-11	686455.6141	4222424.627
r4-12	686050.2786	4222734.673
r4-13	685791.647	4222996.846
r4-14	685832.8593	4222713.174
r4-15	685599.6744	4222864.102
r4-16	686423.3798	4222442.546
r4-17	685886.3217	4222722.397
r4-18	686335.3575	4222560.863
r4-19	685785.4002	4222786.123
r4-20	685807.9805	4222942.672
Waypoint	Rnd_x_crd	Rnd_y_crd
r5-1	686524.7513	4221826.2
r5-2	686441.3176	4222186.412
r5-3	686487.5355	4222000.043
r5-4	686593.0914	4221411.684
r5-5	686608.9802	4221427.562
r5-6	686568.3992	4221918.409
r5-7	686479.3853	4221540.92
r5-8	686638.7556	4221749.024
r5-9	686588.3205	4222153.974
r5-10	686658.9183	4221974.307
r5-11	686494.5499	4222101.037
r5-12	686663.2774	4222084.508
r5-13	686519.2421	4222092.87
r5-14	686826.3111	4221433.939
r5-15	686580.4826	4221911.511
r5-16	686570.4865	4222299.705
r5-17	686667.7501	4222159.212
r5-18	686533.2139	4221642.629
r5-19	686520.0798	4221432.833
r5-20	686519.9662	4221888.801

## Results

The species recorded are listed in Table 3.

Table 3. Species detected, with codes.

<b>Plant Code</b>	<b>Plant Species</b>	<b>Common Name</b>
SAEX	<i>Salix Exigua</i>	coyote willow
FOPU2	<i>Forestiera pubescens</i>	wild privet
RHART	<i>Rhus aromatica subsp. trilobata</i>	skunkbrush
CHRY9	<i>Chrysothamnus sp.</i>	rabbitbrush
SETR4	<i>Seriphidium tridentatum</i>	big sagebrush
TARA	<i>Tamarix ramosissima</i>	saltcedar
ROWO	<i>Rosa woodsii</i>	woods rose
PODEW	<i>Populus deltoides subsp. wislizenii</i>	Rio Grande cottonwood
SAVE4	<i>Sarcobatus vermiculatus</i>	greasewood
PIED	<i>Pinus edulis</i>	pinyon pine
JUOS	<i>Juniperus osteosperma</i>	Utah juniper
ATCA2	<i>Atriplex canescens</i>	four-winged saltbush
QUGA	<i>Quercus gambelii</i>	scrub oak

Table 4 provides the percent cover of each species documented in each sample plot.

Table 4. Percent cover by species of each of 60 plots sampled.

Plot Name	% Plant Cover by Species												
	SAEX	FOPU2	RHART	CHRY99	SETR4	TARA	ROWO	PODEW	SAVE4	PIED	JUOS	ATCA2	QUGA
R1-01	70	0	0	0	0	0	0	0	0	0	0	0	0
R1-02	20	10	10	20	3	0	0	0	0	0	0	0	0
R1-03	70	0	3	0	0	3	0	0	0	0	0	0	0
R1-04	0	0	0	0.5	0.5	0	0	0	0	0	0	0	0
R1-05	90	0	0	0	0	0	3	0	0	0	0	0	0
R1-06	40	0	0	0	0	0.5	0	0.5	0	0	0	0	0
R1-07	0	10	0.5	0.5	0	20	0	0	0	0	0	0	0
R1-08	0	10	0	0	0	0.5	0	0	0	0	0	0	0
R1-09	50	0	3	0.5	0	0	0.5	0	0	0	0	0	0
R1-10	0	0	40	0	10	0	0	0	3	0	0	0	0
R1-11	0	0	0	0	10	0	0	0	0	0	0	0	0
R1-12	0.5	0	0	0	30	0	0	0	0	0	0	0	0
R1-13	50	3	0	0	0.5	0	0	0	0	0	0	0	0
R1-14	0	0	0.5	0	0.5	0	0	0	0	0	0	0	0
R1-15	0	0	0	0	0	0	0	0	0	10	10	0.5	0
R1-16	0.5	0	0.5	10	20	3	0	0	0	0	0	0	0
R1-17	20	30	10	3	3	0	0.5	0	0	0	0	0	0
R1-18	0	0	0	0.5	0.5	0	0	0	0	0	0	0	0
R1-19	0	0.5	0	0.5	10	30	0	0	0	0	0	0	0
R1-20	20	0	0	20	0	10	0	0	0	0	0	0	0
R4-01	0	30	10	0.5	10	3	0	0	0	0	0	0	0
R4-02	0.5	90	0	0	0	0	0	0	0	0	0	0	0
R4-03	0	0	0	0	0	0	0	0	0.5	0	0	0.5	0
R4-04	80	0	0	0	0	0	0	0	0	0	0	0	0
R4-05	0.5	0	0	0	0	0	0	0	0	0	0	0	0
R4-06	0.5	30	30	0	0	0	0	0	0	0	0	0	0
R4-07	0	3	0.5	0	0	0	0	0	0	0	0	0	50
R4-08	0.5	0	0.5	20	0	0	0	0	0	0	0	0	0
R4-09	80	0	0	0	0	0	0.5	0	0	0	0	0	0
R4-10	60	0	0	0	0	0	0	0	0	0	0	0	0
R4-11	10	3	0.5	3	3	0	0	0	0	0	0	0	0
R4-12	60	0	0	0	0	0	0	0.5	0	0	0	0	0
R4-13	30	0	0	0	0	0.5	0	3	0	0	0	0	0
R4-14	0	40	40	0	0	0	0	0	0	0	0	0	0
R4-15	10	3	3	3	0.5	0	0	0	0	0	0	0	0
R4-16	40	0.5	0	0	0	0	0.5	0.5	0	0	0	0	0
R4-17	70	0.5	0	0	0	0	0.5	0	0	0	0	0	0
R4-18	40	3	3	10	0	0	0	3	0	0	0	0	0
R4-19	50	3	3	0	0	0	3	0	0	0	0	0	0
R4-20	40	3	3	3	0	0	0	0	0	0	0	0	0
R5-01	0	0	0	30	0.5	20	0	0	0	0	0	0	0
R5-02	0	3	3	0	0	0	0	0	0.5	0	0	10	0
R5-03	10	0	0	0.5	0	0	3	0	0	0	0	0	0
R5-04	0	0	0	0	0	0	0	30	0	0	0	0.5	0
R5-05	0	0	0	0.5	0	0	0	0	3	0	0	30	0
R5-06	0.5	0.5	0.5	0	0	10	0	50	0	0	0	0	0
R5-07	80	0	0	0	0	0	0	0	0	0	0	0	0
R5-08	60	0.5	0	0	0	0	0	0	0	0	0	0	0
R5-09	20	0	10	0	0	10	0	3	0	0	0	0	0
R5-10	0	0	0	0	0	0.5	0	60	0	0	0	0	0
R5-11	0	0	0	10	0	0	0	0	0	0	0	0	0
R5-12	3	0.5	0	0	0	0.5	0	30	0	0	0	0	0
R5-13	80	0	0	0	0	0	0	0	0	0	0	0	0
R5-14	0	0	0	0	0	0	0	0	0	0	0	0	0
R5-15	0	0.5	0	0	0	40	10	0	0	0	0	0	0
R5-16	40	0	0	0	0	0	0	0	0	0	0	0	0
R5-17	0	3	0	0	0	0	0	80	0	0	0	0	0
R5-18	40	0	0	0	0	3	0	0	0	0	0	0	0
R5-19	0	0	0	0	0.5	0	0	0	0	0	0	0	0
R5-20	0	20	3	0.5	0	0.5	0	20	0	0	0	0	0