



Waddle Ranch, Beacon Road Meadow

As-Built Report



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Project Location

Waddle Ranch is a 150 acre parcel located just outside of the town of Truckee, CA to the east of Martis Creek Lake reservoir. Foot traffic access can be gained via the east end of the Martis Creek Lake dam. Vehicle access is by permission only via Sawmill Flat Road (Figure 7).

Personnel

Don Triplat, IERS Project Manager; Lorenzo Worster, IERS Foreman; Kate Gross, IERS Restoration Technician; Brad Lariviere, IERS Restoration Technician; Peter Ceccon, IERS Restoration Technician/Equipment Operator.

Restoration Date(s)

September 25, 2009 – October 2, 2009

Site Description

Beacon Road Meadow is located at the juncture of Sawmill Flat Road and Beacon Road, 1.8 miles from 267. The site is across Beacon Road from the founders rock and was previously used as a landing and a haul road. The landing was highly compacted but covered with a moderate amount of preexisting vegetative growth consisting primarily of shrubs and some immature pine trees. There was also a short cut haul road that developed through the middle of the landing that large logging trucks used to turn left onto Sawmill Flat Road.

Treatment Area

This area was separated into 8 test plots. The first 100' of Beacon Road was designated plot 1 and the meadow to the north of the road was split up into 7 plots of varying size (Figure 8). Plots 2 and 5 were vegetated with shrubs and were on the outside of the haul road short cut. A preexisting patch of *Carex sp.* plants were growing in this area and were split up into plots 3 and 4. The short cut haul road was split into plots 6 and 7 and had no preexisting vegetation, whereas plot 8, the area in between the 3 roads, was lightly covered in shrubs and immature pine trees.

Materials Used

The materials used on this project were all from local sources (Table 1).

- Woodchips were sourced onsite from a regional timber harvest and fuels reduction program.
- Composted horse manure from Northstar-at-Tahoe.
- Biosol Organic Fertilizer (6-1-3) was sourced from Pacific Coast Seed.



- Native seed mix was sourced from Comstock Seed and consisted of a Tahoe specific mix of grass, shrub, and forb seed (Table 2).
- Sugar pine seedlings were sourced from the Sugar Pine Foundation.

Treatment Description

The area was separated into 8 plots (Figure 8). The first test plot was set up on Beacon Road where woodchips were spread out, ripped in, and the road surface re-compacted smooth enough to allow for future vehicle access.

In test plot areas 2 and 5 existing sage brush was tilled into the soil as an amendment. Woodchips were spread and tilled in as an additional amendment on test plot 5. Both plots were amended with Biosol fertilizer which was raked with pitch forks. The area was seeded and raked lightly to just cover the seed with soil. Finally the areas were covered with woodchip mulch.

Plot 3 and 4 were covered in naturally occurring native *Carex sp.* plants. Targeted loosening with a modified bucket on the KX161 Mini Ex. was used in plot 4 to loosen the soil while disturbing the existing vegetation as little as possible. Plot 3 was untreated to be used as a comparison for later monitoring

Woodchips were spread on plots 6, 7 and 8 and tilled into the soil with a standard bucket on a Kubota KX161 Mini Excavator. The area on plot 7 adjacent to Sawmill Flat Road was so compacted that a modified bucket was used to loosen the soil in addition to the standard bucket. As additional soil amendments, aged horse manure was tilled into plot 6 and the existing sage brush was tilled into plot 8. In all three plots, Biosol and seed were raked in. The areas were then covered with woodchip mulch.



Table 1. Materials source and Quantity list.

Materials	Type	Source	Quantity
Amendment	Green wood chips	On site Forestry	64 yds
Amendment	Aged horse manure	Northstar Stables	15 yds
Fertilizer	Biosol 6-1-3	Pacific Coast Seed	184 lbs
Seed	Upland Seed Mix	Comstock seed	11.5 lbs
Mulch	Green wood chips	On site Forestry	Include in Amend.
Wattles	Pine needle	IERS Wattle Factory	3 - 25'
Plantings	Sugar Pine Seedlings	Sugar Pine Foundation	40

Table 2. IERS upland Shrub, Forb, Grass mix.

Scientific Name	Common Name	Pure Live Seed (%)	Rate (lbs/acre)
<i>Elymus elymoides</i>	Squirreltail or bottlebrush	28.33	35.42
<i>Elymus glaucus</i>	Blue wildrye	33.33	41.67
<i>Bromus carinatus</i>	Mountain brome	27.50	34.38
<i>Purshia tridentata</i>	Antelope bitterbrush	6.67	8.33
<i>Ribes cereum</i>	Wax currant	0.42	0.52
<i>Eriogonum umbellatum</i>	Sulphur flower buckwheat	2.08	2.60
<i>Arctostaphylos patula</i>	Geenleaf manzanita	1.67	2.08

Table 3. Treatment Matrix

Treatments		Plot 1	Plot 2	Plot 3	Plot 4
Amendment	Type	Green Wood Chips (<50% Needles)	Existing Sage incorporated	None	None
	Depth	2.61"	-	-	-
Soil Loosening	Type	KX161 Mod. Bucket rip	KX161 Full bucket	None	KX161 Mod. Bucket rip
	Depth	9.2"	13.52"	-	12"
Fertilizer	Type	None	Biosol 6-1-3	None	None
	Rate	-	2000lbs/acre	-	-
Seed	Mix	None	Shrub/Forb/Grass mix	None	None
	Rate	-	125lbs/acre PLS	-	-
Mulch	Type	Green Wood Chips (<50% Needles)	Green Wood Chips (<50% Needles)	None	None
	Depth	0.5"	1.5"	-	-
Plants	Type	None	Sugar Pine Seedlings	None	None
	Qty	-	5	-	-



Treatments	Plot 1	Plot 2	Plot 3	Plot 4
Dimensions in ft ²	15 x 200 = 3000ft ²	21 x 36 = 756ft ²	3 x 6 = 18ft ²	3 x 6 = 18ft ²
Dimensions in m ²	4.5 x 61 = 274.5m ²	9 x 6 = 54m ²	1 x 2 = 2m ²	1 x 2 = 2m ²

Table 4 ...Continued. Treatment Matrix

Treatments		Plot 5	Plot 6	Plot 7	Plot 8
Amendment	Type	Green Wood Chips (<50% Needles)	Green Wood Chips (<50% Needles)/ Composted Horse Manure	Green Wood Chips (<50% Needles)	Green Wood Chips (<50% Needles)
	Depth	2"	2.88"/2.02"	3.24"	1.98"
Soil Loosening	Type	KX161 Full bucket	KX161 Full bucket	KX161 Full bucket	KX161 Full bucket
	Depth	13.12"	14.6"	12.4"	13.1"
Fertilizer	Type	None	Biosol 6-1-3	Biosol 6-1-3	Biosol 6-1-3
	Rate	-	2000lbs/acre	2000lbs/acre	2000lbs/acre
Seed	Mix	None	Shrub/Forb/Grass mix	Shrub/Forb/Grass mix	Shrub/Forb/Grass mix
	Rate	-	125lbs/acre PLS	125lbs/acre PLS	125lbs/acre PLS
Mulch	Type	Green Wood Chips (<50% Needles)	Green Wood Chips (<50% Needles)	Green Wood Chips (<50% Needles)	Green Wood Chips (<50% Needles)
	Depth	1.1"	1.7"	2.1"	2.3"
Plants	Type	Sugar Pine Seedlings	Sugar Pine Seedlings	Sugar Pine Seedlings	Sugar Pine Seedlings
	Qty	5	10	10	10
Dimensions in ft ²		15 x 38 = 570ft ²	22 x 36 = 792ft ²	25 x 60 = 1500ft ²	55 x 50 = 2750ft ²
Dimensions in m ²		4.5 x 11.5 = 51.75m ²	6.5 x 11 = 71.5m ²	7.5 x 18 = 135m ²	15 x 17 = 255m ²





Figure 1. Ripping with the modified excavator bucket on plot 1.



Figure 2. Amendments spread on test plots. Note the horse manure on plot 6.



Figure 3. The site pre-treatment (PPC).



Figure 4. Plot 1 post-treatment (PPC).



Figure 5. Planted sugar pine seedling



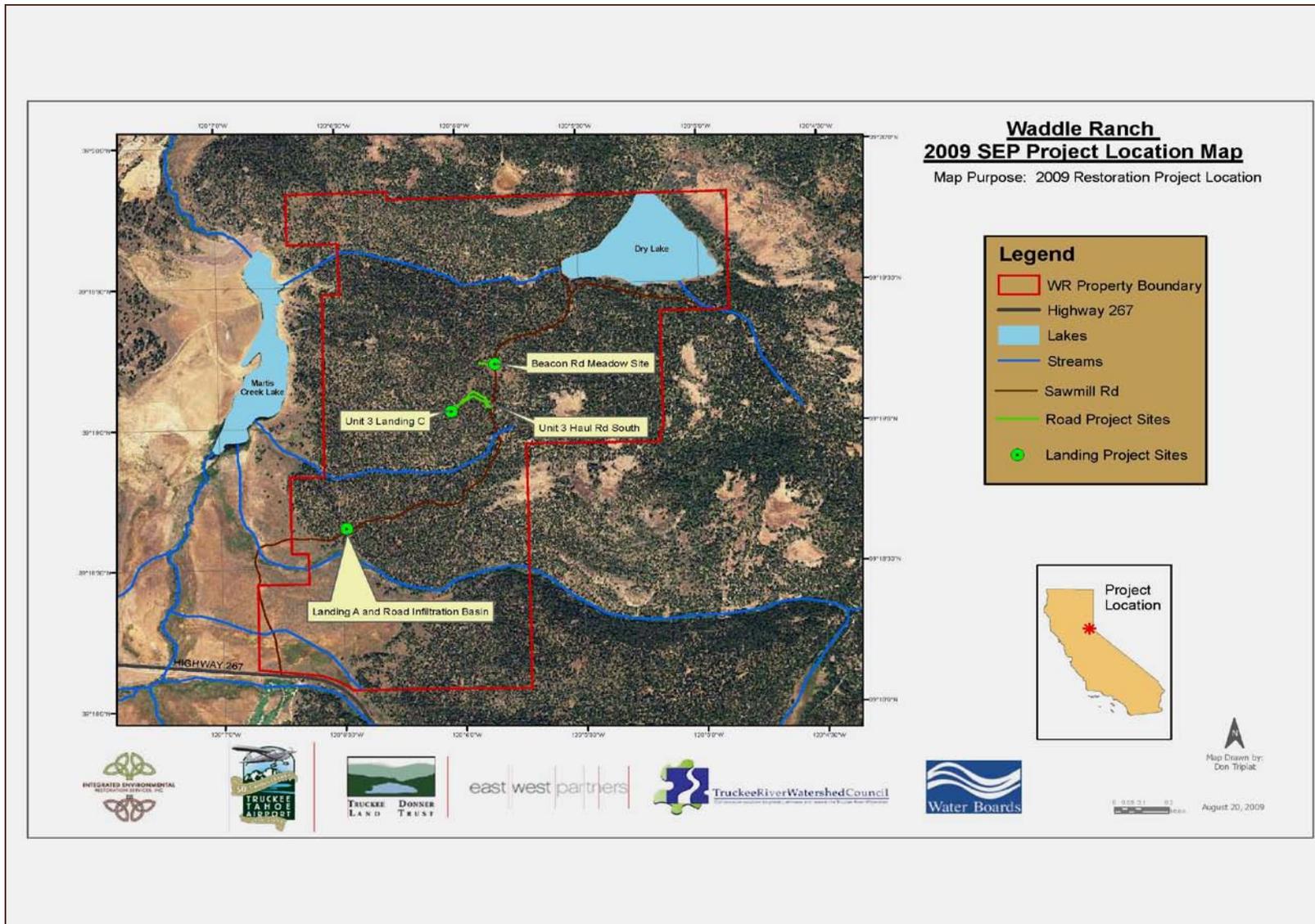


Figure 6. Overview map of Waddle Ranch 2009 restoration project locations.



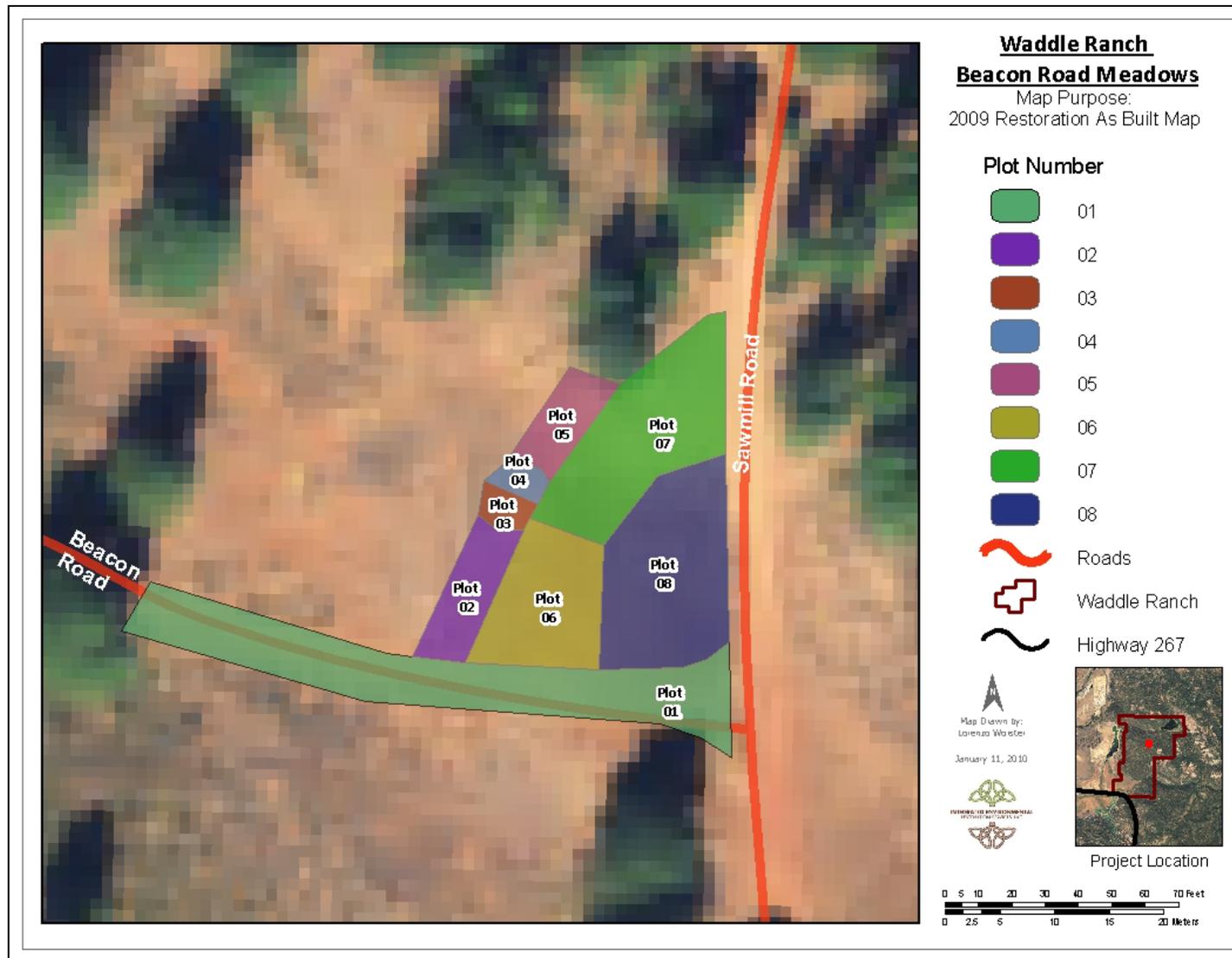


Figure 7. As Built map.

