



Waddle Ranch Landing A 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 24, 2009 – September 30, 2009

Site Description

Landing A is located .8 miles down Sawmill Flat Road, on the left side after passing into the forested area from Martis Valley. The site was a historic landing which had been abandoned and revegetated with moderate success. The landing was highly compacted but covered with a moderate amount of preexisting vegetative growth consisting primarily of shrubs and immature pine trees. Even though the landing had very little slope, there was a water bar running across the entire area perpendicular to Sawmill Flat Road.

Treatment Area

The landing was separated into three plots leading away from the road to the north. Each plot is 7.5m wide by 18m long and 135m². The first 2 plots were treated while the third plot was left untreated for comparison.

Project Goals

Areas that are well vegetated or even moderately vegetated are often overlooked even when they are highly compacted and actively eroding. The goal of the Landing A test plots is to increase infiltration in compacted areas that have preexisting vegetative growth. We hope to learn how effective the technique of “targeted loosening” is in maintaining current vegetation while loosening and amending the soil. In addition, soil amendments were varied to test their differing effect on long term soil density and vegetative response.

Monitoring of soil density and vegetative cover over time will produce data to support recommendations for future restoration in partially vegetated but highly compacted areas.

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.
- 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).
- Pine needles were collected from North Lake Tahoe.
- Sugar pine seedlings were sourced from the Sugar Pine Foundation.

Treatment Description

The landing was separated into three distinct test plots (Figure 8). The first area on the left when entering from Martis Valley is plot 1. This area was amended with just over 2” of locally sourced woodchips. A modified excavator bucket with two tines was used to loosen soil, “targeted loosening,” while maintaining the existing vegetative growth and root systems. Areas in and around vegetation were loosened to between 7” and 8” deep. While loosening the soil, targeted loosening also incorporates amendments into the soil providing nutrients for future plant growth. Next, 2000lbs/acre of Biosol organic fertilizer was spread and raked followed by 125lbs pure live seed/acre native seed mix. Finally the area was mulched with pine needles from the North Lake Tahoe area. Plot 2 was treated using the same method except the soil was amended with just over 2” of aged tub grindings. Plot 3 was left untreated to be used as a comparison. In late October, all 3 plots were planted with 15 sugar pine seedlings each, totaling 45 seedlings in all.



Table 1. Materials source and Quantity list.

Materials	Type	Source	Quantity
Amendment	Aged Tub Grindings	Truckee Eastern Regional Landfill	10 yds ³
Amendment	Green Wood Chips	Local forestry operation	10 yds ³
Fertilizer	6-1-3 Biosol	Pacific Coast Seed	92 lbs
Seed	IERS Upland Mix	Comstock Seed	6 lbs
Mulch	Pine Needles	Meeks Bay Fire Collection	8 yds ³
Seedlings	Sugar Pine	Sugar Pine Foundation	45

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
Amendment	Type	Green Woodchips (<50% needles)	Tub Grindings	None
	Depth	2.2"	2.1"	
Soil Loosening	Type	Targeted Loosening	Targeted Loosening	None
	Depth	7.6"	7.24"	
Fertilizer	Type	Biosol	Biosol	None
	Rate	2000lbs/acre	2000lbs/acre	
Seed	Mix	Shrub, Forb & Grass mix	Shrub, Forb & Grass mix	None
	Rate	125lbs PLS/acre	125lbs PLS/acre	
Mulch	Type	Pine Needle	Pine Needle	None
	Depth	2.5"	2.5"	
Plants	Type	Sugar Pine Seedlings	Sugar Pine Seedlings	Sugar Pine Seedlings
	Qty	15"	15"	15"
Dimensions (W X L =A)		7.5m x 18m = 135m ²	7.5m x 18m = 135m ²	7.5m x 18m = 135m ²
Dimensions (W X L =A)		25ft x 60ft = 1500ft ²	25ft x 60ft = 1500ft ²	25ft x 60ft = 1500ft ²





Figure 1. Modified excavator bucket at full penetration.



Figure 2. Modified excavator bucket retracting from "targeted loosening" without turning soil.



Figure 3. KX 161 excavator targeted loosening.



Figure 4. Sugar pine seedling.



Figure 5. Plot 1 pre-treatment (PP2).



Figure 6. Plot 1 post-treatment (PP2).



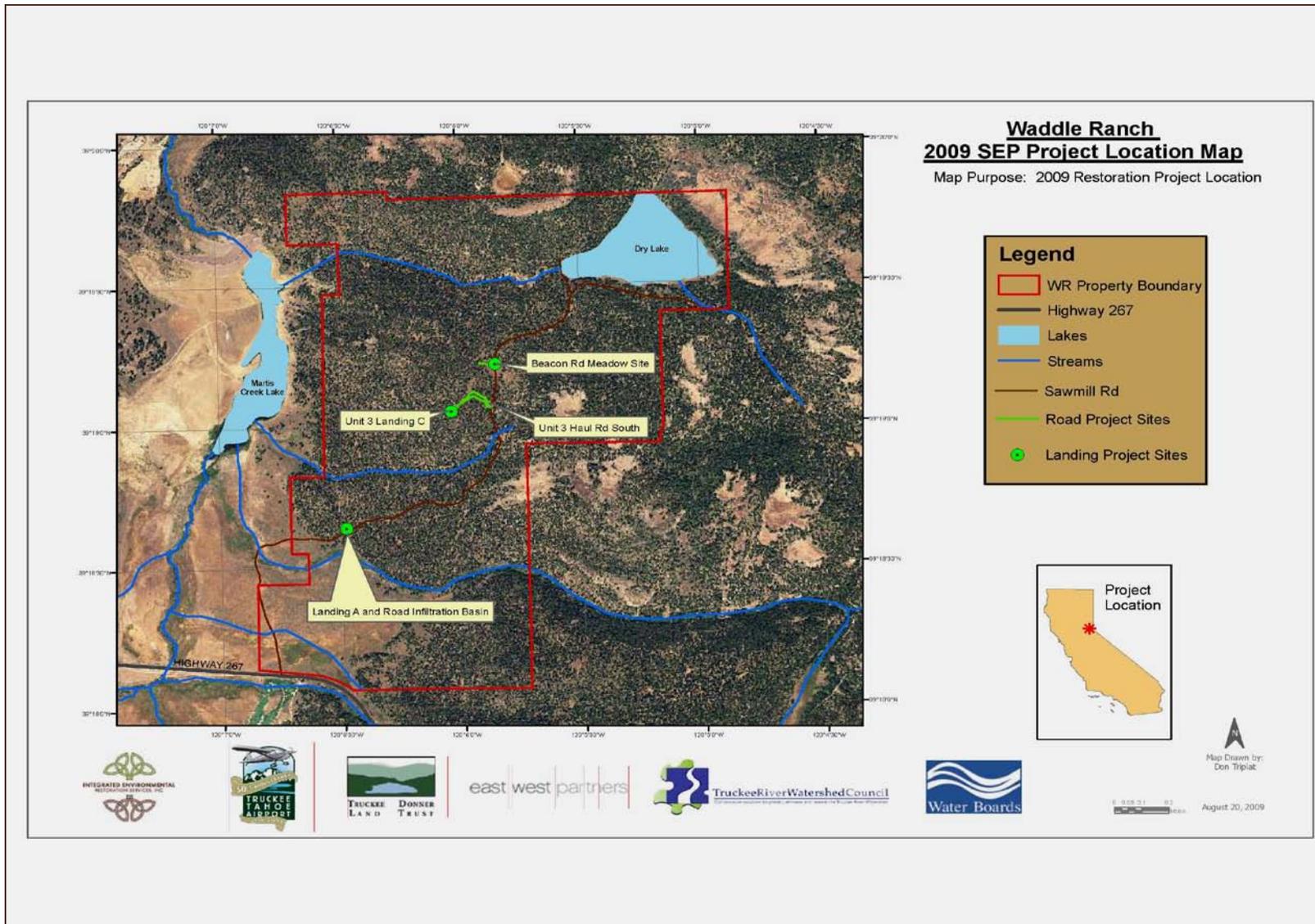


Figure 7. Overview map of Waddle Ranch 2009 restoration project locations.





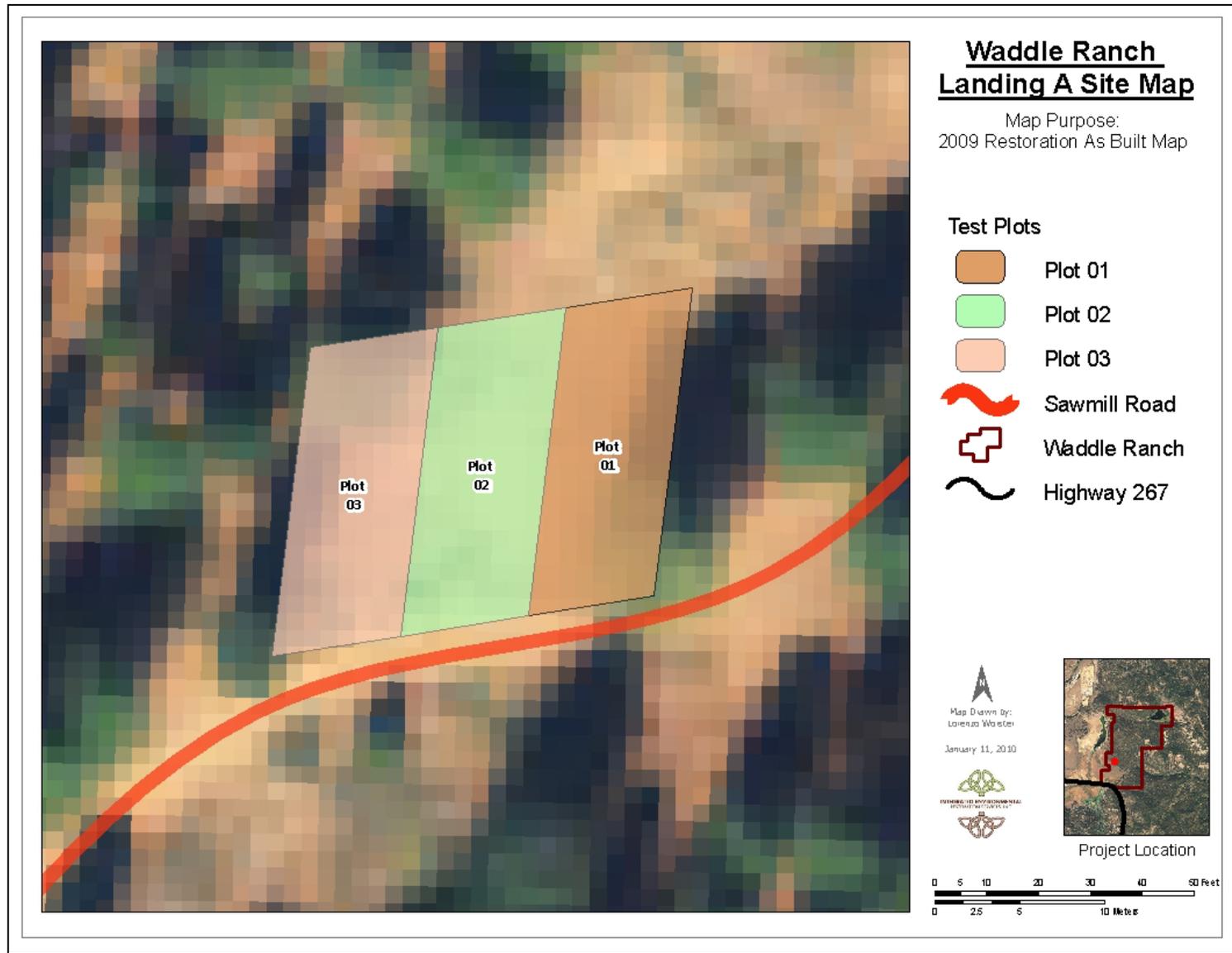


Figure 8. As Built map of Landing A.

