Latah Soil and Water Conservation District

Riparian Vegetation Monitoring Cover Plot Methodology

This protocol was developed based on a NOAA Example Monitoring Plan, accessed on June 3, 2013 at www.habitat.noaa.gov/pdf/example_monitoring_plan.pdf.

Equipment

1. Permanent markers (rebar stakes with orange caps or orange plastic stakes)
2. Silver tags to attach to rebar stakes with Transect id # written in ballpoint pen
3. Hammer (mallet)
4. Measuring tape (meters or feet); use feet unless reading previously established transects that used meters (ex. Dutch Flat Dam)
5. Surveyor pins (range pins), two
6. Digital camera
7. Compass, no declination set
8. Data sheets (previous year's and blank) print some on Rite in the Rain paper
9. Clip Board
10. Photo pages (previous year's), to aid with transect relocation
11. Plot frames (1-meter^2 for data collection and Daubenmire frame for start and end stake photos)
12. GPS unit
13. Extra AA batteries
14. Field notebook
15. Maps and transect locations
16. Site specific plant lists
17. Field guides for plant identification
18. Ziploc baggies for plant collection
19. Soil Knife
20. Weed gaiters

Procedure

1. Choose locations for cover plot(s) within the project area prior to the start of construction. Plot locations should be representative of the plant communities within the project area. Number, location, and orientation of plots will be determined based on site conditions and the engineering design. Establish transects prior to construction.

2. Permanently mark the start and end points of the transect with orange-capped rebar. Attach small metal tag to rebar at both start and end stakes with transect id written on it in ballpoint pen. This will help confirm that transect the correct transect has been located and to differentiate between the start and end stake locations. If area of transect

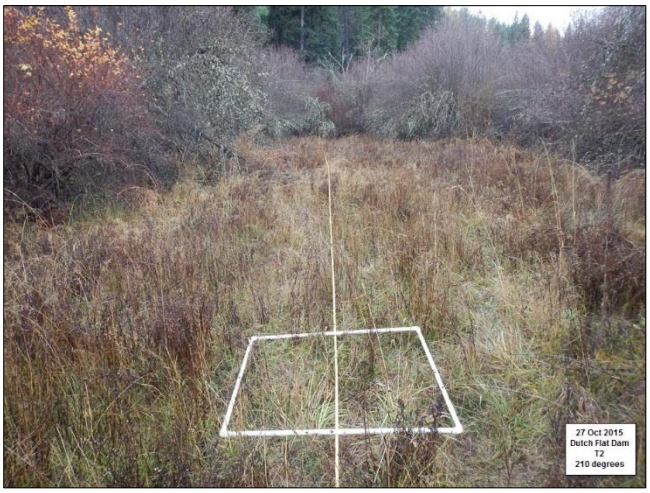
location will be excavated, do not mark the start and end points until after construction. Collect GPS waypoints at both endpoints to aid in transect relocation. Using true north (no declination set on the compass), take bearings from the start to end and end to start of the transect to aid in relocation. If one or both stakes are washed out or otherwise removed, the transect can be relocated utilizing GPS waypoints, compass bearings and comparison of the site with old photos.

3. Transects will be 10 to 30 meters in length (20 to 50 feet); length will be determined in the field depending on site conditions. Stretch and secure the measuring tape from the start stake to the end stake. The measuring tape should be taut to ensure accurate measurements.

4. Photos will be taken from the start stake to aid in relocation of the plots, to get an overview of plant survival in the vicinity, and to track vegetation changes in and surrounding the plots. Ten photos will be taken: Photo 1: ground photo at start stake, Photo 2: from start to end stake (azimuth of transect), Photo 3: at 0 degrees; Photo 4: at 90 degrees, Photo 5: at 180 degrees, Photo 6: at 270 degrees, Photo 7: ground photo at end stake, Photo 8-10: frame locations along the transect.

5. Photos will be taken with a photo board in order to identify each photo. On a small dry erase board, write the date (day month year, ex. 24 July 2013), site location and transect number, and photo specifics (e.g. photo bearing).

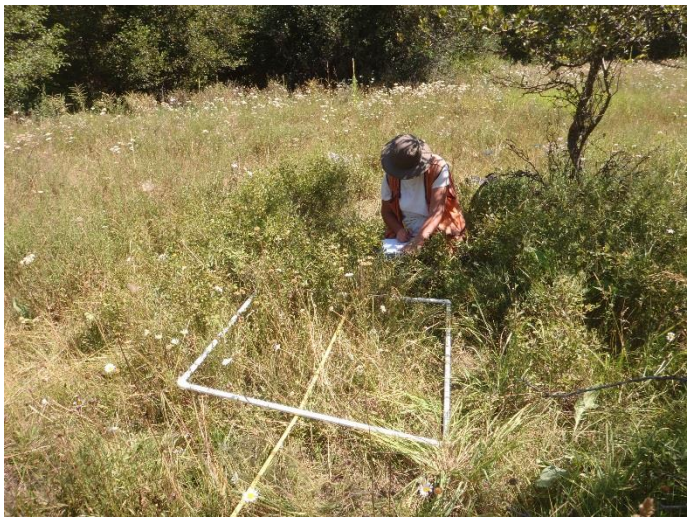
OR Photos will be labeled with the computer program Snagit which allows you to place a label in the corner with the same information as above. This method is preferable as it saves field time and the dry erase board is sometimes not legible if the sun is too bright. See example of a Snagit labeled photo below.



The ground photo at the start of the transect will be taken so that start stake is centered in the plot frame. Use Daubenmire to frame the start stake. See example below.

If using photo board in the field, ground photos of the frame locations will be taken with the photo board in the upper or lower right corner of the frame. The entire frame should be encompassed in the photo. See example below.

6. Two or three 1-m² plot frames will be placed at intervals along the transect; exact number and placement to be determined on site, based on length of transect and site conditions. For example, for a transect 10 m in length, 2 plot frames will be measured at 2 m and 8 m. For a 20 m transect, 3 plot frames will be measured at 2, 12, and 18 m. For a 25 m transect, 3 plot frames will be measured at 2, 12, and 20 m. Plot frame will be placed so that the bottom of the frame is resting on the meter mark being measured. The measuring tape should be centered in the middle of the plot frame. See example below.



7. Percent cover of grasses, grass-likes, forbs, and weedy species will be measured at each plot. Species that are rooted within the plot frame area or hang into the plot frame area will be included in the percent cover measurement. If woody species are present and rooted within the plot frame, stem counts will be done for each individual species.

8. The GPS waypoints from the start and end points will be used to generate a map of the monitoring site. Data sheets and field notes will be scanned. Scanned field data, the site

map, shapefiles, digital photos, and analyses will be stored electronically in a monitoring folder in the customer folder in the Customers directory.

9. Cover data will be collected prior to construction and at year 2-10 years following completion of construction.

10. Photos will be labeled with sampling date, transect location abbreviation (ex. DFD for Dutch Flat Dam), Transect number, photo specifics, and shortened photo number. Example: 2014_10-17_DFD_T1_90deg_270

Cover Data Analysis

Data will be entered into an Excel spreadsheet, summarized by plot and transect, recording percent cover and stem counts by species. Notes will also be entered into the spreadsheet. A table will be made to compare subsequent year's data.

Comparison of transect photo points by season and year will be made to visually detect evolution of vegetation changes and allow for observation of seasonal land use effects on the restored meadows.

RIPARIAN Canopy Cover Data Sheet

Site:		Date:	
Observers:		Transect Length	
Transect Number/Location:		Azimuth: from start	
Transect Start Waypoints:			
Transect End Waypoints:			

PHOTOS FROM TRANSECT LOCATION

Camera:		Photos Continued:	
Start Ground		Frame 1	
(°) Azimuth		Frame 2	
0°		Frame 3	
90°		End Ground	
180°		Back Azimuth	
270°			

	Cover (%) or Stem Count			
	Frame 1 @	**Frame 2 @**	**Frame 3 @**	
Functional Group Cover				Average
Native Grass Cover				0.0
Grass-Like Cover				0.0
Native Forb Cover				0.0
Native Shrub Cover				0.0
Shrub Stem Count				0.0
Tree Cover				0.0
Tree Stem Count				0.0
Non-native Grass Cover				0.0
Non-native Forb Cover				0.0
Bare Ground/Litter/Rock				0.0
Moss				0.0

Individual Species Cover (List and Measure Below)*	Frame 1	Frame 2	Frame 3	Average
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0

*measure percent cover of species of interest (i.e. spotted knapweed)

NOTES:

Species Lists:

At Frame 1:

At Frame 2:

At Frame 3: