

Stewardship Plan instructions

REN Capstone 2010

due May 14th, 2010

as a Word document to TA & CD to client

The stewardship plan (SP) is the project site 'owner's manual' for clients and their designated stewards. From this document, anyone tasked with seasonal and long-term stewardship of the site should be able to find all the information they need to sustain the project goals and objectives in your absence. The SP should be user-friendly and written in simple but **technically accurate** language. The stewardship plan will contain the following elements:

1. Cover page
2. Project description with summarized goals
3. A brief post-installation site description with as-built map
4. Clear & specific 'how-to' descriptions of maintenance tasks based on the project design and benchmarks
5. Maintenance timetable/schedule
6. Post-installation baseline monitoring data with map showing permanent photo points and location of permanent monitoring quadrats
7. Clear & specific monitoring methods based on benchmarks
8. Successional (long term) management outline & prescriptions
9. Appendices with monitoring forms, resources, references, and contact information

Cover page

Please include:

- project name
- location
- team members, each with their academic affiliation that includes the campus and major field of study (e.g., Environmental Science; University of Washington, Bothell)
- year (2009 – 2010)
- names of community partner(s)

Use only one graphic illustration (photo, drawing, etc.) with strong contrast, as the SP most likely will be photocopied.

Project description

Give a concise account of the pre-project site conditions that necessitated restoration (as in the needs and opportunities section of your work plan) followed by a summary of the project goals and general approaches and how they should improve those conditions.

Post-installation site description with as-built map

Orient your clients and their designated stewards to the layout and major features of the site. Describe each polygon succinctly including area, location, pre-existing conditions, overall strategy, the plants and structural features installed, and the treatments employed. Detailed quantities of plants and other installed features will be provided later in the SP – here you should provide sufficient description of features to paint a clear general picture of the polygon. All described features should be clearly represented on your as-built map. Reference scientific names **but use common names** for accessibility of the document to the general public. For example:

“Polygon 1 lies in the NW corner of the project site and is 30 x 10 m with the short axis parallel to the slope. The steep 20-30% slope had been dominated by a thicket of Himalayan blackberry (*Rubus armeniacus*). The blackberry was removed completely by the roots and the slope was stabilized using jute matting and coarse woody debris staked into the slope. Mulch was applied to a depth of 15 cm and then snowberry (*Symphoricarpos albus*), salal (*Gaultheria shallon*), and baldhip rose (*Rosa gymnocarpa*) were installed behind the staked woody debris more or less 1 m apart. Two western red cedars (*Thuja plicata*) were installed at the bottom of the slope 3 m apart.”

Maintenance tasks

You should develop a list of maintenance tasks based upon the attributes and context of your specific site, project goals, and your long term vision for the site. Tasks should be grouped into logical categories such as plant care, invasive control, habitat feature maintenance, signage care, community outreach, etc. Each maintenance task description should give specific instruction on why, where, when, what, and how to accomplish each task. For example:

“Plant Care

Watering

Why: Native plants have greater survival if watered regularly during the first two growing seasons.

Where: Entire site with special attention to polygons 1 & 2

When: Every two weeks or as needed from June through September 2009 and 2010

Resources & Tools: Spigot is located on south wall of restroom near play area. Hoses are in tool shed at the site entrance near walking trail.

How: Before running out the hose, walk the site and look for signs of plant water stress (wilting). Focus watering on stressed plants. Use low pressure flow and water at the soil near the base of each plant. Do not spray water over head. Give each plant 30 seconds or so of water, more for stressed plants. Take care not to drag hose over plants. Water in early morning if possible”

Maintenance timetable/schedule

Construct a timetable/schedule for all the maintenance tasks by month. Make it user-friendly and uncluttered.

Post-installation baseline vegetation monitoring with map

Establish permanent photo points for each polygon and two overall site photo points from opposite directions. These should be at locations that capture the entire polygon/site. Mark and label these points with painted rebar, a painted solid wooden stake or use a permanent landmark (tree, boulder, etc.). Consult with the clients regarding their preferred marking method. Show the locations of these points on the monitoring map and put the compass direction and height at which the photo was taken in the map legend. Include the first photos with descriptive titles in the SP.

Next, establish permanent monitoring plots (“quadrats”) to assess native plant and invasive cover at installation for each polygon. We generally recommend using either 2 m by 2 m or 4 m by 4 m plots, but some circumstances may require the use of larger (10 m x 10 m) plots. Discuss the specific plot size with your instructors as you develop your plan. The sampling plots should be spread out to capture a representative area of each polygon, 8-10 m spacing between plots should be sufficient. Mark these plots using a method agreed upon by the clients. Map the plot locations on the monitoring map and label them, for example, 1-A, 1-B, 2-A, 2-B, 2-C, etc. Take a first round of measurements after your project is complete – what we call “baseline data”. These should include things such as installed plants alive and dead, native and invasive cover, and natural recruitment. Report them in a table in the SP. For example:

PLOT	SPECIES	#LIVE	#DEAD	%COVER	RECRUIT?	LAYER
1-A	RUAR	5	0	10	n	G
	ROGY	10	1	25	n	S
	ALRU	27	0	5	y; seedlings	G
	SYAL	15	0	30	n	S
	ACMA	1	0	30	n	C
Totals	Native	53	1	90		
	Invasive	5	0	10		
Totals	Ground	5	0	10		
	Shrub	25	1	55		
	Canopy	1	0	30		

Use four-letter species codes for consistency; the first two letters of the genus and the species. Provide a table in the appendix listing the common name, scientific name, four-letter code and polygon locations for each installed & pre-existing native species and known invasives. Layers G=ground layer, S=shrub, C=canopy. Estimate total percent cover for each species. Remember that the total percent cover for any plot can exceed 100% due to overlapping canopies.

Monitoring subsequent to the baseline data will provide the clients and designees information that allows them to make maintenance and adaptive management decisions to guide the site's progress.

Monitoring methods

For each benchmark, develop a monitoring method (with forms as needed) so that the clients and designees can assess the effectiveness of the goals and objectives. Start by revising the benchmarks as per instructor comments. For example:

“Goal 1: Promote the establishment and dominance of native vegetation typical of low elevation Puget Sound riparian zones along Yesler Creek

Objective 1-1: Remove and suppress recurrence of invasive species along the creek

Benchmark 1-1a: At least 50% reduction of *Phalaris arundinacea* cover from pre-treatment conditions by the first year following mowing, mulching, and live staking treatments.

Monitoring method 1-1a: Estimate percent cover of reed canary grass in early May in each 2 m x 2 m plot. Use 5% increments. Compare results to baseline data for each plot gathered in June 2009. See monitoring form, Appendix A.

Goal 2: Encourage community ownership of project site

Objective 2-1: Increase attendance by locals at work parties

Benchmark 2-1a: Participation at community work parties will increase by 30% after outreach efforts.

Monitoring method 2-1a: Compare numbers of volunteers attending work parties BEFORE outreach effort with numbers of volunteers attending AFTER outreach efforts. Use volunteer sign-in sheets, Appendix C. Make sure volunteers respond in the column on sheet that inquires “how did you hear about this event?”

Successional management outline

Provide your clients a realistic narrative that describes how the vegetation on the project site will develop over time. Address potential future management actions such as thinning and successional planting and when they can expect to be able to perform such actions along the site's trajectory. If thinning, successional planting, or other actions are being prescribed provide clear directions OR a reference to resources for accomplishing those tasks. WSU Extension Cooperatives and the Washington State Department of Natural Resources offer excellent resources for land managers especially forest stand management. Provide a list of plant species that may be introduced once the site has been stabilized and invasives are under control. Be sure to connect specific actions mentioned to how they advance the long term goals for the site. For example:

“The willows and red-twig dogwood staked along the pond edge should reach 80% cover by the third to fourth growing season and may reach 4-7 m tall. If the reed canary grass cover underneath the willow-dogwood canopy has fallen dramatically, as expected, at this time, western red cedar (*Thuja plicata*) and Sitka spruce (*Picea sitchensis*) could be in-planted beneath the willow-dogwood canopy. This will serve to facilitate succession to the goal of a mature coniferous forest. Use 5 gallon or balled and burlapped (B/B) stock that is at least 1 m tall. Clear an area at least 2 m in diameter around each tree. As the conifers grow, further willow and dogwood clearing should be performed to allow for full growth of each tree. Harvested willow and dogwood stakes from clearing around each tree can be used then to stake the area to the south and other areas of the project site where reed canary grass is still dominant. Use stakes ½ to 1” thick and 2-3 feet long. Stakes are best installed during the winter and early spring before leaf-out. Make sure at least half each stake is below the soil.”

Appendices

Include all monitoring & survey forms, photo-point photos with labels, references for maintenance methods, and contact info for the project team members, clients, designated stewards, and maintenance services. Be sure you get approval to list people's contact info as this is a public document!