Riparian conversion monitoring data collection protocols

Introduction

Increasing numbers of government agencies, community groups, and private companies are interested in developing riparian habitat restoration programs, particularly since the ESA listings of additional runs of pacific salmon species. In order to monitor the effectiveness of these projects, standardized data collection needs to occur. To this end, the Center for Streamside Studies and Lummi Natural Resources made the Riparian Zone Restoration Project (RZRP) protocols*, field sheets, and comment codes available in the hopes that they may be useful to other organizations or individuals pursuing similar restoration projects.

Why collect data?

There are two important reasons to collect data on management and restoration projects.

1. Even projects that are not designed explicitly for research can yield important results. In order to learn from the successes and failures of rehabilitation efforts, restoration groups should document and disseminate their results. Even very small projects can suggest avenues of further research and identify promising new methods.
2. The success of any restoration project cannot be determined without some form of follow-up monitoring. Monitoring need not be frequent or extensive. For example, seedling survival may be checked by a simple count of live seedlings two or three years after planting, and seedling growth data may just be collected every three to five years, depending on the goals of the project.

Why use protocols?

Once the decision is made to engage in some sort of monitoring program, an explicit data collection protocol can ensure that the proper data are collected in a consistent way. Comment and damage codes (codes used to classify such phenomena as the incidence and severity of browse, the proximity of competing vegetation, etc.) identify the sort of data to be collected, and force data collection personnel to make close calls out in the field rather than back at the office.

How to use this information

These materials are an example of how data collection protocols, field sheets, and comment codes for restoration projects can be constructed. Data collection protocols need to be tailored to fit the design and intentions of each restoration project, and can vary a good deal. The monitoring project for which these protocols were designed was an initial survey of treatment sites in which a full range of site information (slope, aspect, soil type) was collected. In subsequent years data are collected only on characteristics that can be expected to vary year to year, such as seedling growth and survival and the composition of understory vegetation. Therefore, two sets of data collection protocols and field sheets are used; one for the initial survey and one for subsequent annual surveys.

Data Collection

For initial and annual surveys, take all measurements in feet and tenths of feet or inches and tenths of inches, except for planted seedling caliper, which is measured in millimeters. Record the project site, plot number, date, and your initials at the top of the data sheet. If there is no brush, grass, browse protection (prot), degree of browse (brws) or damage record a “0”. After the initial survey, record the canopy % and the measurements under the Planted Trees section annually.

Plot characteristics

Landform: Identify the dominant landform of the plot using the appropriate landfrom code.
Slope: Record the average slope of the plot area in percent.
Aspect: If slope is greater than 0, identify the predominant aspect of the plot area (N, NE, etc.)
Soil Type: Classify the texture of the first mineral layer of soil.
Organic Layer: Measure the depth of the surface organic layer in inches and tenths of inches. If the depth varies, take several measurements and record the average.
Canopy %: Measure canopy closure using a densiometer. Record in percent, averaging several readings if canopy closure varies significantly.
Understory Release: Enter "n" if area has not been brush controlled, "y" if it has.
Location Plot: Describe the location of the plot.

Planted trees

TREE#: Number seedlings consecutively starting with the first seedling clockwise of due north of the plot center and continuing in a clockwise fashion. Numbers should be three or four digits, beginning with the plot number and then the number of the seedling. Write the number on an aluminum write-on tag and loosely bar lock around the main stem of the seedling either at ground level or above the first whorl. The larger the diameter of the bar lock around the seedling the longer it will be before it will need to be removed and replaced.
SPP: Record the species using the appropriate species code.
HT: Measure the height of each seedling in feet and tenths of feet from the highest point to the ground. If the seedling is leaning to one side, measure from the highest down to a point level with the base of the stem, not along the stem itself.
CAL: Measure the caliper in millimeters 1/2" above the ground using calipers and an appropriate spacer. Measure on the side of the seedling facing the plot center.
BRUSH: Classify brush competition using the appropriate brush competition code.
GRASS: Classify grass competition using the appropriate grass competition code.
PROT: Record the presence or absence of browse protection measures with the appropriate code.
BRWS: Record the degree of browse using the appropriate browse classification code.
MUL: Enter "n" if no mulch is present, "y" if mulch is present.
MS: Record the appropriate microsite elevation code.
DAM: Record damage using the appropriate seedling damage code.
A-D: Record whether or not the seedling is alive or dead. Record the seedling number and the cause of death, if known, in the "Notes" section. Note: Take all seedling measurements even if it appears dead.

Previously established trees

Species: Record the species of all previously established trees greater than 6 feet tall whose centers fall within the plot.
Number: Tally the number of previously established trees greater than 6 feet tall within each DBH class by species.
Damage: Note any damage and the proportion of trees in each size class that are affected (25%, 50%, 100%).

*M. Wishnie, McClinick, A., Hansen, J., Bob, F. 1999. *Lummi Natural Resources Riparian Zone Restoration Project (RZRP): Proposed Data Collection Protocols Field Sheets Damage Code*. Seattle, WA.

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