STEP 6. MONITOR AND LEARN FROM RESULTS

Monitoring your riparian planting allows you to complete several essential activities:

- Identify immediate maintenance needs to ensure trees survive and grow.
- Determine whether goals for tree survival and growth are being met (implementation monitoring).
- Determine whether goals for riparian functions are being met (effectiveness monitoring).
- Improve future riparian restoration efforts by learning which treatments or techniques worked, which didn't, and why (adaptive management).
- Document project implementation and results for funding agencies.

Recordkeeping and evaluation

Before implementing the project, develop a monitoring plan that addresses these questions:

- What do you want to monitor (e.g., tree survival, shade, and bank stability)?
- How will you measure or evaluate these items?
- When do key monitoring tasks need to be done?
- What is appropriate given your goals, time, skills, and budget?

Good documentation is essential:

- Prepare an overall project description including location, site conditions, site preparation, and maps and descriptions of planted areas to be monitored.
- Compile planting records, and note what was planted, where, and how.

Checklist for Step 6: Monitor and learn from results

Monitoring is an essential part of a successful project, but in practice it is often neglected.

- ☐ Build monitoring into your initial project plan.
- ☐ Inspect the planting early in the first growing season to assess problems while there is still time to address them. Plan for one or more follow-up inspections during the first growing season and annual inspections thereafter until trees are free to grow.
- ☐ Document the project. Keep a log of project activities and monitoring observations.
- ☐ Establish photo points to document change in riparian conditions over time. Also consider more intensive monitoring or educational efforts, such as demonstration plots.

- Record all project activities by date in a project log.
- Note results from periodic visual inspections and other forms of monitoring.

Consider marking the locations of planted trees with surveying ribbon or wire flags. Although time consuming, this will make it easier to locate trees for needed maintenance and monitoring and help ensure that you don't accidentally damage or cut trees.

Periodic visual inspection

This is the simplest and most important type of monitoring. The main purpose is to see how the planting is doing and to decide what, if any, corrective actions are needed to make sure trees survive and grow adequately to meet project goals. Plan for a visual inspection of the planting site at least once per season:

- Are grasses or other weeds encroaching on or threatening to overtop planted trees?
- Is there evidence of browsing, girdling, or clipping of stems?
- What steps need to be taken to correct the problems?
- Are trees vigorous and healthy?
- Are trees of some species or trees in certain areas doing better than others? If so, why?

Note your observations in the project log. The most critical time for inspection is the spring after planting, while there is still time to address emerging problems.

Photo monitoring

A series of photos over time is a powerful tool for documenting starting conditions and changes over time. Mark photo points (reference points) with steel pins or rebar so they can be found in the future. Document the location of photo points in your project log, and indicate the direction (compass heading) the photographer is facing from the photo point. See "For more information" (page 27) for additional resources on photo monitoring.

Other monitoring techniques

Most riparian monitoring will focus on project implementation: Did the planted trees survive, and are they healthy and vigorous? What problems require immediate attention? These questions can be addressed largely through periodic visual inspections.

More intensive monitoring techniques can provide quantitative information that is objective, repeatable, and statistically valid. These approaches are important for evaluating project effectiveness but are expensive and time consuming.

Regardless of the technique used, it's important to follow a consistent format for recording measurements and taking notes on project conditions.

Appendix D (page 26) lists examples of common monitoring questions, objectives, and techniques. See "For more information" (page 27) for additional resources on monitoring.