

## **MONITORING PLAN- EXAMPLE**

**Project Name:** Riparian Vegetation Restoration Project

**Project Proponent:** Fish River Watershed Council

**Project Goal:** This project will reduce noxious weeds at the project site while promoting the establishment of native vegetation in order to reduce erosion, provide increased canopy cover, and increase large woody debris recruitment. In the short-term, weed suppression will help to reduce competition for native riparian plantings. Once established, the riparian plantings will provide streambank stabilization, shade for the stream, organic debris for allochthonous nutrient input, and improve the local fish and wildlife habitat. Our long-term goal for instream cover is congruent with that stated in the local Watershed Plan, which is to work towards a 5 degree reduction in mean summer water temperatures for this creek.

### **Structural Objective:**

- 1) Establish 80% tree canopy cover by 2024
- 2) Establish one native tree or shrub per square meter by 2006
- 3) Establish species composition of 50% native species; establish and/or enhance the growth of at least 6 different native species (herbaceous and woody species) and associated plant communities by 2006

### **Parameter:**

- 1) Percent tree canopy cover
- 2) Live stem count (native trees and shrubs)
- 3) Species composition

### **Techniques for Measurement:**

- 1) Percent tree canopy cover: Five randomly selected stations were identified throughout the project area for data collection. A 1m<sup>2</sup> vegetation monitoring plot was established at each data station to facilitate long term monitoring. Canopy coverage estimates are performed at each data station. Tree-level canopy cover is estimated with a concave spherical densitometer (or with a convex fish eye lens on a camera if available), and shrub-level canopy cover is estimated with a 35 X 65 cm Daubenmire frame constructed of PVC pipe. To further monitor the planting efforts, six photo points have been established and marked with rebar and GPS waypoints. Pictures are taken from photo points on a bimonthly basis for the first year and biannually for year two.
- 2) Live stem count: Five randomly selected stations were identified throughout the project area for data collection. A 1 m<sup>2</sup> vegetation monitoring plot was established at each data station

to facilitate long term monitoring. Presence/absence of species and live stem counts are performed at each data station.

3) Species Composition: Five randomly selected stations were identified throughout the project area for data collection. A 1m<sup>2</sup> vegetation monitoring plot was established at each data station to facilitate long term monitoring. Presence/absence of species and stem counts are performed at each data station. Species composition is estimated with a 35 X 65 cm Daubenmire frame constructed of PVC pipe. The monitoring protocol includes identifying all species present and estimating canopy cover for each species. To further monitor the weed control and planting efforts, six photo points have been established and marked with rebar and GPS waypoints. Pictures are taken from photo points on a bimonthly basis for the first year and biannually for year two.

### **Baseline:**

- 1) Percent tree canopy cover: 0%
- 2) Live stem count (native trees and shrubs): 0%
- 3) Species composition: 25% native species; approximately 6 native species are currently present at the site

### **Reference:**

- 1) Percent tree canopy cover: 80%
- 2) Live stem count (native trees and shrubs): one native tree or shrub/m<sup>2</sup>
- 2) Species composition: 70% native species; 6 or 7 different native species (herbaceous and woody) and associated plant communities

### **Target:**

- 1) Percent tree canopy cover: 80%
- 2) Live stem count (native trees and shrubs): one native tree or shrub/m<sup>2</sup>
- 3) Species composition: 50% native species; establish and/or enhance the growth of at least 6 different native species (herbaceous and woody) and associated plant communities

### **Timing:**

- 1) Percent tree canopy cover: annually
- 2) Live stem count (native trees and shrubs): annually

3) Species composition: annually

**Functional Objective:**

- 1) Promote 75% plant stock survival by 2007
- 2) Discourage establishment of invasive and weedy species to less than 50% cover by 2007

**Parameter:**

- 1) Plant stock survival
- 2) Percent weed canopy cover

**Technique for Measurement:**

1) Plant stock survival: A permanent pivot (rebar) will be established among the planted stock. A measuring tape will be attached to the rebar and extended to 15 feet. All shrub/tree plantings that fall within the 15-foot radius will be recorded. All plants that within the 15-foot radius will be noted for species, planting method (rooted stock or cutting), if applicable, number of cuttings per hole is included, location (distance from pivot and orientation), and condition (healthy, diseased, dead etc.). If the planting area spans several ecotones, a 15-foot monitoring plot will be established in each representative ecotone (e.g., one plot on a pointbar and one plot on a cutbank). Best professional judgment will be used to determine actual number of plots established in each project area. This procedure may be repeated independently of the entire riparian monitoring plan to more closely observe mortality due to special conditions, such as drought, reintroduction of livestock, fire, etc.

2) Percent weed canopy cover: Five randomly selected stations were identified throughout the project area for data collection. A 1m<sup>2</sup> vegetation monitoring plot was established at each data station to facilitate long term monitoring. Canopy coverage estimates are performed at each data station. Shrub-level canopy cover is estimated with a 35 X 65 cm Daubenmire frame constructed of PVC pipe. The monitoring protocol includes identifying all species present and estimating canopy cover for each species. To further monitor the planting efforts, six photo points have been established and marked with rebar and GPS waypoints. Pictures are taken from photo points on a bimonthly basis for the first year and biannually for year two.

**Baseline:**

- 1) Plant stock survival: N/A
- 2) Percent weed canopy cover: 60-80%

**Reference:**

- 1) Plant stock survival: 95%
- 2) Percent weed canopy cover: 50%

**Target:**

- 1) Plant stock survival: 75%
- 2) Percent weed canopy cover: 50% cover or less

**Timing:**

- 1) Plant stock survival: annually
- 2) Percent weed canopy cover: annually