



Southwestern willow flycatcher

The southwestern willow flycatcher breeds throughout southern Utah (and elsewhere). It migrates up from Central America and Mexico in mid-May and nests mainly in the understory of cottonwood/willow riparian forests. As these types of riparian zones have been lost or changed, the 6-inch, green and yellow insectivore has decreased in number. In fact, so many have disappeared that in 1995 it was placed on the endangered species list. The southwestern willow flycatcher had historically been found in Utah along Kanab Creek and the Virgin, Colorado and San Juan rivers. However, only three sightings have been confirmed in the last five years.

How can you help the southwestern willow flycatcher and other birds that depend on riparian zones? Contact your local Fish and Wildlife Department to learn more about these birds. Ask if there are riparian zone restoration projects you and your class can participate in.

How do we sample the riparian zone?

This section provides three ways to monitor the riparian zone:

- 1) Greenline Transects,
- 2) Ground Cover Transects and
- 3) Canopy Cover Transects.

Each activity measures a different characteristic of the riparian zone.

NOTE: Step-by-step “Sampling Directions” can be found at the end of this section along with the “Riparian Zone Data Collection Sheet.”

Greenline transects

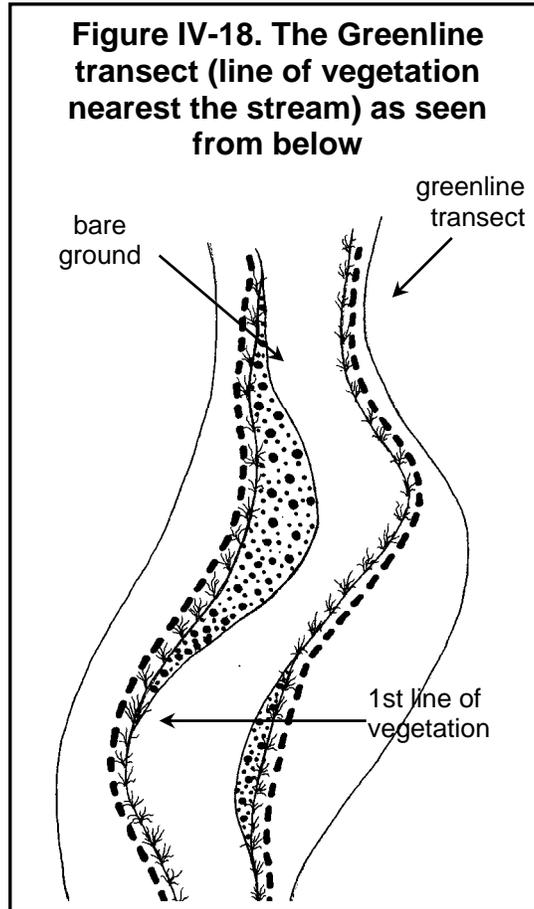
The **greenline** consists of the first plants you encounter as you move away from the water (see Figure IV-18). The greenline may at times closely parallel the stream and at other times it may head a considerable distance away from the stream.

- The greenline gives us a measurement of bank stability, which is the ability of banks to withstand erosion. We determine stability by calculating the percent composition of five different vegetation types along the banks. These are: 1) grasses, 2) forbs, 3) sedges and rushes, 4) shrubs and trees, and 5) bare ground (see Figure IV-19 for help identifying different vegetation types). Each vegetation type has a different ability to stabilize the bank, due primarily to the depth and density of their roots or whether they are annuals (die back after one year) or perennials (survive through the winter). Stability ratings are found on the “Riparian Zone Data Collection Sheet.”
- Before sampling work with your students to correctly identify the different vegetation types and to locate the greenline. This can easily be done in your schoolyard in an area where vegetation meets bare soil. The more practice students have before they visit the stream site the more successful they will be.

- The greenline will take two students 30 minutes to complete if they are familiar with the different vegetation types.

Canopy cover transects

- The canopy cover transect measures the percentage of overhead area covered by leaves or branches. This tells us the amount of shading the stream receives.
- The canopy cover transect runs along the greenline transect and can be measured at the same time. The canopy cover transect will take two students 15 minutes to complete.
- Students can simply look up to determine whether the overhead space is covered or they can use an **ocular tube** for a more precise measurement. One student looks through the tube, pointing it straight up. A second student tells him/her when the tube is vertical, at which time, the observation is made (“covered” or “open”). To make an ocular tube refer to the appendix “Make Your Own Monitoring Equipment.”



Ground cover transects

- Measuring ground cover tells us how well the riparian zone prevents erosion and filters runoff before it enters the stream.
- Riparian ground cover transects are set up perpendicular to the greenline. They begin at the stream’s edge and extend approximately 30 feet away from the stream. Generally, five transects are run per stream stretch.
- Students count paces to measure the ground cover transect. Along each transect students will record four possible categories: 1) live vegetation; 2) litter (dead plant or tree material); 3) rock; and 4) bare ground. These different cover types provide varying degrees of protection from erosion. The cover type found at each sampling point should be tallied on the data sheet.
- One ground cover transect will take two students 10 minutes to complete (60 minutes to complete all five).