Riparian Vegetation Monitoring Protocol: <u>Cottonwood/willow seedling density</u>

The 2016 cotton season was a good one and conditions were right for the establishment of cottonwood seedlings, namely, the presence of many moist and bare soil areas along Deer Creek especially in areas where TSPs were established in the spring of 2016. The cotton began heavily dispersing during the last week in May/first week in June and continued through to the end of June. Heavy seedling density was noted during the week of June 20th. The purpose of this monitoring protocol is to establish a system for monitoring the success of cottonwood seedling establishment areas compared to other areas (where TSPs were not established) and to monitor survival and density of seedlings from year to year. This work has to be completed in July – AFTER cotton has dispersed.

Cottonwood seedling density will be monitored at all 12 vegetation transect locations established in June 2016.

Floodplain: Transects 1, 2, 3, 7, 8, 9

TSP: Transects 4, 5, 6

At each transect, seedling density measurements will be taken (on the stream side of the transect tape) at every meter. At each of these meter markers, a .01 m^2 frame (.1*.1 meters) will be placed to align with the transect tape from the meter marker to the meter marker + 0.1 m. For example, the plot will be placed to align with meter 5 and meter 5.1. Within this frame, seedling density counts by species will be made.

<u>Species Identification:</u>

The photo below shows germinated cottonwood seeds at TSP 1, taken on June 20, 2016. Note that the pen point is pointing to a seed coat still attached to the cotyledon. Also note the reddish color of the seedling stem.

Photos: Carla DeMasters

Seeds from cottonwood and willow species were collected along the Deer Creek riparian area and germinated in the Chatfield Farms greenhouses. The photos below (of germinated plains cottonwood (*Populus deltoides)* seeds) may help in the identification of these species.

Photo: Carla DeMasters

When in doubt, identify cottonwood/willow seedlings as the species present in the overstory. For example, if there are predominantly cottonwoods present in the overstory (vs. willows (*Salix sp.*), identify the seedlings as cottonwoods, *Populus sp*. We will probably only be able to identify seedlings to the species (not genus) level until they have their first true leaves, and most likely not until the second or third year of growth.

Photos below show ~2 year old plains cottonwood (left) and narrow leaf cottonwood *(P. angustifolia)* (right) saplings.

Photos: Carla DeMasters