

Kasey Hartz Natural Area Reference Sheet



Habitat Sampling Procedures

Sampling:

To provide a glimpse of the early spring weather factors affecting the growth of the three habitat areas (Creek Bed, North-facing Slope, and Upland) studied during the winter semester of 2008, various measurements were taken at three different locations. The locations were not randomly selected for this informal study, but did appear to be representative of the habitats, and were a suitable distance away from trail traffic. These locations were: Upland at N43° 15.004' W086° 11.882'; North-facing slope at N43° 14.985' W086° 11.955'; Creek Bed N 43° 14.972' W086° 11.931'; South Bridge N43° 14.958' W086° 11.894', using NAD83 reference.

Measurements were taken at each location from March 10 to April 11 on Monday (with Tuesday as backup for unsuitable weather) and Thursday (with Friday as backup) of each week. They consisted of: air temperatures at 0 cm (ground level), 15 cm, and 137 cm (chest height); the soil temperature at -15 cm; wind speed; wind chill; relative humidity; and light content in foot candles. In addition the water temperature of Four Mile Creek at the south bridge was also taken on the same days. On each occasion three trials of each sampling procedure were performed, and then an average calculated for each. General observations about the weather were also noted.

The instruments used were: a Hanna HI 145 digital soil probe; an alcohol water thermometer; a GE Lighting Type 217 color and cosine corrected light meter; and a Kestral 3000 portable weather station by Forestry Suppliers, Inc. for all other measurements.

Percentage of Organic Content and Moisture Content:

A one time sampling on March 31, 2008, for soil moisture and organic content was performed as well. Weights were taken on a chemistry laboratory digital scale sensitive to 0.0001 gm, zeroing out between each of the three weightings of each sample. Using a soil corer, three cores were taken approximately 15 cm apart at each sampling site. The three cores from each site were then hand mixed before three samples from each site's mix, of approximately 5 gm per sample, were placed in nine previously weighed crucibles. They were then allowed to air dry at room temperature for two days before again being weighed; and then re-weighed after another day of air drying. The samples were then oven dried at 116.5° C for one hour to speed the weighing process, and then re-weighed. Two days later they were weighed again, and then placed in a kiln which was raised to a temperature of 500° C over a period of approximately four hours, held at 500° C for five hours, and then allowed to cool to room temperature over about twenty-four hours. Each sample was then weighed for the last time. The percentage of soil moisture was figured from the difference in the original sample weight and the sample weight immediately before being placed in the kiln. The percentage of organic content was figured from the difference in the dry weight immediately before being placed in the kiln, and the weight of the sample immediately after being removed from the kiln.

Using the final sample weights, standard deviations and confidence intervals were obtained for each site's samples, regarding both organic content and soil moisture (see table and graphs).

Prepared by: Barbara Lukacs Grob, April 2008