

CHAPTER VIII. VEGETATION SAMPLING

R. D. Williams
National Agricultural Water Quality Laboratory
Durant, OK

A. INTRODUCTION

To provide a qualitative and quantitative description of vegetative cover of representative areas within the Little Washita Watershed.

B. METHODS

Representative 1-m² samples were cut at ground level at selected rain gauge (RG), rangeland (RL), winter wheat (WW), and mesonet (MS) sites. Site identification is the same as those provided on the standard watershed map. Total fresh weight was determined for each sample. Dry weight and leaf area were determined for a subsample from each fresh weight sample. Leaf area was determined using a leaf area machine; dry weight was determined after 24 h at 80 C. Total dry weight and leaf area were corrected to a 1-m² area based on the fresh weight. Slides, panoramic and closeup, were taken at each location to aid in description.

C. RESULTS

Most of the sites sampled were pasture or rangeland areas (Table VIII-1). Sites with the best vegetation cover were RG150, MS002, RG146, RG152, and RL003. The poorest vegetation cover was at RL002 and MS001.

Table VIII-1. Washita 92 Vegetation summary.

SITE	SLIDE #	DESCRIPTION	N*	BIOMASS		
				FRESH kg m ⁻²	DRY kg m ⁻²	LEAF AREA m ²
MS 001	-	Tilled field, poor cover of small weedy vegetation.	3	.582** (.084)		0.02 (0.001)
RG 150	1-2-3	Rangeland area. Vegetation mostly grasses, good to excellent cover. Good litter cover. Vegetation height ranged from 50 to 90 cm. Soil temperature at the time of sampling 21 C (6/9/92, 11:15).	3	.972 (.511)	.240 (.190)	2.67 (0.380)
MS 002	4-5	Pasture area, grasses some weeds. Reps 1 to 3 were within 30 m of the weather station. The vegetation was somewhat different in a drainage area (sedges with grasses) which was the site of sample 3. Reps 4 to 6 were taken in the first section of the watershed, on a slope across from the pumping station (south of the weather station. The area was fairly typical of the vegetation; some dormant blue stem or broom sedge was included in the leaf area sample. (6/9/92)	6	.951 (.360)	.430 (.155)	2.33 (0.785)

* Number of samples.

** Mean with standard deviation provided in parenthesis.

Table VIII-1. (cont.) Washita 92 Vegetation summary.

SITE	SLIDE #	DESCRIPTION	N*	BIOMASS		
				FRESH kg m ⁻²	DRY kg m ⁻²	LEAF AREA m ²
MS003	6-7-8	Weedy pasture. Mixture of sunflowers/ composite, mustard, thistles, (some bermuda), curly dock, side oats (?), Queen Ann's lace, plantago. No litter cover. From the ground roughness it may have been worked up earlier in the year. Soil temperature at the time of sampling was 22 C. (6/10/92; 11:30)	3	.561 (.099)	.194 (.155)	0.86 (0.270)
RG122	9-10	Bermuda grass pasture just outside of Chickasha on the highway. Dense stand with some over seeded winter wheat or grass still apparent; very little thatch. Grazed or mowed regularly; vegetation height at time of sampling, 23 cm.	2	.225 (.113)	.130 (.027)	0.54 (0.089)
RG123	11-12	Plant height 20 cm. Weedy grass pasture.	3	.477 (.200)	.198 (.047)	0.76 (0.219)
RG131	13-14	Weedy rangeland. Sparse cover. Very little thatch. Mix like composite. Vegetation height 30 cm.	3	.421 (.167)	.228 (.059)	1.00 (0.758)

Table VIII-1. (cont.) Washita 92 Vegetation summary.

SITE	SLIDE #	DESCRIPTION	N*	BIOMASS		
				FRESH kg m ⁻²	DRY kg m ⁻²	LEAF AREA m ²
RG134	15-16-17	Rangeland site. Post oak area; some open field. Appeared to be heavily grazed; quite a few animal tracks were visible. Also directly in line with the rain gauge there seemed to be a lot of small animal activity in the area. Little cover; mint, commeunlus, daisy/composite, nightshade. One litter sample was taken; mainly oak leaf litter. Soil temperature at time of sampling was 20 C. (6/10/92, 08:30)	3	.434 (.320)	.091 (.062)	0.40 (0.287)
RG136	18-19	Pasture; fairly good condition. Mixture of grasses with prim rose, oxalis, etc. Although not very weedy where sampled. (6/9/92) [3 reps]	3	.277 (.180)	.133 (.054)	0.63 (0.292)
RG137	20-21	Rangeland. Grass with sage weed infestation; no litter. Two samples only. Air and soil temperature at the time of sampling 32 C and 31 C, respectively. (6/10/92; 16:45)	2	.295 (.025)	.112 (.011)	0.47 (0.053)

Table VIII-1. (cont.) Washita 92 Vegetation summary.

SITE	SLIDE #	DESCRIPTION	N*	BIOMASS		
				FRESH kg m ⁻²	DRY kg m ⁻²	LEAF AREA m ²
RG145	22-23	Pasture; good to poor condition, Mixture of grasses with a variety of weeds (nightshade, sensitive briar, daisy flee bane, mint, thistle, oxalis). Thin cover; bare spots/areas noticeable between the plants. Little or no thatch; only one sample taken. (6/9192)	3	.341 (.124)	.171 (.005)	0.82 (0.249)
RG146	24-25	Pasture. Mainly love grass with some weeds. Good cover and thatch layer.	3	.412 (.207)	.265 (.035)	1.66 (0.388)
RG148	26-27	Grass pasture with wild flowers. Good cover vegetation height: 20-30 cm.	3	.333 (.154)	.253 (.079)	1.48 (0.613)
RG152	30-31	Bermuda grass pasture (may have been over seeded with rye or some other winter grass earlier). Very few weeds. Dense stand and good to excellent ground cover. (6/10/92)	3	.363 (.041)	.183 (.024)	0.80 (0.163)
RG154	32-33	Weedy grass pasture. Vegetation height: 20 cm. Poor to good ground cover. Little thatch. (6/11/92)	2	.455 (.081)	.095 (.001)	0.73 (0.548)

Table VIII-1. (cont.) Washita 92 Vegetation summary.

SITE	SLIDE #	DESCRIPTION	N*	BIOMASS		
				FRESH kg m ⁻²	DRY kg m ⁻²	LEAF AREA m ²
RL001	34-35-36	Rangeland. Grass mixture with some love grass. Weedy: thistle, Western rage weed, (Queen Ann's lace, night shade, composite, plantago, milkweed, gumweed. Vegetation height 30 cm. Two samples only. (6/11/92)	2	.440 (.123)	.209 (.034)	1.40 (0.083)
RL002	37-38	Rangeland site. This site was west of the rangeland site marked on the watershed map. The site was approximately 1 mile west of the main road. Area had an appearance of meadow (a lot of herbaceous wild flowers: small daisies, composite, grasses) with some areas of weeping love grass and post oak trees. Portions of the area were eroded. At time of sampling ground cover was poor.	2	.179 (.042)	.057 (.012)	0.15 (0.027)
RL003	37-38	Weeping love grass pasture. A very dense stand with few if any weeds; good ground cover which seemed to extend over the entire field. Vegetation sample sites were 40 m east of the DOE site. Vegetation ht. 80 cm. Soil temperature at time of sampling was 18 C. (6/10/92;10:00)	2	.653 (.264)	.413 (.159)	

Table VIII-1. (cont.) Washita 92 Vegetation summary.

SITE	SLIDE #	DESCRIPTION	N*	BIOMASS		
				FRESH kg m ⁻²	DRY kg m ⁻²	LEAF AREA m ²
WW003	39-40	Winter wheat field. Plant height: 70-75 cm tall. Spacing: 1 5 cm; 1 00-1 1 0 plants/m-row. Harvested within week of sampling.				
Gully Watershed	41-42-43	Rangeland site; grasses with weeds. improved site had better ground cover.	3	.298 (.101)	.101 (.040)	