F-8 Freedman '85

A BASELINE BIOLOGICAL STUDY OF THAT PORTION OF WILSON CREEK (BLAINE COUNTY, IDAHO) INCLUDED IN THE MARK E. STEVENSON EASEMENT

by

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INTRODUCTION

The objective of this report is to present the results of monitoring designed to collect baseline biological data for the establishment of the current condition of portions of property owned by Mark E. Stevenson, in accordance with a Conservation Easement in favor of The Nature Conservancy. The property consists of riparian zones along 620 m of Wilson Creek, a tributary of Silver Creek, via Grove Creek, Blaine County, Idaho.

Data were collected during September 1985 on:

1. species composition, abundance, and size of fish,
2. sediment depth,
3. composition of submerged aquatic vegetation,
4. composition of riparian vegetation, and
5. composition and abundance of aquatic macroinvertebrates.

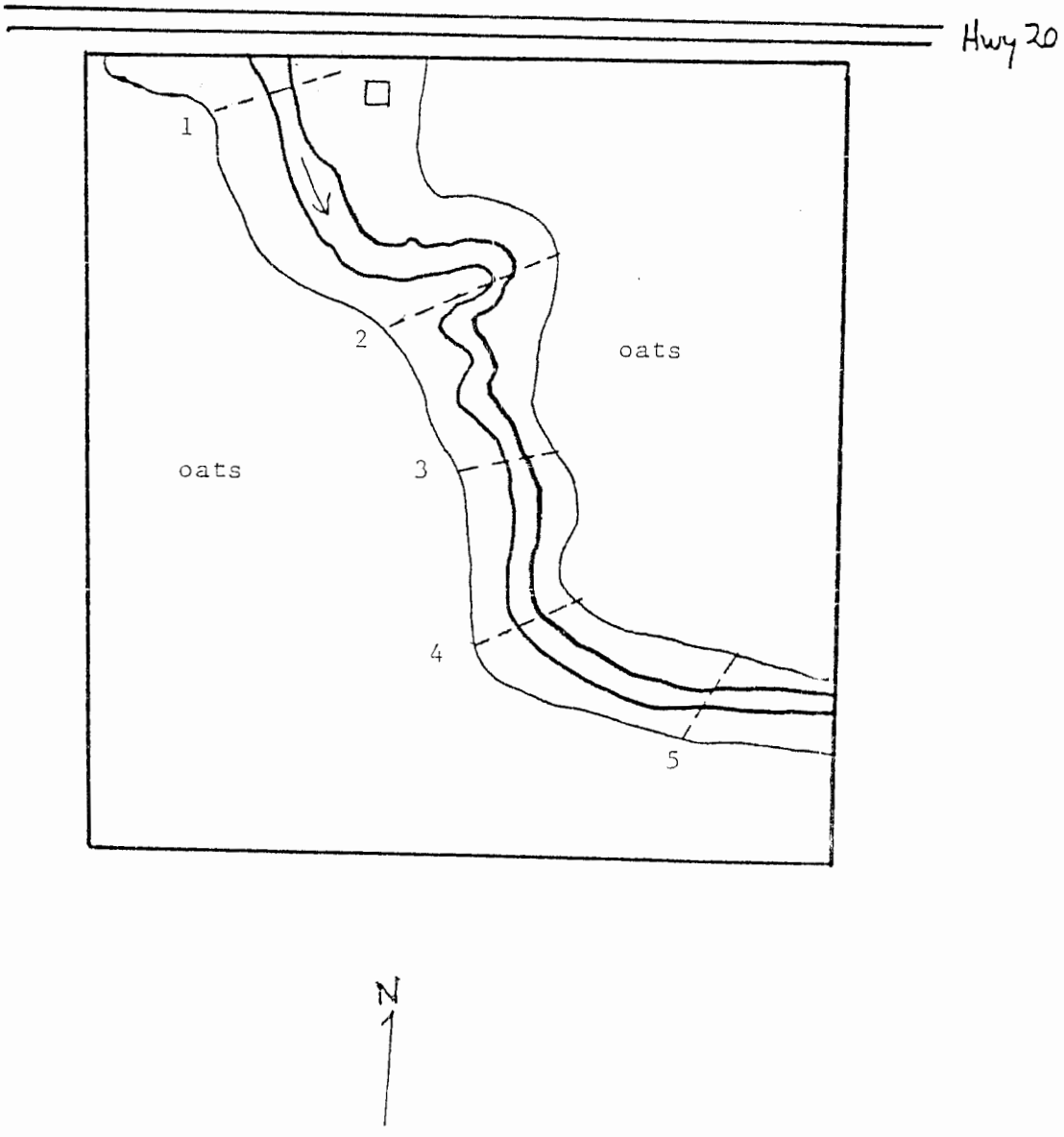
The study area is shown in Figure 1.

METHODS

Sampling was done on 27-28 September 1985. Five transects perpendicular to the stream channel were established along Wilson Creek on the Stevenson property. A preliminary evaluation indicated some variability in types of habitat present along the stream, and transects were placed to sample each area.

Transect locations are shown on Figure 1. The transect farthest upstream (1) was located approximately 165 m downstream from U.S. Highway 20. Transects 2, 3, 4, and 5 were located 100, 250, 350 and 400 m respectively downstream of transect 1. Transect 5 was located 50 m upstream from the boundary fence.

Figure 1. Location of transects, Wilson Creek, September 1985. Numerals indicate the locations of the five vegetation and sediment transects. Aquatic macroinvertebrate samples were taken at transects 2 (upper) and 5 (lower).



Fish Populations

Fish were collected in 55-90 m stream sections with a Coffelt backpack electroshocker producing 250 volts DC that attracted the fish to the positive electrode. Each section was electroshocked three times in succession to assess trout population size. In all sections, no trout were collected on the third pass and the sum of the first two passes represents a total count.

Because of their high densities and lack of attraction to the positive electrode, sculpin were not sampled quantitatively.

Sediment Depth and Aquatic Vegetation

A series of measurements were made at 1-m intervals across each transect. At each measuring point, total depth (water surface to firm stream bottom), sediment depth, and height of submerged aquatic vegetation were recorded to the nearest centimeter using a probe. A plan view of the substrate surface was prepared to indicate the distributions of each species of aquatic vegetation across the stream at that point.

Riparian Vegetation

At each transect a measuring tape was stretched along the transect and for each 1-m interval the ground cover at each vascular plant species observed was recorded. The plant data was recorded within meter-square quadrats. The first meter-square quadrat was placed at the water's edge and previous quadrats were placed along the transect 1 m apart. In each quadrat, canopy coverage of each vascular plant species was estimated using Pfister *et al.*'s (1977) system modified from Daubenmire (1959). Canopy coverage was recorded by the following classes: T = 0-1% coverage, 1 = 1-5%, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-95%, 6 = 95-100%, and then transformed into midpoint percentages.

Aquatic Macroinvertebrates

A series of four samples of 1/16 m^2 of stream substrate were taken with a

Hess net (mesh size 0.39 mm) at transects 2 and 5. The net sampled the upper 8 cm of the substrate. Samples were preserved with 10% formalin in the field. In the laboratory, they were sorted to separate debris from invertebrates, and organisms were identified to the genus level where feasible.

RESULTS

Fish Populations

Three species of fish were collected. They are brook trout (Salvelinus fontainalis), rainbow trout (Salmo gairdneri), and Wood River sculpin (Cottus leiopomus). Brook trout were more abundant than rainbow trout by a ratio of approximately 5:1 (Table 1). Brook trout were found throughout the study area, although densities were greater in the upper sections. Rainbow trout were absent or scarce in the lower sections and became more common in the upper sections.

Overall density of 2.9 trout per 100 m^2 of stream surface area is comparable to that found in Mud Creek and greater than that in Chaney Creek (both Stalker Creek Tributaries) in previous baseline inventory studies. In the present study, densities of trout were several times higher in the upper three sections than they were in the lower two, reflecting the quality of the habitat, especially water depth. Although the maximum water depth was about 40-50 cm for all sections, most of the lower two sections were shallower than 20 cm, with little cover available for trout.

Young of the year brook trout averaged 87 mm in length, and young of the year rainbow trout averaged 62 mm, indicating that the latter were the results of spring spawning. The coloration and body form of larger brook trout indicated they were sexually mature, and those as small as 110 mm were approaching spawning readiness. The largest brook trout taken in the study

Table 1. Abundance of young of the year (YOY) and adult trout in the Stevenson portion of Wilson Creek, 27-28 September 1985. Maximum total length (mm) of adult trout is given in parentheses for each section.

Section	Length (m)	Width (m)	Max. Depth (cm)	Brook Trout		Rainbow Trout		Total Number/ 100 m^2
				YOY	Adult	YOY	Adult	
1 (upper)	55	18.0	38	12	12 (130)	23	0	4.8
2	62	12.6	48	13	34 (171)	2	3 (110)	6.7
3	61	14.1	50	11	28 (181)	0	1 (131)	4.7
4	90	20.5	40	4	7 (128)	0	1 (120)	0.7
5 (lower)	75	16.6	38	4	9 (125)	0	0	1.0
Total				44	90	25	5	2.9

sections was 181 mm, but most were 120-130 mm. The largest rainbow taken in the study sections was 131 mm.

One area of substantial water depth exists in the 620-m portion of Wilson Creek being examined, and although it did not fall in any of the five study sections it was also electroshocked. A pool has been created below the highway culvert at the upstream end of the property. The pool is approximately 10 m long and has a maximum depth of 1.0 m. Approximately 60 adult trout were found, about half rainbow and half brook trout. The largest fish was a rainbow trout 351 mm in length (photo attached).

Wood River sculpin were extremely abundant in the upper three study sections, with several hundred sculpin present in each. In sections 4 and 5, totals of only 27 and 13 adult sculpin were collected. Young of the year sculpin were more abundant than adults.

Sediment Depth and Aquatic Vegetation

Average water depth of the stream was 19 cm, with varying amounts of sediment present (Table 2, Figs. 2-6). The upper most sections (transects 1,2) of Wilson Creek exhibited the greatest amount of sediment (up to 48 cm, average 28 cm). Sediment depths in the lower transects (3, 4, 5) ranged from 0 to 39 cm and averaged 13 cm. Gravel content ranged from 0% at transect 1 to 24% at transect 5.

Aquatic vegetation was dominated by Chara vulgaris which formed dense mats and averaged about 10 cm in height. Chara vulgaris tended to occupy sites where sediment depths were the greatest. In transects 1, 2, and 3, Phalaris arundinacea formed clumps on top of the Chara vulgaris mats. The Phalaris also occupied sites adjacent to the riparian zones and tended to stabilize the water land interface. Approximately 20 cm of water was flowing under these Phalaris arundinacea clumps. Rorippa nasturtium-aquaticum,

Table 2. Average depths of water and sediment, stream widths, and aquatic plants present along transects in Wilson Creek, September 1985. Ranges given in parentheses.

Transect	Stream width (m)	Average depth (cm) water	sediment	% Gravel	Aquatic Plants
1	18.0	16 (5-28)	27 (16-32)	0	Chara vulgaris. Potomageton sp. Phalaris arundinaceae
2	21.0	21 (10-30)	30 (5-48)	10	Chara vulgaris. Potomageton sp.
3	15.6	21 (11-30)	11 (4-27)	13	Chara vulgaris. Potomageton sp. Veronica americana Phalaris arundinaceae
4	21.2	16 (10-30)	18 (12-39)	14	Chara vulgaris. Potomageton sp. Phalaris arundinaceae
5	16.6	22 (15-27)	10 (2-28)	24	Chara vulgaris Potomageton sp

Fig. 2. Sediment and water depths in Transect 1, Wilson Creek crossection, September 1985. Vertical scale is exaggerated to show depth profile more clearly.

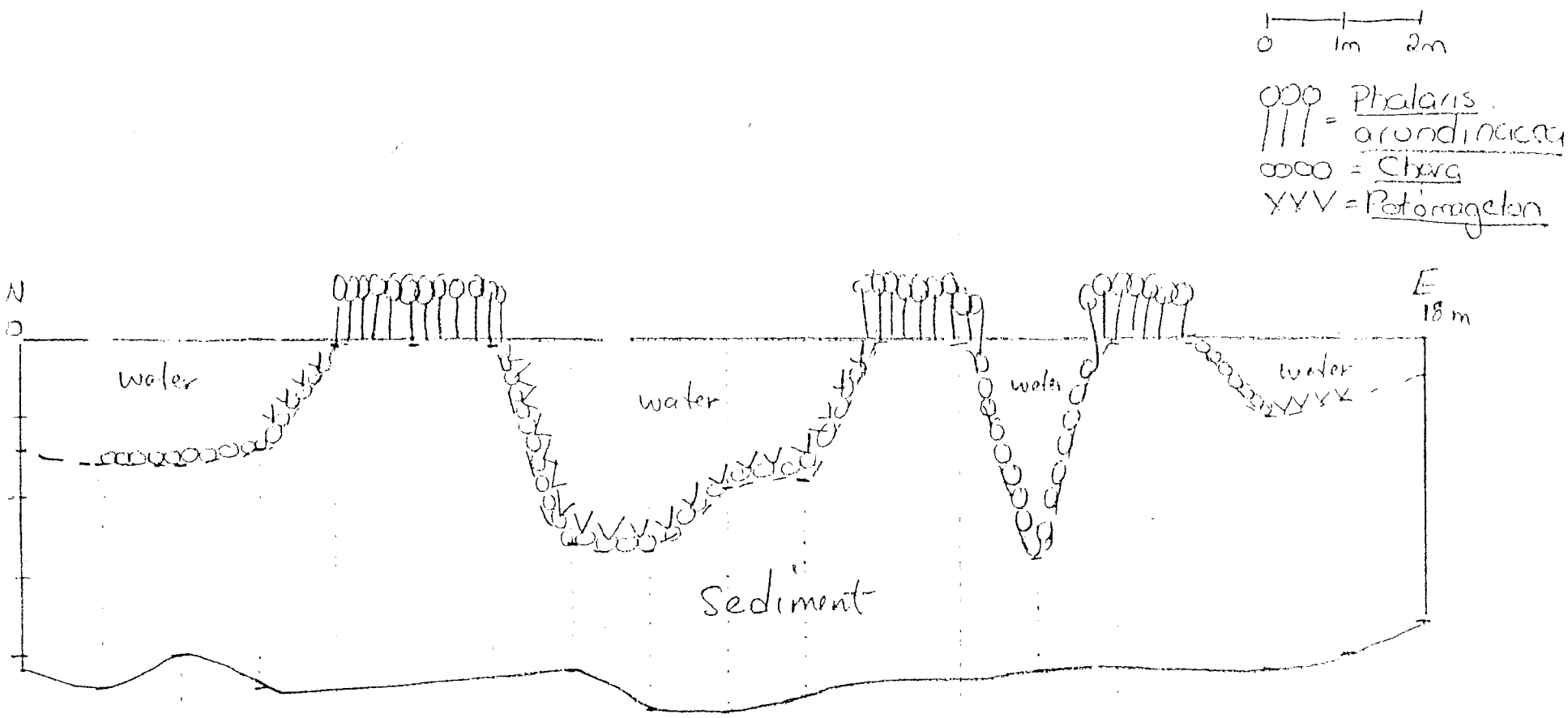


Fig. 3. Sediment and water depths in Transect 2, Wilson Creek crossection, September 1985.

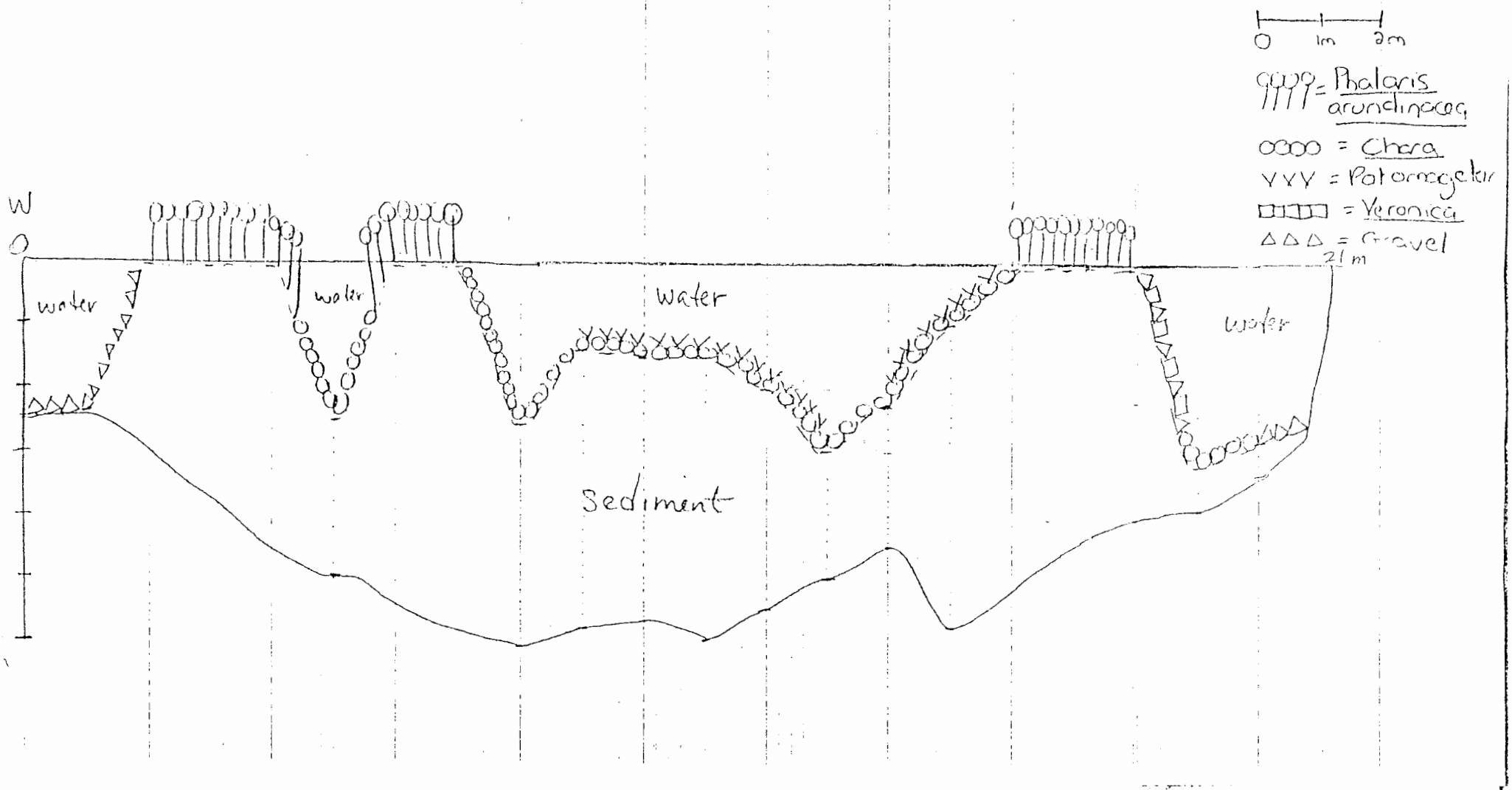


Fig. 4. Sediment and water depths in Transect 3, Wilson Creek crossection, September 1985.

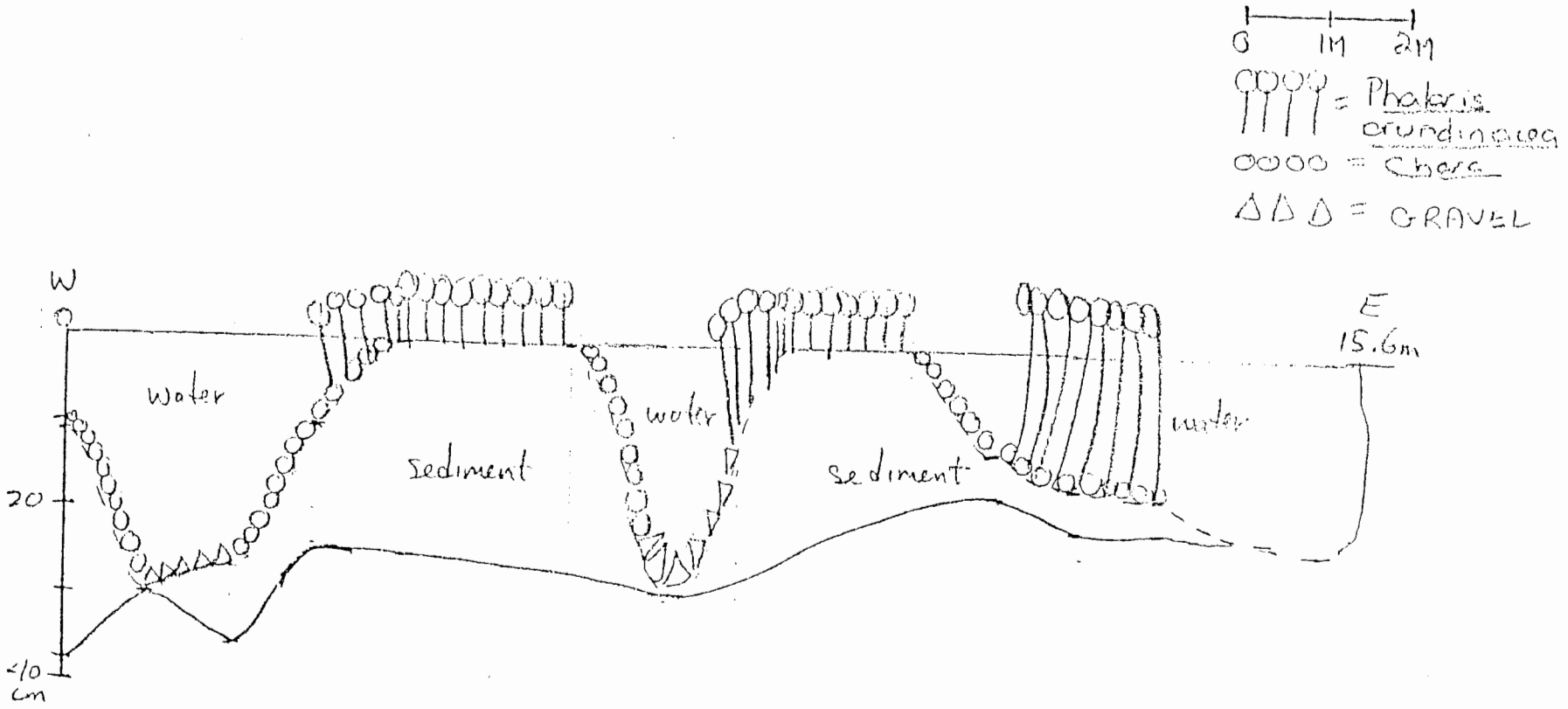


Fig. 5. Sediment and water depths in Transect 4, Wilson Creek crossection, September 1985.

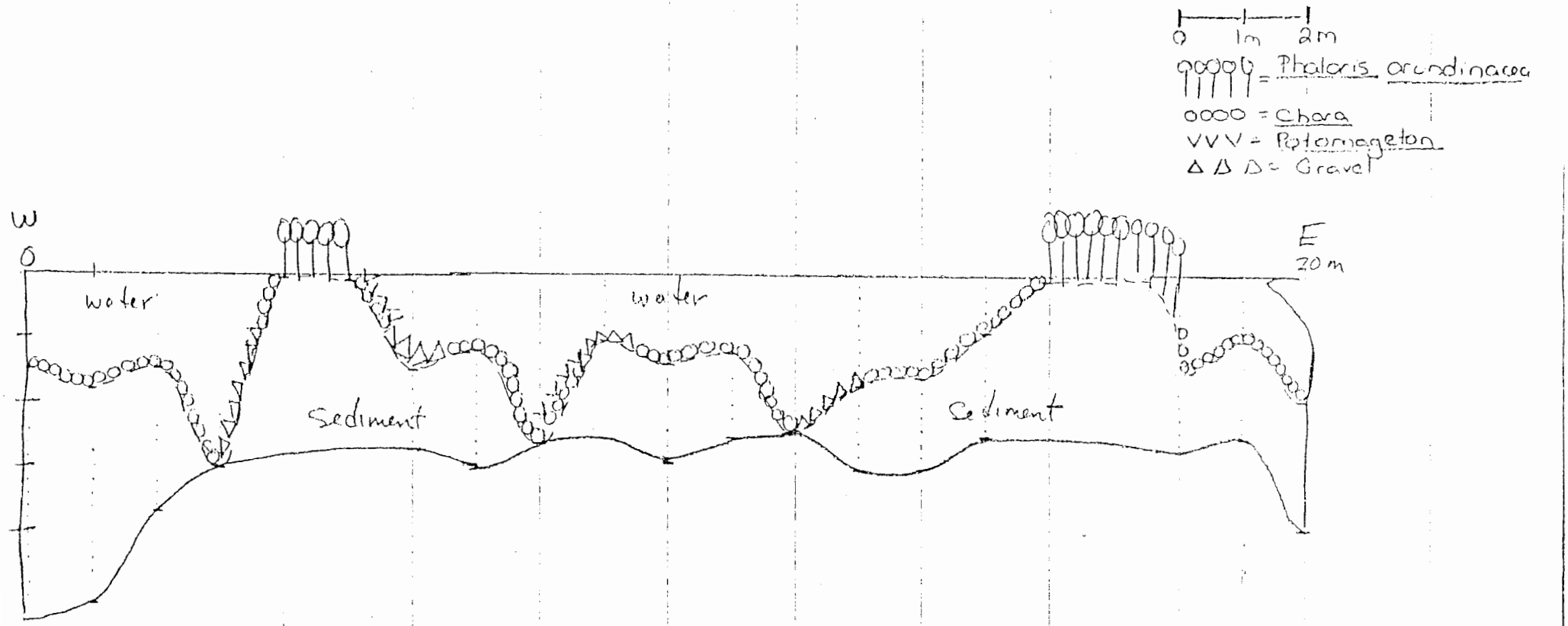
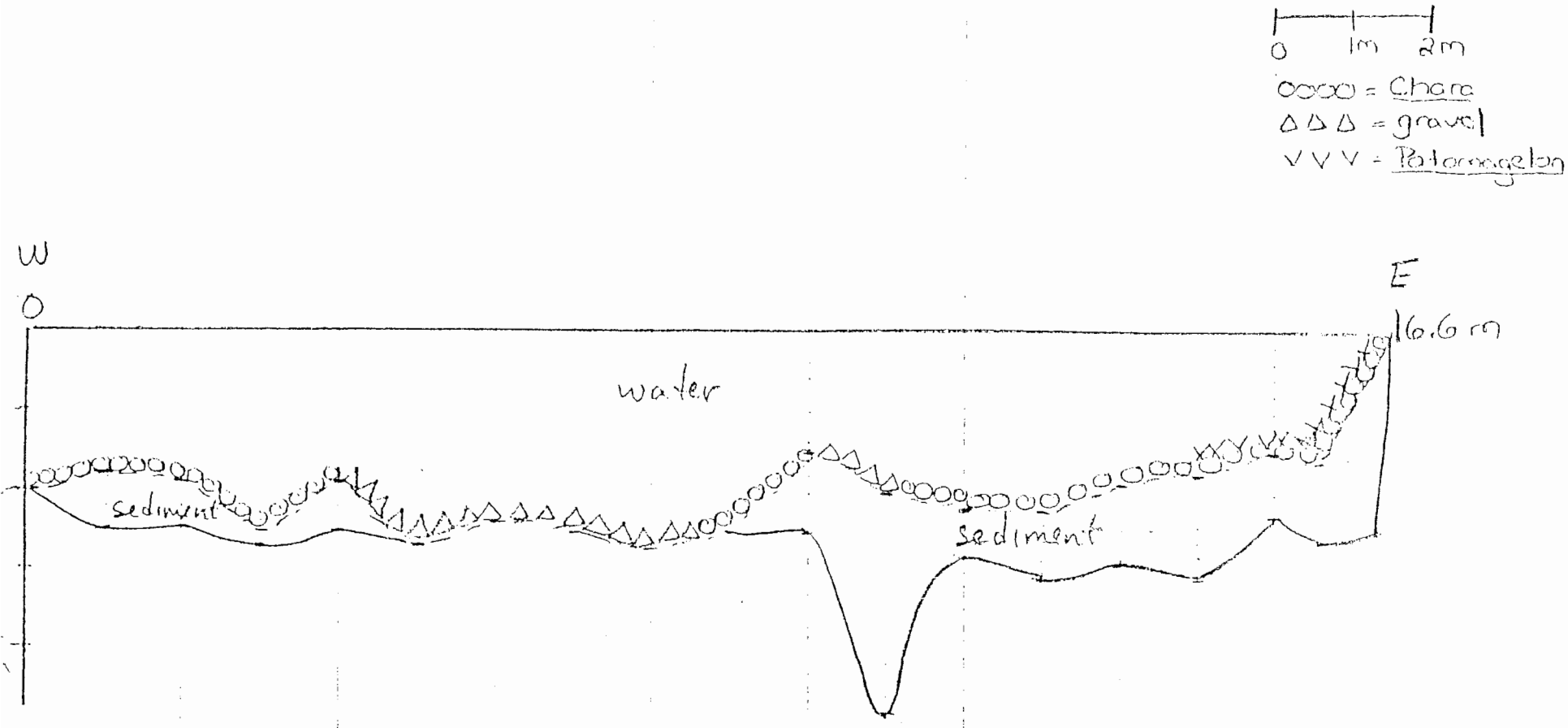


Fig. 6. Sediment and water depths in Transect 5, Wilson Creek crossection, September 1985.



Veronica americana, and Ranunculus cymbalaria were also common in Wilson Creek. Hippuris vulgaris and Potemogeton sp. were found in small amounts growing within to Chara vulgaris mats.

Riparian Vegetation

A total of 35 genera of flora was recorded in the five transects (Table 3, Appendix A). All are common local genera.

The riparian zone is a mosaic of shrubs and graminoids, varying in width (one side only) from 8-20 m. Salix exigua and Salix sp., with Cornus stolonifera, Betula occidentalis, Rosa sp., and Ribes aureum in lesser amounts dominated the lower end of the study area. The east side of the stream exhibited a greater abundance of shrubs than the west side. Shrubs also tended to occupy bends, whereas Carex rostrata, Juncus sp., and Eleocharis sp. dominated the riparian zone between bends. The height of the shrubs was greater on the lower end of the stream, whereas the shrubs in the upper section were shorter. Potentilla fruticosa was common in moderate amounts throughout the transects between the shore shrub and graminoid zone. It is common in disturbed habitat and reaches heights up to 1 m and thus is not as effective as the Salix species and Betula occidentalis in trapping airborne sediment.

Adjacent to this shrub and graminoid zone a zone of grasses and forbs could be identified. The east side was dominated by Agropyron sp. and the west side by Poa sp., and Cirsium arvense. Other "weedy" species were also present in most all sites. Equisetum arvense is present but not dominant (<5% canopy coverage) in all sites. Adjacent to this grass-forb zone on both the east and west side were fields of Avena fatua (wild oat). Considerable changes in plant dominance were exhibited along the transects as available moisture changed.

Table 3. Genera of riparian vegetation, Wilson Creek, September 1985.

SHRUBS

Salix exigua - coyote willow
Salix sp. - willow
Cornus stolonifera - redosier dogwood
Rosa sp. - wild rose
Potentilla fruticosa - shrubby cinquefoil
Ribes aureum - currant
Betula occidentalis - river birch

GRAMINOIDS

Carex rostrata - sedge
Janus sp. - rush
Eleocharis sp. - spikerush
Agropyron sp. - wheatgrass
Festuca sp. - fescue
Poa sp. - bluegrass
Phalaris arundinacea - canary reed grass
Avena fatua - wild oats
Sporobolus arvense - dropseed
Equisetum arvense - horsetail

FORBS

Cirsium arvense - thistle
Aster sp. - aster
Senecio sp. - sneeze weed
Fragaria sp. - strawberry
Triflorum sp. - clover
Chenopodium sp. - pigweed
Sisymbrium altissimum - tumble mustard
Plantago tweedyi - plantain
Rumex cripus - curly dock
Achillea millifolium - yarrow
Polemonium occidentale - western polemoniun
Geum triflorum - old man's whiskers
Potentilla anserina - common silverweed
Potentilla palustria - marsh cinquefoil
Galium sp. - bedstraw
Astragulus sp. - vetch
Solidago sp. - goldenrod
Arnica sp. - arnica

There was evidence of heavy use by big game animals. Cornus stolonifera exhibited heavy browse use; while Salix sp., Rosa sp., and Ribes aureum exhibited moderate use. The presence of pellet groups (deer), bedding sites, and trails also indicated the ungulate use.

Aquatic macroinvertebrates

A total of 16 taxa of insects and 5 taxa of non-insects was collected (Tables 4, 5, 6, 7). Mayflies and larval dipterans dominated in the samples, with no Plecoptera (stoneflies) and very few caddisflies present. We have not previously collected the caddis Arctopora from the Silver Creek system.

More insects were present from samples where Chara was abundant than in gravel samples, indicating the relatively abundant substrate and protection provided by the former and reflecting the armoring of the gravel by marl deposits. The lower transect held fewer taxa and lower total numbers than did the upper transect. Species such as chironomids and Tubifex that are capable of "mining" the soft substrate were relatively abundant.

Table 4. Aquatic macroinvertebrates present in 1/16 m^2 samples at upper transect, Wilson Creek, September 1985.

Order	Family	Genus	Chara 1	Chara 2	Gravel 1	Gravel 2
Ephemeroptera (mayflies)	Baetidae	Baetis	9	92	24	16
	Siphonuridae	Ameletus	5	0	0	0
	Leptophlebiidae	Paraleptophlebia	63	62	0	1
	Tricorythidae	Tricorythodes	1	1	0	0
Trichoptera (caddisflies)	Rhyacophilidae	Rhyacophila	0	2	0	1
	Limnephilidae	Arctopora	1	0	0	0
	Leptoceridae	Oecetis	1	2	0	0
	Helicopsychidae	Helicopsyche	0	1	0	0
Odonata (damselflies, dragonflies)	Gomphidae	Ophiogomphus	0	0	1	0
	Coenagrionidae	Enallagma	6	2	0	0
Coleoptera (beetles)	Elmidae	Optioservus	3	0	7	6
	Haliplidae	Haliplus	0	3	0	0
Hemiptera (true bugs)	Corixidae	Cenocorixa	1	0	0	0
Diptera (flies)	Chironomidae		42	110	1	0
	Simuliidae	Simulium	0	0	1	0
	Stratiomyidae	Oxycera	7	144	171	37

Table 5. Non-insect groups present in 1/16 m^2 samples at upper transect, Wilson Creek, September, 1985.

Class	Order	Family	Genus	Chara 1	Chara 2	Gravel 1	Gravel 2
Crustacea	Amphipoda (shrimp)	Gammaridae	Gammarus	20	39	6	1
Arachnoidea	Hydracarina (mites)			6	1	0	0
Oligochaeta	Haplotaxida	Tubificidae (worms)	Tubifex	118	43	82	14
Hirudinea (leeches)				31	71	7	0
Gastropoda (snails)	Basommatophora	Lymnaeidae	Lymnea	0	0	0	0

Table 6. Aquatic macroinvertebrates present in 1/16 m^2 samples at lower transect, Wilson Creek, September 1985.

Order	Family	Genus	Chara 1	Chara 2	Gravel 1	Gravel 2
Ephemeroptera (mayflies)	Baetidae	Baetis	30	42	53	4
	Siphonuridae	Ameletus	0	0	0	0
	Leptophlebiidae	Paraleptophlebia	3	6	0	0
	Tricorythidae	Tricorythodes	40	46	2	0
Trichoptera (caddisflies)	Rhyacophilidae	Rhyacophila	1	0	0	0
	Limnephilidae	Arctopora	0	0	0	0
	Leptoceridae	Oecetis	0	0	0	0
	Helicopsychidae	Helicopsyche	1	0	0	0
Odonata (damselflies, dragonflies)	Gomphidae	Ophiogomphus	0	0	1	0
	Coenagrionidae	Enallagma	5	3	0	0
Coleoptera (beetles)	Elmidae	Optioservus	0	0	10	3
	Haliplidae	Haliplus	0	0	0	0
Hemiptera (true bugs)	Corixidae	Cenocorixa	6	2	0	0
Diptera (flies)	Chironomidae		17	17	0	0
	Simuliidae	Simulium	1	0	0	0
	Stratiomyidae	Oxycera	7	3	20	21

Table 7. Non-insect groups present in 1/16 m^2 samples at lower transect, Wilson Creek, September 1985.

Class	Order	Family	Genus	Chara 1	Chara 2	Gravel 1	Gravel 2
Crustacea	Amphipoda (shrimp)	Gammaridae	Gammarus	21	32	6	13
Arachnoidea	Hydracarina (mites)			0	1	0	0
Oligochaeta	Haplotaxida	Tubificidae (worms)	Tubifex	11	10	8	7
Hirudinea (leeches)				12	17	3	8
Gastropoda (snails)	Basommatophora	Lymnaeidae	Lymnea	0	0	2	0

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Pfister, R.D., B.L. Kovalchick, S.F. Arno, and R.C. Presby. 1977. Forest habitat types of Montana. USDA For. Serv. Gen. Tech. Rep. INT-34, 174 pp. Inter. Fur. and Range Exp. Sta., Ogden, Utah.

APPENDIX A

Date 7/63 25
Transect Number 1
Meadow Road

WILSON CREEK VEGETATION DATA SHEET
(Percent Canopy Cover Midpoints)

	OATS	WEST 1	2	3	4	5	CREEK 6	EAST 7	8	9	10	11	OATS
SHRUBS													
Salix exigua							0.1%						
Salix sp.							0.1%						
Cornus stolonifera													
Rosa sp.					2.1%								
Potentilla fruticosa													
Ribes aureum													
Betula occidentalis													
GRASSES AND GRASS LIKE													
Carex rostrata			37.5%	3%	3%	2.5%	62.5%					—	
Juncus sp.			2%	15%	37.5%	2%	15%						
Eleocharis sp.			2%	2%	2%	2%	2%						
Agropyron sp.	3%	2%	3%	0.1%			37.5%	62.5%	2%	2%	62%	37.5%	
Festuca sp.	37.5%	37.5%	15%	15%	2%		2.1%		3%	2%	2%	2%	
Poa sp.	37.5%	37.5%	37.5%	=	=		2.1%	3%	15%	2%	2%	2%	
Phalaris arundinacea							1%	3%					
Av a fatua												37.5%	
S obolus airoides	3%	15%	3%	5%	15%		15%						
Equisetum arvense	15%	3%	3%	3%			3%					15%	
Herbs													
Cirsium arvense	15%	37.5%	37.5%	15%	37.5%		0.1%	15%	15%	15%	15%	15%	
Aster sp.													
Senescio sp.													
Fragaria sp.													
Trifolorum sp.													
Chenopodium sp.													
Sisymbrium altissimum													
Plantago tweedyi	15%	15%	3%										
Rumex cripus							3%	2%				37.5%	
Achillea millifolium													
Polemonium occidental								3%					
Geum triflorum	3%					2%							
Potentilla anserina													
Potentilla palustria													
Galium sp.				2%									
Astragulus sp													
Bare soil	37.5%												
Litter	3%	15%	37.5%	37.5%	15%		15%	37.5%	37.5%	37.5%	62%	37.5%	

Date 9/28/85
Transect Number 2

WILSON CREEK VEGETATION DATA SHEET
(Percent Canopy Cover Midpoints)

	OATS ROAD	WEST				CREEK	EAST						
	1	2	3	4	5	6	7	8	9	10	11	12	DATA
SHRUBS													
Salix exigua					3%	15%	15%						
Salix sp.					3%	3%	3%						
Cornus stolonifera					0.1	0.1	0.1						
Rosa sp.			0.1	15%	3%	0.1							
Potentilla fruticosa			0.1	15%	3%								
Ribes aureum													
Betula occidentalis													
GRASSES AND GRASS LIKE													
Carex rostrata				3%	3%	15%	15%	3%					
Juncus sp.					3%	3%	15%	3%					
Eleocharis sp.					3%	3%	15%	3%					
Agropyron sp.	3%	3%	3%	3%	3%		3%	15%	60%	35%	3%	15%	
Festuca sp.	15%	15%	15%	15%	15%	3%	15%	3%	3%		3%		
Poa sp.	15%	37.5%	15%	37.5%	37.5%	3%	3%	3%	3%	3%	3%		
Phalaris arundinacea						15%	3%						
Avena fatua	3%	3%	3%								3%	3%	
Scirpus robolus airoides													
Equisetum arvense	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	15%	
Herbs													
Cirsium arvense	15%	15%	15%	15%	15%	3%	3%	37.5%	15%	0.1	0.1	3%	
Aster sp.		0.1%	3%	3%	3%	3%	3%	3%					
Senescio sp.		0.1%	0.1%	3%	3%	3%		3%					
Fragaria sp.						3%							
Trifolorum sp.													
Chenopodium sp.													
Hisymbrium altissimum												3%	
Plantago tweedyi	3%		3%	3%	3%	3%		3%					
Rumex cripus												37%	
Achillea millifolium													
Polemonium occidental						15%							
Geum triflorum	3%	3%	3%		3%	3%	3%	3%					
Potentilla anserina													
Potentilla palustria													
Galium sp.						3%							
Astragulus sp.													
Bare soil													
Other	37.5%	15%	15%	15%	15%	3%	3%	37.5%	37.5%	3%	15%	3%	

Date 9/28/85
Transect Number 3

WILSON CREEK VEGETATION DATA SHEET
(Percent Canopy Cover Midpoints)

	OATS ROAD	WEST					CREEK	EAST					
SHRUBS	1	2	3	4	5	6	7	8	9	10	11	12	
alix exigua			3%	5%		3%							
alix sp.			3%	0.1%		3%	85%	62.5%	37.5%				
ornus stolonifera							0.1%	37.5%	37.5%				
osa sp.						0.1%	0.1%	37.5%	15%				
otentilla fruticosa	37.5%	3%	3%	3%	3%				0.1%	3%			
ibes aureum								0.1%	3%				
etula occidentalis													
GRASSES AND GRASS LIKE													
arex rostrata			0.1%	3%	3%	37.5%	0.1%	3%	3%	3%	—		
unus sp.			0.1%	3%	15%	15%	0.1%	3%					
leocharis sp.			0.1%	3%	15%	3%	0.1%	3%					
gropyron sp.									3%	3%	37.5%	62.5%	
estuca sp.	15%	15%	15%	15%	37.5%	15%				3%	3%	3%	
oa sp.	15%	15%	15%	15%	3%					3%	3%	3%	
halaris arundinacea						3%	37.5%	3%					
v a fatua												3%	
bolus airoides													
uisetum arvense	3%	3%	3%	3%	15%		3%	3%	3%	3%	3%	3%	
erbs													
irsium arvense	37.5%	3%	3%	3%	15%	3%	0.1%	15%	15%	15%	15%	15%	
ster sp.	0.1%		0.1%	3%	3%	15%		3%	0.1%	0.1%	3%	3%	
enescio sp.	3%		0.1%	3%	3%	3%	0.1%	3%	0.1	0.1	3%	0.1	
ragaria sp.				3%	3%	3%	0.1%	3%					
riflorum sp.													
henopodium sp.													
isymbrium altissimum													
lantago tweedyi	3%	3%			3%	15%							
umex cripus													
hillea millifolium	15%	3%											
lemonium occidental					3%	3%	3%	3%	3%				
um triflorum	15%	3%		3%	3%	3%							
tentilla anserina	3%												
entilla palustria													
lium sp.						3%	3%	3%	3%				
tragulus sp.	15%	15%	3%										
Soil													
	15%	15%		37.5%	15%	3%							

Date 9/27/85
Transect Number 4

WILSON CREEK VEGETATION DATA SHEET
(Percent Canopy Cover Midpoints)

	OATS ROAD	WEST					CREEK	EAST					
SHRUBS	1	2	3	4	5	6	7	8	9	10	11	12	
Salix exigua							15%	0.1	3%	0.1			
Salix sp.							3%	0.1					
Cornus stolonifera*						3%							
Rosa sp.													
Potentilla fruticosa				15%	62.5%	37.5		37.5	15	15			
Ribes aureum													
Betula occidentalis													
GRASSES AND GRASS LIKE													
Carex rostrata						3%	3%	3%	3%	3%	3%	3%	
Juncus sp.						3%	37.5%	0.5	3%	3%	3%		
Eleocharis sp.					0.1%	15%	3%	3%	3%	3%	3%		
Agropyron sp.	3%	15%	15%	15%	15%	15%	3%	15%	37.5%	37.5	15%	37.5	
Festuca sp.	15%	15%	3%	3%	15%	15%					15%		
Poa sp.	3%	3%	0.1	3%	3%		3	15	3	3	3	3%	
Phalaris arundinacea													
Avena fatua												3%	
Scirpus airoides													
Equisetum arvense	3%	15%	15%	15%	3%	3%	2	15	3	3	3	3	
Herbs													
Cirsium arvense	15%	3%	3%	3%		3%	0.1	15	15	15	15	3%	
Aster sp.		3%	3%			3%	37.5	15	15				
Senescio sp.		3%	3%			3%							
Fragaria sp.					15%	3%							
Triflorum sp.	3%	3%	3%						3%	3%		3%	
Chenopodium sp.													
Hisymbrium altissimum							3%	3%				3%	
Plantago tweedyi					3%	3%	3%	3%	3%	3%	15%	3%	
Rumex cripus													
Achillea millifolium	3%	3%	3%	3%	3%	3%			3%				
Polemonium occidental													
Geum triflorum									3%				
Potentilla anserina													
Potentilla palustria													
Salix sp.						3%							
Astragulus sp.													
Shrub sp							3%	3%					
Grass							15%						
Bare soil	15%												
Water	15%	62.5%	62.5%	62.5	37.5	37.5	15%	15%	37.5%	3%	15%	15%	

* = heavily browsed

Aquatic interspersed w/many clumps of Phalaris.

Date 9/27/85
Transect Number 5

Lower most near fence

WILSON CREEK VEGETATION DATA SHEET
(Percent Canopy Cover Midpoints)

SALIX GRASS

SHRUBS	OATS ROAD	WEST 1	2	3	4	5	6	CREEK	7	8	EAST 9	10	11	12	OATS
Salix exigua					0.1%	15%	15%		15%	15%	15%				
Salix sp.					15%	0.1%	15%		15%	15%	15%				
Cornus stolonifera						0.1%	3%		3%	3%	0.1				
Rosa sp.					3%	0.1%	3%		0.1	15	3				
Potentilla fruticosa					15%	15%									
Ribes aureum									0.1	0.1	0.1				
Betula occidentalis							0.1%		62.5	3	3				
GRASSES AND GRASS LIKE															
Carex rostrata							0.1								
Junus sp.							0.1								
Eleocharis sp.							15%								
Agropyron sp.	15%	15%	3%	15%	0.1%				37.5	15	15	37.5	37.5	37.5	
Festuca sp.	15%	15%	15%	37.5%	15%	3%									
Poa sp.	3%	15%	15%	3%	15%	15%			15	15	15	37.5	37.5	15	
Phalaris arundinacea					0.1%	37.5			3%	3%					
Avena fatua	3%	0.1%												3%	
Bromus bolus airoides															
Equisetum arvense	3%	3%	3%	3%					3	15	3	15	3	3	
Forbs															
Cirsium arvense	15%	15%	15%	37.5%	15%	15%			3	0.1	0.1	3	3	15	
Aster sp.	0.1%	0.1%	15%	3%	3%	3%			3	0.1	0.1				
Senescio sp.	3%	0.1%	3%	3%	3%	3%			0.1	0.1	0.1				
Fragaria sp.															
Trifolorum sp.															
Chenopodium sp.															
Disymbrium altissimum															
Plantago tweedyi	3%	3%			3%	15%							3%		
Rumex cripus															
Achillea millifolium															
Solemonium occidental									3%	0.1					
Geum triflorum				15%	15%	3%									
Potentilla anserina						3%									
Potentilla palustria						3%									
Trifolium sp.					3%	3%			3%	3%					
Astragulus sp.															
Equisetum sp.									3%	3%					
Grass						37.5									
Bare soil	3%	3%													
Litter	15	15	15	37.5	37.5	15%			37.5	37.5	15	15	37.5	37.5	