

**Summary of Stream Habitat and Fish Inventories on the  
Magazine and Boston Mountain Ranger Districts,  
Ozark-St. Francis National Forest, 2005**



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## **Introduction**

The USDA Forest Service, Southern Research Station, Center for Aquatic Technology Transfer (CATT) has been working with resource managers on the Ozark National Forest (ONF) since 2004 to adapt and implement basinwide visual estimation technique (BVET) stream inventories (Dolloff et al 1993). In summer 2004 CATT personnel visited the Sylamore Ranger District to perform stream habitat inventories on Sylamore Creek and several tributaries (Leonard et. al., 2004). In 2005 the ONF requested assistance with stream habitat and fish inventories on several streams on the Magazine and Boston Mountain Ranger Districts. The CATT deployed a crew of 6-8 persons to quantify stream habitat conditions and provide associated fish community information. In July 2005, CATT and ONF personnel visited 163 stream reaches, the majority of which were dry, on the Magazine and Boston Mountain Ranger Districts. Stream habitat inventories were completed on a total 44 stream reaches, and fish data were collected within 17 of these reaches. At the request of Clark Reames, wildlife biologist, fish data were obtained from one additional stream reach prior to a scheduled timber harvest operation; BVET was not performed on this reach. The data collected can be used to describe current conditions of streams on the ONF and can serve as a baseline for comparison with similar data collected in the future.

## **Methods**

### **Habitat Inventory**

Stream inventories began at USFS boundaries or at the downstream end of reaches as defined in the National Hydrography Dataset (NHD). A map delineating stream reaches with corresponding reach numbers was provided by the Forest prior to the start of the inventory. At the beginning of the inventory the crew determined the starting NHD\_ID number from these maps. Crews tracked their location and recorded changes in NHD\_ID numbers as they moved upstream. Surveys were terminated when we encountered an upstream USFS boundary or a continuously dry channel for more than 500 m.

Two-stage visual estimation techniques were used to quantify habitat in Magazine and Boston Mountain Ranger Districts streams. During the first stage, habitat was stratified into similar groups based on naturally occurring habitat units including pools (areas in the stream with concave bottom profile, gradient equal to zero, greater than average depth, and smooth water surface), and riffles (areas in the stream with convex bottom profile, greater than average gradient, less than average depth, and turbulent water surface). Glides (areas in the stream similar to pools, but with average depth and flat bottom profile) were identified during the survey but were grouped with pools for data analysis. Runs (areas in the stream similar to riffles but with average depth, less turbulent flow, and flat bottom profile) were grouped with riffles for data analysis. Cascades were classified by areas of fast water, turbulent, gradient  $\geq 12\%$ ; highly turbulent series of short falls and small scour basins, with very rapid water movement; also

include sheets (shallow water flowing over bedrock) and chutes (rapidly flowing water within narrow, steep slots of bedrock) if gradient  $\geq 12\%$ .

Habitat in each stream was classified and inventoried by a two-person crew when water levels permitted. One crew member identified each habitat unit by type (as described above), estimated average wetted width, average and maximum depth, riffle crest depth (RCD), substrate composition, and percent fines. The length (0.1 m) of each habitat unit was measured with a hip chain. Average wetted width was visually estimated. Average and maximum depth of each habitat unit were estimated by taking depth measurements at various places across the channel profile with a graduated staff marked in 5 cm increments. The RCD was estimated by measuring water depth at the deepest point in the hydraulic control between riffles and pools. The RCD was subtracted from average pool depth to obtain an estimate of residual pool depth. Substrates were assigned to one of nine size classes (Appendix A). Dominant substrate (covered greatest amount of surface area in habitat unit) and subdominant substrate (covered 2<sup>nd</sup> greatest amount of surface area in habitat unit) were visually estimated. Percent fines was the percent of surface area of the stream bed that consisted of sand, silt, or clay substrate particles (particles < 2 mm diameter). In addition, several attributes of road-stream crossings (location, type, size, etc.) were recorded, where encountered.

The second crew member classified and inventoried large woody debris (LWD) within the stream channel, determined the Rosgen (1990) channel type associated with each habitat unit, and recorded data on a Husky fex21 data logger. Pieces of LWD were assigned to one of four size classes (Appendix A). All woody debris less than 1.0 m long and less than 10 cm in diameter were omitted from the survey. Rosgen's channel type was visually estimated using criteria found in Rosgen (1996).

The first unit of each habitat type selected for intensive (second stage) sampling (i.e. accurate measurement of wetted width) was determined randomly. Additional units were selected systematically (every 10<sup>th</sup> habitat unit type for streams >1000 m and every 5<sup>th</sup> habitat unit type for streams <500 m). The wetted width of each systematically selected habitat unit was measured with a meter tape across at least three transects and averaged. In each of the systematically selected (second stage) riffles we also estimated the bankfull stream channel width and riparian width, measured channel gradient and water temperature, and took a digital photograph. We estimated bankfull channel width by measuring the width of the bankfull channel perpendicular to flow. We estimated riparian width by measuring from the edge of the bankfull channel to the intersection with the nearest landform at an elevation equal to two-times maximum bankfull depth as described by Rosgen (1996). Gradient was estimated by using a clinometer to sight from the downstream to the upstream end of the selected riffle. Water temperature was measured in flowing water out of direct sunlight with a thermometer. We flagged the downstream and upstream ends of every second paired sample unit to mark fish inventory locations.

We used the ratio of measured to estimated area to develop a calibration ratio, which allowed us to correct visual estimates and estimate stream area with confidence intervals (Hankin and Reeves 1988). BVET calculations were computed with a Microsoft Excel spreadsheet using formulas found in Dolloff et al. (1993). Data were summarized using Excel spreadsheets and SigmaPlot graphics software.

### **Fish Inventory**

A Smith-Root backpack electrofishing unit was used to collect fish from every 2<sup>nd</sup> paired sample unit flagged during the habitat inventory. In each designated habitat unit we performed a single pass using 1 backpack electrofishing unit and 2-3 dip netters. We did not set blocknets. The total shock time (seconds) was recorded from the built-in timer on the backpack electrofishing unit. The total number of young-of-year (age 0+) or adult (older than age 0+) of each captured species were recorded and fish were released back into the habitat unit. In cases where species identification was not certain several species were vouchered. All vouchers were preserved in labeled containers using 10% formalin and were later identified in the lab.

### **Literature Cited**

- Dolloff, C. A., D. G. Hankin, and G. H. Reeves. 1993. Basinwide estimation of habitat and fish populations in streams. General Technical Report SE-83. Asheville, North Carolina: U.S. Department of Agriculture, Southeastern Forest Experimental Station.
- Hankin, D. G., and G. H. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. *Canadian Journal of Fisheries and Aquatic Sciences* 45:834-844.
- Leonard, M., J. Yowell, C. N. Roghair, and D. R. Nuckols. 2004. Stream habitat distribution in the North Sylamore Creek drainage, Ozark National Forest, AR, 2004. Unpublished Report. Blacksburg, Virginia: U.S. Department of Agriculture, Forest Service, Center for Aquatic Technology Transfer.

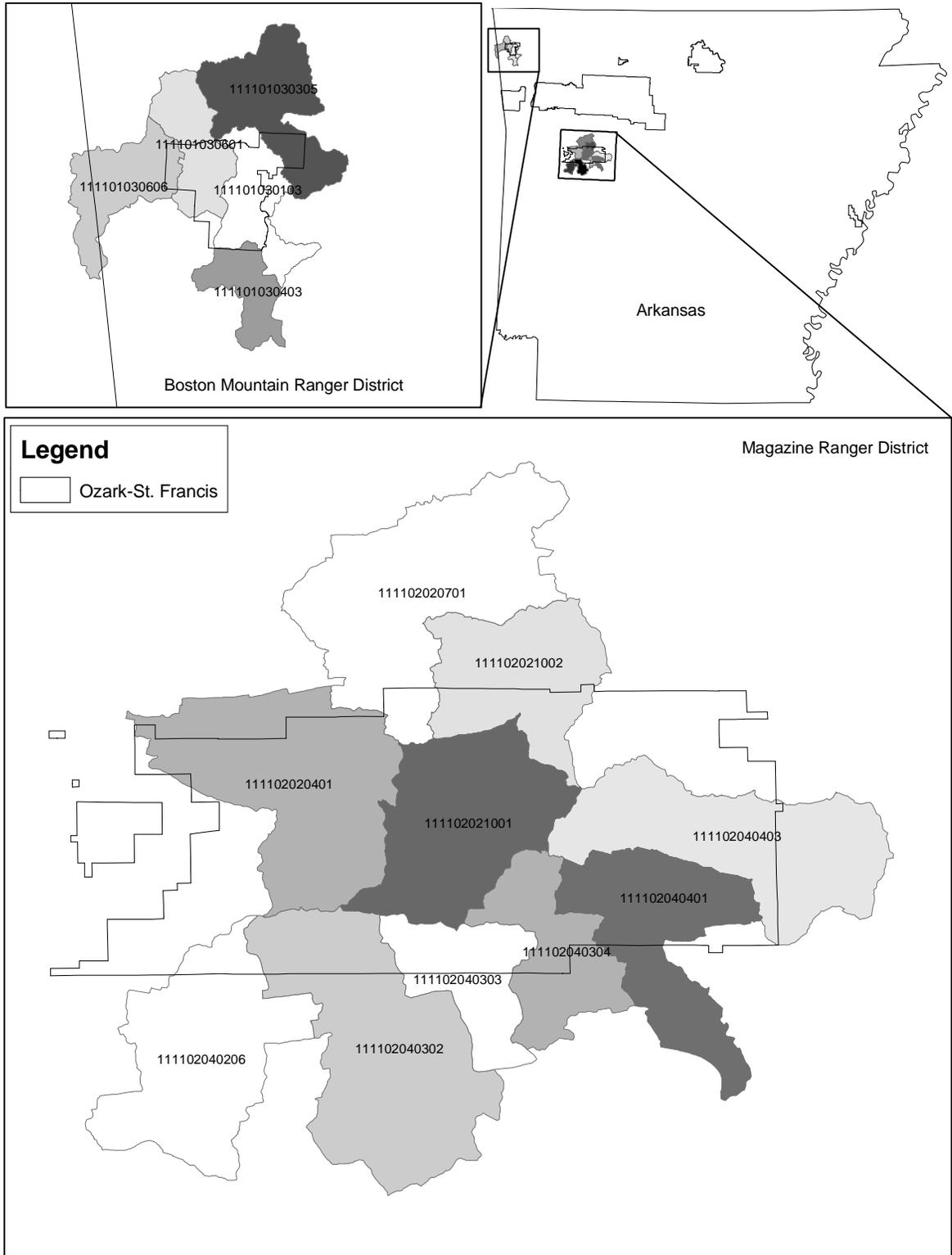


Figure 1. Watersheds visited within and Magazine and Boston Mountain Ranger Districts.

Table 1. Number of reaches visited and inventories completed in 6<sup>th</sup> level HUCs on the Magazine and Boston Mountain Ranger Districts, summer 2005. Reasons for no inventories in reach include: stream bed dry (Dry); no access to stream reach (Access); and stream too large to inventory (Size). Fish inventories on the Boston Mountain Ranger District were completed by ONF personnel prior to our habitat inventories

District	6 <sup>th</sup> level HUC	Total Visited	No Inventory			Inventory Complete	
			Dry	Access	Size	Habitat	Fish
Magazine	111102020401	10	10	0	0	0	0
	111102020701	4	4	0	0	0	0
	111102021001	2	1	0	0	1	1
	111102021002	11	7	0	1*	3	3
	111102040206	3	3	0	0	0	0
	111102040302	8	7	0	0	1	0
	111102040303	10	9	0	0	1	1
	111102040304	1	1	0	0	0	0
	111102040401	22	18	0	0	4	1
111102040403	32	18	0	0	14	11	
Boston Mtn.	111101030103	19	11	0	0	8	--
	111101030305	14	3	2	2	7	--
	111101030403	3	4	0	0	0	--
	111101030601	22	15	1	1	5	--
	111101030606	2	0	2	0	0	--
<b>Total Count:</b>		163	111	5	4	44	17

\*too turbid to survey

## **Magazine Ranger District Habitat Results**

Table 2. Reaches visited and inventories completed in 6<sup>th</sup> Level HUCs on the Magazine Ranger District, summer 2005. Reasons for no inventories in reach include: stream bed dry (Dry); no access to stream reach (Access); and stream too large to inventory (Size). Fish inventories were completed by the CATT after habitat inventories were completed.

6 <sup>th</sup> level HUC	Reach Number	Stream Name	Date	Crew	No Inventory			Completed		Comments
					Dry	Access	Size	Habitat	Fish	
111102020401	000425	Short Mountain Creek	7/16/05	Ivasauskas, Stanley	X	-	-	-	-	Dry 500 m
	005074		7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	005075	Gum Creek	7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	005079	-	7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	005084	Gum Creek	7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	005086	Gum Creek	7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	005093	Gum Creek	7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	005115		7/16/05	Ivasauskas, Stanley	X	-	-	-	-	Dry
111102020701	005120		7/16/05	Ivasauskas, Stanley	X	-	-	-	-	Dry
	005125		7/16/05	Kyger, Whisman	X	-	-	-	-	Dry
	000979		7/15/05	Kyger, Whisman	X	-	-	-	-	Dry 400 m
	000980		7/15/05	Kyger, Whisman	X	-	-	-	-	Dry 200 m
	005044		7/15/05	Kyger, Whisman	X	-	-	-	-	Assumed Dry
	005064		7/15/05	Kyger, Whisman	X	-	-	-	-	Dry
	000462	Shoal Creek	7/15/05	Ivasauskas, Stanley	-	-	-	X	X	-
	005089		7/15/05	Kyger, Whisman	X	-	-	-	-	Dry 500 m
111102021002	000461	Shoal Creek	7/15/05	Ivasauskas, Stanley	-	-	-	X	X	-
	000879		7/15/05	Kyger, Whisman	-	-	-	X	X	-
	000884		7/16/05	Kyger, Whisman	X	-	-	-	-	Dry 500 m
	000885		7/16/05	Kyger, Whisman	X	-	-	-	-	Dry 500 m
	000913		7/16/05	Kyger, Whisman	-	-	X*	-	-	*water too turbid
	000914		7/15/05	Ivasauskas, Stanley	X	-	-	-	-	Dry 500 m
	005018		7/16/05	Ivasauskas, Stanley	X	-	-	-	-	Dry
	005033	Shoal Creek	7/15/05	Ivasauskas, Stanley	-	-	-	X	X	-
005057			7/15/05	Ivasauskas, Stanley	X	-	-	-	-	Dry 500 m
			7/15/05	Kyger, Whisman	X	-	-	-	-	Dry 500 m
			7/15/05	Kyger, Whisman	X	-	-	-	-	Dry 500 m

6 <sup>th</sup> level HUC	Reach Number	Stream Name	Date	Crew	No Inventory		Completed		Comments
					Dry	Access	Size	Habitat	
111102040206	005097		7/15/05	Kyger, Whisman	X	-	-	-	Dry 500 m
	001028	Ashley Creek	7/14/05	Kyger, Ivasauskas	X	-	-	-	Dry
	002260		7/14/05	Kyger, Ivasauskas	X	-	-	-	Dry
	002270		7/14/05	Kyger, Ivasauskas	X	-	-	-	Dry
	000259	Clear Creek	7/14/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	001037	East Bass Creek	7/13/05	Kyger, Ivasauskas	X	-	-	-	Dry 500 m
	001039		7/14/05	Ivasauskas, Kyger	X	-	-	-	Dry, three small units near end of 550 m reach
	001040	West Bass Creek	7/14/05	Ivasauskas, Kyger	-	-	X	-	No fish present
	001044	East Lacey Creek	7/13/05	Kyger, Ivasauskas	X	-	-	-	Dry 300 m
111102040302	001046	Crowell Creek	7/13/05	Kyger, Ivasauskas	X	-	-	-	Dry 800 m
	001047		7/13/05	Ivasauskas, Kyger	X	-	-	-	Dry 450 m
	001048	West Lacey Creek	7/13/05	Ivasauskas, Kyger	X	-	-	-	Dry 500 m
	001069		7/15/05	Whisman, Stanley	X	-	-	-	Dry
111102040303	001070	Truett Creek	7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	001073	Jestice Creek	7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	002162		7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m, one wetted pool at start of survey
	002179		7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m
111102040304	002193		7/14/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	002194		7/14/05	Whisman, Stanley	X	-	-	-	Dry
	002245		7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	002310		7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	003776	Little Piney	7/14/05	Whisman, Stanley	-	-	X	X	-
	000257	Cedar Creek	7/13/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	000060	Spring Creek	7/18/05	Ivasauskas, Whisman	-	-	X	-	0.2 m surveyed, incomplete data set, no analysis-
	000062	Spring Creek	7/17/05	Whisman, Ivasauskas	X	-	-	-	Dry
	001098	Bob Barnes Branch	7/17/05	Whisman, Ivasauskas	-	-	-	X	-
	001099	White Creek	7/17/05	Ivasauskas, Whisman	-	-	-	X	-
111102040401	001100	White Creek	7/17/05	Ivasauskas, Whisman	X	-	-	-	one unit surveyed, influenced by lake, no analysis
	001101	White Creek	7/17/05	Ivasauskas, Whisman	X	-	-	-	Dry

6 <sup>th</sup> level HUC	Reach Number	Stream Name	Date	Crew	No Inventory		Completed		Comments
					Dry	Access	Size	Habitat	
	001102	White Creek	7/17/05	Whisman Ivasaukas,	X	-	-	-	Dry
	001105		7/17/05	Whisman Whisman,	X	-	-	-	Dry
	001106		7/17/05	Ivasaukas Whisman,	X	-	-	-	Dry
	001108		7/17/05	Ivasaukas Whisman,	X	-	-	-	Dry
	001110		7/17/05	Ivasaukas Whisman,	X	-	-	-	Dry
	001111	Box Spring Branch	7/18/05	Ivasaukas Whisman,	-	-	X	-	-
	001112		7/17/05	Ivasaukas Whisman,	X	-	-	-	Dry
	001813		7/17/05	Ivasaukas Whisman,	X	-	-	-	Dry
	001876		7/17/05	Ivasaukas Whisman,	X	-	-	-	Dry
	001958	White Creek	7/17/05	Ivasaukas, Whisman	X	-	-	-	Dry
	001961	Dooley Branch	7/17/05	Whisman, Ivasaukas	X	-	-	-	Dry, no channel
	003733		7/17/05	Whisman, Ivasaukas	X	-	-	-	Dry
	003736	Spring Creek	7/17/05	Ivasaukas, Whisman	X	-	-	-	Dry
	003740	Snake Branch	7/17/05	Ivasaukas, Whisman	X	-	-	-	Dry, no channel
	003741	Dooley Branch	7/17/05	Whisman, Ivasaukas	X	-	-	-	Dry, no channel
	003742	Spring Creek	7/17/05	Ivasaukas, Whisman	X	-	-	-	Dry
111102040403	000040	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	
	000041	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	-
	000042	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	-

6 <sup>th</sup> level HUC	Reach Number	Stream Name	Date	Crew	No Inventory		Completed		Comments
					Dry	Access	Habitat	Fish	
	000043	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	-
	000044	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	-
	000045	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	-
	000047	Chickalah Creek	7/18/05	Kyger, Stanley	-	-	X	X	-
	000302	Long Branch	7/18/05	Kyger, Stanley	-	-	X	X	-
	000303	Long Branch	7/18/05	Kyger, Stanley	-	-	X	-	-
	001163		7/19/05	Whisman, Stanley	X	-	-	-	Dry
	001164		-	-	X	-	-	-	Dry
	001165		7/19/05	Whisman, Stanley	X	-	-	-	Dry
	001166	Jordan Branch	7/19/05	Whisman, Stanley	-	-	X	-	Dry after 92 m, no analysis
	001168		7/19/05	Roghair	X	-	-	-	Dry
	001169		7/20/05	Kyger, Ivasauskas	-	-	X	X	-
	001170	Horn Branch	7/19/05	Whisman, Stanley	-	-	X	-	-
	001171	Tucker Branch	7/17/05	Kyger, Stanley	-	-	X	X	-
	001172		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001173	Tucker Branch	7/17/05	Kyger, Stanley	-	-	X	X	-
	001174		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001175		7/17/05	Kyger, Stanley	X	-	-	-	Assumed Dry
	001176		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001728		7/19/05	Whisman, Stanley	X	-	-	-	Dry 500 m
	001737		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001742		7/19/05	Roghair	X	-	-	-	Dry
	001743		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001745		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001754		7/17/05	Kyger, Stanley	X	-	-	-	Assumed Dry
	001771		7/17/05	Kyger, Stanley	X	-	-	-	Dry 250 m
	001803		7/17/05	Kyger, Stanley	X	-	-	-	Dry 500 m
	001806		7/19/05	Whisman, Stanley	X	-	-	-	Dry
	003730		7/19/05	Whisman, Stanley	X	-	-	-	Dry

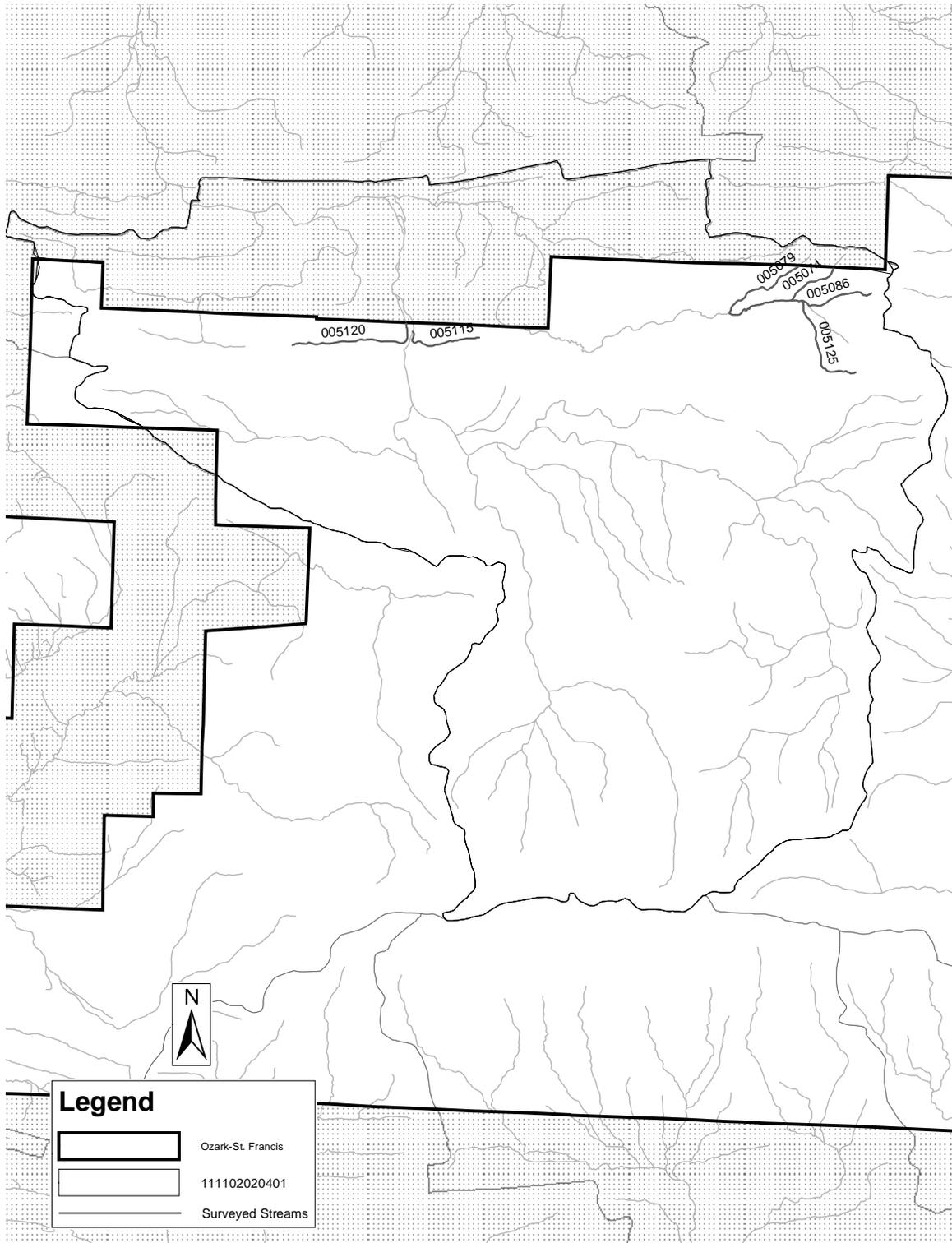


Figure 2. Stream reaches visited in watershed 111102020401 during summer 2005. No streams surveyed due to dry channels.

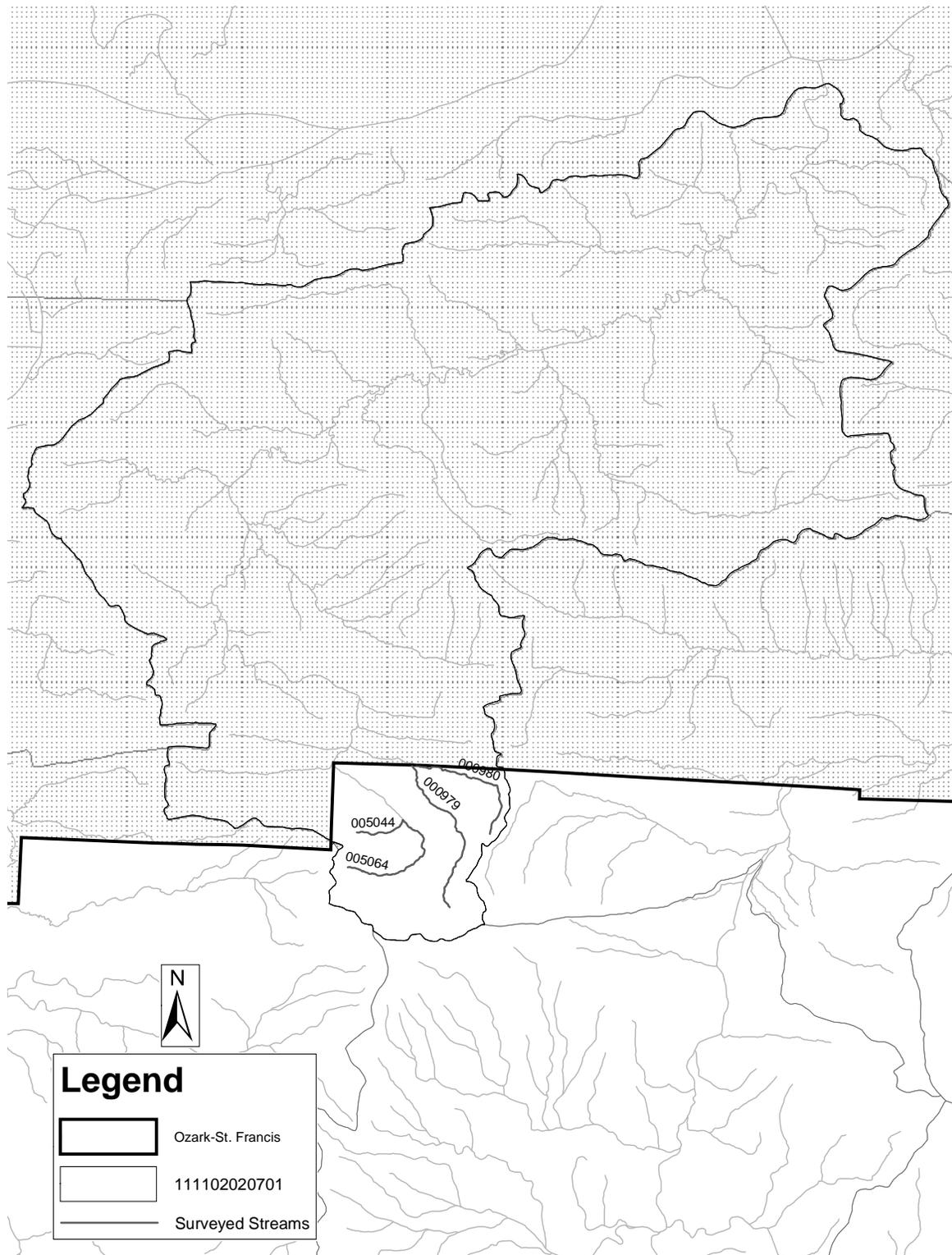


Figure 3. Stream reaches visited in watershed 111102020701 during summer 2005. No streams surveyed due to dry channels.

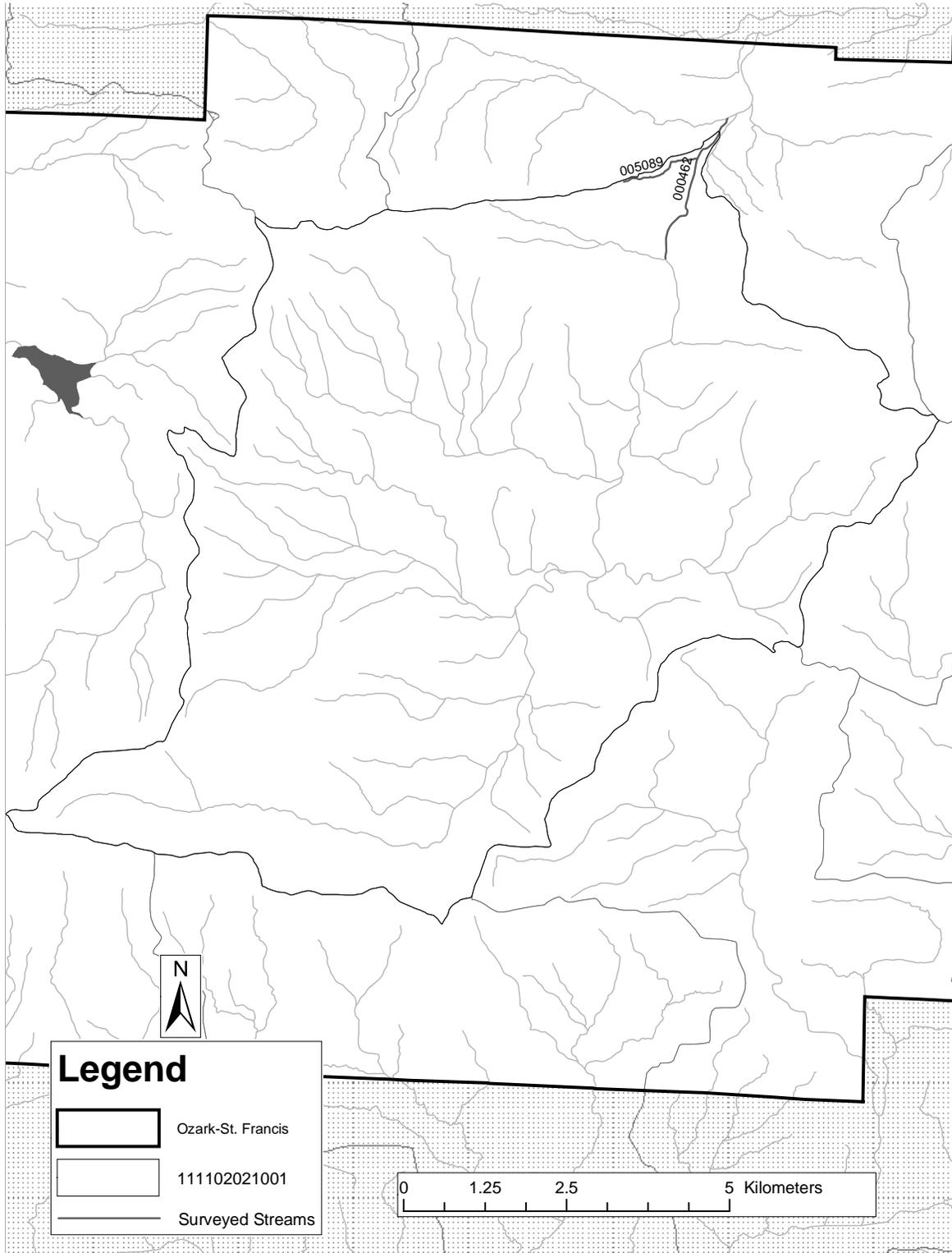


Figure 4. Stream reaches visited in watershed 111102021001 during summer 2005.

<b>Stream:</b>	000462, Shoal Creek
District:	Magazine
USGS Quadrangle:	Scranton
6 <sup>th</sup> Level HUC	111102021001
Survey Date:	7/15/2005
Downstream Starting Point:	AT CONFLUENCE OF 000879 AND 000461
Total Distance Surveyed (km):	1.5

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	60	40
Total Area (m <sup>2</sup> ):	10112±382	6727±NC
Correction Factor Applied:	1.10	2.03
Number of Paired Samples:	3	1
Total Count:	15	9
Number per km:	10	6
Mean Area (m <sup>2</sup> ):	674	747
Mean Maximum Depth (cm):	63	26
Mean Average Depth (cm):	33	11
Mean Residual Depth (cm):	18	--
Percent Surveyed as Glides:	7	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	27	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	0
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	0

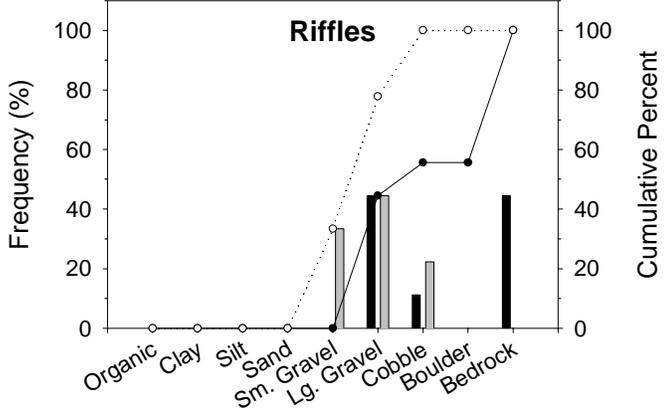
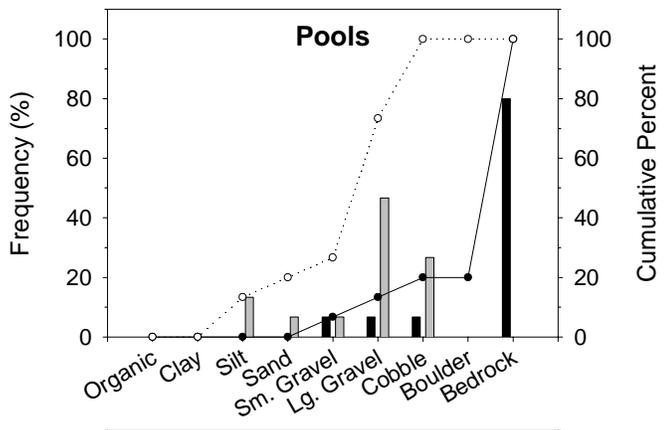
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	24	2
Maximum	24	2
75 <sup>th</sup> Percentile	24	2
25 <sup>th</sup> Percentile	24	1
Minimum	24	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

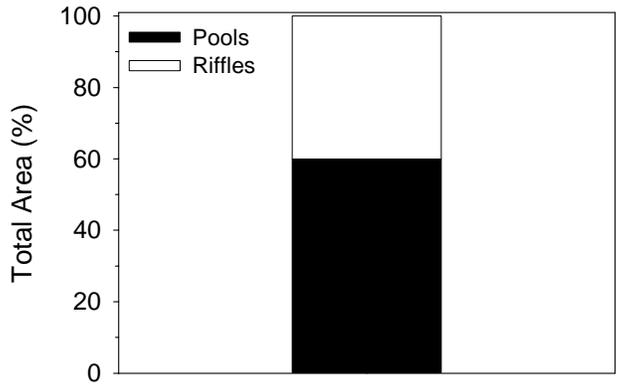
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	21
Mean Channel Gradient (%):	3
Median Water Temperature (C):	26

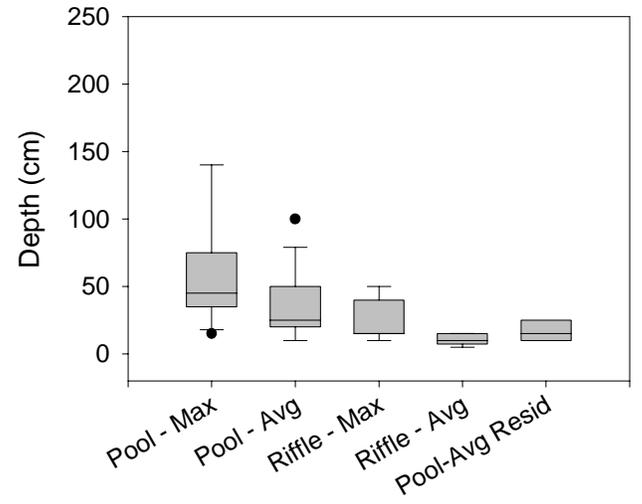


Dominant %  
 Subdominant %  
 Dominant, Cumulative %  
 Subdominant, Cumulative %

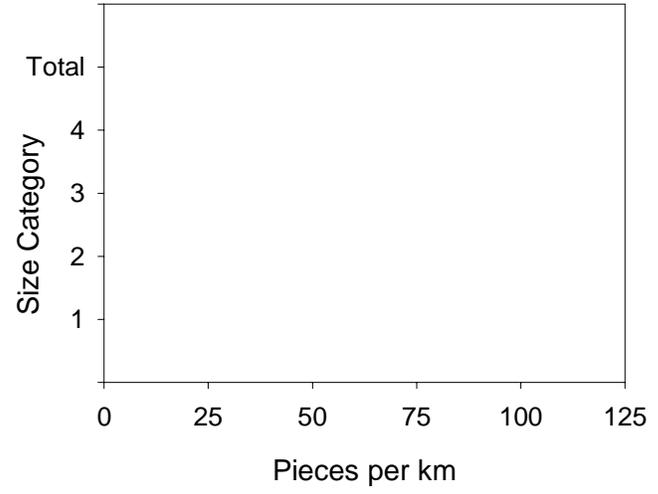
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000462, summer 2005.



Estimated area of stream section 000462 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 000462, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

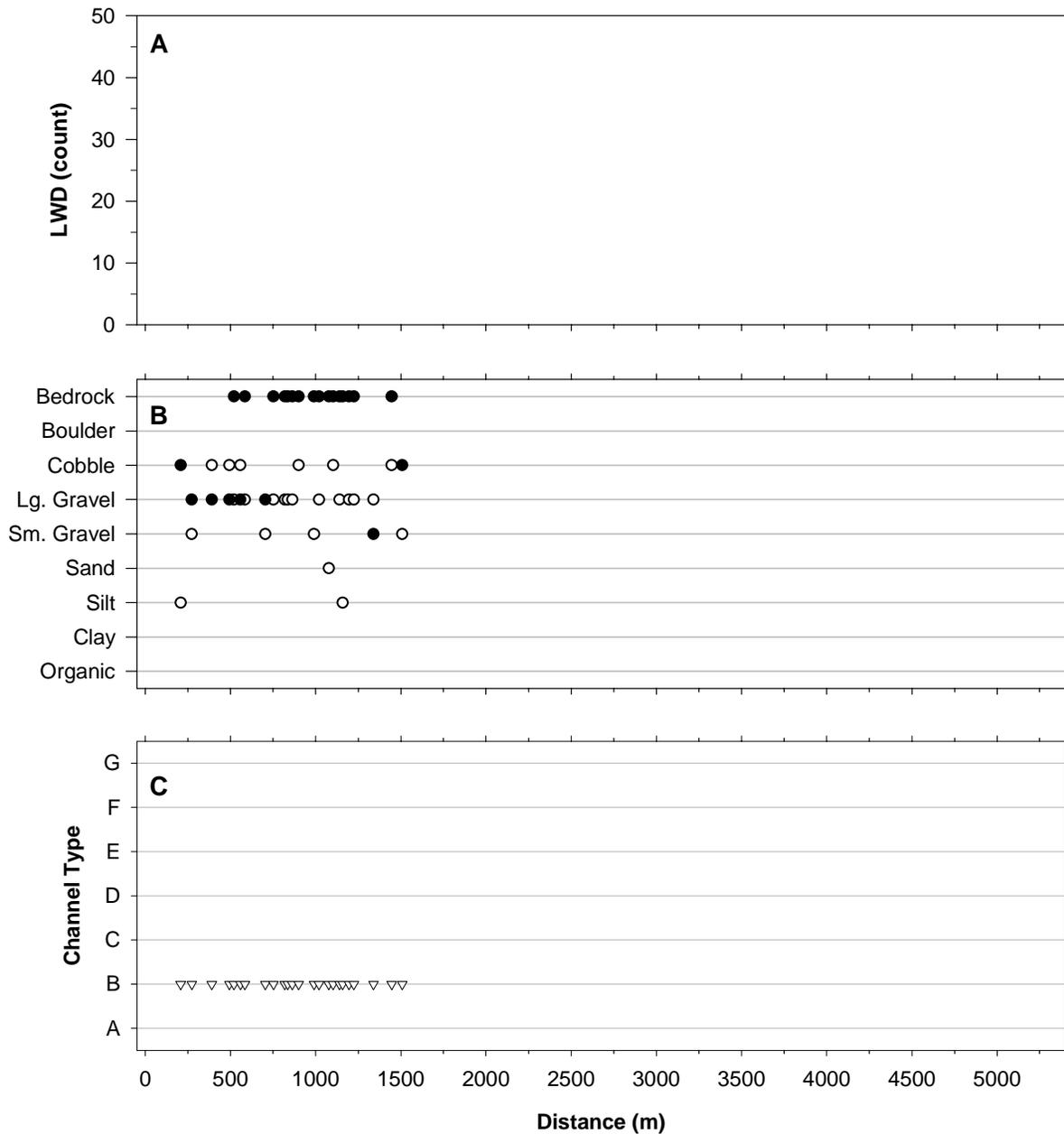


LWD per kilometer in stream section 000462, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000462, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
FORD	154		1687
TRIB	155		DRY
SCH	534		IN ON RIGHT
UNGR	664.3		
R	665	4.0	FLAGGED FOR ELECTROFISHING
TRIB	862		ON LEFT
UNGR	952		ROCK OVERHANG WITH PEOPLE AT 2768
FORD	1065.4		ATV TRAIL
P	1185	7.0	FLAGGED FOR ELECTROFISHING
TRIB	1225		IN ON LEFTT
UNGR	1249		
SEEP	1349		IN ON RIGHT
SCH	1446.9		IN ON RIGHT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000462, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000462, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
TRIB		155	DRY
RIFLE	13	819	MAX BANKFULL 90 AVERAGE BANKFULL 60
FORD		1065.4	ATV TRAIL
SEEP		1349	IN ON RIGHT

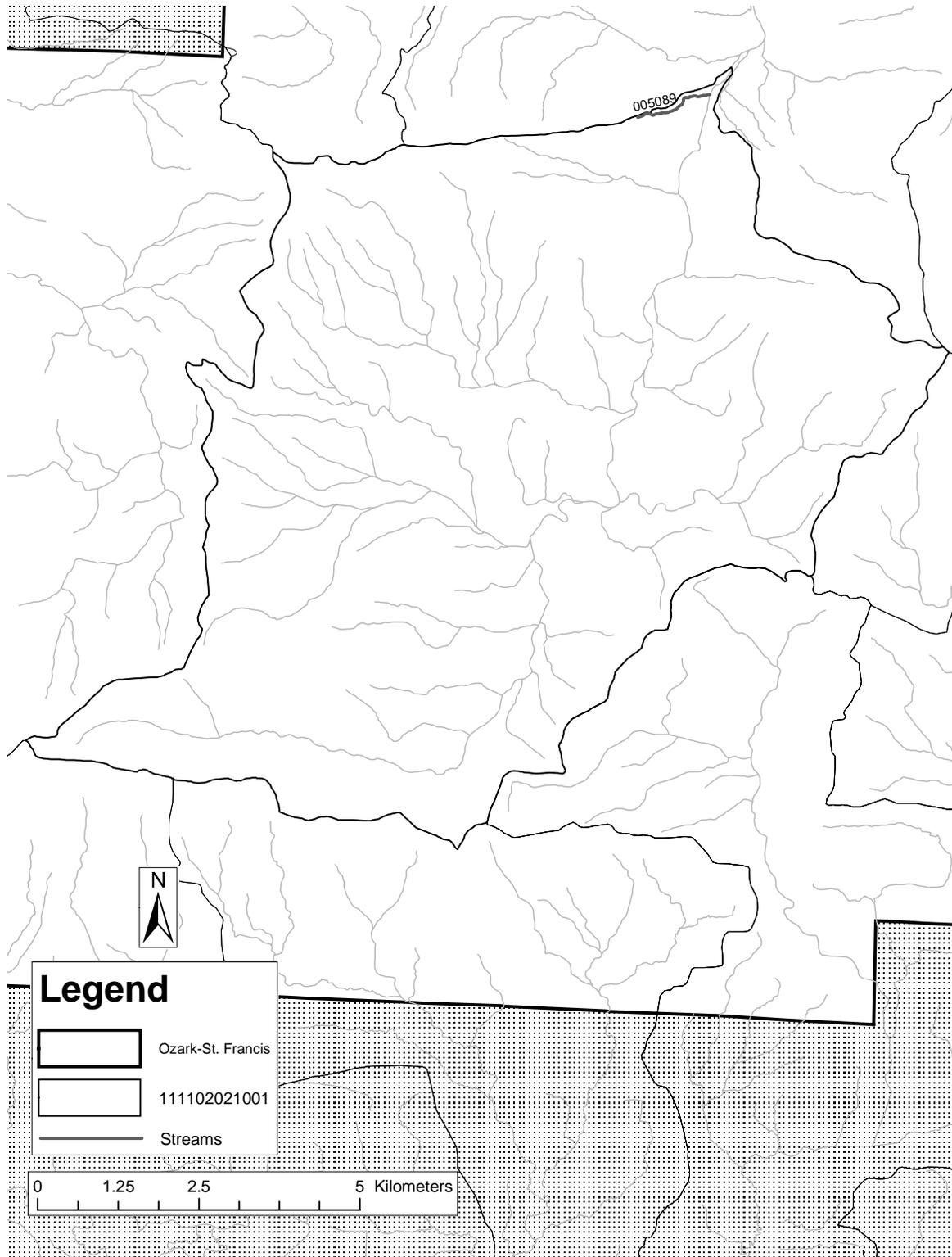


Figure 5. Stream reach in watershed 111102021001 during summer 2005 with incomplete data due to dry stream channel, refer to table 2 for more information.

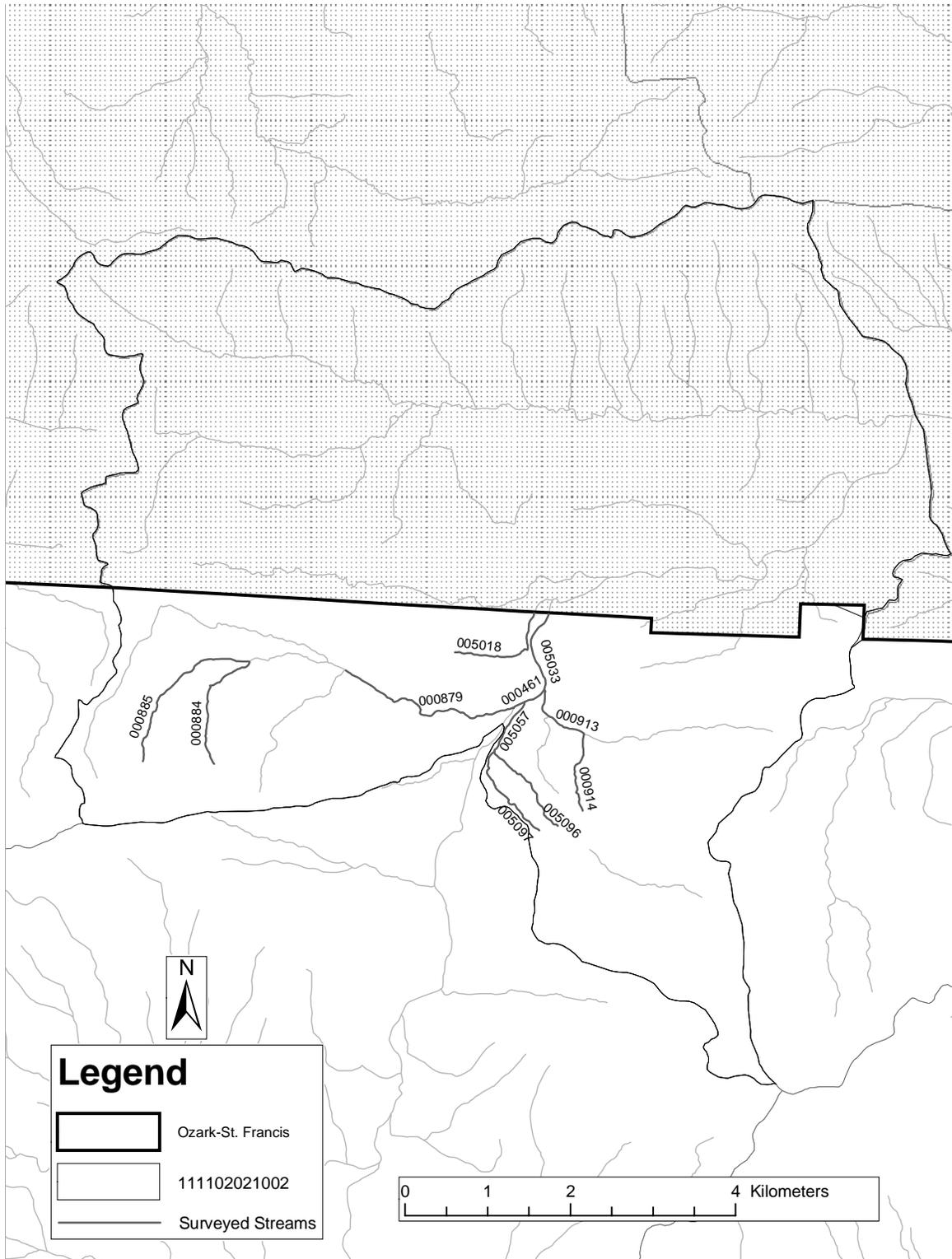


Figure 6. Stream reaches visited in watershed 111102021002 during summer 2005.

<b>Stream:</b>	000461, Shoal Creek
District:	Magazine
USGS Quadrangle:	Scranton
6 <sup>th</sup> Level HUC	111102021002
Survey Date:	7/15/2005
Downstream Starting Point:	CONFLUENCE WITH 000913 AND 005033
Total Distance Surveyed (km):	0.4

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	90	10
Total Area (m <sup>2</sup> ):	3133±NC	366±NC
Correction Factor Applied:	0.95	1.06
Number of Paired Samples:	1	1
Total Count:	4	3
Number per km:	9	7
Mean Area (m <sup>2</sup> ):	783	122
Mean Maximum Depth (cm):	84	33
Mean Average Depth (cm):	54	8
Mean Residual Depth (cm):	57	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	25	33

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	2
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	2

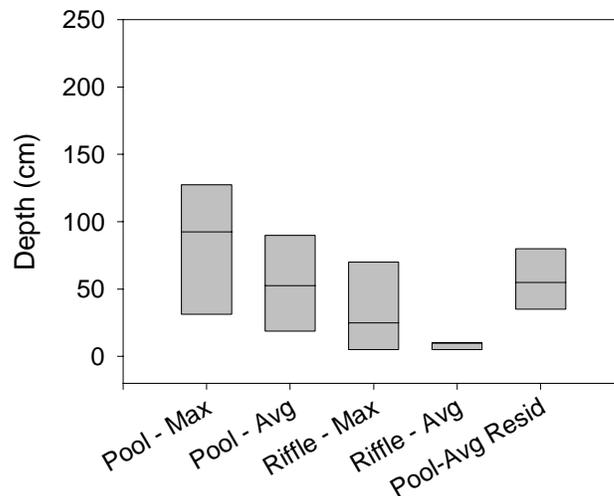
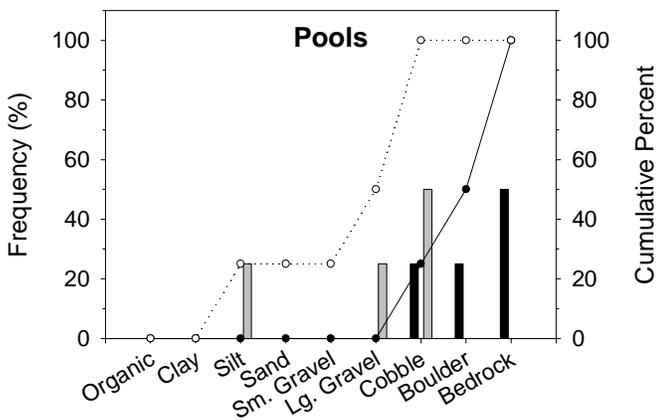
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	13	2
Maximum	13	2
75 <sup>th</sup> Percentile	13	2
25 <sup>th</sup> Percentile	13	2
Minimum	13	2

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

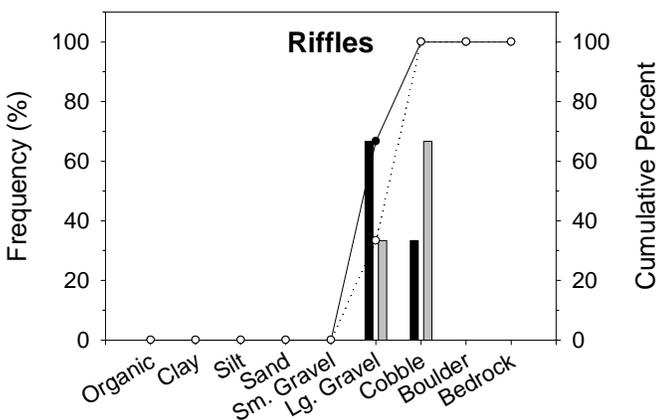
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	8
Mean Channel Gradient (%):	3
Median Water Temperature (C):	26

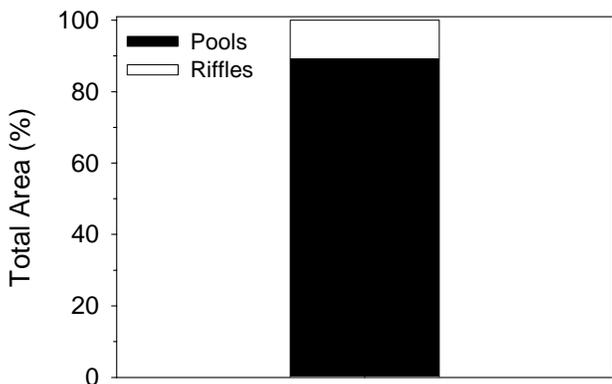


Maximum and average depths and residual pool depths for pools and riffles in stream section 000461, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

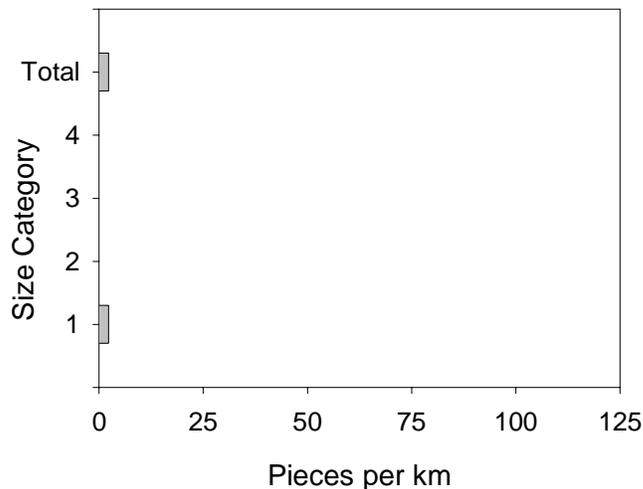


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000461, summer 2005.



Estimated area of stream section 000461 in pools and riffles as calculated using BVET techniques, summer 2005.

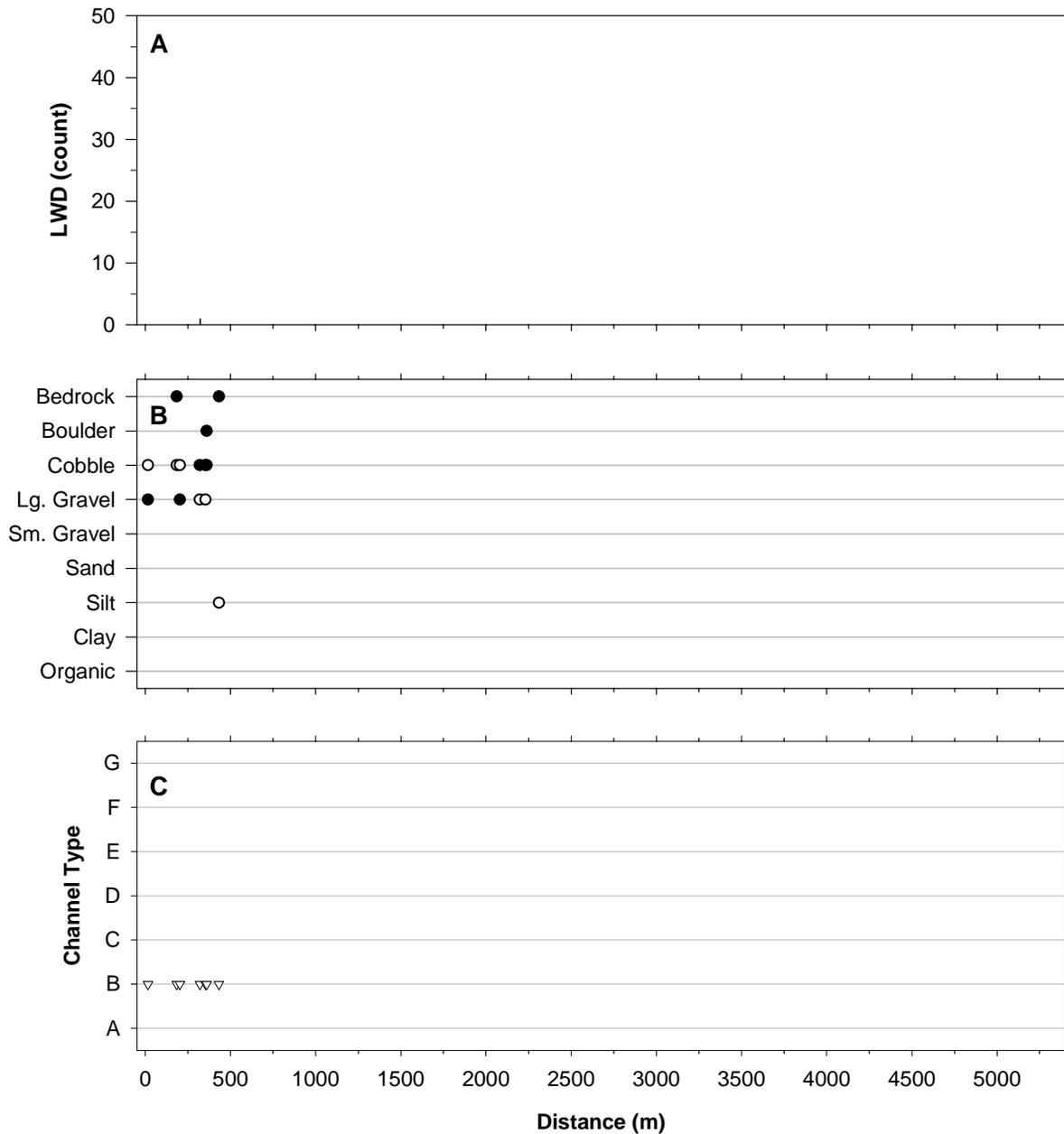


LWD per kilometer in stream section 000461, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000461, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
BRIDGE	203		ROAD 1614
TRIB	334		DRY, 1M WIDE
R	338	5.0	FLAGGED FOR ELECTROFISHING
P	342.2	4.0	FLAGGED FOR ELECTROFISHING
TRIB	383		SAME AS 1160
UNGR	429.8		
TRIB	444		IN ON RIGHT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000461, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000461, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	8	354	BANKFULL DEPTH AVG 80 MAX 100

<b>Stream:</b>	000879
District:	Magazine
USGS Quadrangle:	Scranton
6 <sup>th</sup> Level HUC	111102021002
Survey Date:	7/15/2005
Downstream Starting Point:	CONFLUENCE WITH SHOAL CREEK
Total Distance Surveyed (km):	1.4

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	99	1
Total Area (m <sup>2</sup> ):	4154±237	60±NC
Correction Factor Applied:	0.95	0.80
Number of Paired Samples:	5	1
Total Count:	32	6
Number per km:	23	4
Mean Area (m <sup>2</sup> ):	130	10
Mean Maximum Depth (cm):	47	7
Mean Average Depth (cm):	25	5
Mean Residual Depth (cm):	16	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	9	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	0
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	1
> 5 m long, > 55 cm diameter:	0
Total:	1

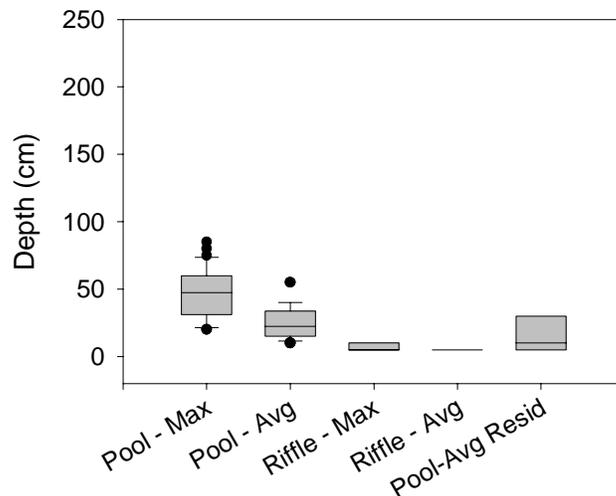
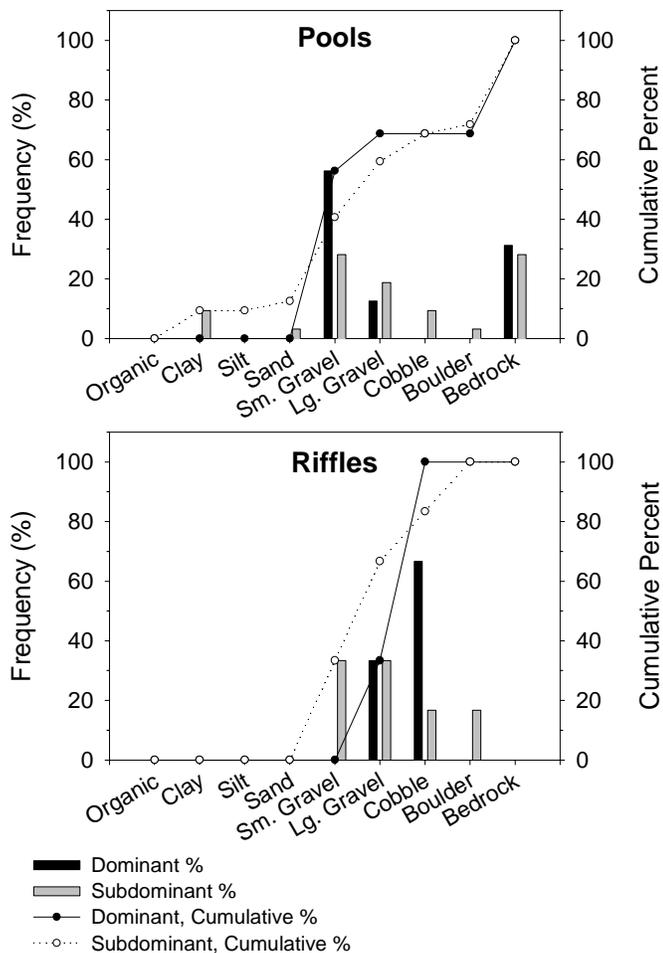
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	9	1
Maximum	9	1
75 <sup>th</sup> Percentile	9	1
25 <sup>th</sup> Percentile	9	1
Minimum	9	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

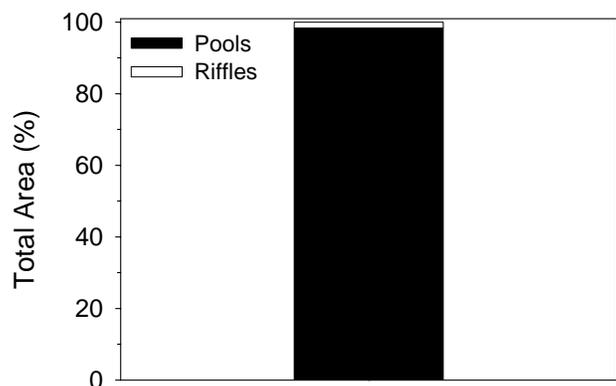
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	5
Mean Channel Gradient (%):	1
Median Water Temperature (C):	24

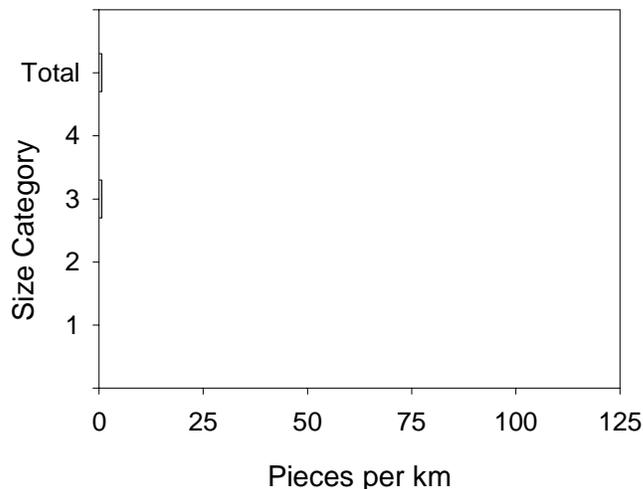


Maximum and average depths and residual pool depths for pools and riffles in stream section 000879, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000879, summer 2005.



Estimated area of stream section 000879 in pools and riffles as calculated using BVET techniques, summer 2005.

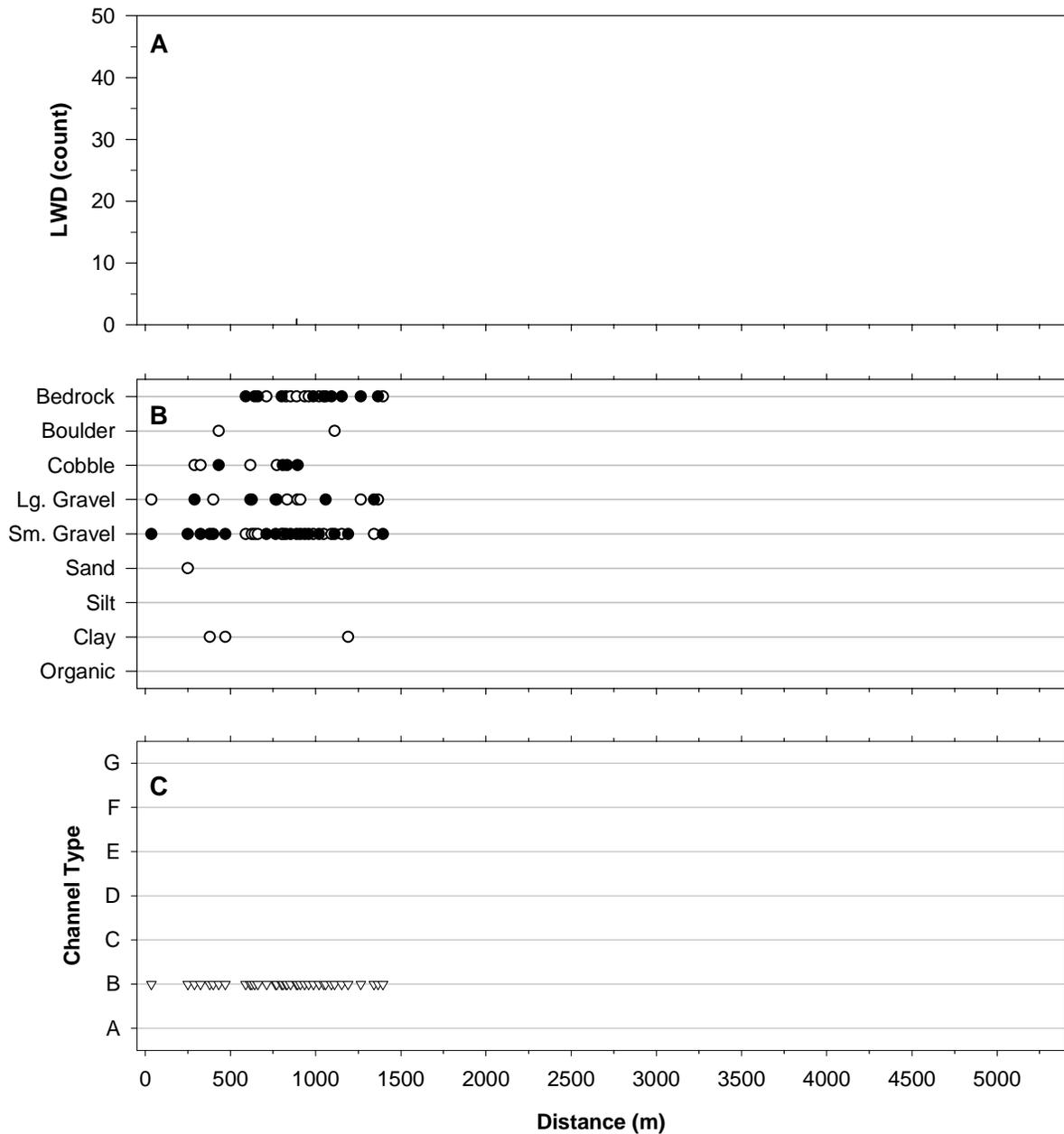


LWD per kilometer in stream section 000879, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000879, BVET habitat survey, summer 2005. Distance is meters from start of survey.

Stream Feature	Distance (m)	Width (m)	Comments
UNGR	28.7		
UNGR	194.9		
P	249.3	3.5	FLAGGED FOR ELECTROFISHING
UNGR	259.3		
UNGR	308.5		
UNGR	340.2		
UNGR	388		
UNGR	413.8		
UNGR	444.9		
UNGR	570.7		
UNGR	600.6		
R	625	2.5	FLAGGED FOR ELECTROFISHING
UNGR	647.8		
UNGR	702		
TRIB	728		DRY ON RIGHT
UNGR	748.3		
P	765.3	4	FLAGGED FOR ELECTROFISHING
UNGR	861.5		
ROAD	910		FS ROAD1687D
UNGR	946.4		
UNGR	975.8		
UNGR	1002		
UNGR	1032.9		
P	1047	3.5	FLAGGED FOR ELECTROFISHING
UNGR	1072.8		
UNGR	1099.7		
UNGR	1122.7		
UNGR	1175.3		
TRAIL	1240.2		
UNGR	1247.7		
UNGR	1327.7		
UNGR	1375.5		



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000879, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000879, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	2	625	
TRAIL		1240.2	

<b>Stream:</b>	005033, Shoal Creek
District:	Magazine
USGS Quadrangle:	Scranton
6 <sup>th</sup> Level HUC	111102021002
Survey Date:	7/15/2005
Downstream Starting Point:	NATIONAL FOREST BOUNDARY DOWNSTREAM OF 1684
Total Distance Surveyed (km):	0.6

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	87	13
Total Area (m <sup>2</sup> ):	7806±NC	1125±NC
Correction Factor Applied:	1.48	0.96
Number of Paired Samples:	1	1
Total Count:	5	5
Number per km:	9	9
Mean Area (m <sup>2</sup> ):	1561	225
Mean Maximum Depth (cm):	145	22
Mean Average Depth (cm):	82	9
Mean Residual Depth (cm):	72	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	80	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	0
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	0

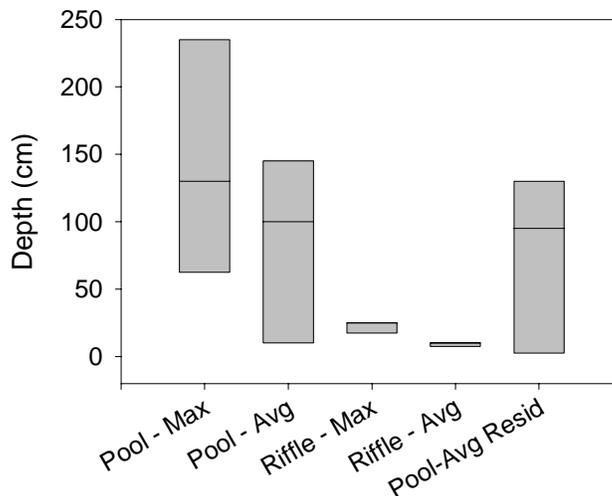
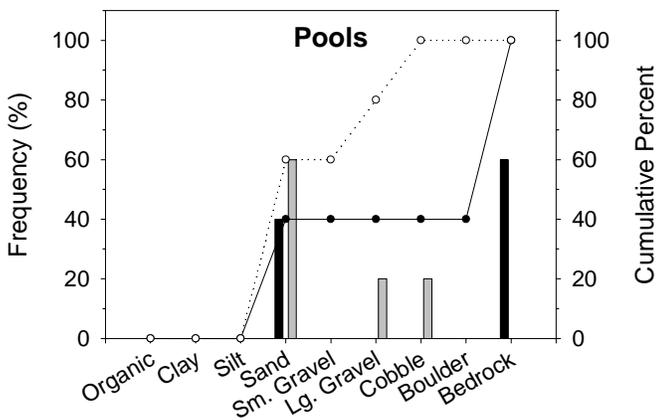
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	118	50
Maximum	118	50
75 <sup>th</sup> Percentile	118	50
25 <sup>th</sup> Percentile	118	50
Minimum	118	50

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

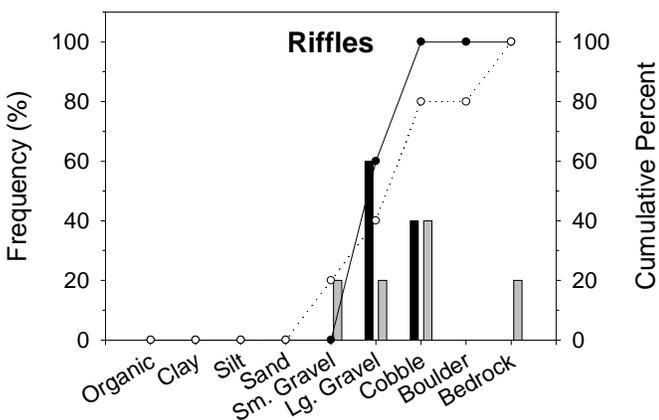
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	NA
B:	NA
C:	NA
D:	NA
E:	NA
F:	NA
G:	NA

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	18
Mean Channel Gradient (%):	3
Median Water Temperature (C):	26

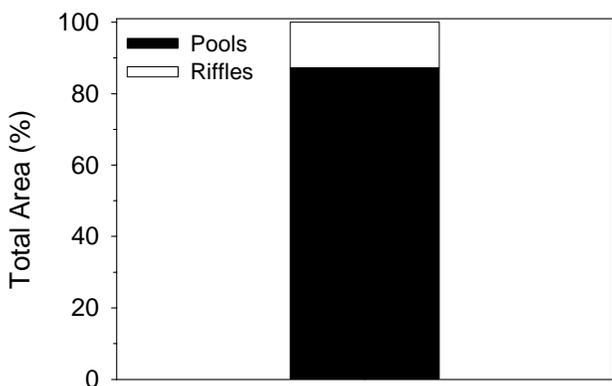


Maximum and average depths and residual pool depths for pools and riffles in stream section 005033, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

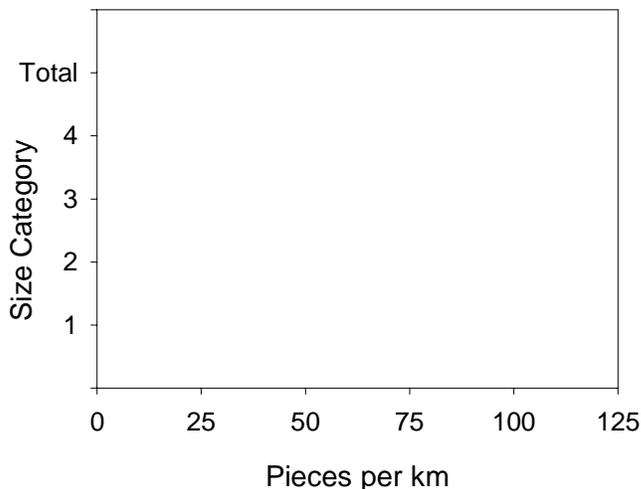


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 005033, summer 2005.



Estimated area of stream section 005033 in pools and riffles as calculated using BVET techniques, summer 2005.

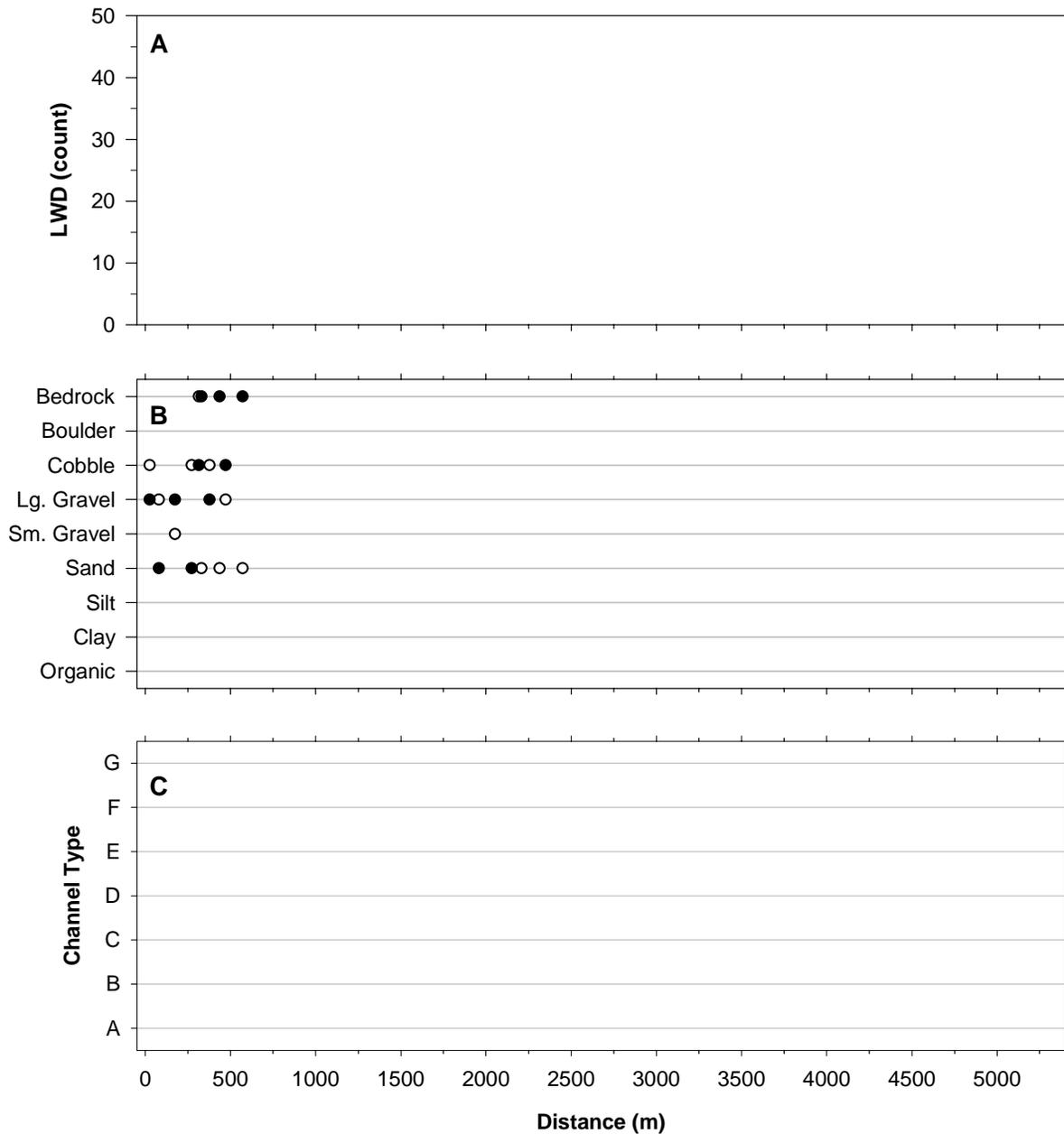


LWD per kilometer in stream section 005033, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 005033, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
R	314	7.0	FLAGGED FOR ELECTROFISHING
FORD	329		ROAD 1684
P	330.2	6.0	FLAGGED FOR ELECTROFISHING
TRIB	726	0.5	NEW NHID



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 005033, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 005033, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	3	314	
FORD		329	ROAD 1684

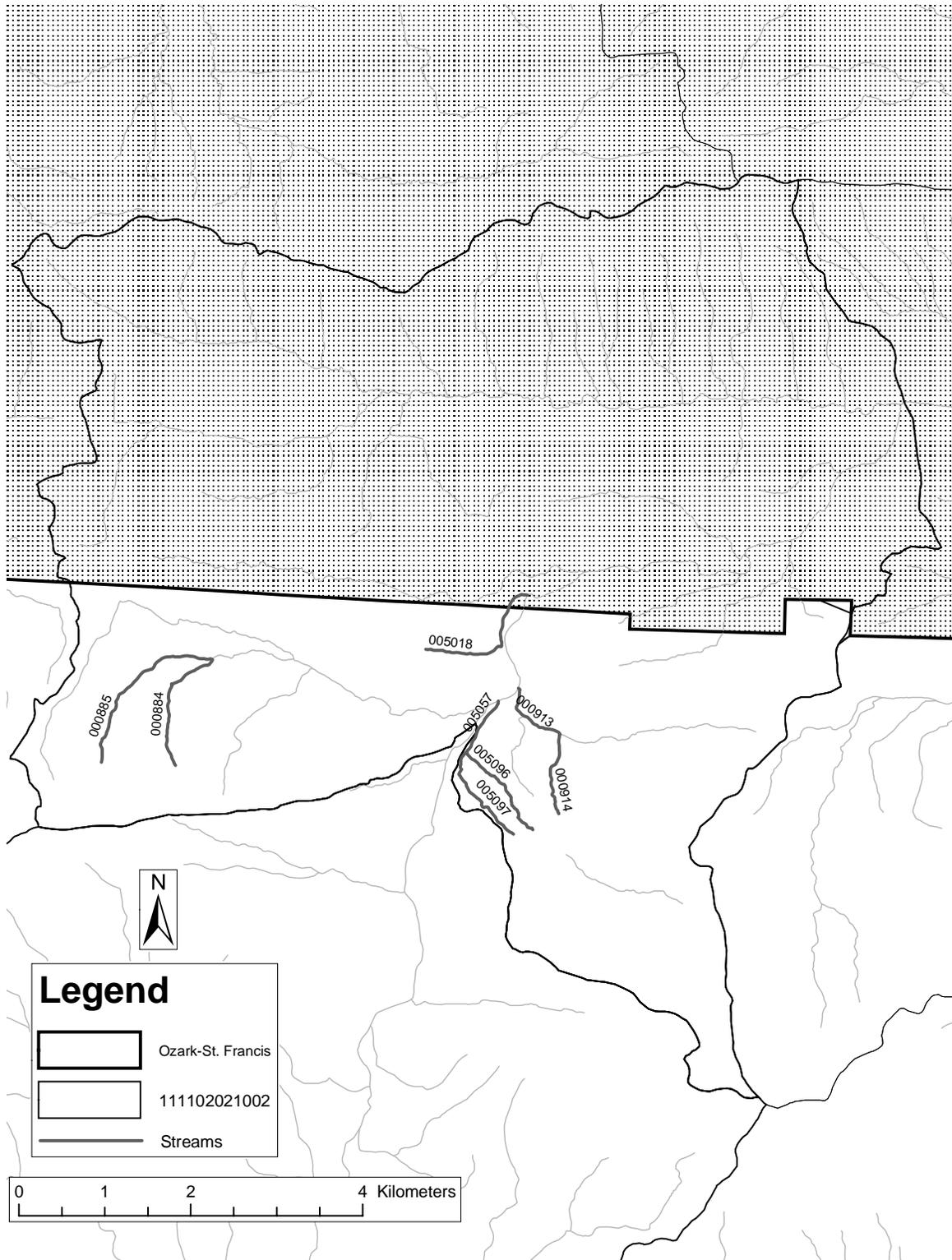


Figure 7. Stream reaches in watershed 111102021002 during summer 2005 with incomplete data due to stream size or dry stream channels, refer to table 2 for more information.

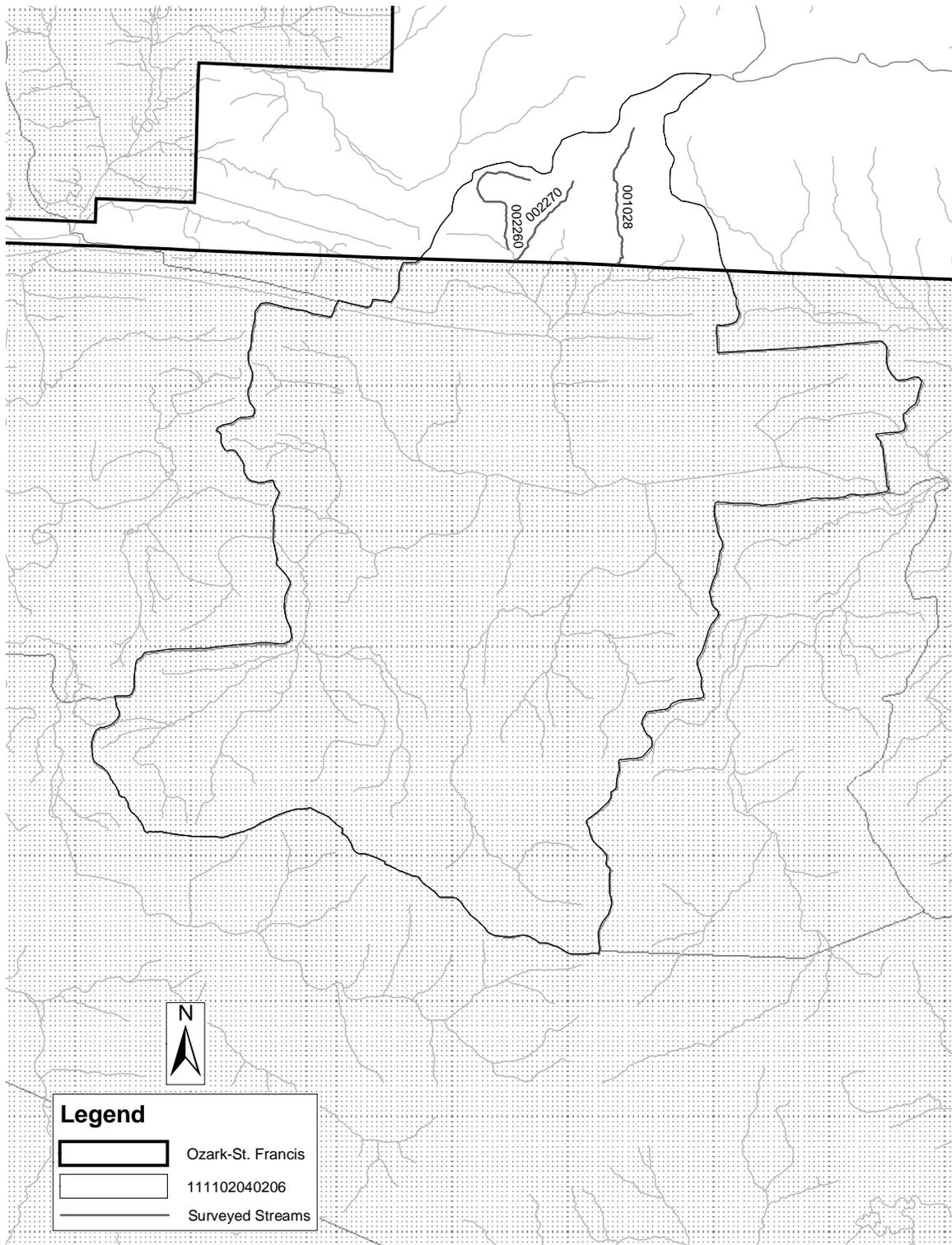


Figure 8. Stream reaches visited in watershed 111102040206 during summer 2005. No streams surveyed due to dry channels.

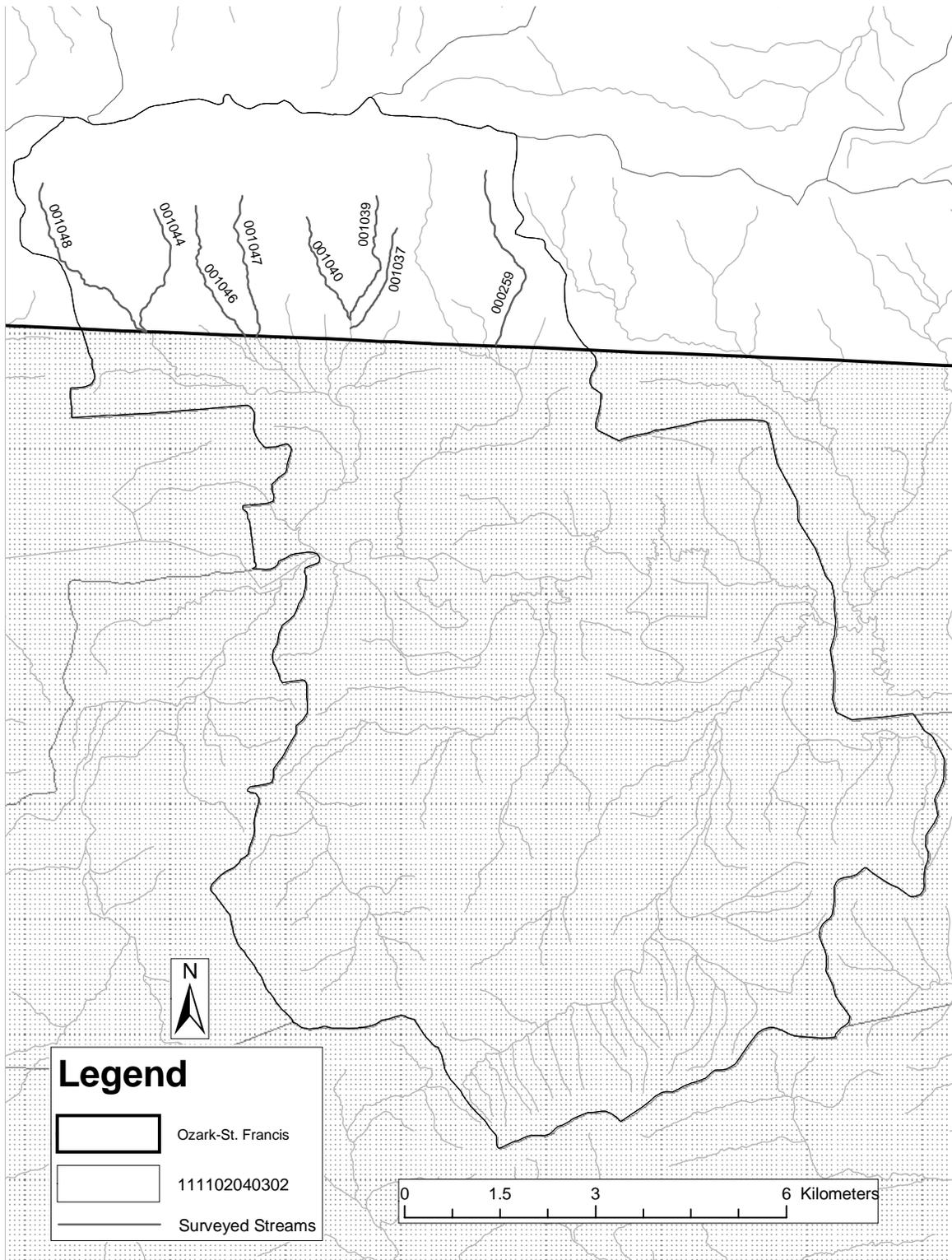


Figure 9. Stream reaches visited in watershed 111102040302 during summer 2005.

<b>Stream:</b>	001040, West Bass Creek
District:	Magazine
USGS Quadrangle:	Blue Mountain
6 <sup>th</sup> Level HUC	111102040302
Survey Date:	7/14/2005
Downstream Starting Point:	ABOUT 350M DOWNSTREAM OF 1678 FORD
Total Distance Surveyed (km):	0.4

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	76	24
Total Area (m <sup>2</sup> ):	718±24	231±0
Correction Factor Applied:	1.09	0.89
Number of Paired Samples:	2	4
Total Count:	4	4
Number per km:	10	10
Mean Area (m <sup>2</sup> ):	180	58
Mean Maximum Depth (cm):	41	6
Mean Average Depth (cm):	25	5
Mean Residual Depth (cm):	20	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	3
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	3

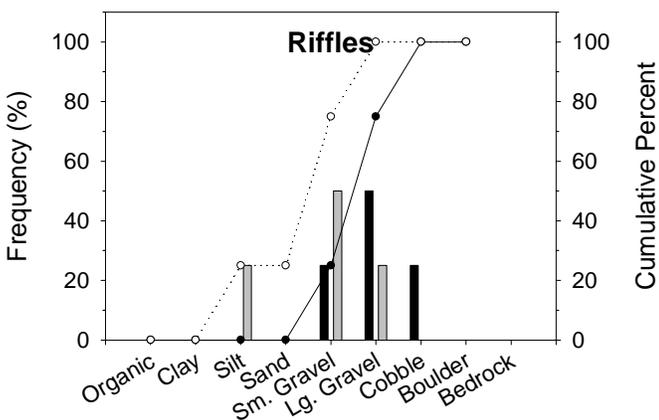
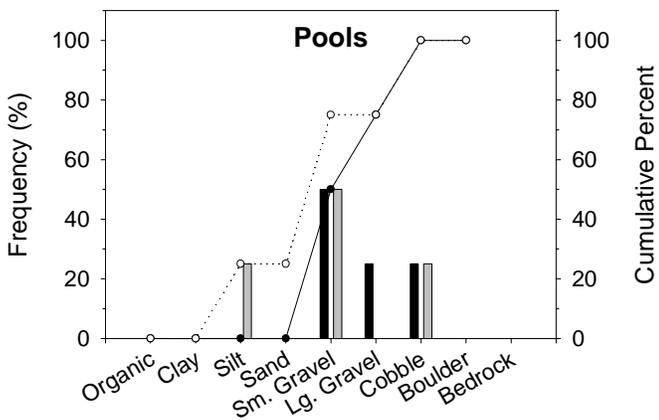
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	14	5
Maximum	21	15
75 <sup>th</sup> Percentile	19	7
25 <sup>th</sup> Percentile	9	1
Minimum	8	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

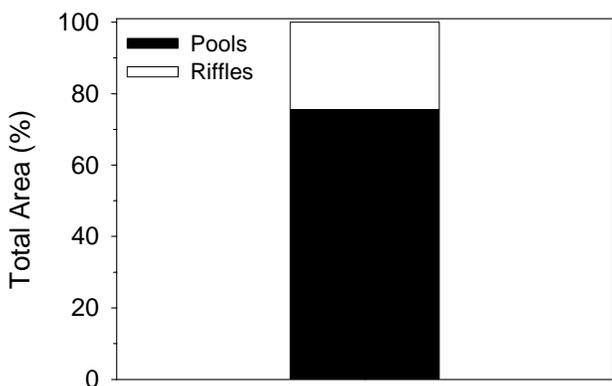
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	7
Mean Channel Gradient (%):	2
Median Water Temperature (C):	24

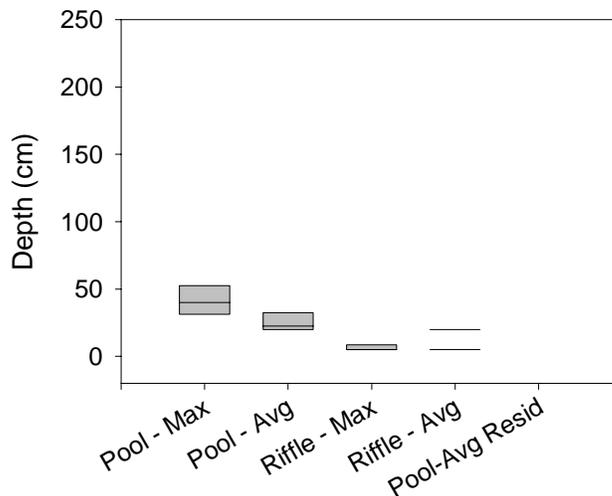


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

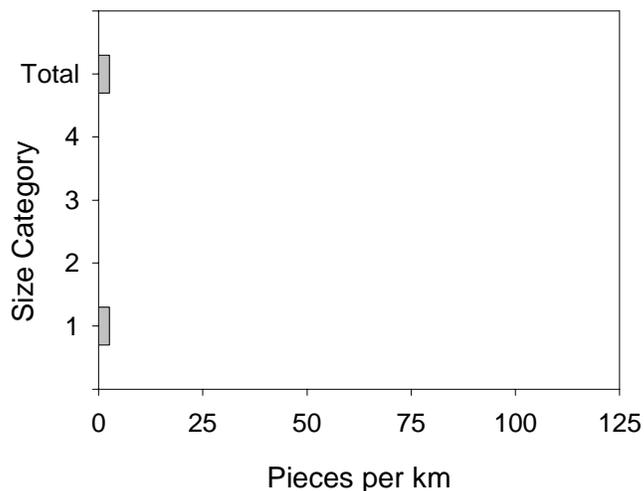
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001040, summer 2005.



Estimated area of stream section 001040 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001040, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

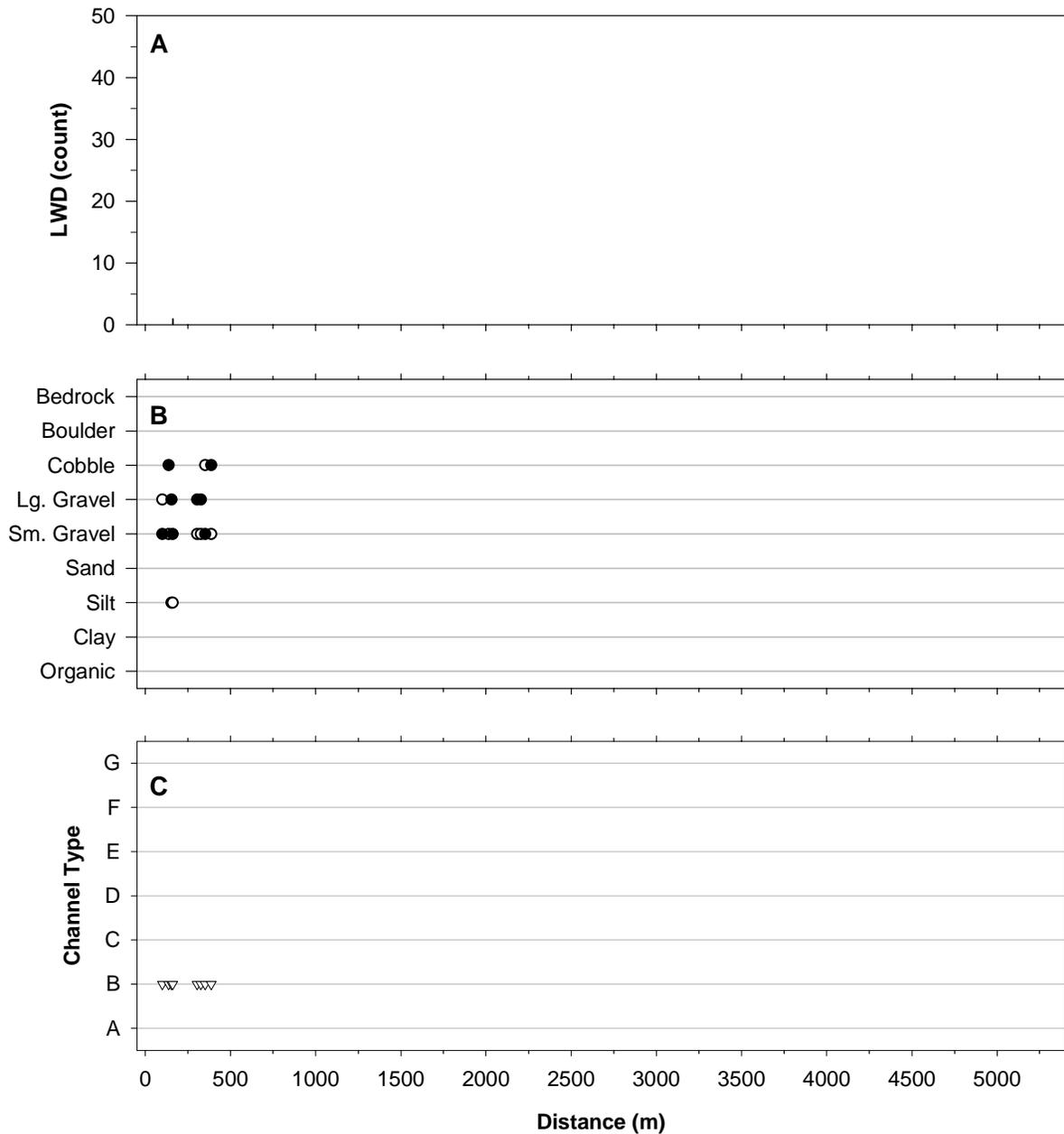


LWD per kilometer in stream section 001040, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001040, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
UNGR	95		
UNGR	125.6		
UNGR	187.5		
UNGR	285.4		
FORD	344.3		



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 001040, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001040, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	3	326	
R	4	386	

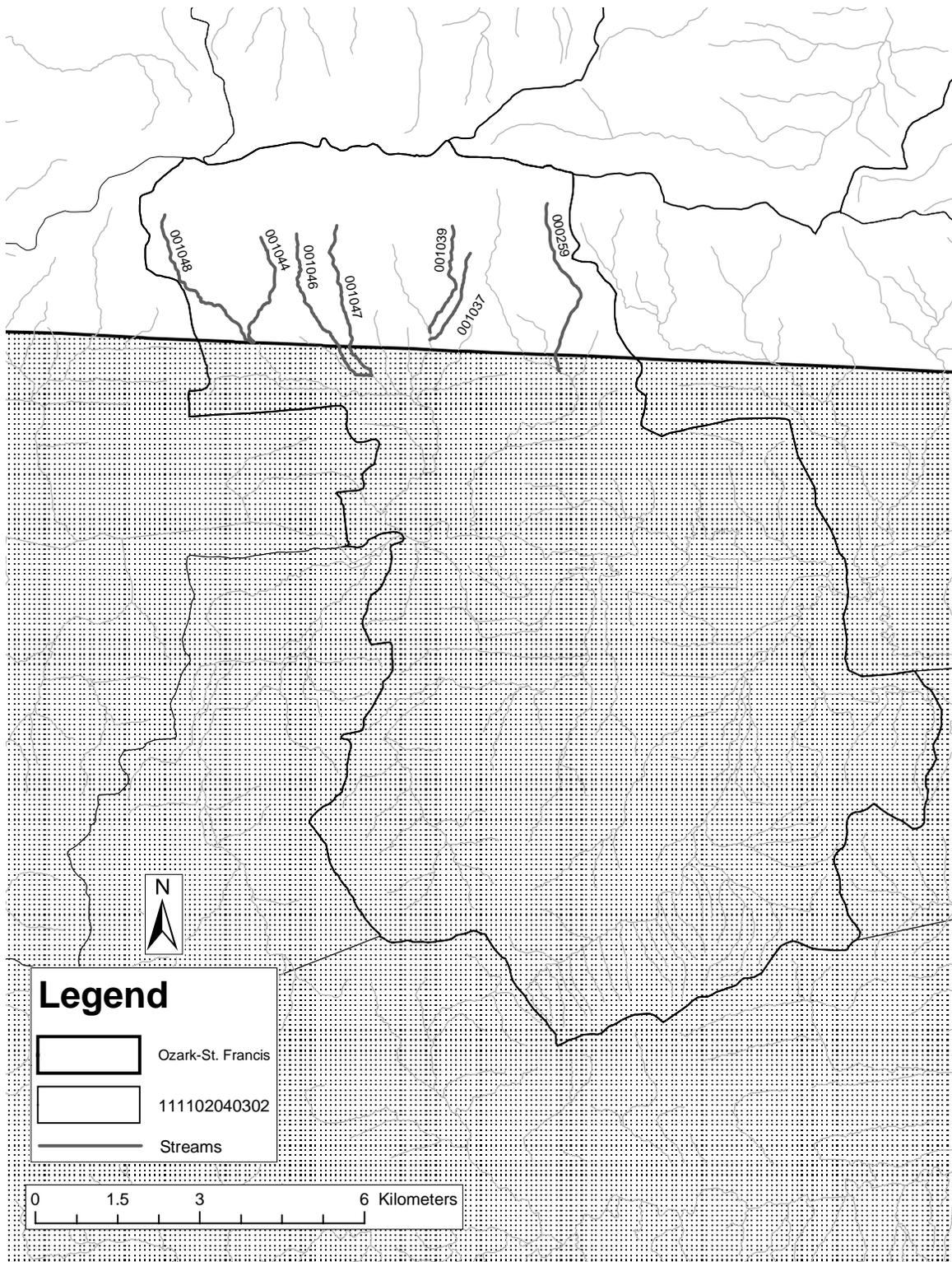


Figure 10. Stream reaches in watershed 111102040302 during summer 2005 with incomplete data due to dry stream channels, refer to table 2 for more information.

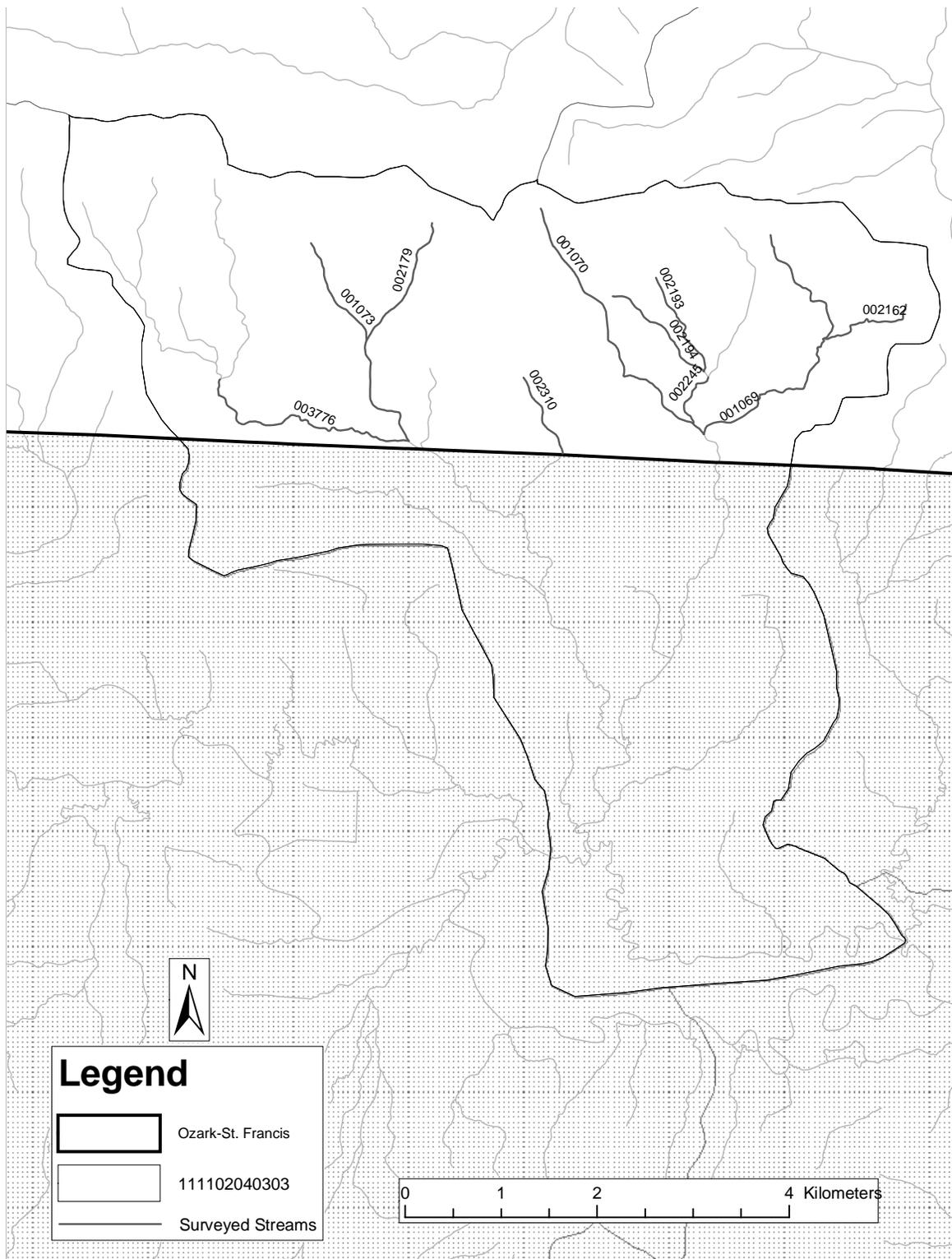


Figure 11. Stream reaches visited in watershed 111102040303 during summer 2005.

<b>Stream:</b>	003776, Little Piney Creek
District:	Magazine
USGS Quadrangle:	Magazine Mountain NE
6 <sup>th</sup> Level HUC	111102040303
Survey Date:	7/14/2005
Downstream Starting Point:	FS BOUNDARY
Total Distance Surveyed (km):	0.2

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	68	32
Total Area (m <sup>2</sup> ):	308±274	143±NC
Correction Factor Applied:	0.75	1.05
Number of Paired Samples:	2	1
Total Count:	9	5
Number per km:	40	22
Mean Area (m <sup>2</sup> ):	34	29
Mean Maximum Depth (cm):	29	6
Mean Average Depth (cm):	15	5
Mean Residual Depth (cm):	9	--
Percent Surveyed as Glides:	33	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	4
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	4

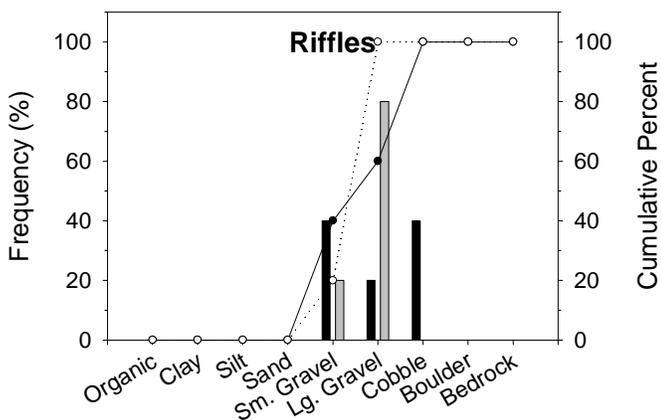
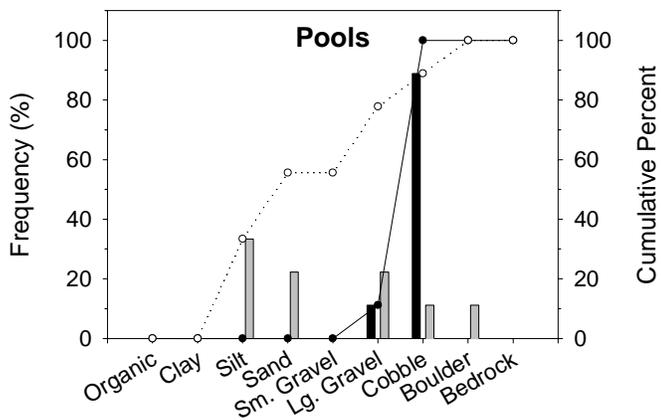
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	5	1
Maximum	5	1
75 <sup>th</sup> Percentile	5	1
25 <sup>th</sup> Percentile	5	1
Minimum	5	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

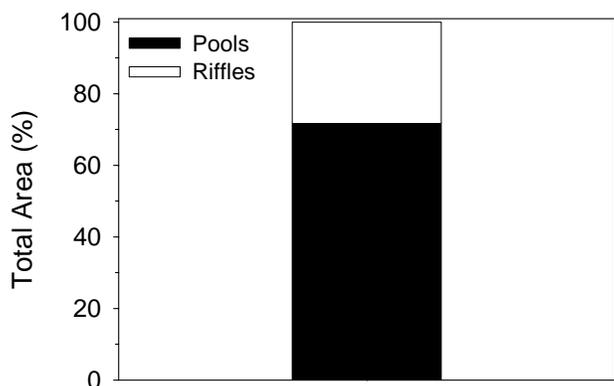
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	NA
B:	NA
C:	NA
D:	NA
E:	NA
F:	NA
G:	NA

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	3
Mean Channel Gradient (%):	1
Median Water Temperature (C):	23

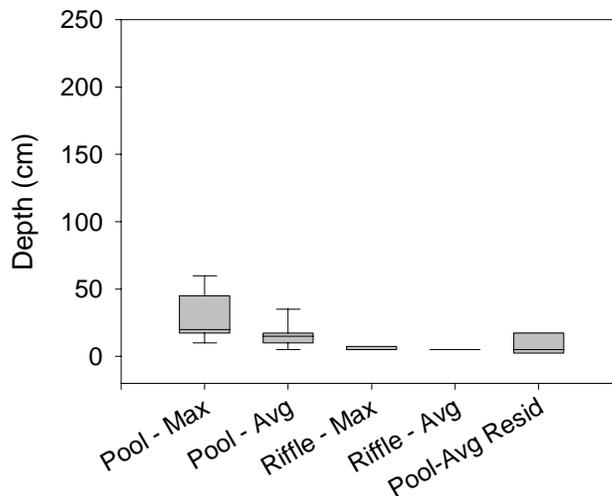


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

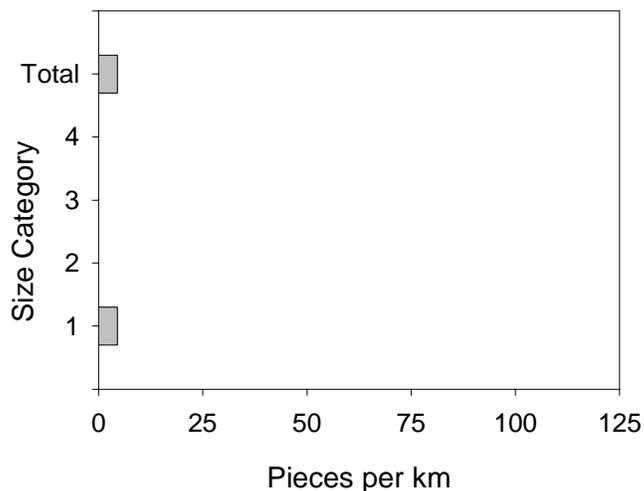
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 003776, summer 2005.



Estimated area of stream section 003776 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 003776, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

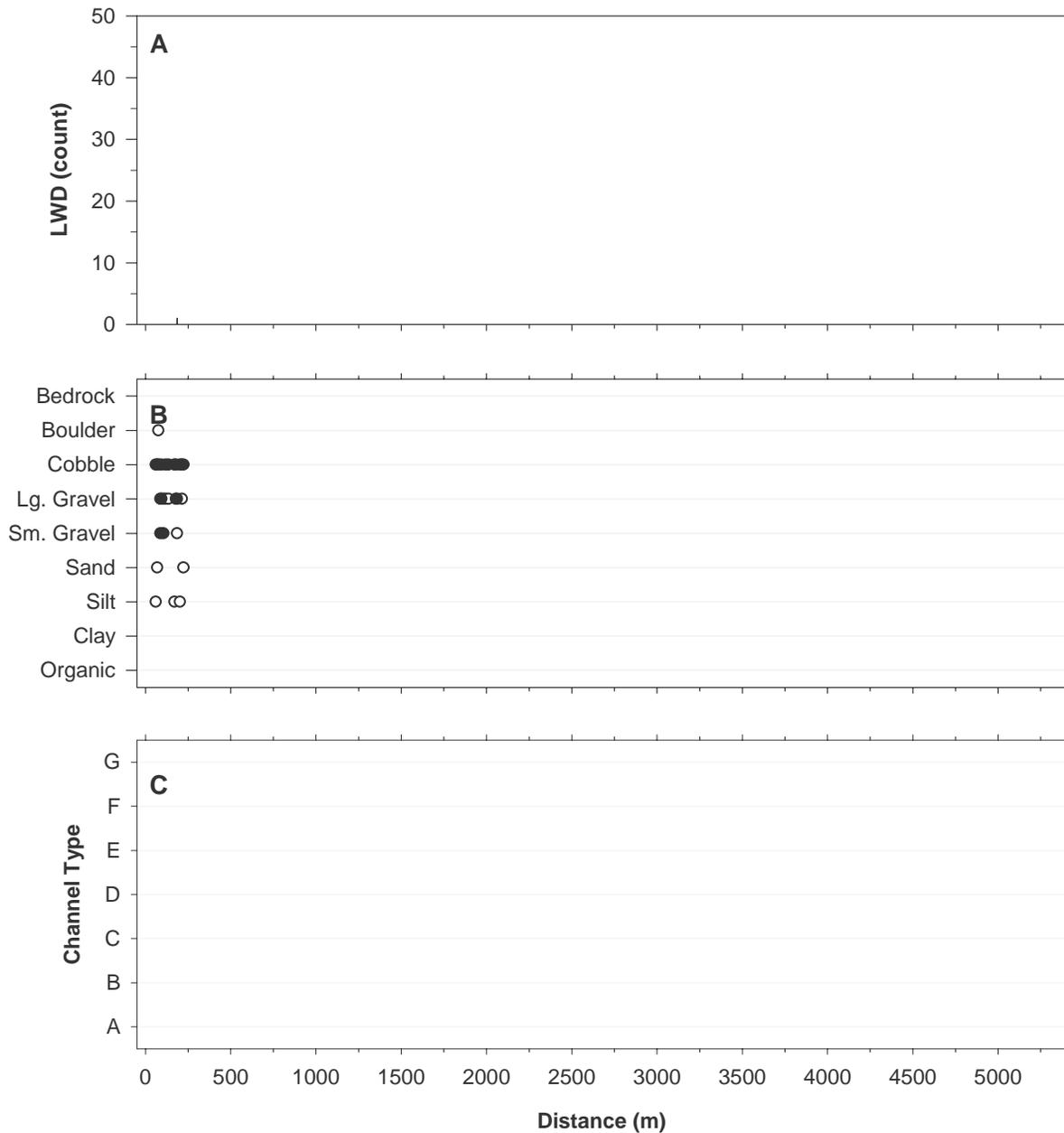


LWD per kilometer in stream section 003776, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 003776, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
G	202	3.2	FLAGGED FOR ELECTROFISHING



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 003776, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 003776, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	3	133.6	MAXBF 45 AVG 35

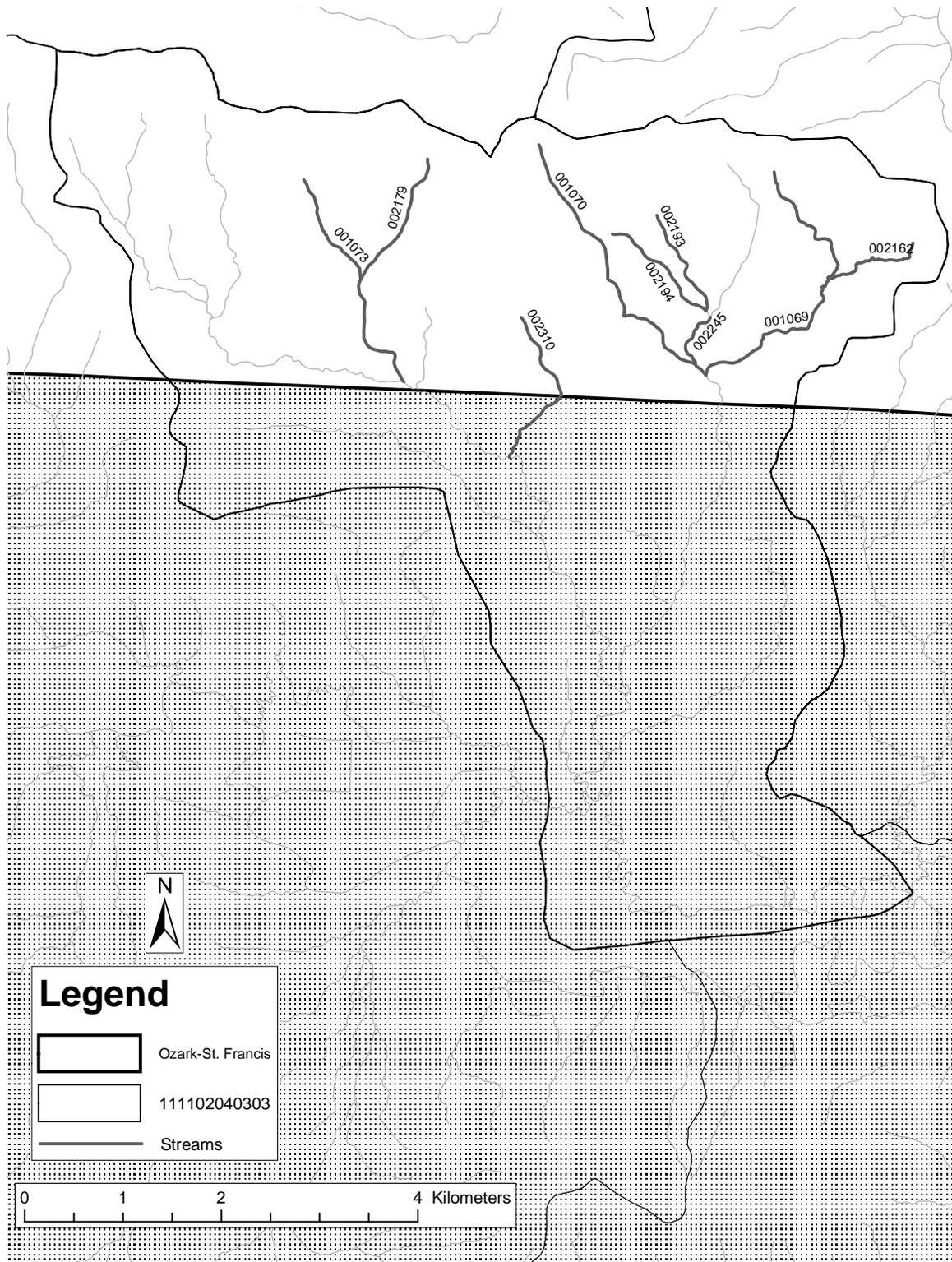


Figure12. Stream reaches in watershed 111102040303 during summer 2005 with incomplete data due to dry stream channels, refer to table 2 for more information.

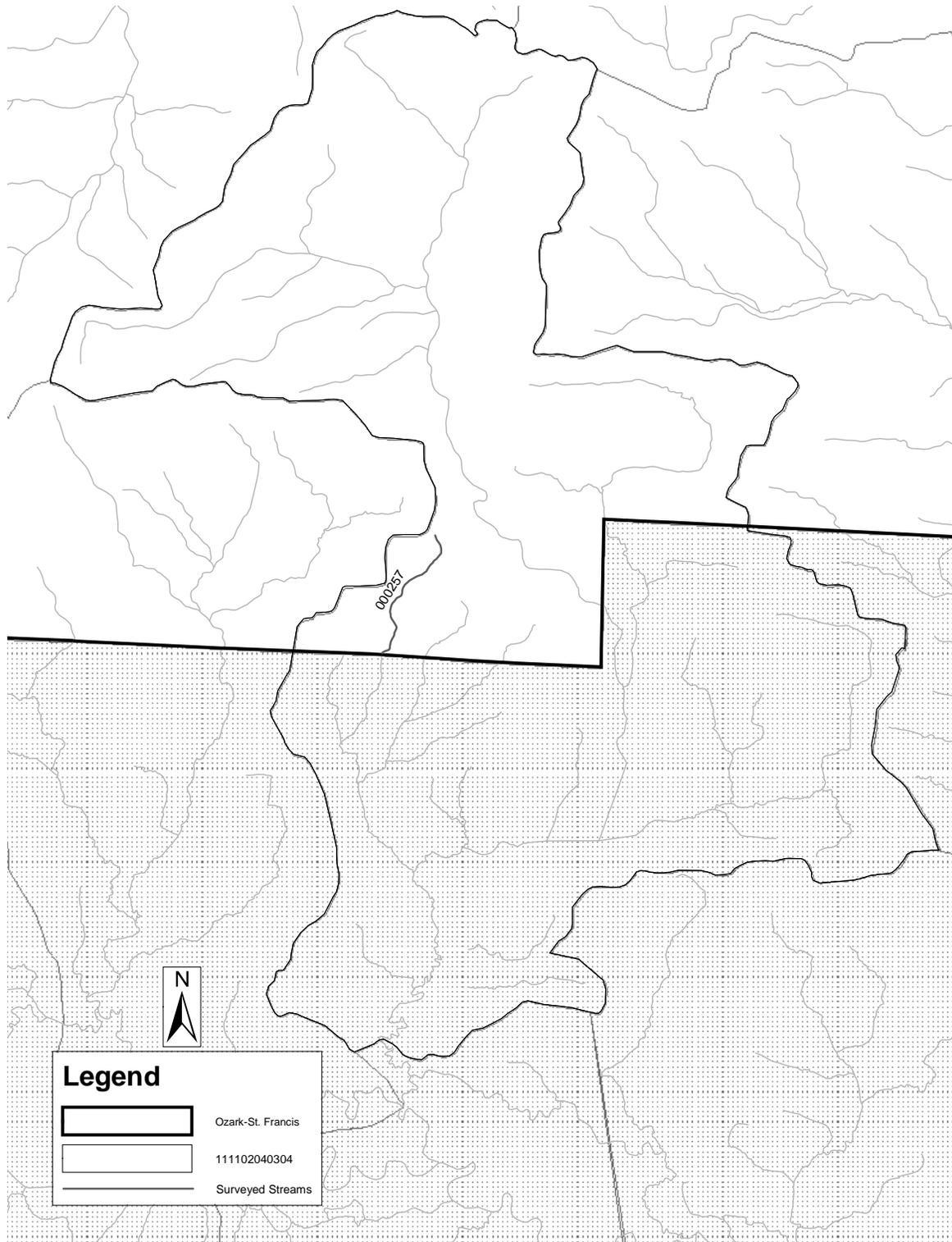


Figure 13. Stream reach visited in watershed 111102040304 during summer 2005. No stream survey due to dry channel.

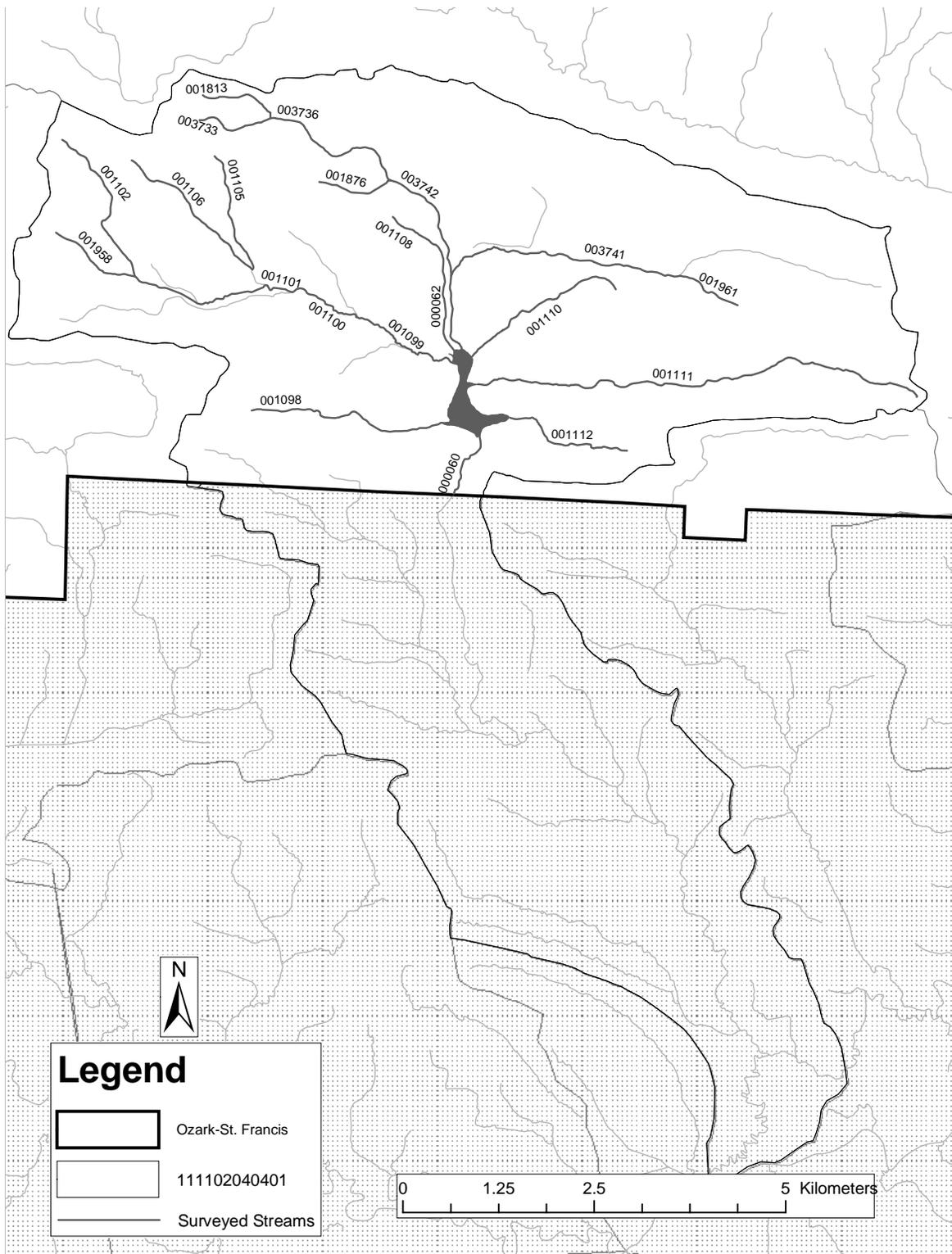


Figure 14. Stream reaches visited in watershed 111102040401 during summer 2005.

<b>Stream:</b>	001098, Bob Barnes Branch
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040401
Survey Date:	7/17/2005
Downstream Starting Point:	CONFLUENCE WITH SPRING LAKE
Total Distance Surveyed (km):	0.2

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	10	90
Total Area (m <sup>2</sup> ):	29±NC	264±NC
Correction Factor Applied:	0.67	1.00
Number of Paired Samples:	1	1
Total Count:	2	4
Number per km:	10	19
Mean Area (m <sup>2</sup> ):	14	66
Mean Maximum Depth (cm):	38	8
Mean Average Depth (cm):	20	5
Mean Residual Depth (cm):	15	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	50	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	5
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	5

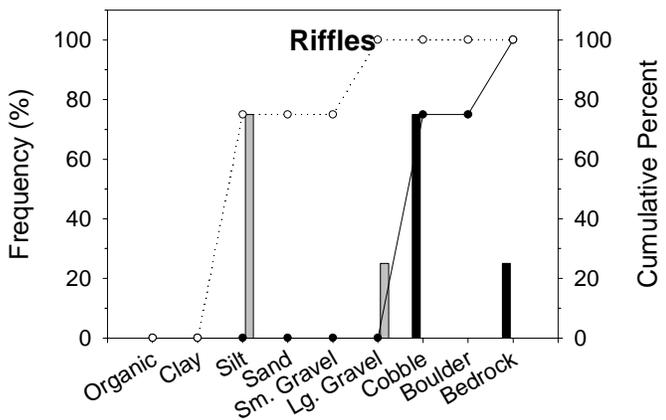
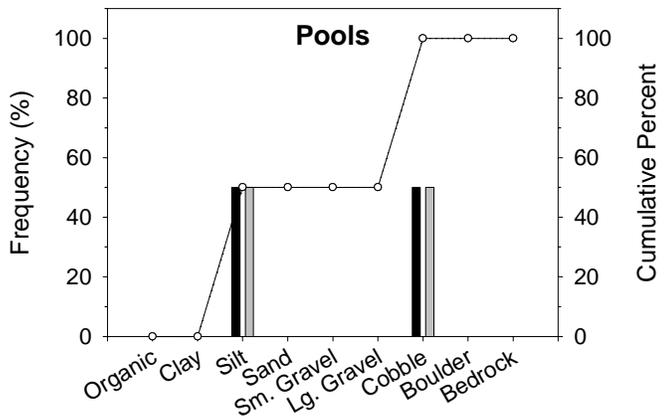
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	11	3
Maximum	11	6
75 <sup>th</sup> Percentile	11	4
25 <sup>th</sup> Percentile	11	2
Minimum	11	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

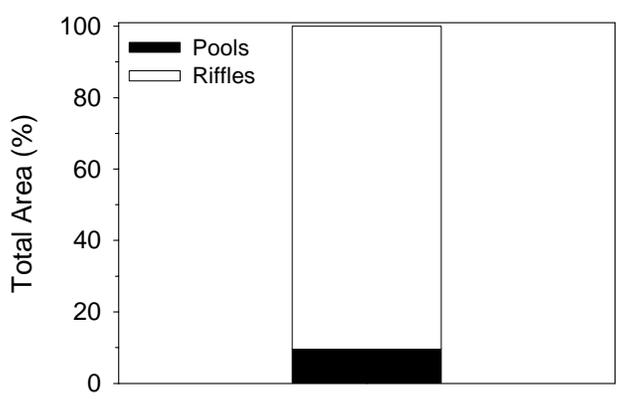
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	5
Mean Channel Gradient (%):	2
Median Water Temperature (C):	23

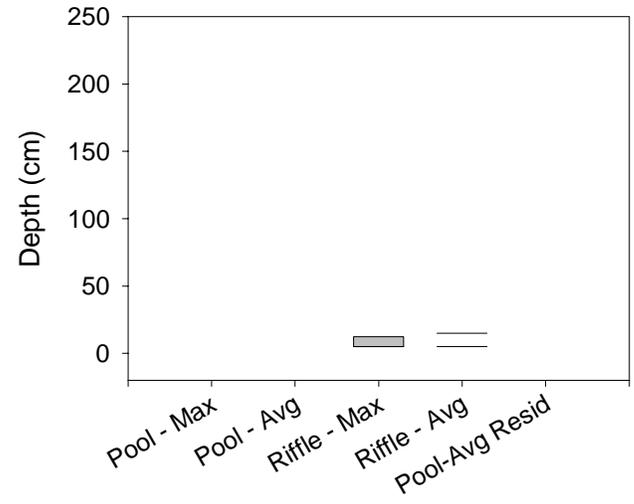


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- ⋯ Subdominant, Cumulative %

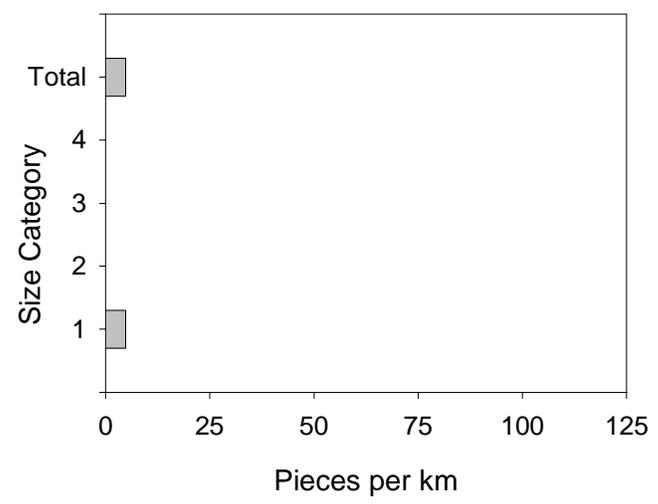
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001098, summer 2005.



Estimated area of stream section 001098 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001098, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

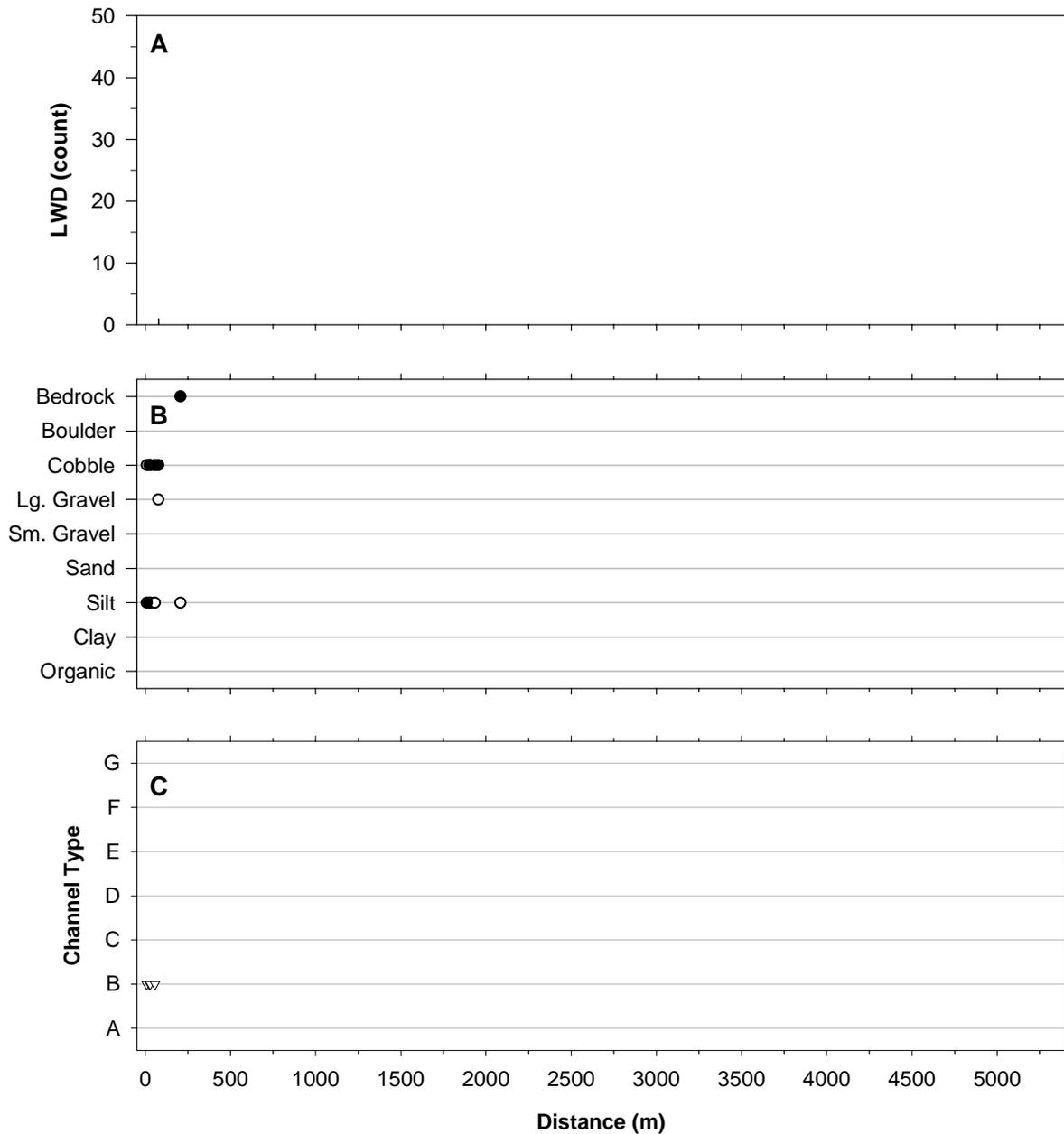


LWD per kilometer in stream section 001098, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001098, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
P	29.9	2.0	FLAGGED FOR ELECTROFISHING
R	56.5	1.0	FLAGGED FOR ELECTROFISHING
BRIDGE	59.2		
UNGR	72		
UNGR	192.6		



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 001098, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001098, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	2	56.5	MBF=50.ABF=40.
BRIDGE		59.2	

<b>Stream:</b>	001111, Box Spring Branch
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040401
Survey Date:	7/18/2005
Downstream Starting Point:	Spring Lake
Total Distance Surveyed (km):	1.0

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	NC	NC
Total Area (m <sup>2</sup> ):	1393±NC	NC±NC
Correction Factor Applied:	0.94	NC
Number of Paired Samples:	2	0
Total Count:	11	3
Number per km:	11	3
Mean Area (m <sup>2</sup> ):	127	NC
Mean Maximum Depth (cm):	20	4
Mean Average Depth (cm):	11	12
Mean Residual Depth (cm):	0	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	45	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	1
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	1

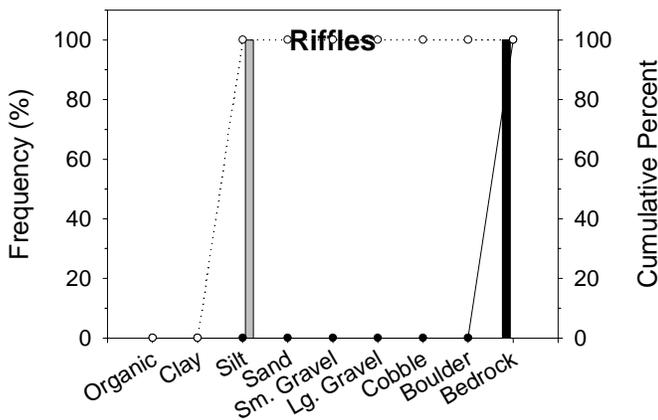
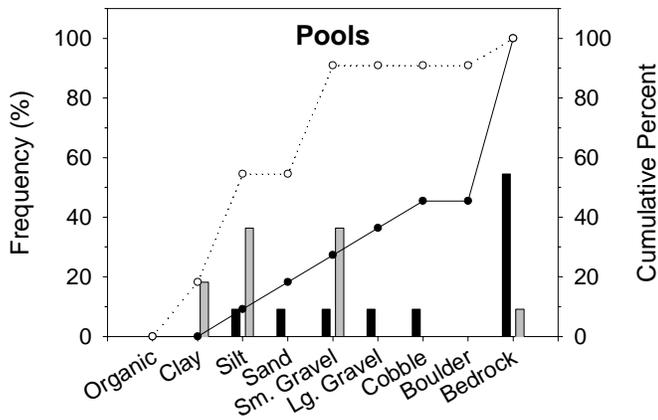
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	NA	NA
Maximum	NA	NA
75 <sup>th</sup> Percentile	NA	NA
25 <sup>th</sup> Percentile	NA	NA
Minimum	NA	NA

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

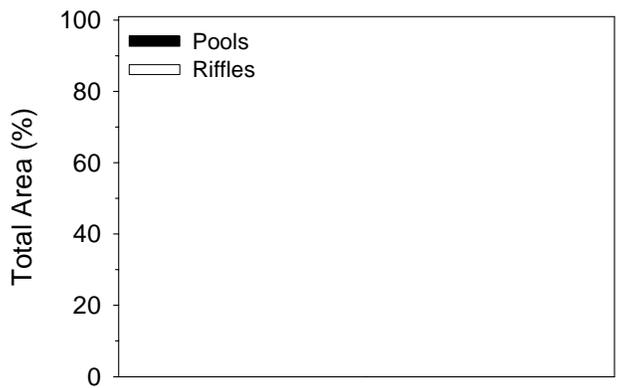
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	NA
Mean Channel Gradient (%):	NA
Median Water Temperature (C):	NA

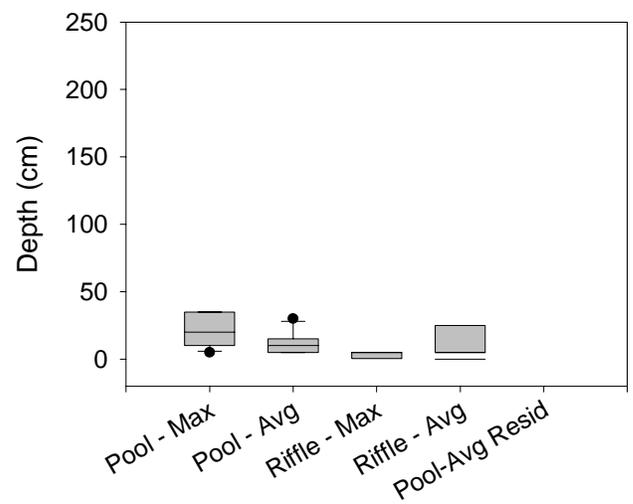


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

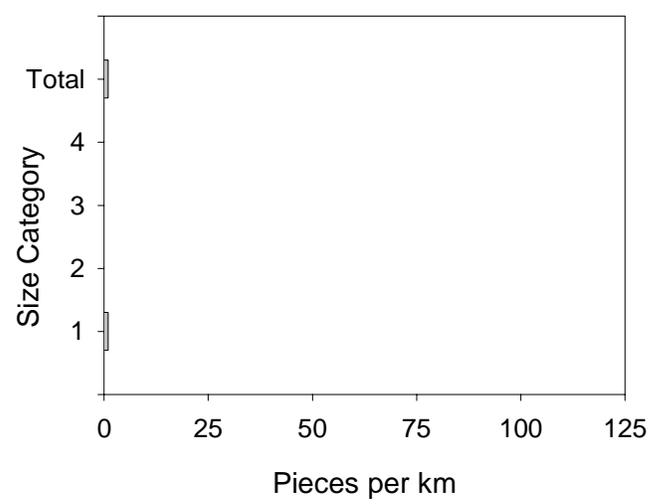
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001111, summer 2005.



Estimated area of stream section 001111 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001111, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

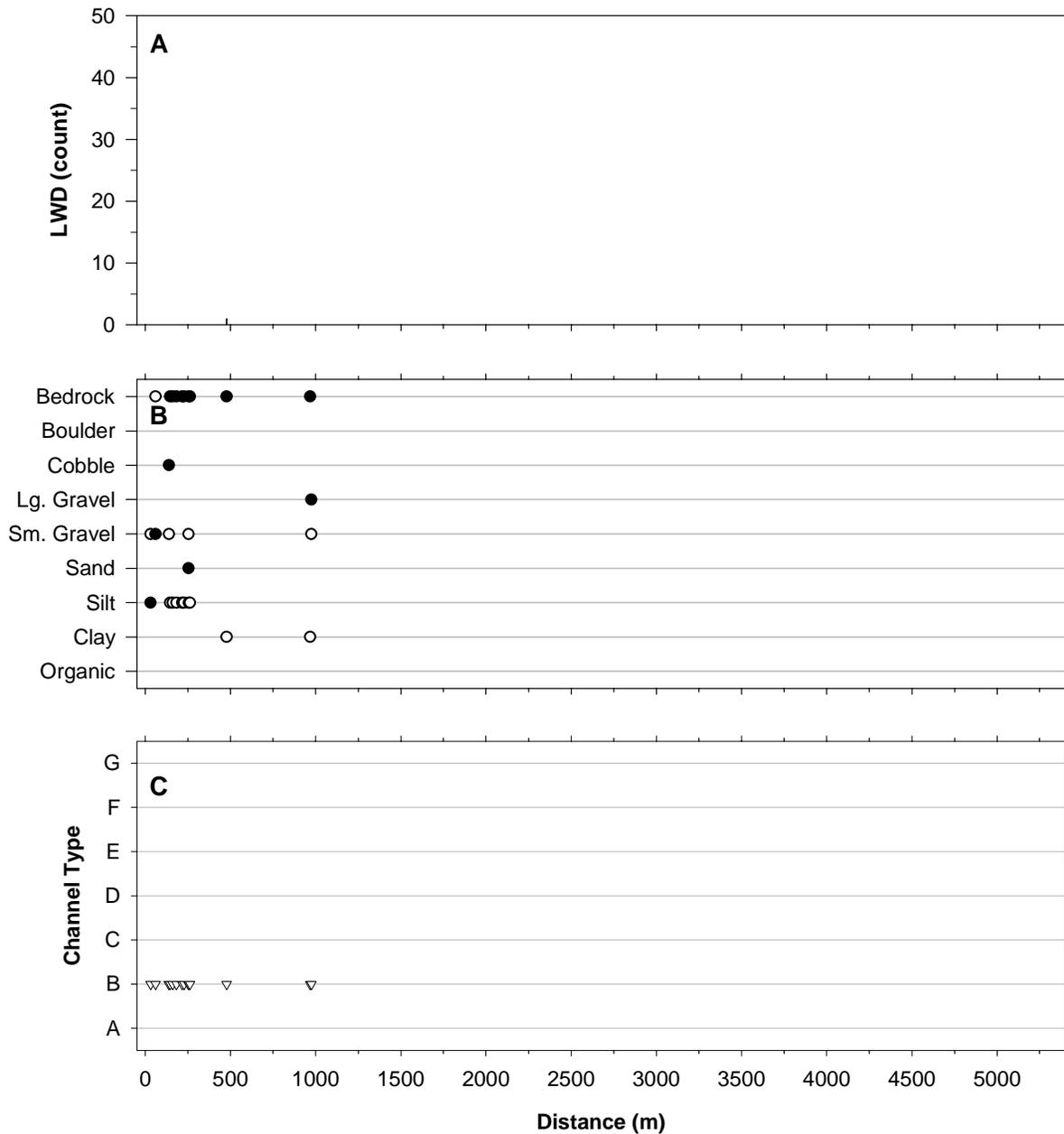


LWD per kilometer in stream section 001111, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001111, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
UNGR	51.55		
UNGR	135.2		
UNGR	172.8		
V	244	5.5	OPEN BOX, CONCRETE, HEIGHT 1 M
UNGR	473.6		
UNGR	960.4		
UNGR	972.9		
UNGR			END SURVEY- DRY- WE DROVE UP AND CHECKED IN 3 PLACES



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 001111, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001111, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
No Photos			

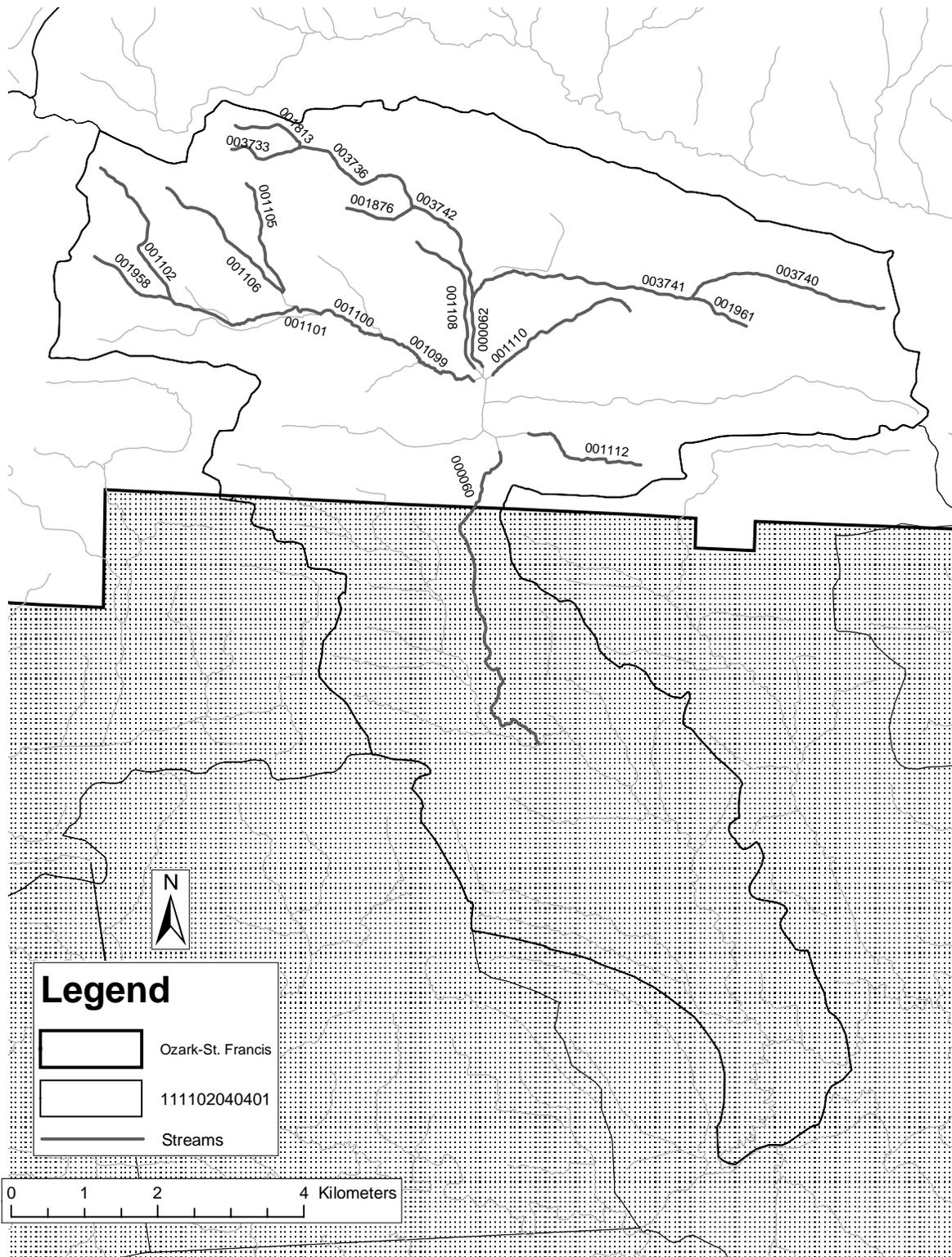


Figure 15. Stream reaches in watershed 111102040401 during summer 2005 with incomplete data due to dry stream channels, refer to table 2 for more information.

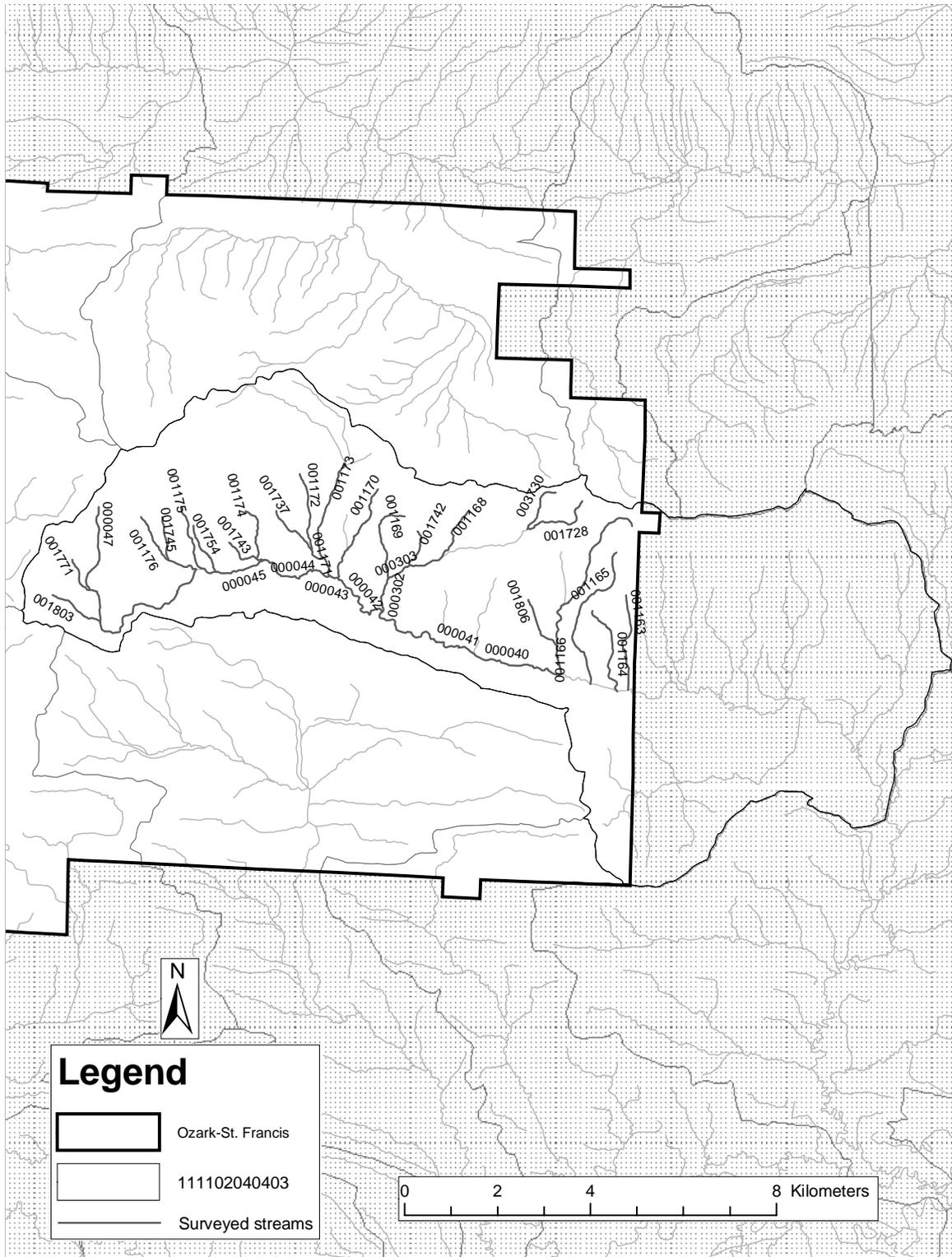


Figure 16. Stream reaches visited in watershed 111102040403 during summer 2005.

<b>Stream:</b>	000040
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/18/2005
Downstream Starting Point:	PRIVATE BOUNDARY DOWNSTREAM OF 1603C
Total Distance Surveyed (km):	0.4

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	93	7
Total Area (m <sup>2</sup> ):	3472±NC	275±NC
Correction Factor Applied:	0.96	0.59
Number of Paired Samples:	1	1
Total Count:	4	3
Number per km:	10	8
Mean Area (m <sup>2</sup> ):	868	92
Mean Maximum Depth (cm):	133	13
Mean Average Depth (cm):	90	8
Mean Residual Depth (cm):	98	--
Percent Surveyed as Glides:	25	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	75	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	13
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	18
> 5 m long, > 55 cm diameter:	0
Total:	31

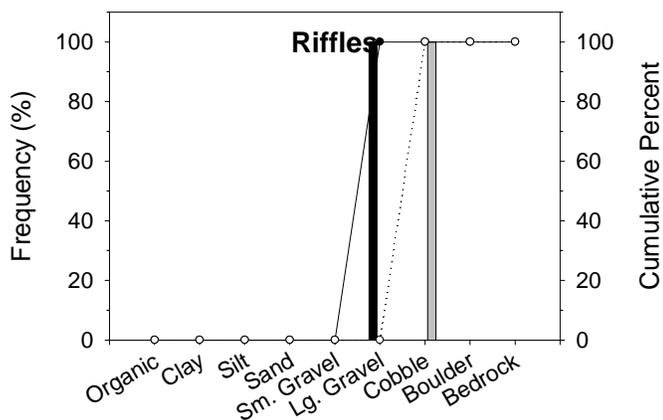
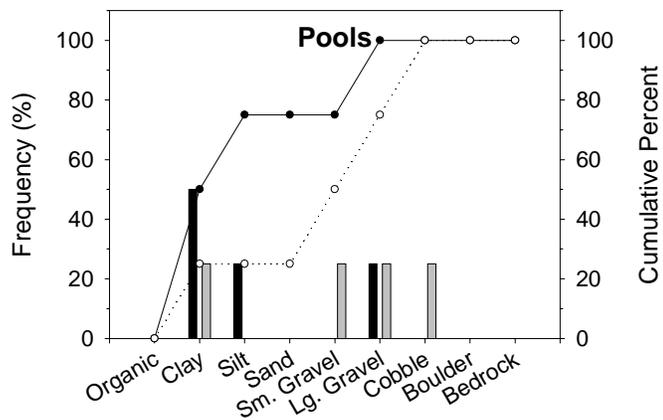
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	31	10
Maximum	31	20
75 <sup>th</sup> Percentile	31	15
25 <sup>th</sup> Percentile	31	5
Minimum	31	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

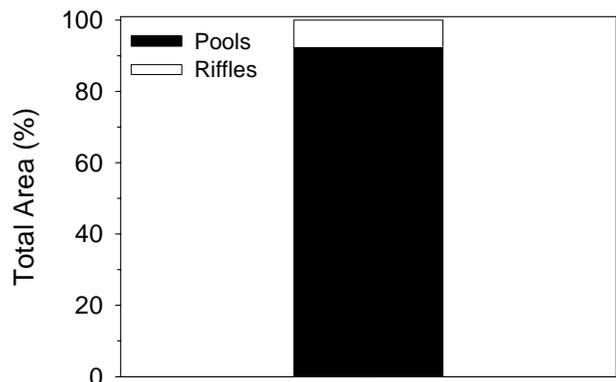
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	43
D:	0
E:	0
F:	57
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	11
Mean Channel Gradient (%):	2
Median Water Temperature (C):	23

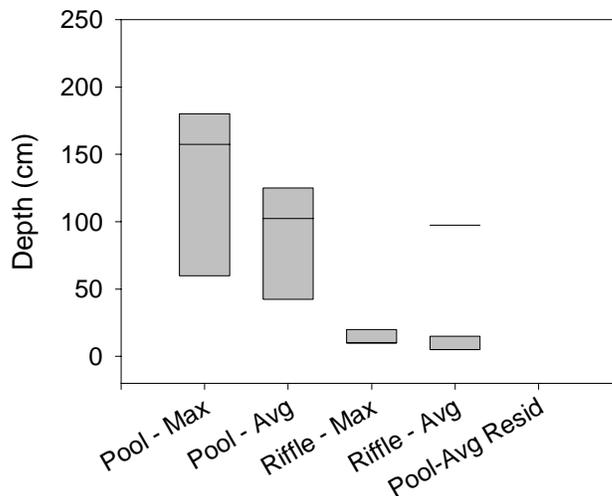


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

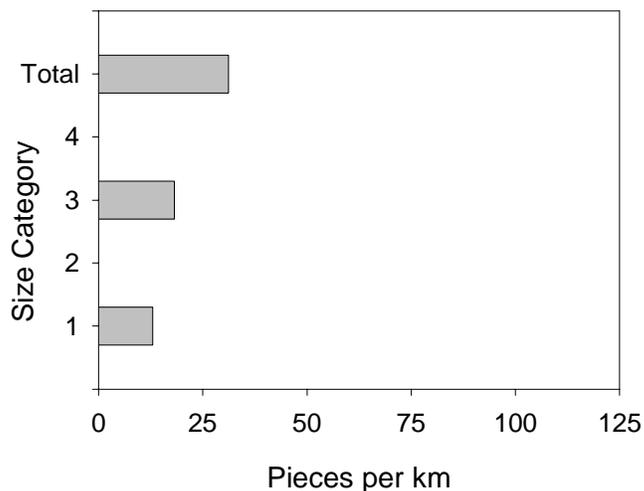
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000040, summer 2005.



Estimated area of stream section 000040 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 000040, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

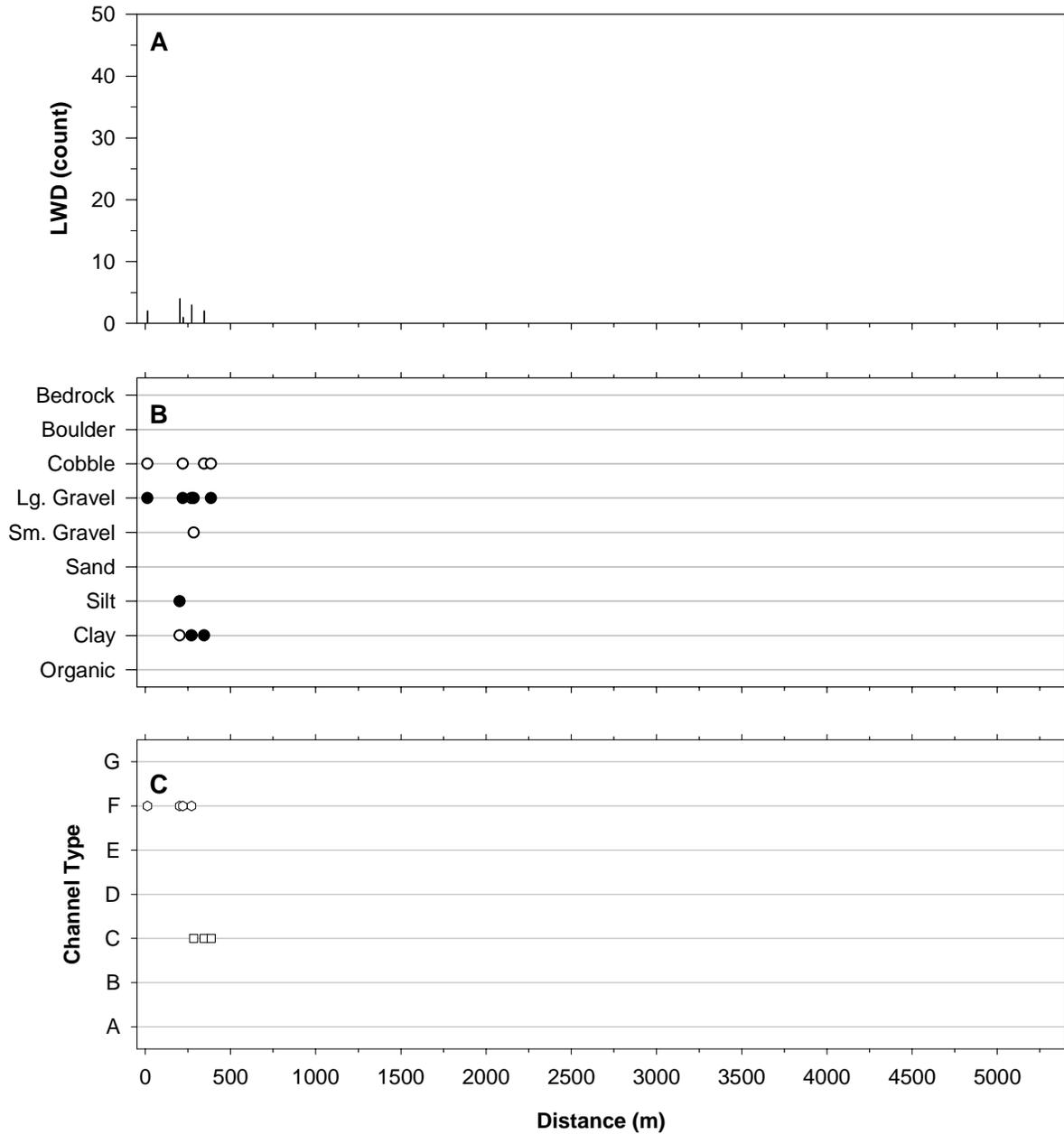


LWD per kilometer in stream section 000040, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000040, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
SCH	184.5		IN ON LEFT
OTR	215.2		TREE SHOWING OVER 6 FEET OF BANK EROSION
SCH	229		OUT ON LEFT
G	283	7.7	FLAGGED FOR ELECTROFISHING
OTR	298.2		YELLOW WATER LILLIES
R	385	5.3	FLAGGED FOR ELECTROFISHING



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 000040, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000040, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
OTR		215.2	TREE SHOWING OVER 6 FEET OF BANK EROSION
P	2	271	PHOTO OF CHAS GOIN TO MAX DEPTH
R	3	385.4	LOTS OF JUSTICIA, WILL BE HARD TO SHOCK, MAX BANKFULL IS 115, HARD TO DETERMINE ROSGEN DUE TO BANK EROSION DOWNSTREAM, PROBABLY AN F OR G CHANNEL

<b>Stream:</b>	000041 through 000044, Chickalah Creek
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/18/2005
Downstream Starting Point:	FOREST BOUNDARY SOUTH OF FS 1603 AND HARKEY CEMETERY
Total Distance Surveyed (km):	5.4

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	86	14
Total Area (m <sup>2</sup> ):	29123±650	4559±1747
Correction Factor Applied:	0.92	1.18
Number of Paired Samples:	11	7
Total Count:	102	66
Number per km:	19	12
Mean Area (m <sup>2</sup> ):	286	69
Mean Maximum Depth (cm):	68	10
Mean Average Depth (cm):	45	6
Mean Residual Depth (cm):	44	--
Percent Surveyed as Glides:	14	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	15	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	6
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	12
> 5 m long, > 55 cm diameter:	2
Total:	20

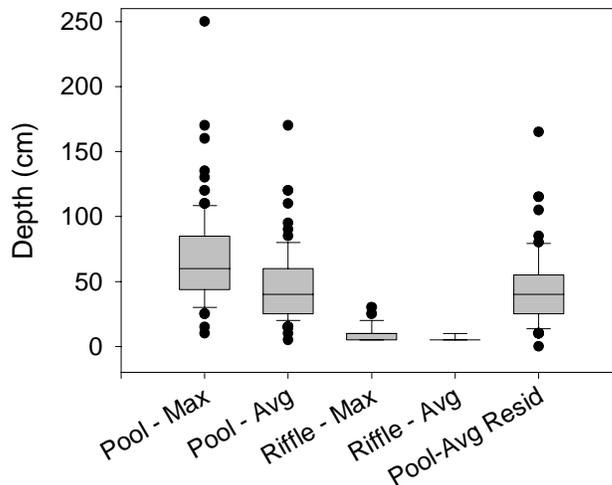
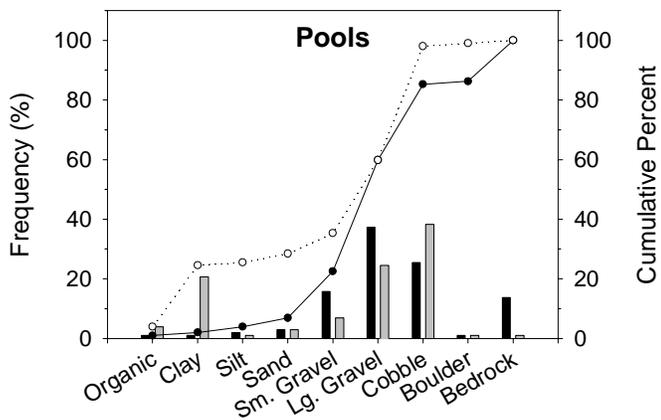
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	24	7
Maximum	43	20
75 <sup>th</sup> Percentile	26	11
25 <sup>th</sup> Percentile	19	1
Minimum	14	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

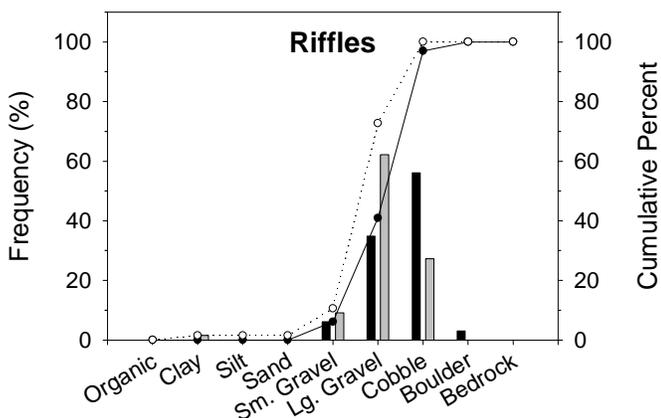
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	10
Mean Channel Gradient (%):	2
Median Water Temperature (C):	23

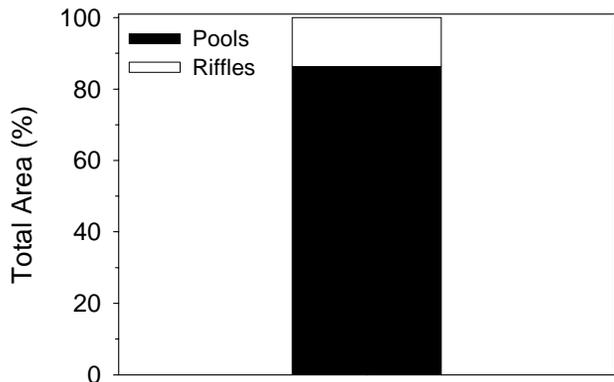


Maximum and average depths and residual pool depths for pools and riffles in stream section 000041 through 000044, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

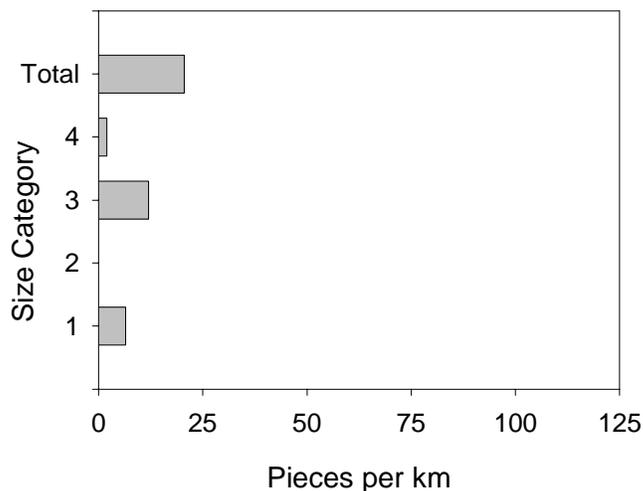


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000041 through 000044, summer 2005.



Estimated area of stream section 000041 through 000044 in pools and riffles as calculated using BVET techniques, summer 2005.

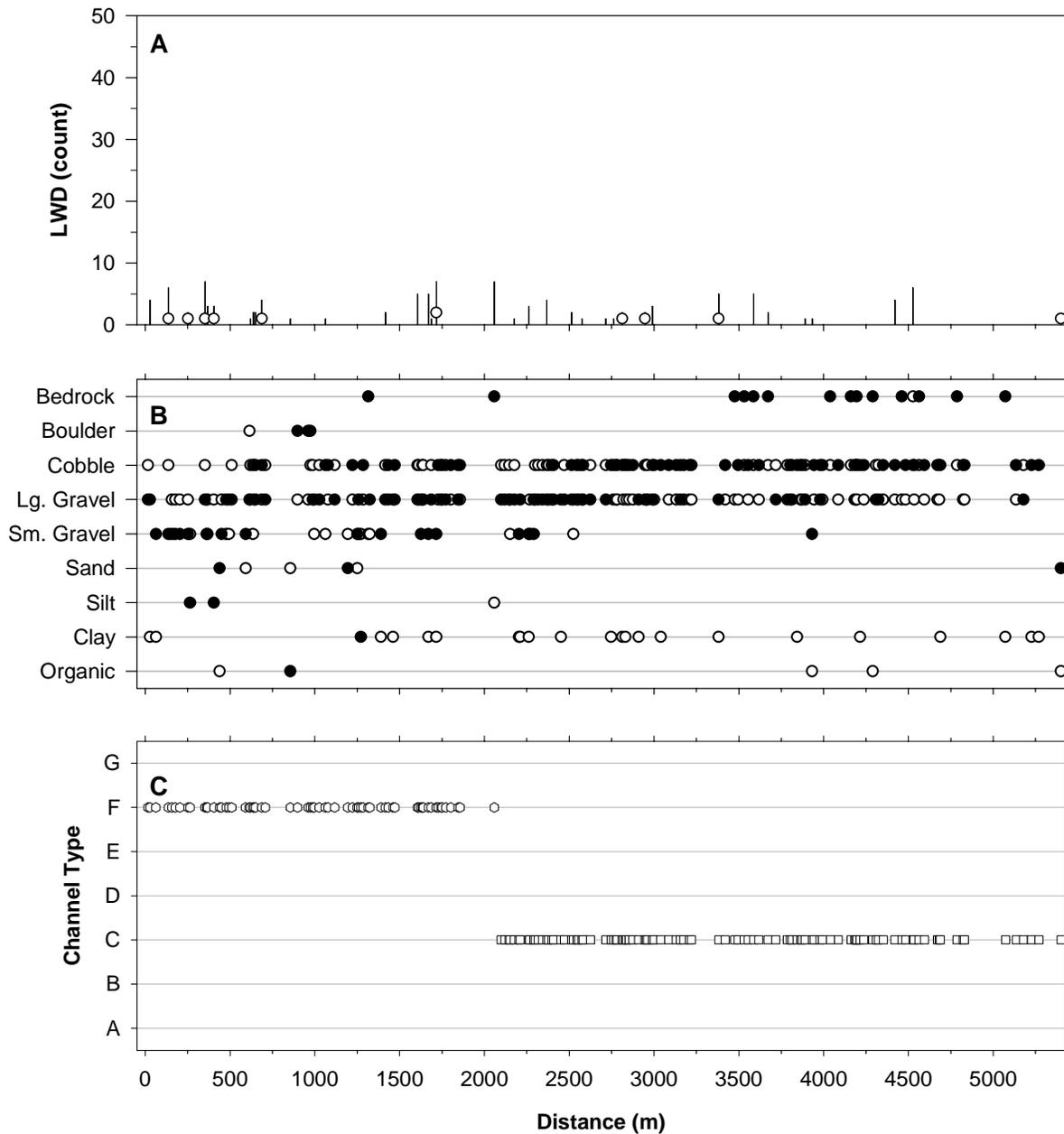


LWD per kilometer in stream section 000041 through 000044, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000041 through 000044, BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

Stream Feature	Distance (m)	Width (m)	Comments
SCH	138.4		IN ON RIIGHT
SCH	186		OUT ON RIGHT
SCH	222.3		IN ON RIGHT
SCH	254.5		OUT ONRIGHT
P	493	4.5	FLAGGED FOR ELECTROFISHING
FORD	708		ROAD 1649
OTR	785		WATER VERY TURBID, MUSSEL SHELL FRAGMENTS
TRIB	794.2		IN ON RIGHT DRY GULLEY BANKS GREATER THAN 2M HIGH
OTR	1169		MULTIPLE TURTLES OBSERVED HERE
TRIB	1260		ERODED BANKS, TRIB DRY
R	1284	7.1	FLAGGED FOR ELECTROFISHING
SCH	1460.5		IN ON RIGHT
OTR			DYING FISH SPOTTED, AMONG SEVERAL OTHERS SPOTTED BY CHAS, STRANGE LEGIONS NOTICED
OTR	1589.6		SMALL ENTIRE MUSSEL SHELL FOUND
P	1626	3	FLAGGED FOR ELECTROFISHING
TRIB	2449.3	0.5	IN ON LEFT. DRY.
SCH	2512.9		IN ON LEFT. DRY.
P	2513.8	4.4	FLAGGED FOR ELECTROFISHING
SCH	2970.9		OUT ON LEFT
R	3175	3.7	FLAGGED FOR ELECTROFISHING
TRIB	3561.1	1.5	IN ON RIGHT. HORN BRANCH.
P	3587	7.5	FLAGGED FOR ELECTROFISHING
TRIB	3780	2	IN ON RIGHT. TUCKER BRANCH.
UNGR	3821.5		
SCH	3846.7		IN ON LEFT
SCH	3890.4		OUT ON LEFT
R	3944	1.8	FLAGGED FOR ELECTROFISHING
FORD	4302.1		RT 1648A
SCH	4671		IN ON LEFT
UNGR	4739.3		
SCH	4830.4		IN ON LEFT; DRY
UNGR	4947.6		
SCH	4947.6		OUT ON LEFT.
UNGR	5117.5		
UNGR	5156.1		
UNGR	5213.3		
UNGR	5247.7		
UNGR	5315.3		
SCH	5400		IN ON LEFT
UNGR	5429.4		END SURVEY OF LOWER SECTION AT 7/19/2005 AT 2:00. FOREST BOUNDARY.



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 000041 through 000044, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000041 through 000044, during BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

Unit Type	Unit Number	Distance (m)	Comments
R	4	509.6	
R	14	1284.1	
TRIB		1460	ERODED BANKS, TRIB DRY
OTR			DYING FISH SPOTTED, AMONG SEVERAL OTHERS SPOTTED BY CHAS, STRANGE LEGIONS NOTICED
R	24	2151.8	MAX BF 65. AVG BF 50.
TRIB		2449.3	IN ON LEFT. DRY.
SCH		2512.9	IN ON LEFT. DRY.
R	34	2580.9	TOO SMALL TO EFISH. MAX BF = 65. AVG BF = 40.
R	44	3175.1	MBF=75. ABF =50.
TRIB		3780	IN ON RIGHT. TUCKER BRANCH.
R	54	3943.7	MAX BF=60. AVG BF = 45.
FORD		4302.1	RT 1648A
R	64	4594.3	MAX BF =40. AVG BF=30
P	97	5072.5	TOOK PICTURE OF COTTONMOUTH

<b>Stream:</b>	000045 through 000047
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/18/2005
Downstream Starting Point:	FOREST BOUNDARY NEXT TO FS RD. 1600 AND 000045
Total Distance Surveyed (km):	4.1

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	46	54
Total Area (m <sup>2</sup> ):	3754±209	4484±NC
Correction Factor Applied:	0.91	0.80
Number of Paired Samples:	2	1
Total Count:	18	13
Number per km:	4	3
Mean Area (m <sup>2</sup> ):	209	345
Mean Maximum Depth (cm):	55	9
Mean Average Depth (cm):	32	6
Mean Residual Depth (cm):	31	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	38
Percent with >35% Fines:	6	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	2
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	1
> 5 m long, > 55 cm diameter:	0
Total:	3

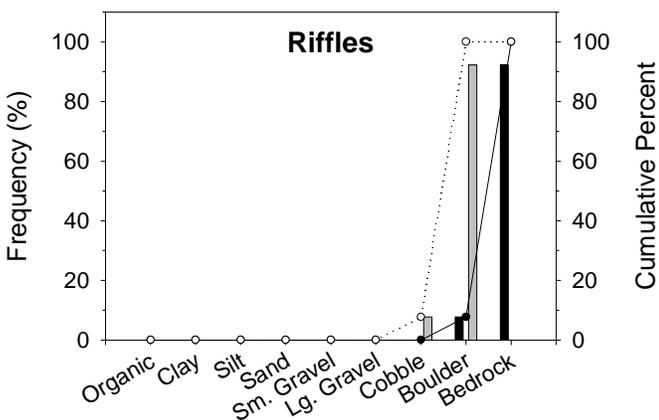
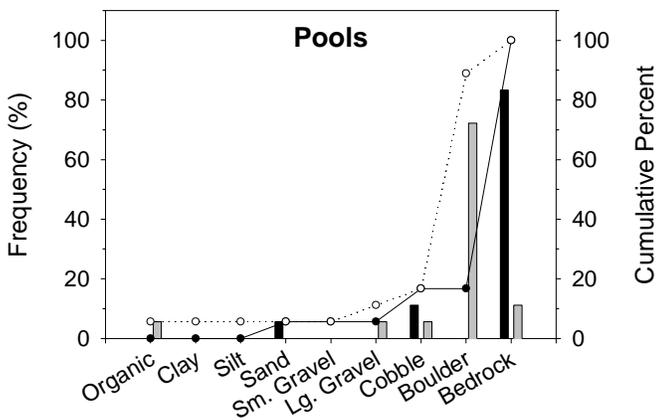
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	15	1
Maximum	15	2
75 <sup>th</sup> Percentile	15	1
25 <sup>th</sup> Percentile	15	1
Minimum	15	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

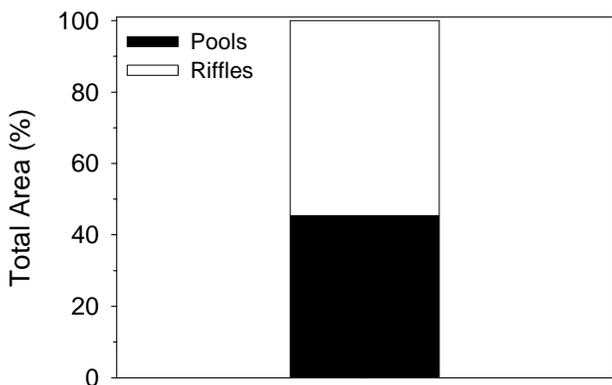
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	100

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	13
Mean Channel Gradient (%):	6
Median Water Temperature (C):	NA

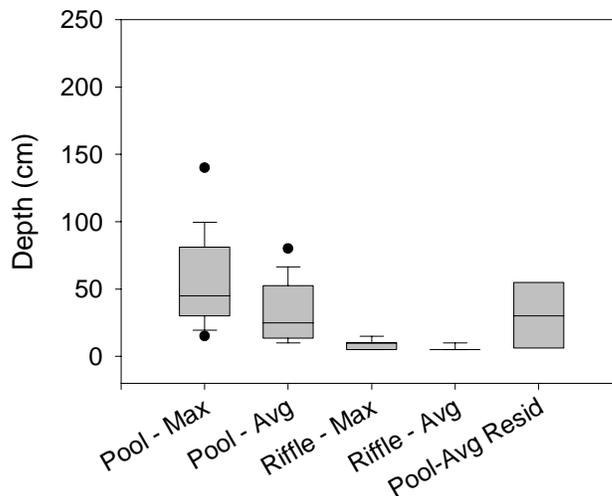


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

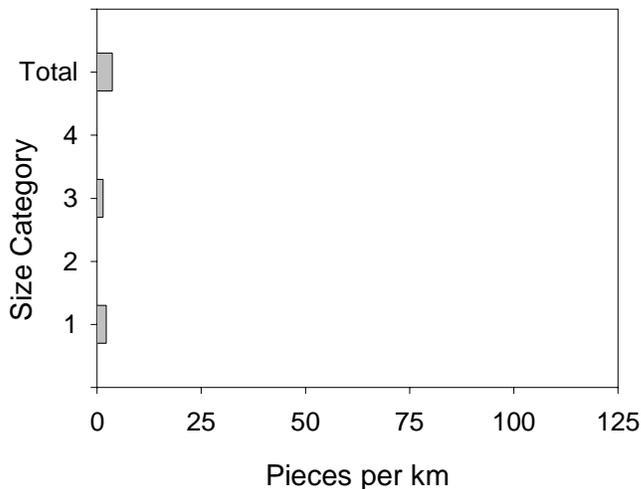
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000045 through 000047, summer 2005.



Estimated area of stream section 000045 through 000047 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 000045 through 000047, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

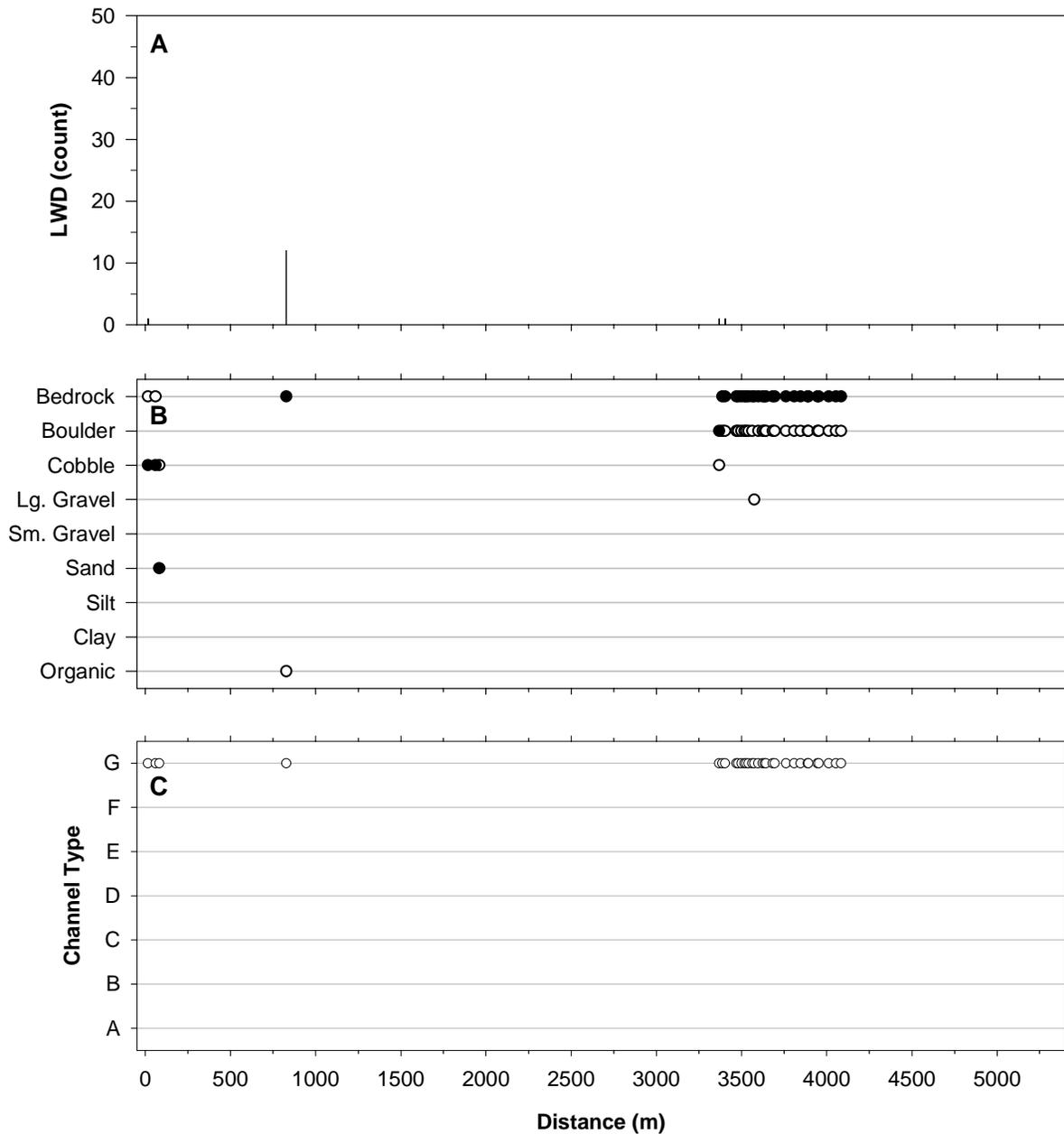


LWD per kilometer in stream section 000045 through 000047, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000045 through 000047, BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

Stream Feature	Distance (m)	Width (m)	Comments
UNGR	0		RESUME SURVEY AT 2:30 ON FS BOUNDARY UPSTREAM OF PRIVATE LAND (~500M ABOVE END OF LOWER SECTION)
UNGR	44.1		
P	60.3	2.7	FLAGGED FOR ELECTROFISHING
UNGR	75.7		
BRAID	202.1		MULTIPLE CHANNELS--ALL DRY.
TRIB	401.8		IN ON LEFT
OTR	424.9		ALL CHANNELS CONVERGE
SCH	494.5		IN ON RIGHT
SCH	522.9		IN ON RIGHT
SCH	625.3		OUT ON RIGHT
UNGR	811.7		
SCH	944.4		IN ON RIGHT
SCH	1007.9		OUT ON RIGHT
SCH	1172.3		OUT ON RIGHT
FORD	1285.7		OLD ROAD CROSSING
FORD	1653.9		1600A, CROSED THRU 000046 SOMEWHERE IN UNGR SECTION
UNGR	3353.9		END SURVEY AT 4:30 ON 7/19. SURVEY RESUMED AT 9:15 ON 7/20/2005 680 M DOWNSTREAM OF 1653 CROSSING WHERE STREAM REEMERGES.
UNGR	3380		WALKED DOWNSTREAM FROM 1653 TO FIND WATER INSTEAD OF UPSTREAM FROM 1600A AGAIN
UNGR	3426		
P	3643.5	3.3	FLAGGED FOR ELECTROFISHING
UNGR	3718.5		
UNGR	4037.3		
FORD	4037.3		ROAD 1653
SCH	4084		IN ON RIGHT
SCH	4121		OUT ON RIGHT.
UNGR			END AT DRY SECTION; 11:00 7/20/2005



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000045 through 000047, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000045 through 000047, during BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
FORD		1653.9	1600A, CROSED THRU 000046 SOMEWHERE IN UNGR SECTION
R	74	3809.1	MBF= 125. ABF=95
FORD		4037.3	ROAD 1653

<b>Stream:</b>	000302 through 000303, Long Branch
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/18/2005
Downstream Starting Point:	CONFLUENCE WITH CHICKALAH CREEK
Total Distance Surveyed (km):	0.9

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	77	23
Total Area (m <sup>2</sup> ):	2312±502	689±813
Correction Factor Applied:	0.99	1.02
Number of Paired Samples:	5	3
Total Count:	24	14
Number per km:	26	15
Mean Area (m <sup>2</sup> ):	96	49
Mean Maximum Depth (cm):	43	8
Mean Average Depth (cm):	24	5
Mean Residual Depth (cm):	20	--
Percent Surveyed as Glides:	4	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	4	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	0
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	11
> 5 m long, > 55 cm diameter:	0
Total:	11

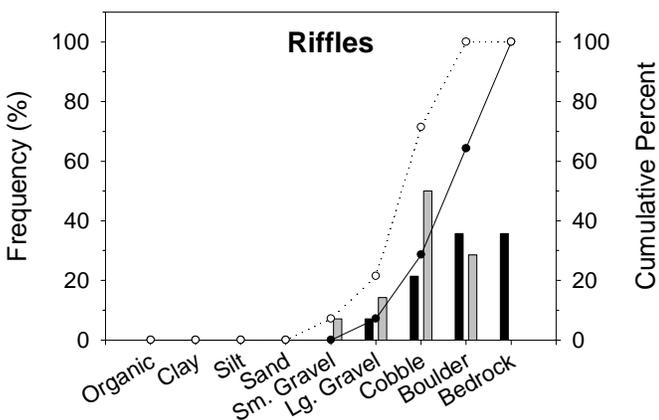
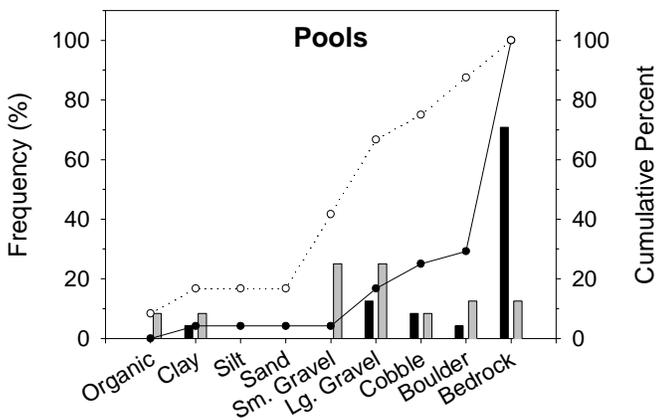
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	24	8
Maximum	29	17
75 <sup>th</sup> Percentile	26	12
25 <sup>th</sup> Percentile	21	4
Minimum	18	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

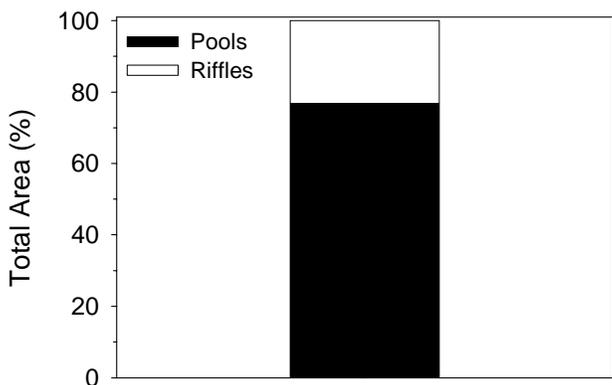
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	47
C:	0
D:	0
E:	0
F:	53
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	7
Mean Channel Gradient (%):	3
Median Water Temperature (C):	27.5

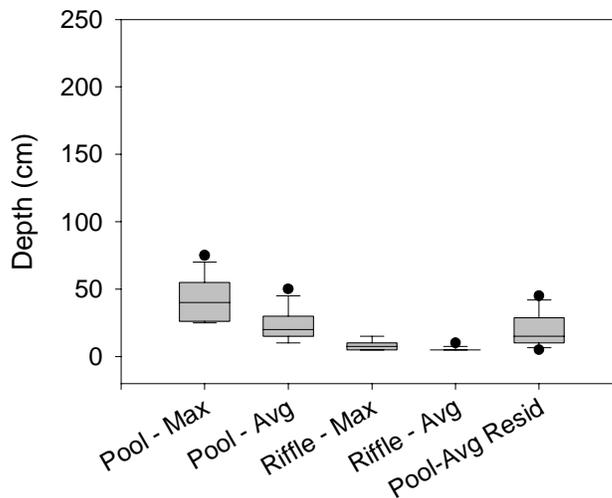


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

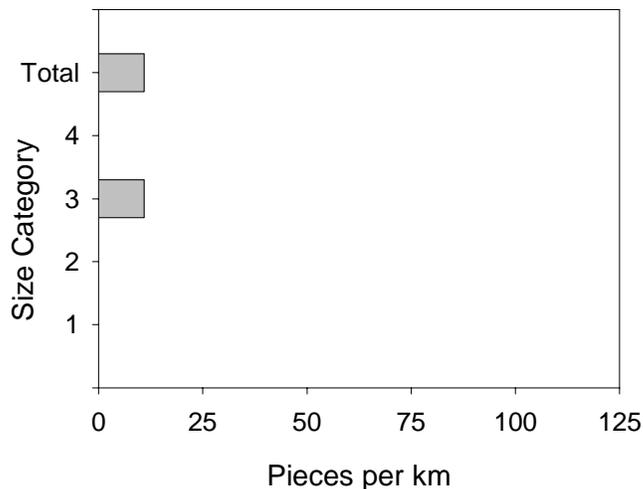
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000302 through 000303, summer 2005.



Estimated area of stream section 000302 through 000303 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 000302 through 000303, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

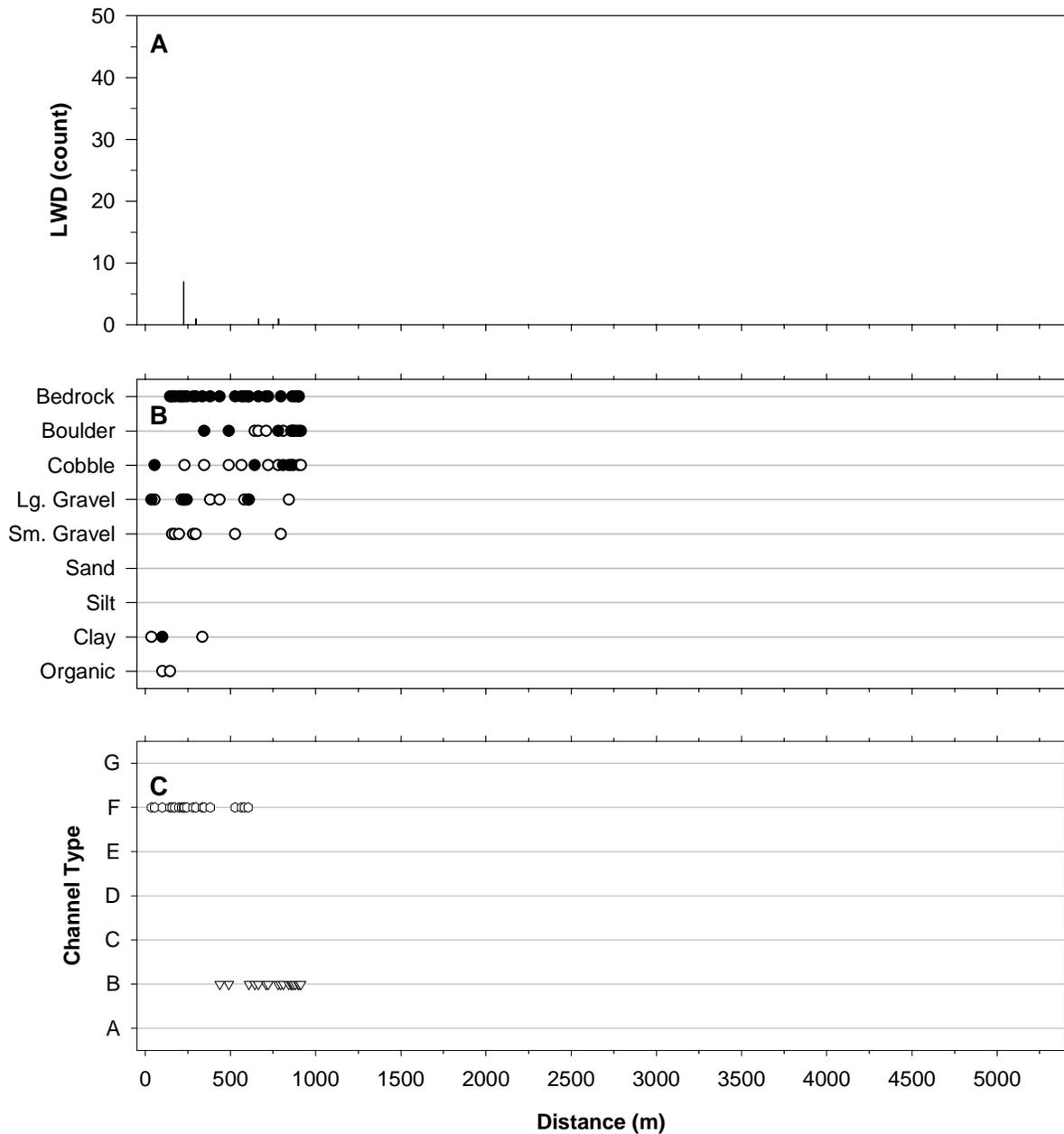


LWD per kilometer in stream section 000302 through 000303, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000302 through 000303, BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
UNGR	27.3		DRY AT CONFLUENCE WITH CHICKALAH CREEK
UNGR	49.6		
UNGR	81.5		
UNGR	125		
P	145	2.4	FLAGGED FOR ELECTROFISHING
UNGR	255.2		
UNGR	314.1		
UNGR	392		
R	490	2.1	FLAGGED FOR ELECTROFISHING
SCH	527		OUT ON RIGHT
P	527	3.1	FLAGGED FOR ELECTROFISHING
SCH	560		IN ON RIGHT
UNGR	568.6		
UNGR	689.7		
TRIB	806.2	0.5	ON LEFT,001869
V			ROAD 1603, 3 PIPE CULVERTS, DIAMETER 110, OUTLET ONTO CONCRETE WITH PERCH 15 CM, END FOR 07/18/05 AT 16:45



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000302 through 000303, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000302 through 000303, during BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
P	4	145.2	
R	5	490	ALMOST C CHANNEL
R	9	780.9	
V			ROAD 1603, 3 PIPE CULVERTS, DIAMETER 110, OUTLET ONTO CONCRETE WITH PERCH 15 CM, END FOR 07/18/05 AT 16:45

<b>Stream:</b>	001169
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/20/2005
Downstream Starting Point:	CONFLUENCE WITH LONG BRANCH CREEK
Total Distance Surveyed (km):	0.5

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	88	12
Total Area (m <sup>2</sup> ):	628±158	89±135
Correction Factor Applied:	0.94	0.93
Number of Paired Samples:	4	2
Total Count:	17	6
Number per km:	32	11
Mean Area (m <sup>2</sup> ):	37	15
Mean Maximum Depth (cm):	34	7
Mean Average Depth (cm):	18	6
Mean Residual Depth (cm):	16	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	24	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	34
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	4
> 5 m long, > 55 cm diameter:	0
Total:	38

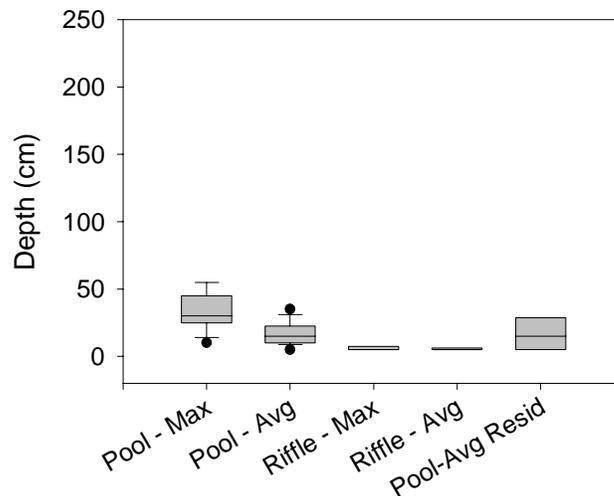
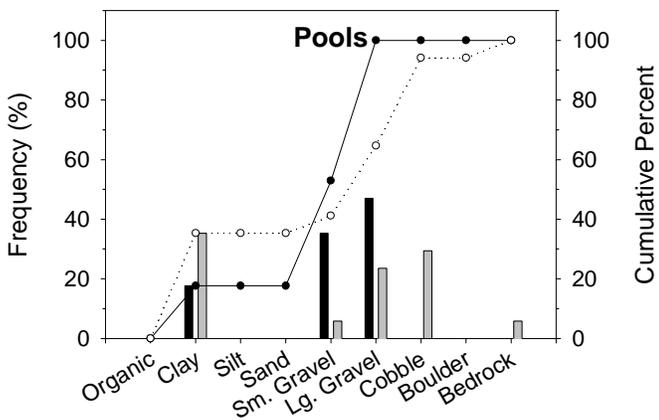
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	7	1
Maximum	8	3
75 <sup>th</sup> Percentile	8	2
25 <sup>th</sup> Percentile	7	1
Minimum	6	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

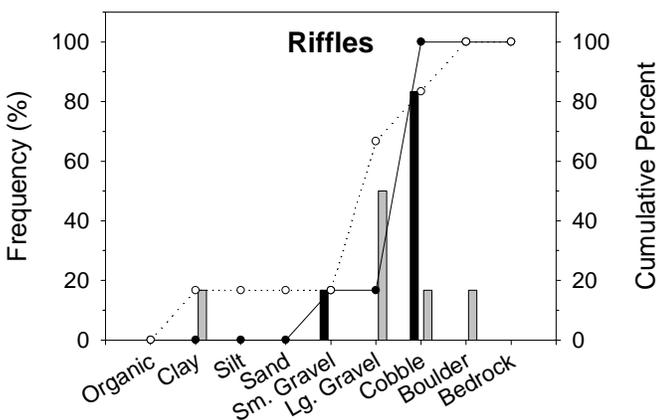
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	5
Mean Channel Gradient (%):	1
Median Water Temperature (C):	NA

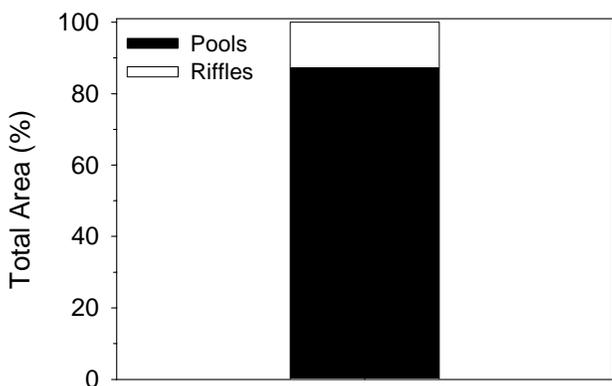


Maximum and average depths and residual pool depths for pools and riffles in stream section 001169, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

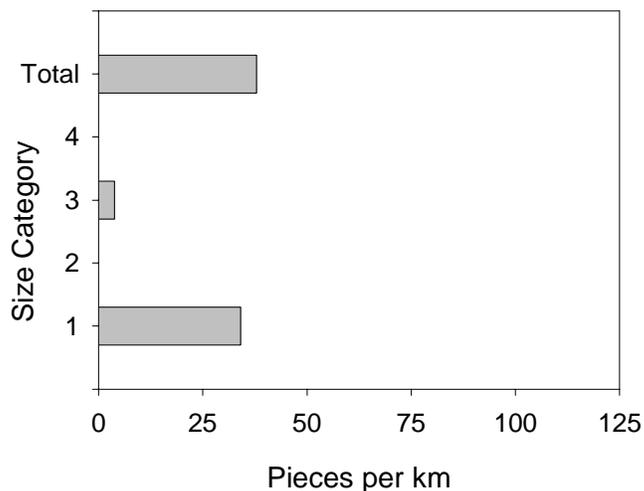


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001169, summer 2005.



Estimated area of stream section 001169 in pools and riffles as calculated using BVET techniques, summer 2005.

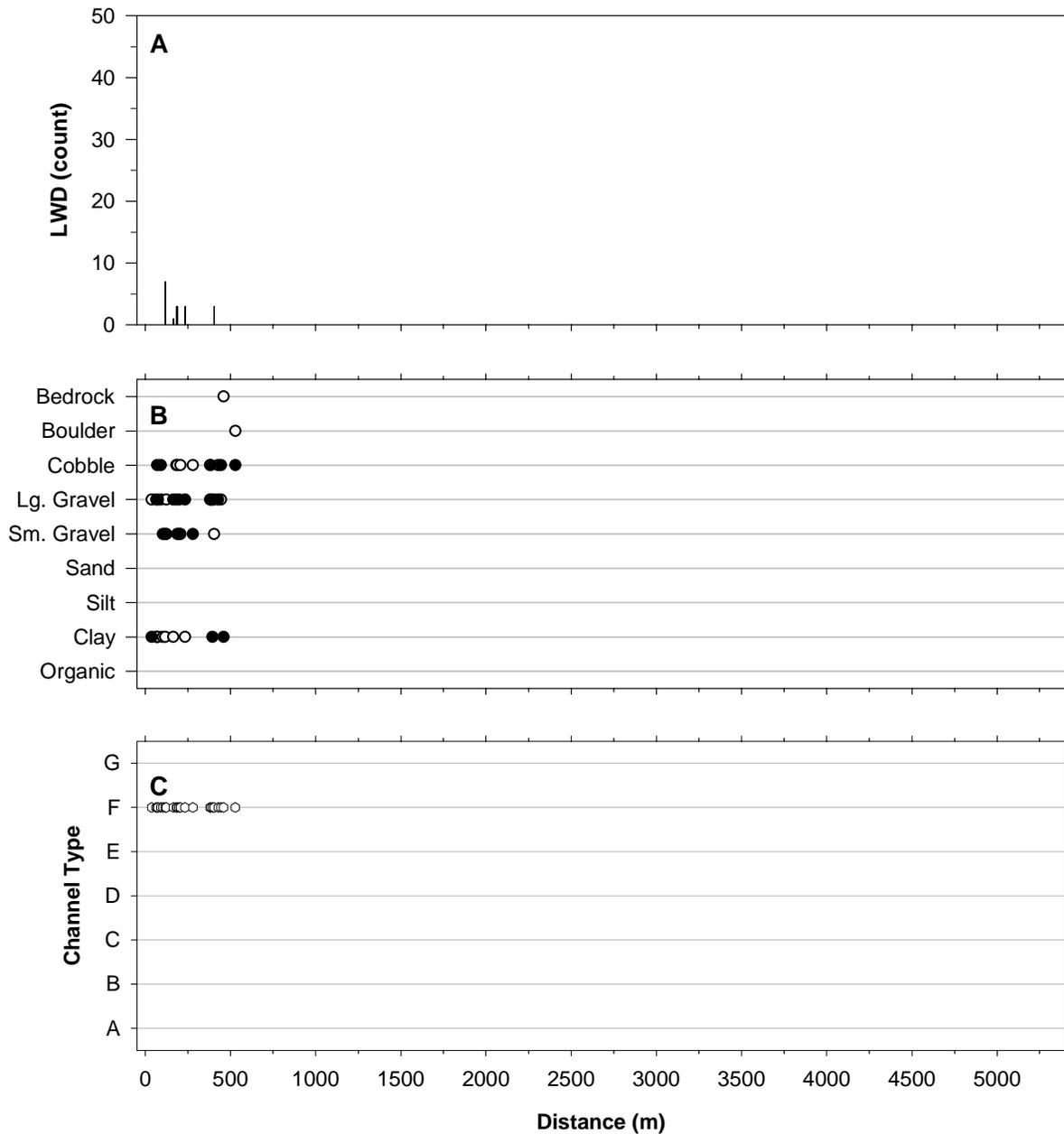


LWD per kilometer in stream section 001169, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001169, BVET habitat survey, summer 2005. Distance is meters from start of survey.

Stream Feature	Distance (m)	Width (m)	Comments
UNGR	27.3		
UNGR	48.2		
V	74.1		road 1648 CROSSES, DIA=.75M, 15CM
OTR	81.1		PERCH, CORROGATED ALUMINUM
UNGR	95.2		END CULVERT
UNGR	112.7		
UNGR	119		
P	123	2.2	FLAGGED FOR ELECTROFISHING
UNGR	153.9		
UNGR	172.1		
UNGR	202.8		
UNGR	212		
UNGR	275		
UNGR	372.6		
UNGR	410.5		
V	458.7		DIA=1.5M. PERCH=35. GOES UNDER road
OTR	469.4		1603
FORD	485.6		END CULVERT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 001169, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001169, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	1	70.2	
V		74.1	1648 CROSSES, DIA=.75M, 15CM PERCH, CORROGATED ALUMINUM
V		458.7	DIA=1.5M. PERCH=35. GOES UNDER 1603
FORD		485.6	
R	6	527.9	MAX BF 85, AVG BF 60

<b>Stream:</b>	001170, Horn Branch
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/19/2005
Downstream Starting Point:	CONFLUENCE WITH CHICKALAH CREEK
Total Distance Surveyed (km):	0.7

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	61	39
Total Area (m <sup>2</sup> ):	1615±169	1032±261
Correction Factor Applied:	1.21	2.13
Number of Paired Samples:	3	2
Total Count:	25	15
Number per km:	34	20
Mean Area (m <sup>2</sup> ):	65	69
Mean Maximum Depth (cm):	22	6
Mean Average Depth (cm):	11	5
Mean Residual Depth (cm):	5	--
Percent Surveyed as Glides:	20	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	5
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	1
> 5 m long, > 55 cm diameter:	0
Total:	6

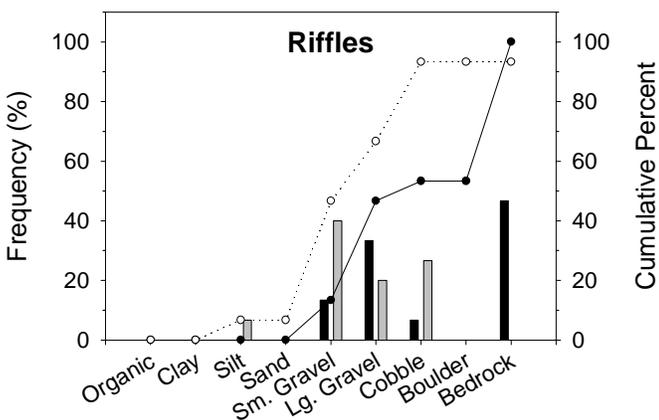
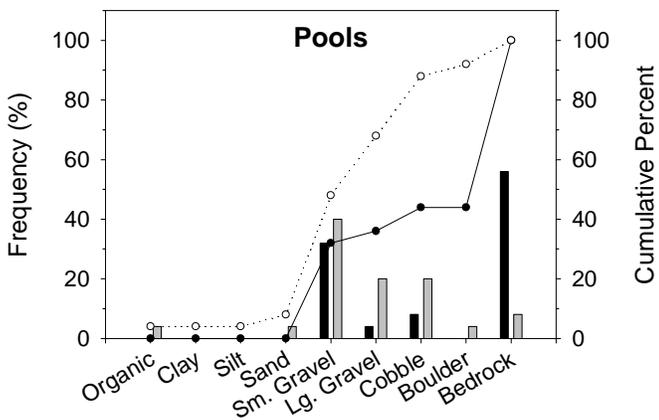
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	5	1
Maximum	5	1
75 <sup>th</sup> Percentile	5	1
25 <sup>th</sup> Percentile	4	1
Minimum	4	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

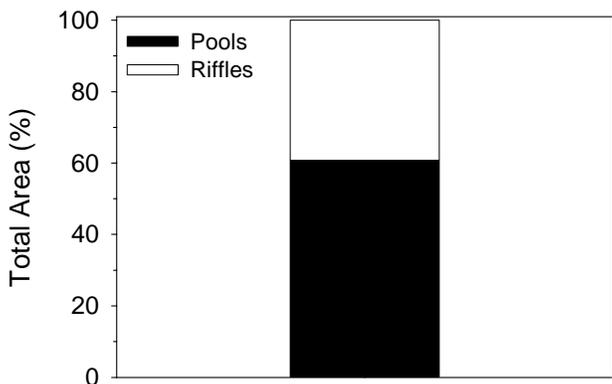
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	4
Mean Channel Gradient (%):	2
Median Water Temperature (C):	22.5

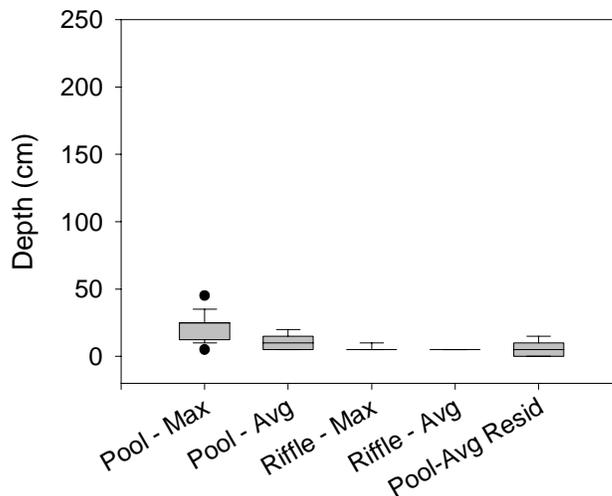


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

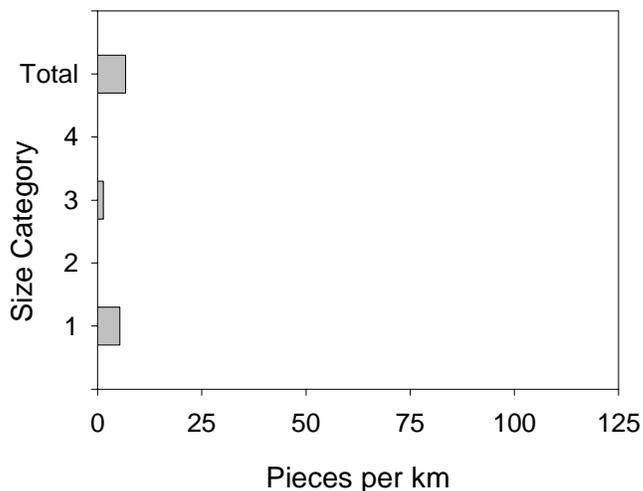
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001170, summer 2005.



Estimated area of stream section 001170 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001170, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

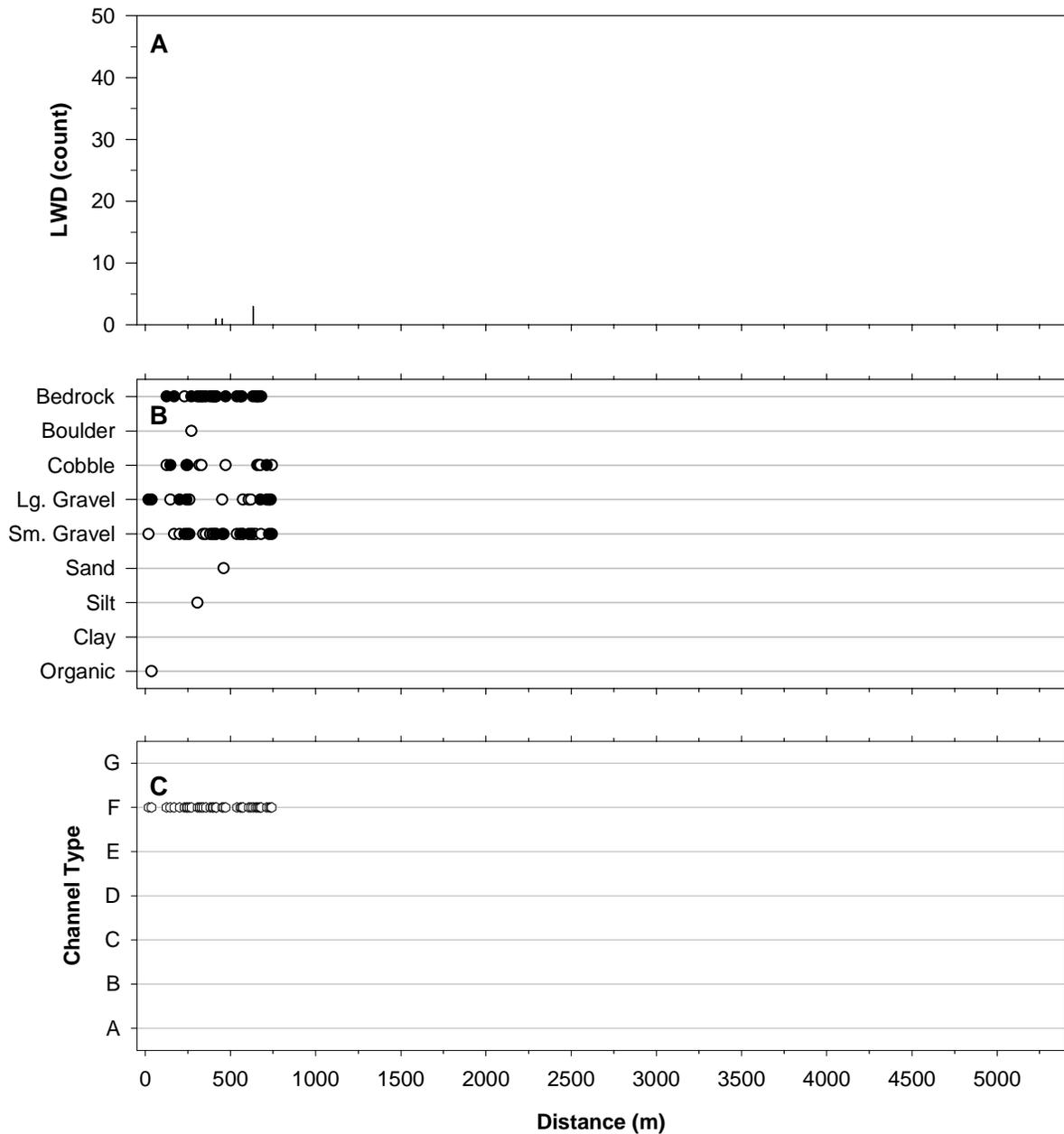


LWD per kilometer in stream section 001170, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001170, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
UNGR	12.4		
FORD	19.3		
UNGR	101.7		
UNGR	138.3		
UNGR	346.7		
UNGR	366		
UNGR	547.3		
UNGR	569		
UNGR	585.9		
UNGR	704.8		
TRIB	746.4	2.5	DRY ON LEFT, HIGHLY ENTRENCHED



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 001170, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001170, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
FORD		19.3	
R	4	258.8	BF AVG-50, MAX 60
R	13	674.9	MAX BF DEPTH 45, AVG 30

<b>Stream:</b>	001171 AND 001173, Tucker Branch, continuous reach
District:	Magazine
USGS Quadrangle:	Chickalah Mountain West
6 <sup>th</sup> Level HUC	111102040403
Survey Date:	7/17/2005
Downstream Starting Point:	CONFLUENCE WITH CHICKALAH CREEK
Total Distance Surveyed (km):	1.7

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	63	37
Total Area (m <sup>2</sup> ):	1824±690	1087±152
Correction Factor Applied:	0.95	0.78
Number of Paired Samples:	5	5
Total Count:	24	27
Number per km:	14	16
Mean Area (m <sup>2</sup> ):	73	40
Mean Maximum Depth (cm):	53	10
Mean Average Depth (cm):	34	5
Mean Residual Depth (cm):	29	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	8	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	5
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	10
> 5 m long, > 55 cm diameter:	0
Total:	15

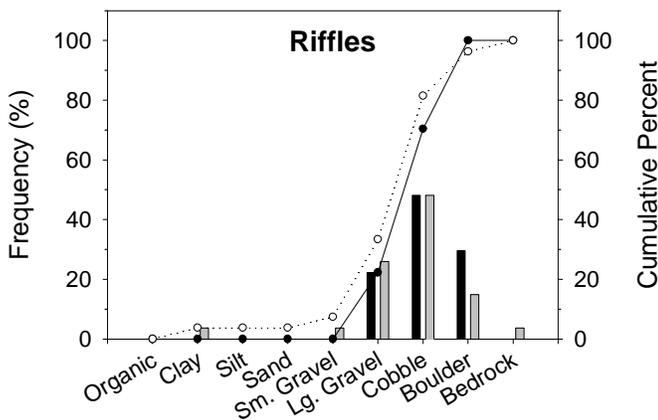
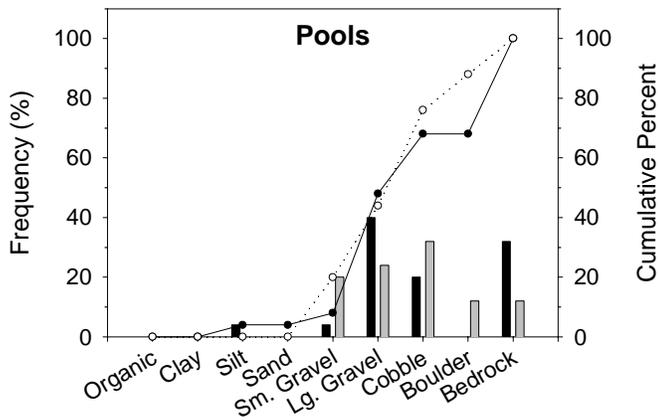
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	104	48
Maximum	110	50
75 <sup>th</sup> Percentile	108	50
25 <sup>th</sup> Percentile	107	50
Minimum	85	30

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

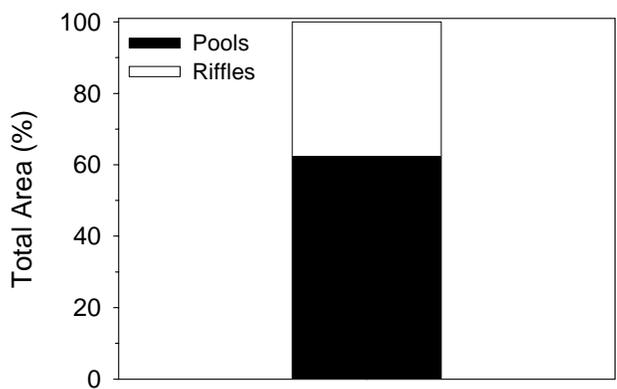
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	100
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	8
Mean Channel Gradient (%):	2
Median Water Temperature (C):	24

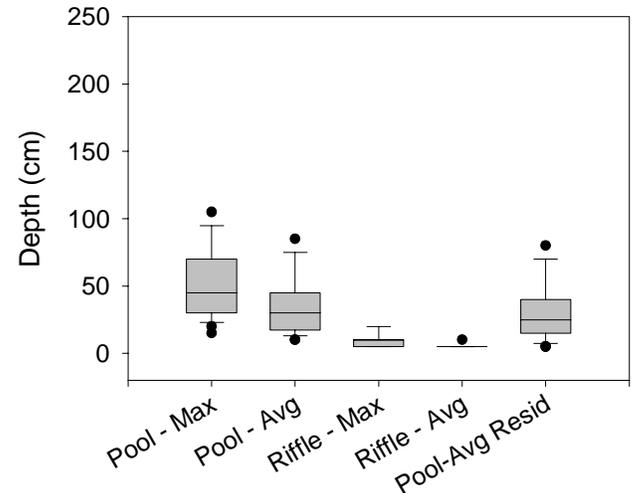


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

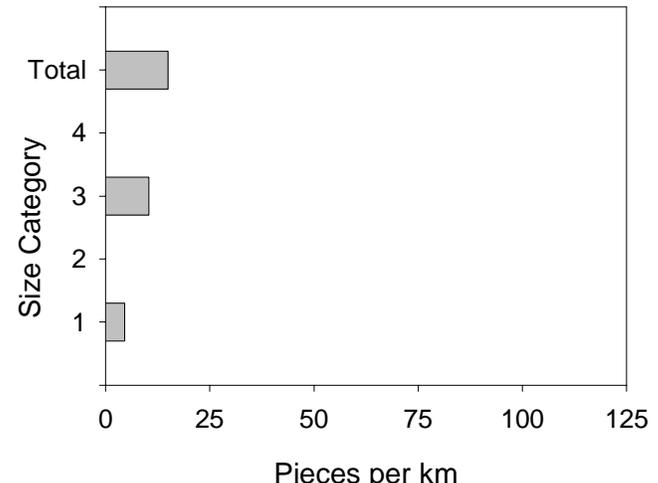
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001171, summer 2005.



Estimated area of stream section 001171 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001171, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

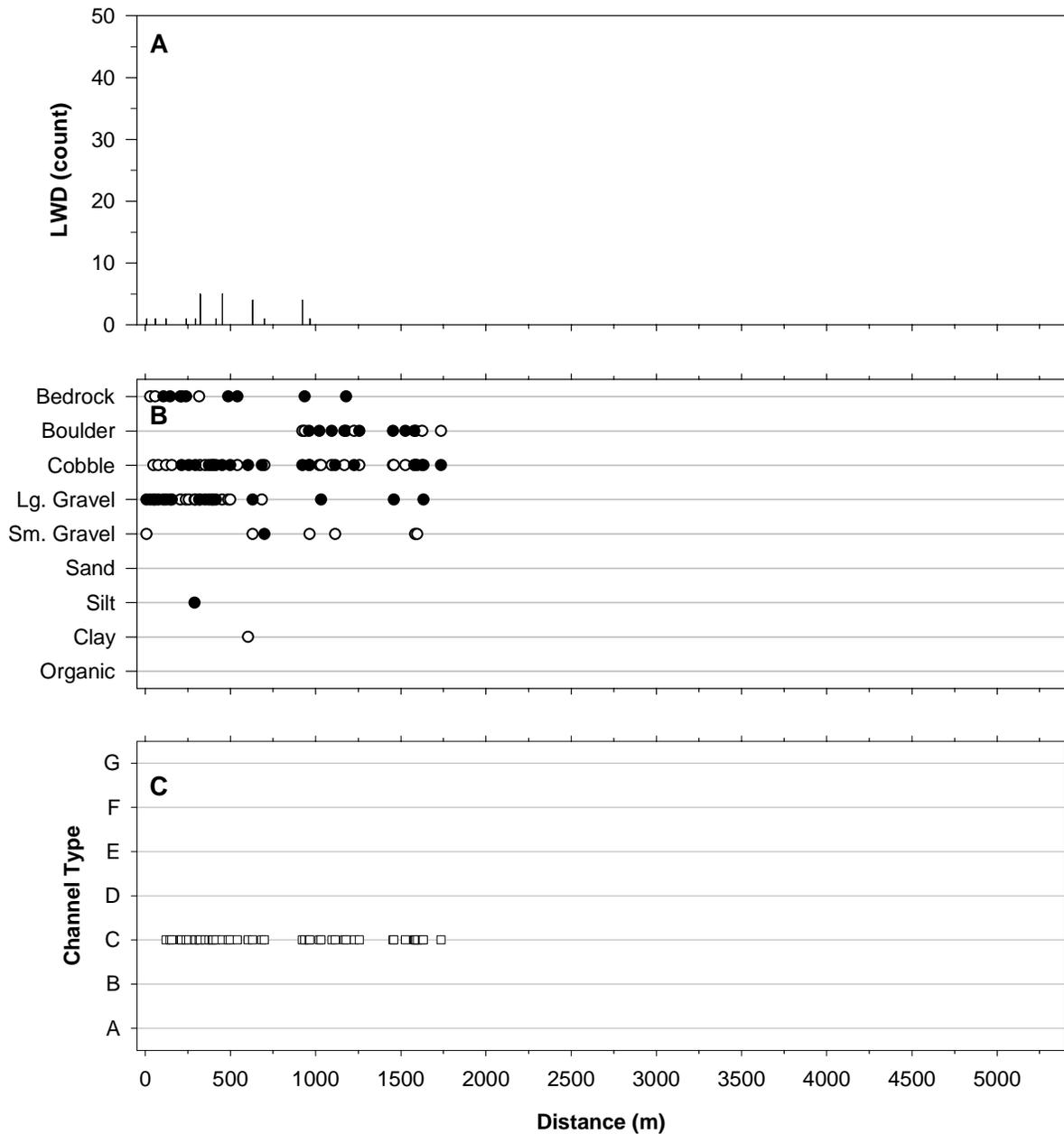


LWD per kilometer in stream section 001171, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001171, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
FORD	60.5		
R	121.1	3.2	FLAGGED FOR ELECTROFISHING
P	145.9	5.1	FLAGGED FOR ELECTROFISHING
SEEP	236.7		
SCH	477.2		IN ON LEFT
SCH	497.8		OUT ON LEFT
TRIB	541		IN ON LEFT, DRY
TRIB	579		IN ON LEFT; 001172 cr 12/06/05
R	602.7	0.8	FLAGGED FOR ELECTROFISHING
P	629.9	4.1	FLAGGED FOR ELECTROFISHING
SCH	971.9		RIGHT
SCH	1095.2		OUT ON RIGHT
SCH	1355		ON RIGHT
SCH	1478.6		OUT ON RIGHT
SCH	1633.1		IN ON RIGHT
SCH	1671.3		OUT ON RIGHT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 001171, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001171, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
FORD		60.5	
R	4	121.1	
R	9	321.7	
R	14	602.7	misabeled on quad as 0001175 cr 12/06/05
R	19	1095.2	
R	24	1578.3	TOO SMALL TO SHOCK

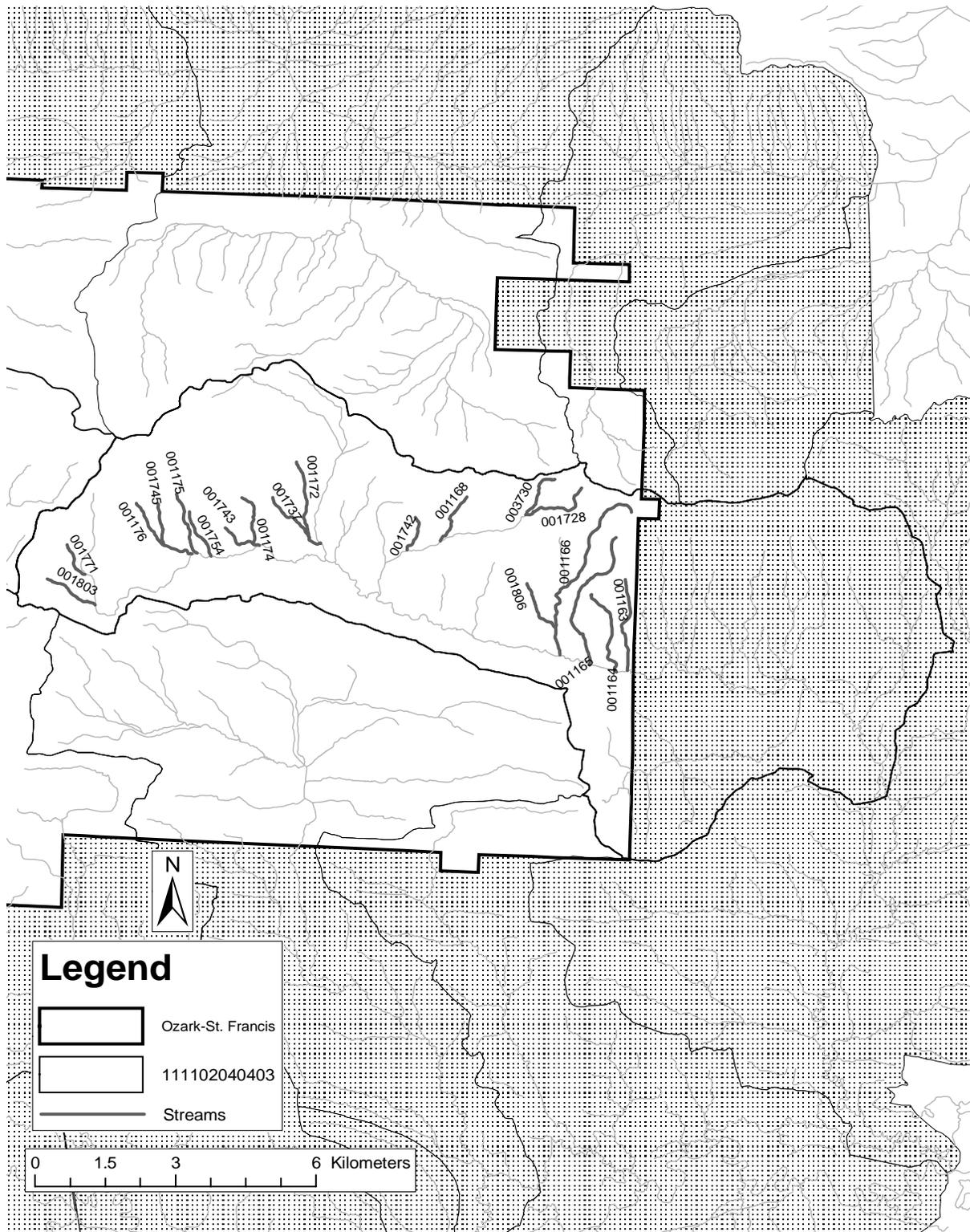


Figure 17. Stream reaches in watershed 111102040403 during summer 2005 with incomplete data due to dry or assumed dry stream channels, refer to table 2 for more information.

## **Boston Mountain Ranger District Habitat Results**

Boston Mountain

Table 3. Reaches visited and inventories completed in 6<sup>th</sup> level HUCs on the Boston Mountain Ranger District, summer 2005. Reasons for no inventories in reach include: stream bed dry (Dry); no access to stream reach (Access); and stream too large to inventory (Size). Fish inventories were completed by ONF personnel prior to the CATT habitat inventories.

6 <sup>th</sup> level HUC	Reach Number	Stream Name	Date	Crew	No Inventory			Completed		Comments
					Dry	Access	Size	Habitat	Fish	
111101030103	000890		-	-	-	-	-	X	-	Dry except 4 units within 36 m, no analysis
	000891		7/26/05	Ferguson, Stanley	-	-	-	X	-	Mostly dry, ~200 m wetted section was surveyed, fish present
	000892		7/27/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	000893		7/25/05	Christoferson, Ivasauskus	-	-	-	X	-	Stream is tailwater of Lake Weddington
	000895		7/26/05	Christoferson, Ivasauskus	-	-	-	X	-	upstream of Lake Weddington
	000896		7/27/05	Christoferson, Ivasauskus	-	-	-	X	-	-
	000897		7/28/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	001062		7/28/05	Nuckols, Roghair	X	-	-	-	-	Dry
	001065		7/26/05	Nuckols, Roghair	X	-	-	-	-	Dry
	003112		7/27/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	003214		7/28/05	Christoferson, Ivasauskus	-	-	-	X	-	-
	003250		7/25/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	003261		7/25/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	003263		7/25/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	003271		7/25/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	003276		7/25/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry
	003328		7/26/05	Christoferson, Ivasauskus	-	-	-	X	-	only one unit surveyed, no analysis
	003338		7/25/05	Christoferson, Ivasauskus	X	-	-	-	-	Dry



Boston Mountain

002817		7/28/05	Kyger, Whisman	X	-	-	-	Dry
002825	Chambers Hollow	7/25/05	Kyger, Whisman	-	-	X	-	
002842		7/28/05	Kyger, Whisman	X	-	-	-	Dry
002843		7/27/05	Nuckols, Roghair	X	-	-	-	Dry
002852		7/27/05	Nuckols, Roghair	-	-	X	-	reach less than 300 m, no analysis
002858		7/28/05	Nuckols, Roghair	X	-	-	-	Dry
002861		7/27/05	Kyger, Whisman	X	-	-	-	Dry 500 m
002867	Chambers Hollow	7/26/05	Kyger, Whisman	-	-	X	-	
002887		7/28/05	Nuckols, Roghair	X	-	-	-	Dry
002946		7/25/05	Kyger, Whisman	X	-	-	-	Dry
003011		7/26/05	Kyger, Whisman	X	-	-	-	Dry
002854		-	-	-	X	-	-	
002938		-	-	-	X	-	-	
111101030606								



<b>Stream:</b>	000891
District:	Boston Mountain
USGS Quadrangle:	Gallatin
6 <sup>th</sup> Level HUC	111101030103
Survey Date:	7/26/2005
Downstream Starting Point:	POINT WHERE STREAM AND POWERLINE INTERSECT
Total Distance Surveyed (km):	0.7

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	17	83
Total Area (m <sup>2</sup> ):	214±127	1060±455
Correction Factor Applied:	0.84	1.18
Number of Paired Samples:	3	2
Total Count:	12	12
Number per km:	16	16
Mean Area (m <sup>2</sup> ):	18	88
Mean Maximum Depth (cm):	32	8
Mean Average Depth (cm):	16	5
Mean Residual Depth (cm):	11	--
Percent Surveyed as Glides:	33	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	9
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	0
> 5 m long, > 55 cm diameter:	0
Total:	9

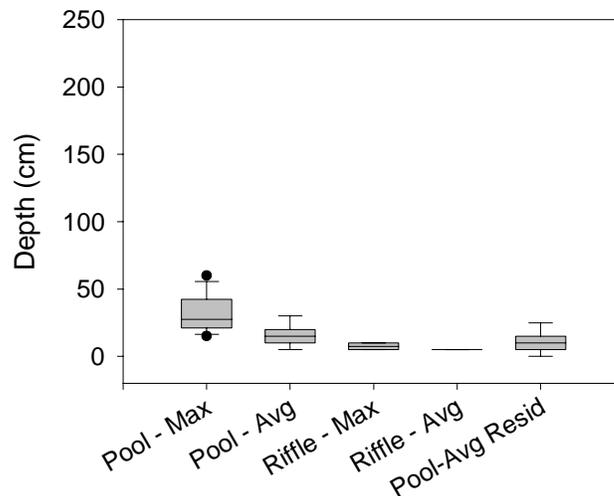
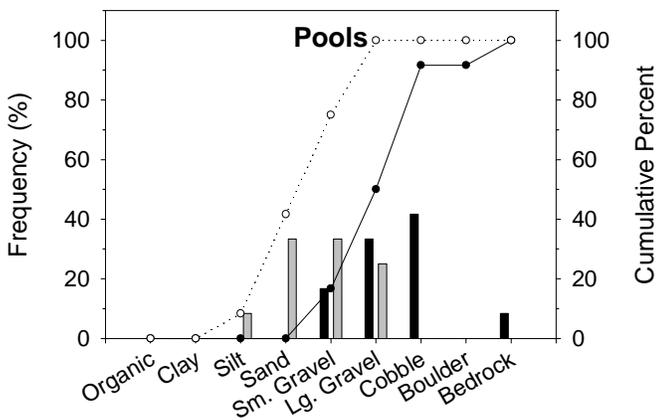
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	5	1
Maximum	6	2
75 <sup>th</sup> Percentile	6	2
25 <sup>th</sup> Percentile	5	1
Minimum	4	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

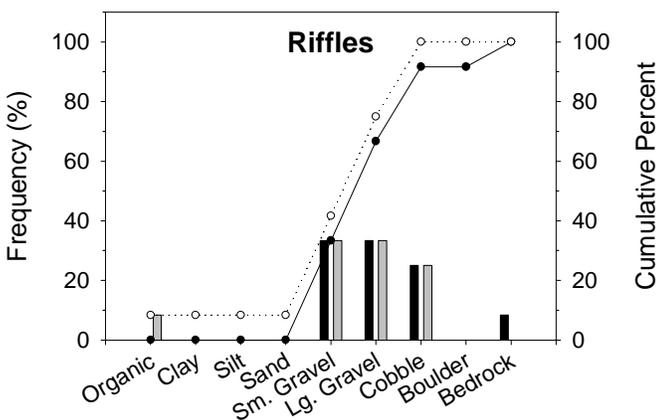
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	3
Mean Channel Gradient (%):	1
Median Water Temperature (C):	22

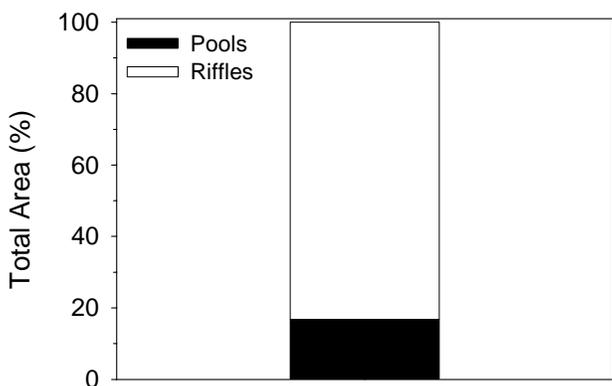


Maximum and average depths and residual pool depths for pools and riffles in stream section 000891, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

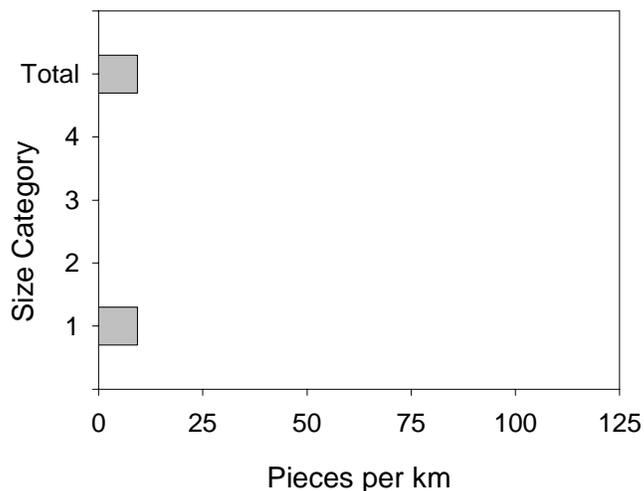


- Dominant %
- Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000891, summer 2005.



Estimated area of stream section 000891 in pools and riffles as calculated using BVET techniques, summer 2005.

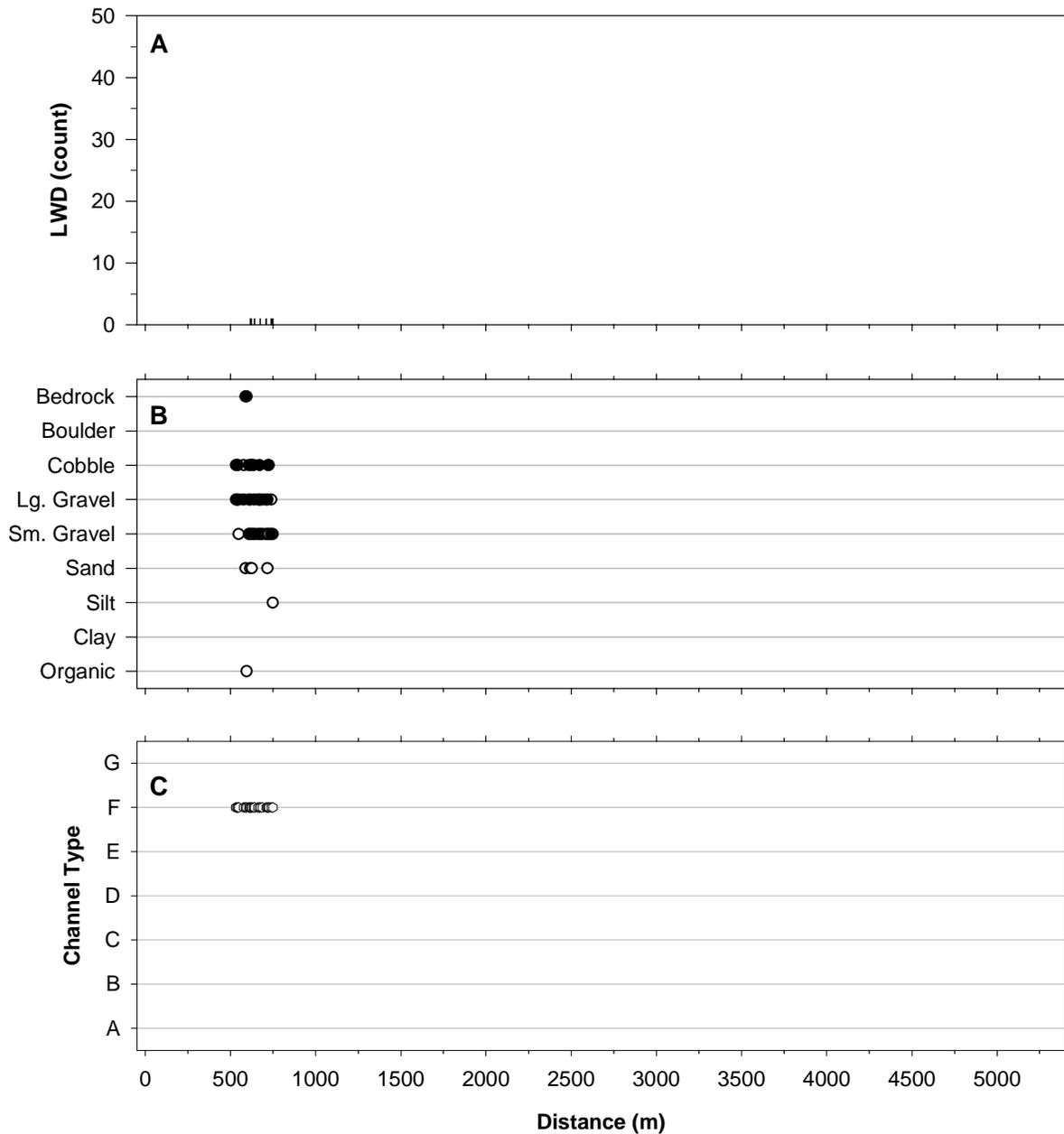


LWD per kilometer in stream section 000891, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000891, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
TRIB	460		IN ON RIGHT, DRY, MARKED TRAIL CROSSES TRIB AND GOES UP RIGHT OF DRY MAINSTEM, SCOURED 1.5M WIDE
TRIB	492.2		IN ON LEFT, DRY, SCOURED 3M WIDE
UNGR	499.9		
TRIB	726.9	0.5	IN ON RIGHT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 000891, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000891, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	2	542.8	
R	7	634	BANKFULL AVG:30 MAX: 45

<b>Stream:</b>	000893
District:	Boston Mountain
USGS Quadrangle:	Wheeler
6 <sup>th</sup> Level HUC	111101030103
Survey Date:	7/25/2005
Downstream Starting Point:	FOREST BOUNDARY ON STREAM SOUTH OF ST. RD. 16
Total Distance Surveyed (km):	0.6

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	76	24
Total Area (m <sup>2</sup> ):	1383±114	430±73
Correction Factor Applied:	0.88	0.77
Number of Paired Samples:	4	3
Total Count:	14	12
Number per km:	25	21
Mean Area (m <sup>2</sup> ):	99	36
Mean Maximum Depth (cm):	39	6
Mean Average Depth (cm):	24	5
Mean Residual Depth (cm):	18	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	8
Percent with >35% Fines:	14	8

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	2
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	30
> 5 m long, > 55 cm diameter:	2
Total:	33

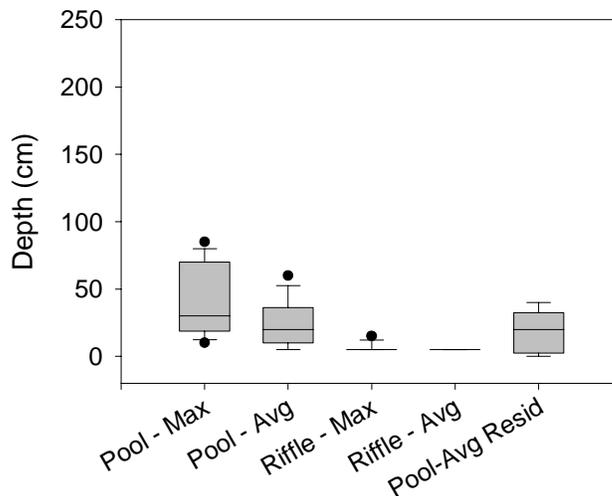
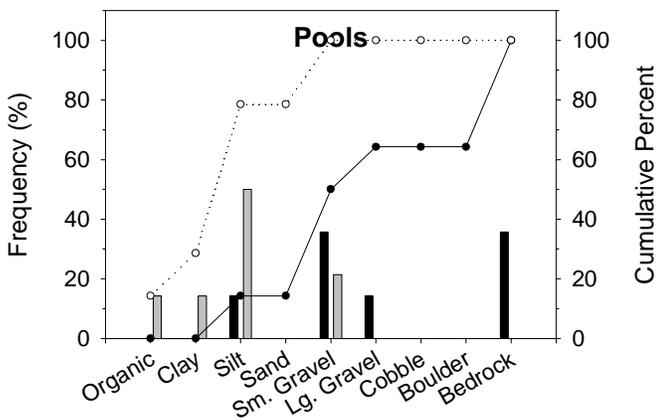
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	7	2
Maximum	10	3
75 <sup>th</sup> Percentile	8	2
25 <sup>th</sup> Percentile	6	1
Minimum	5	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

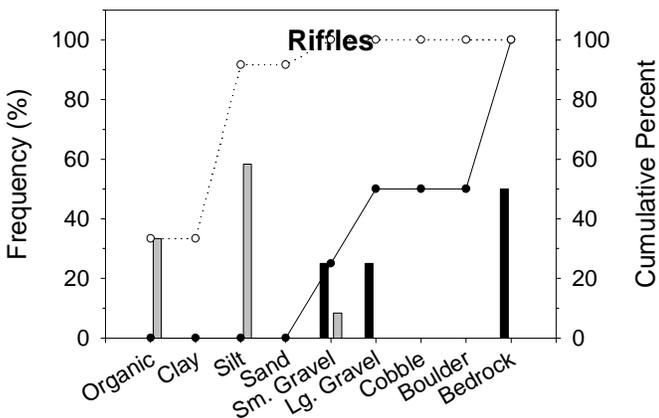
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	95
C:	0
D:	0
E:	5
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	6
Mean Channel Gradient (%):	4
Median Water Temperature (C):	22

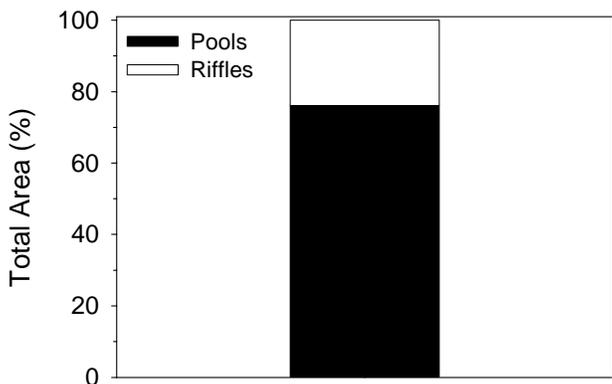


Maximum and average depths and residual pool depths for pools and riffles in stream section 000893, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

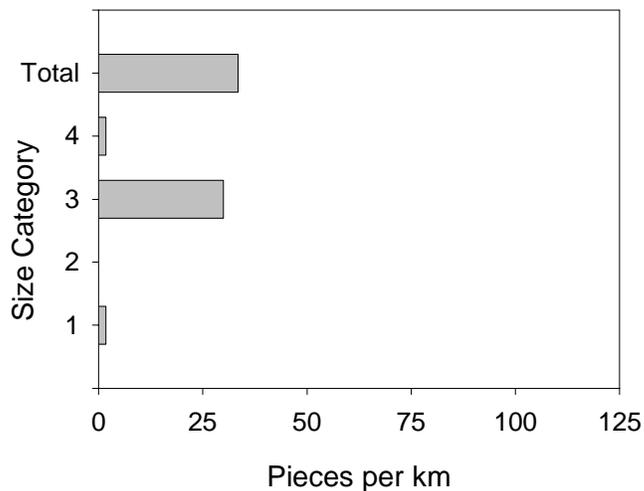


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000893, summer 2005.



Estimated area of stream section 000893 in pools and riffles as calculated using BVET techniques, summer 2005.

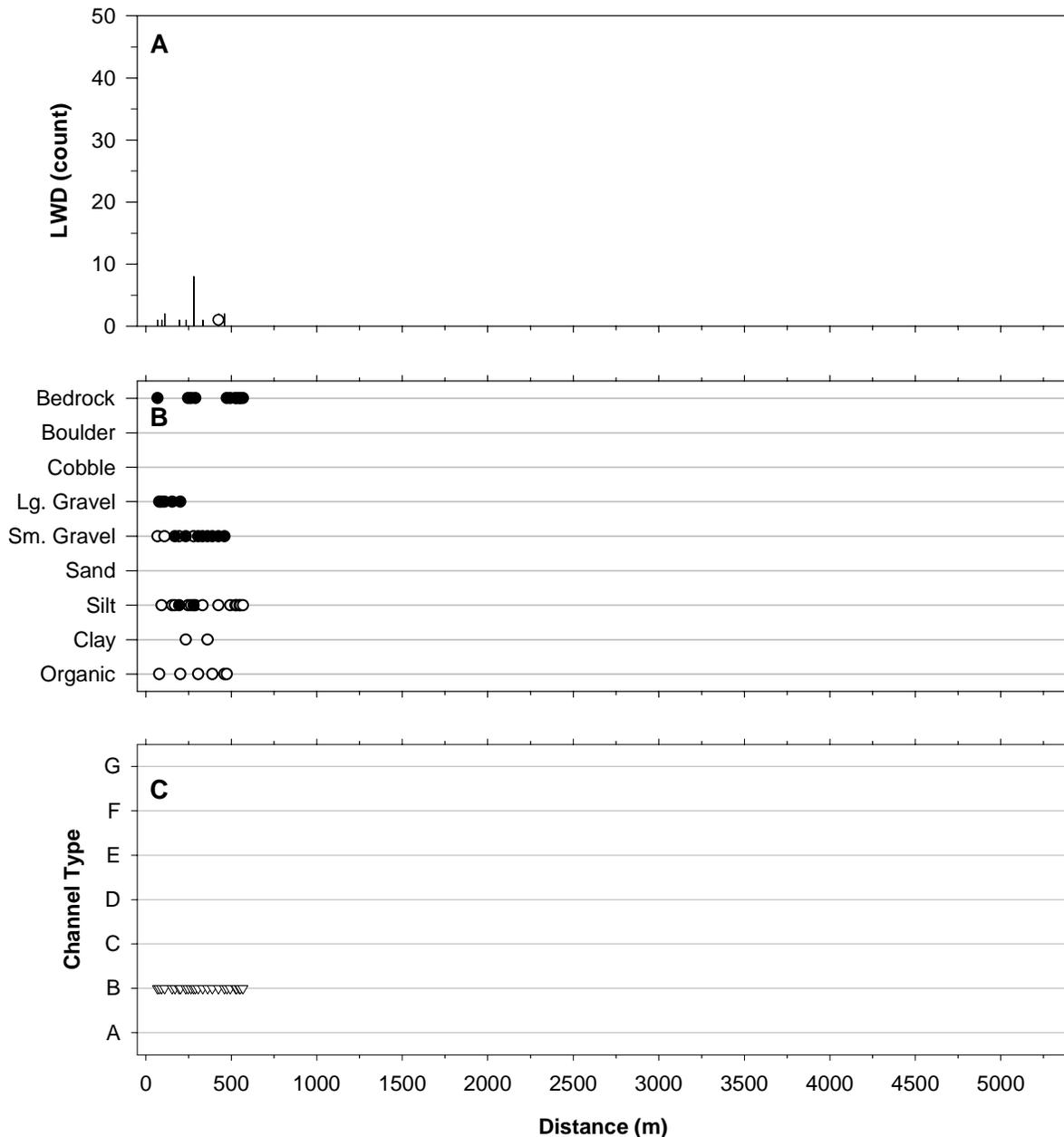


LWD per kilometer in stream section 000893, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000893, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
UNGR	53.3		
SEEP	235		IN ON RIGHT
UNGR	300.7		
UNGR	866.8		PICTURES TAKEN UP STREAM TAKEN FIRST
SCH	86.2		IN ON RIGHT
END			PHOTO TAKEN AT TOP OF RIFFLE WHERE STREAM MEETS LAKE



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000893, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000893, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	1	78.7	MAX BANKFULL 25, AVG BANKFULL 20
SEEP		235	IN ON RIGHT
R	6	290	MAX BANKFULL 45, AVG BANKFULL 20
R	9	494	MAX BANKFULL 85, AVG BANKFULL 70
C	10	525.6	3 PHOTOS TAKE , 2 OF WATERSNAKE, 1 OF CASCADE
END			PHOTO TAKEN AT TOP OF RIFFLE WHERE STREAM MEETS LAKE

<b>Stream:</b>	000895
District:	Boston Mountain
USGS Quadrangle:	Rhea
6 <sup>th</sup> Level HUC	111101030103
Survey Date:	7/26/2005
Downstream Starting Point:	WHERE STREAM FLOWS INTO LAKE WEDDINGTON
Total Distance Surveyed (km):	0.9

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	74	26
Total Area (m <sup>2</sup> ):	1901±450	665±160
Correction Factor Applied:	0.88	1.30
Number of Paired Samples:	6	3
Total Count:	30	18
Number per km:	32	19
Mean Area (m <sup>2</sup> ):	63	37
Mean Maximum Depth (cm):	44	8
Mean Average Depth (cm):	26	5
Mean Residual Depth (cm):	24	--
Percent Surveyed as Glides:	20	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	27	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	16
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	24
> 5 m long, > 55 cm diameter:	3
Total:	43

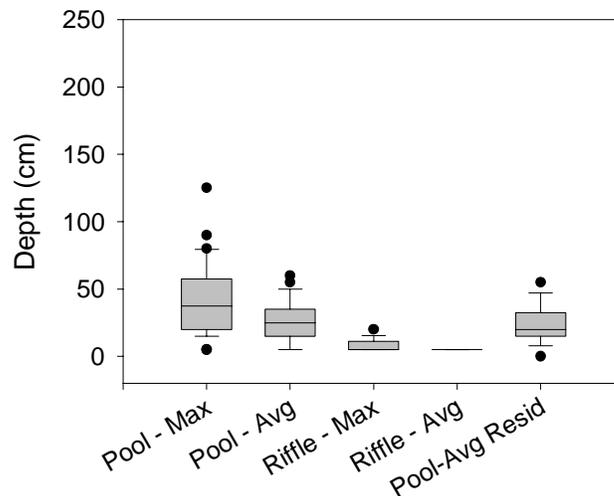
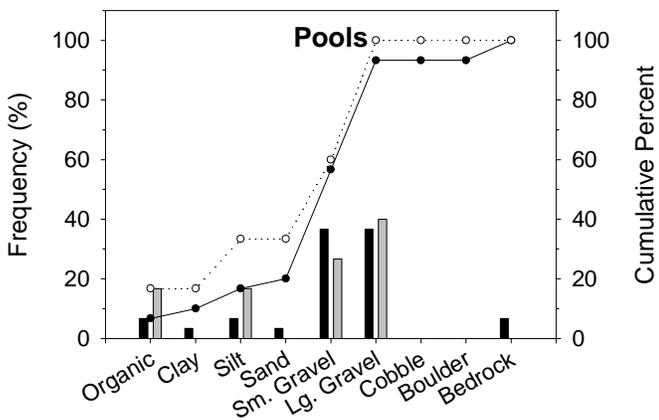
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	7	2
Maximum	9	5
75 <sup>th</sup> Percentile	8	3
25 <sup>th</sup> Percentile	7	1
Minimum	6	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

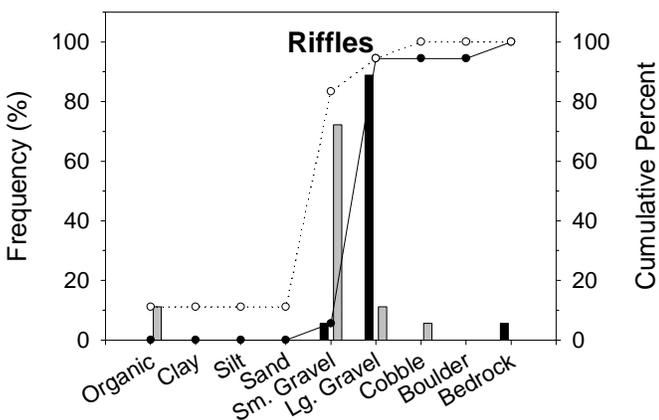
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	100
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	5
Mean Channel Gradient (%):	2
Median Water Temperature (C):	18

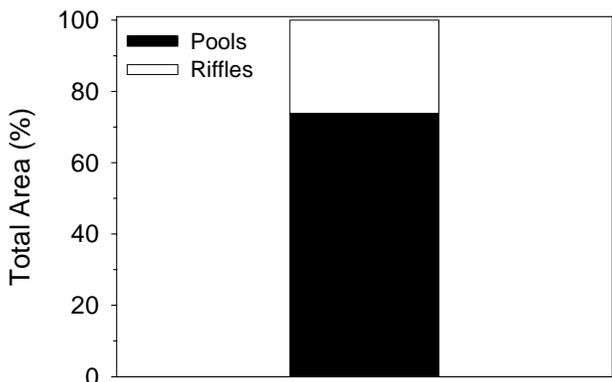


Maximum and average depths and residual pool depths for pools and riffles in stream section 000895, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

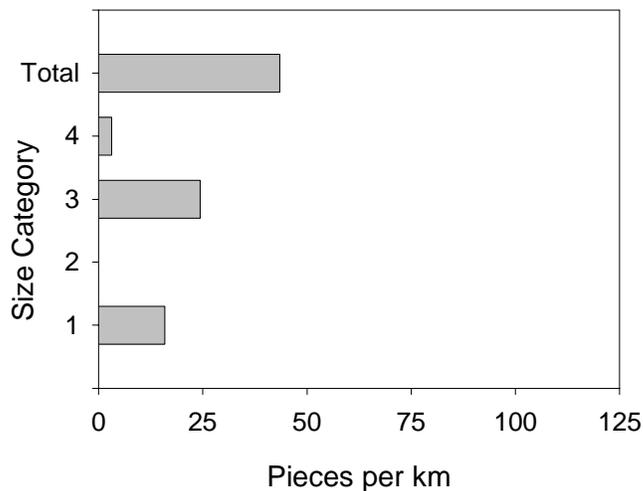


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000895, summer 2005.



Estimated area of stream section 000895 in pools and riffles as calculated using BVET techniques, summer 2005.

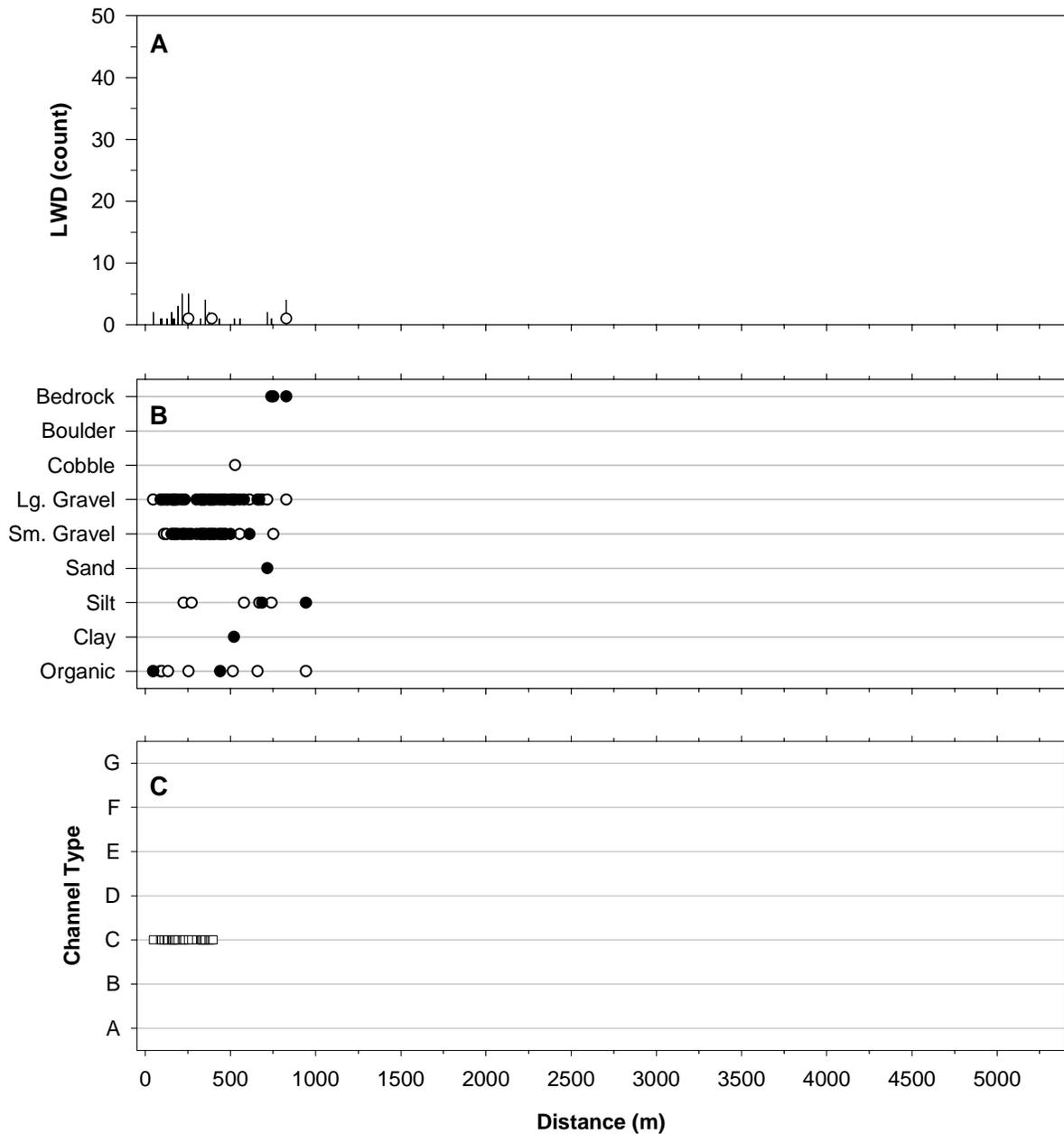


LWD per kilometer in stream section 000895, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000895, BVET habitat survey, summer 2005. Distance is meters from start of survey.

Stream Feature	Distance (m)	Width (m)	Comments
V	55.8		OPEN BOTTOMED ARCH, 4M WIDE, STONE, NATURAL SUBSTRATE PRESENT,
TRIB	71		IN ON LEFT
SCH	160.1		IN ON LEFT
SCH	184.3		OUT ON LEFT
SCH	184		IN ON RIGHT
TRIB	464.7		IN ON RIGHT
UNGR	603.7		
UNGR	651		
UNGR	664		
UNGR	679		
FORD	679		2 PICTURES; 1 OF FORD 1 OF BARBED WIRE ACCROSS STREAM
UNGR	696.1		
UNGR	728.5		
OTR	853		MORE BARBED WIRE
UNGR	937		
BRAID	950		STREAM ENDS IN BRAID, END SURVEY 11:39 AM



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 000895, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000895, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
V		55.8	OPEN BOTTOMED ARCH, 4M WIDE, STONE, NATURAL SUBSTRATE PRESENT,
P	3	109.5	UNDERWATER PHOTO OF SUNFISH IN POOL
R	5	179.6	STREAM MEANDERS ALOT: RIPARIAN LEFT EXTENDS BEYONND OTHER STREAM CHANNEL ON OTHER SIDE OF MEANDER
R	10	351.5	BANKFULL AVG 35, MAX BANKFULL 55
R	15	470.8	MAX BANKFULL 50, AVG BANKFULL 40
FORD		679	2 PICTURES; 1 OF FORD 1 OF BARBED WIRE ACCROSS STREAM

<b>Stream:</b>	000896
District:	Boston Mountain
USGS Quadrangle:	Wheeler/Rhea
6 <sup>th</sup> Level HUC	111101030103
Survey Date:	7/27/2005
Downstream Starting Point:	LAKE WEDDINGTON
Total Distance Surveyed (km):	0.7

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	12	88
Total Area (m <sup>2</sup> ):	99±NC	728±NC
Correction Factor Applied:	0.67	0.80
Number of Paired Samples:	1	1
Total Count:	2	2
Number per km:	3	3
Mean Area (m <sup>2</sup> ):	50	364
Mean Maximum Depth (cm):	30	5
Mean Average Depth (cm):	23	5
Mean Residual Depth (cm):	0	--
Percent Surveyed as Glides:	50	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	50	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	0
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	1
> 5 m long, > 55 cm diameter:	0
Total:	1

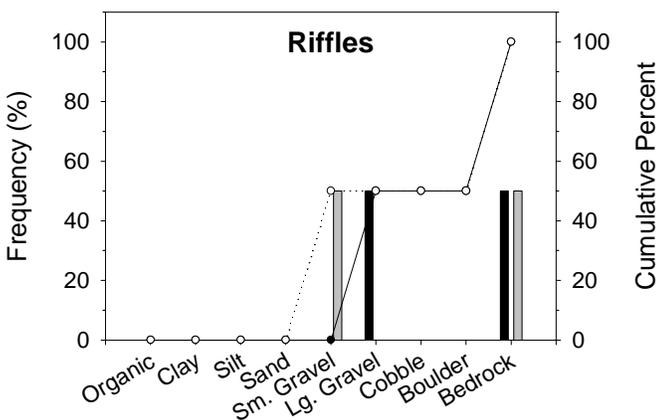
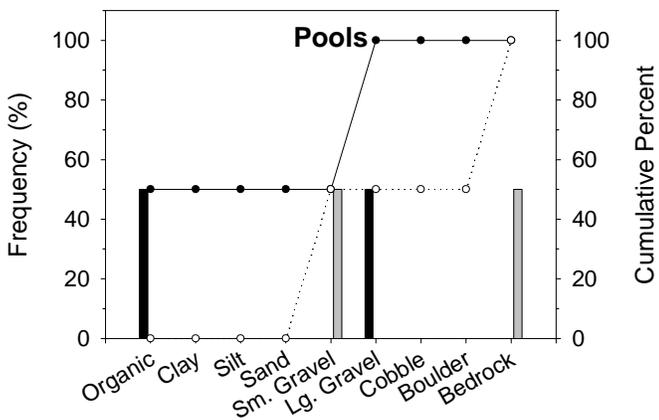
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	3	1
Maximum	3	2
75 <sup>th</sup> Percentile	3	1
25 <sup>th</sup> Percentile	3	0
Minimum	3	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

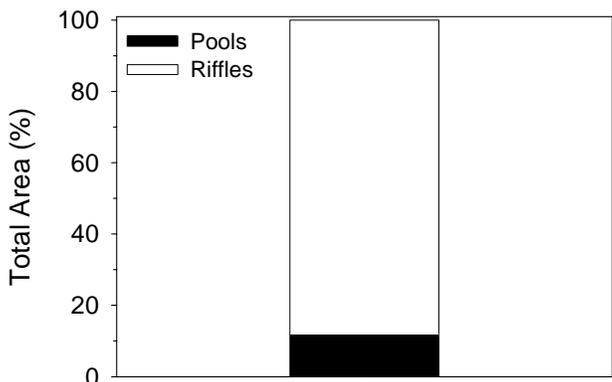
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	100

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	2
Mean Channel Gradient (%):	2
Median Water Temperature (C):	18

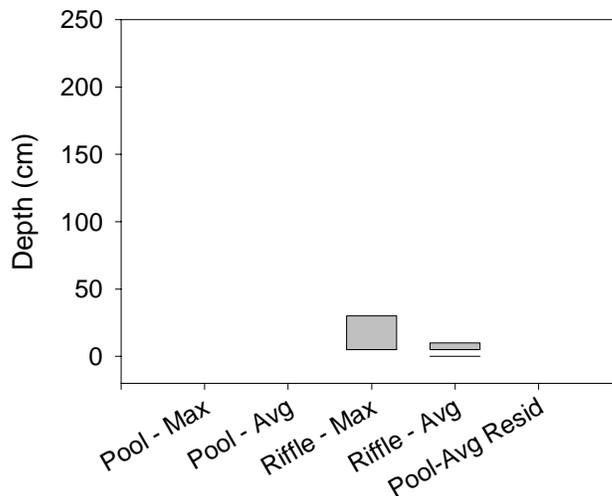


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

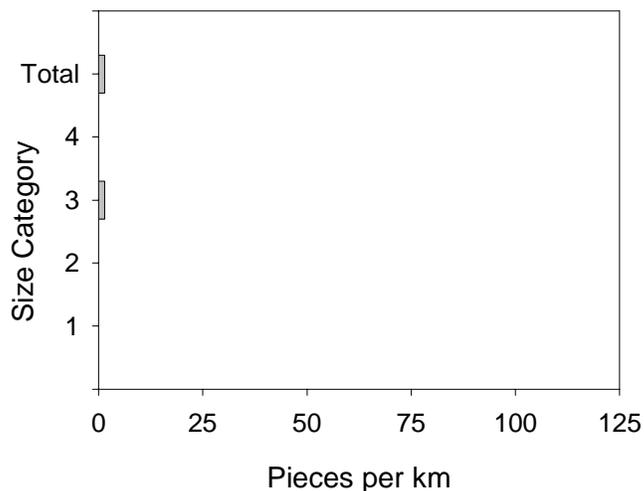
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000896, summer 2005.



Estimated area of stream section 000896 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 000896, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

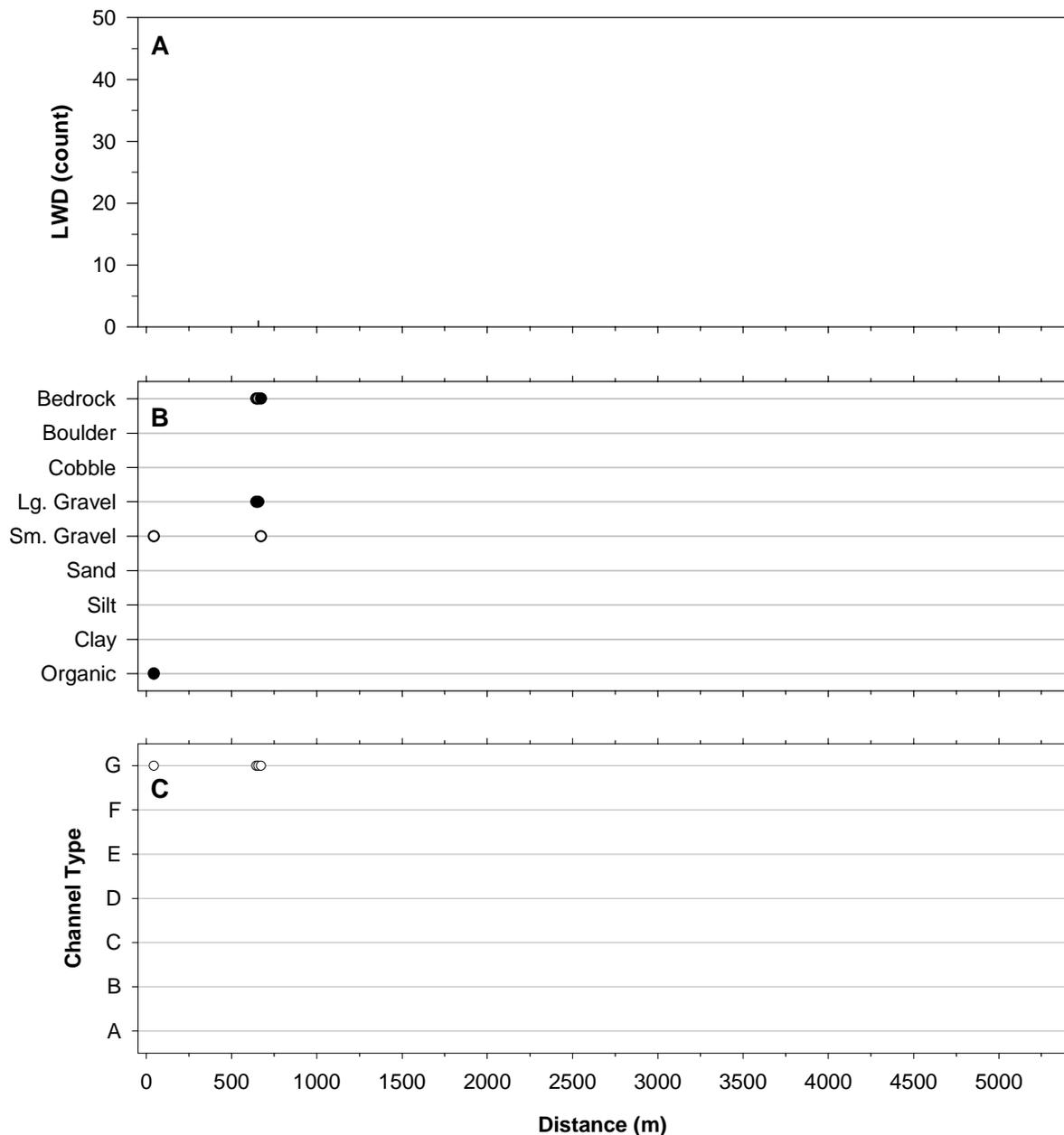


LWD per kilometer in stream section 000896, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000896, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
TRIB	175		IN ON LEFT; 11110103003214
TRIB	427		IN ON LEFT; UNNAMED TRIB (0TRIB 1)
UNGR	582.5		STREAM CHANNEL IS DEEPLY ENTRENCHED
UNGR	660		
SEEP	673		3 PHOTOS TAKEN
END	673		STREAM ENDS AT SPRING



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 000896, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000896, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R		673	
SEEP		673	3 PHOTOS TAKEN

<b>Stream:</b>	003214
District:	Boston Mountain
USGS Quadrangle:	Rhea
6 <sup>th</sup> Level HUC	111101030103
Survey Date:	7/28/2005
Downstream Starting Point:	CONFLUENCE WITH 11110103000896
Total Distance Surveyed (km):	1.0

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	74	26
Total Area (m <sup>2</sup> ):	1188±33	415±186
Correction Factor Applied:	0.99	0.76
Number of Paired Samples:	4	3
Total Count:	19	15
Number per km:	19	15
Mean Area (m <sup>2</sup> ):	63	28
Mean Maximum Depth (cm):	22	8
Mean Average Depth (cm):	13	5
Mean Residual Depth (cm):	7	--
Percent Surveyed as Glides:	21	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	58	13

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	3
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	15
> 5 m long, > 55 cm diameter:	0
Total:	18

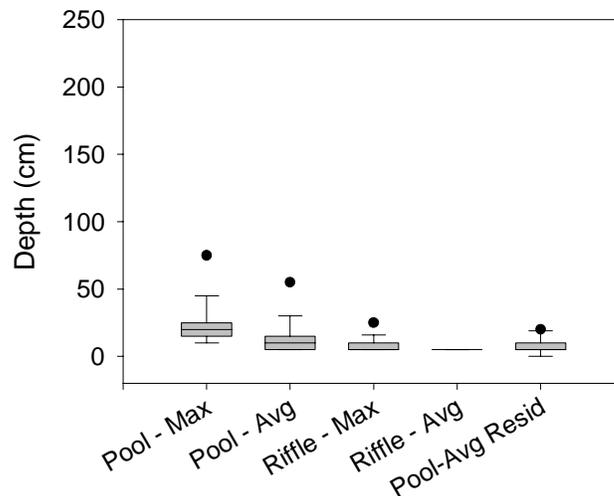
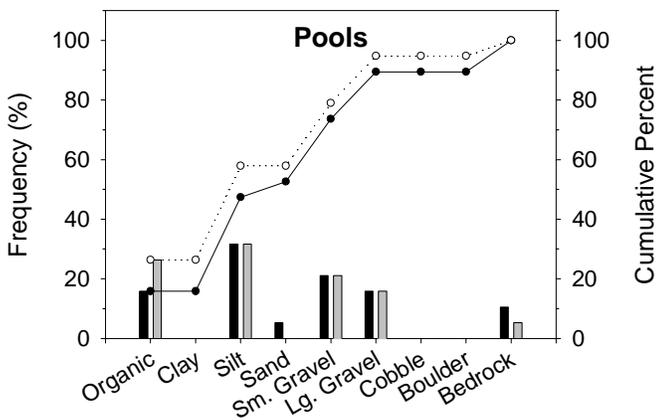
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	6	1
Maximum	9	3
75 <sup>th</sup> Percentile	8	1
25 <sup>th</sup> Percentile	5	1
Minimum	3	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

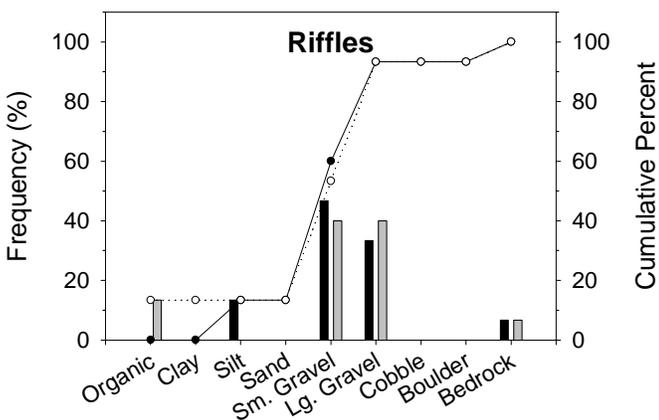
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	100
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	4
Mean Channel Gradient (%):	2
Median Water Temperature (C):	17

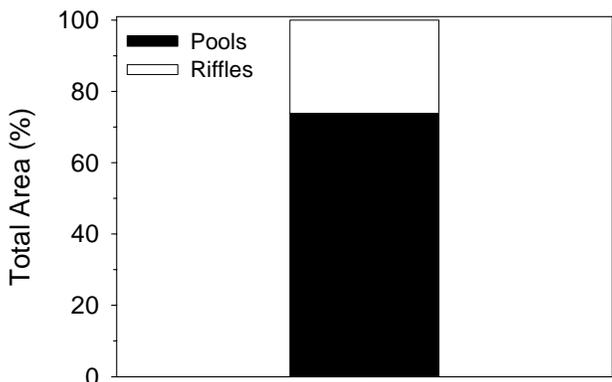


Maximum and average depths and residual pool depths for pools and riffles in stream section 003214, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

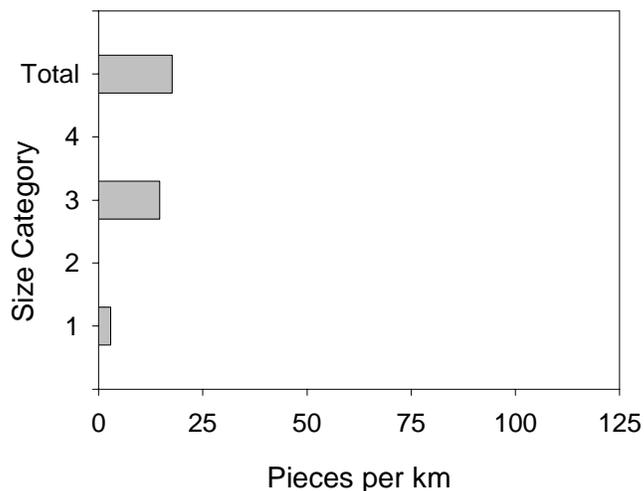


- Dominant %
- ▒ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 003214, summer 2005.



Estimated area of stream section 003214 in pools and riffles as calculated using BVET techniques, summer 2005.

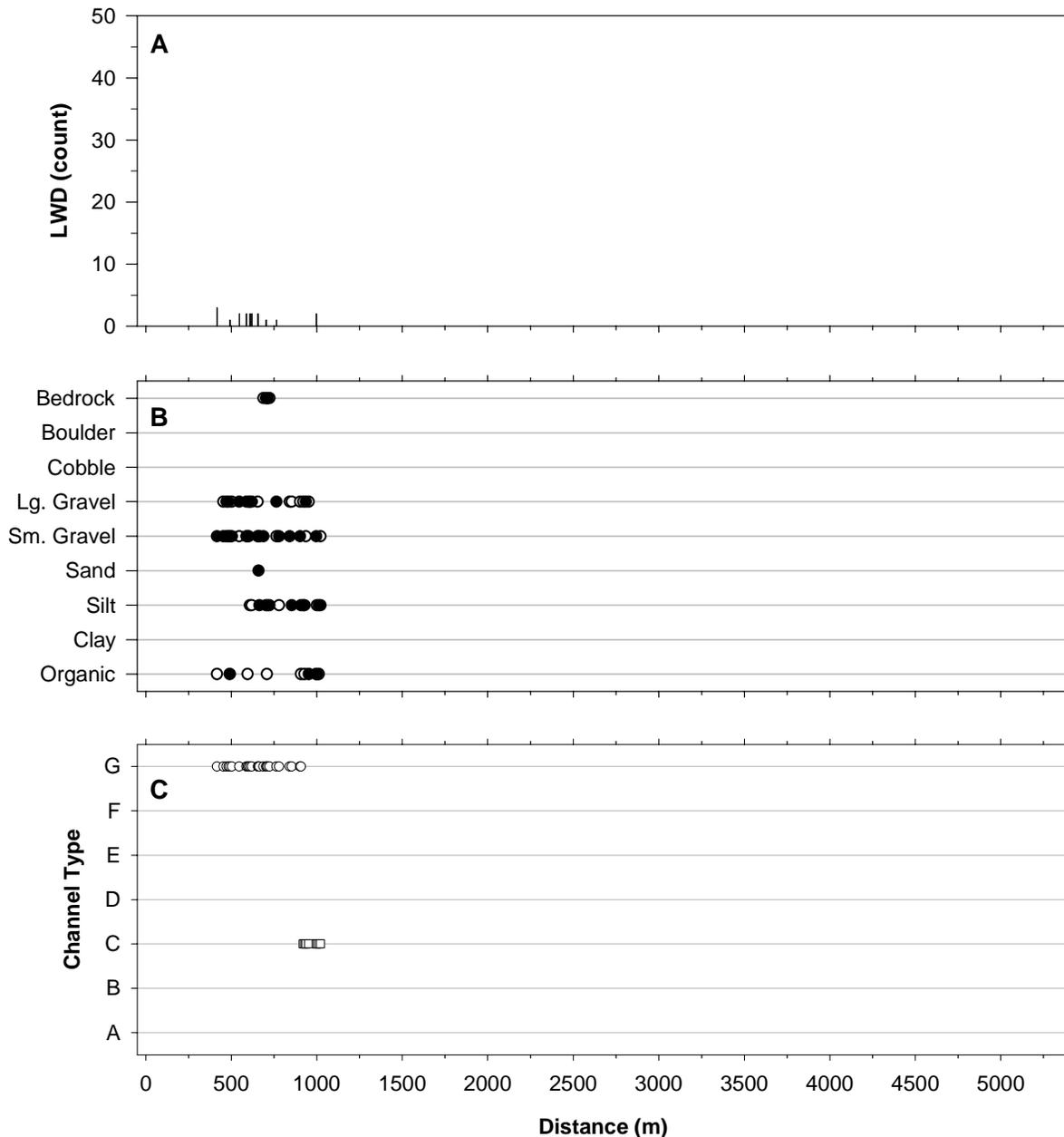


LWD per kilometer in stream section 003214, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 003214, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
OTR	210		STREAM CHANNEL BECOMES ENTRENCHED
UNGR	411.4		PHOTO TAKEN BEFORE CHANNEL BECOMES ENTRENCHED
UNGR	446.8		
UNGR	465.4		
UNGR	516		
OTR	547		SPRING ON RIGHT- DRY
UNGR	548.2		
FALL	595.5		0.8M HIGH
SEEP	665		
SCH	953.3		IN ON LEFT
END	1022		



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 003214, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 003214, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
UNGR		411.4	PHOTO TAKEN BEFORE CHANNEL BECOMES ENTRENCHED
R	3	546.9	AVG BANKFULL 35, MAX BANKFULL 75
OTR		547	SPRING ON RIGHT- DRY
SEEP		665	
R	8	709	MAX BANKFULL 50, AVG BANKFULL 45
R	13	937.2	AVG BANKFULL 35, MAX BANKFULL 40

<b>Stream:</b>	003374
District:	Boston Mountain
USGS Quadrangle:	Rhea
6 <sup>th</sup> Level HUC	111101030103
Survey Date:	7/26/2005
Downstream Starting Point:	CONFLUENCE OF TRIB AND STREAM 000895
Total Distance Surveyed (km):	0.2

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	73	27
Total Area (m <sup>2</sup> ):	235±330	87±56
Correction Factor Applied:	0.71	1.50
Number of Paired Samples:	2	2
Total Count:	9	7
Number per km:	52	40
Mean Area (m <sup>2</sup> ):	26	12
Mean Maximum Depth (cm):	45	8
Mean Average Depth (cm):	29	5
Mean Residual Depth (cm):	27	--
Percent Surveyed as Glides:	22	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	67	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	34
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	11
> 5 m long, > 55 cm diameter:	0
Total:	45

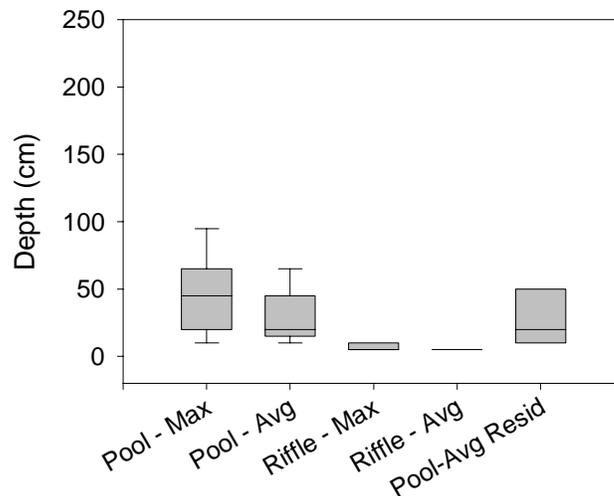
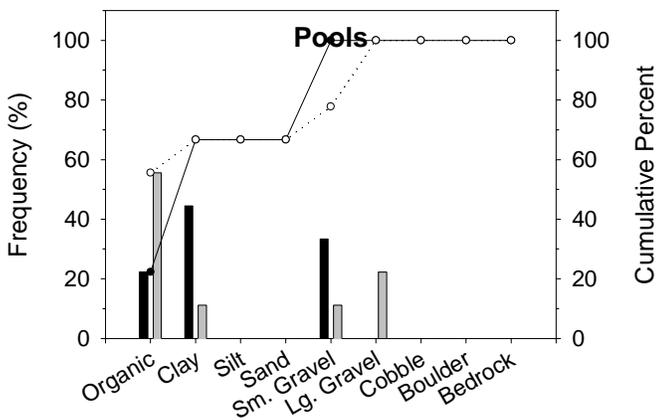
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	5	1
Maximum	7	2
75 <sup>th</sup> Percentile	6	1
25 <sup>th</sup> Percentile	4	0
Minimum	3	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

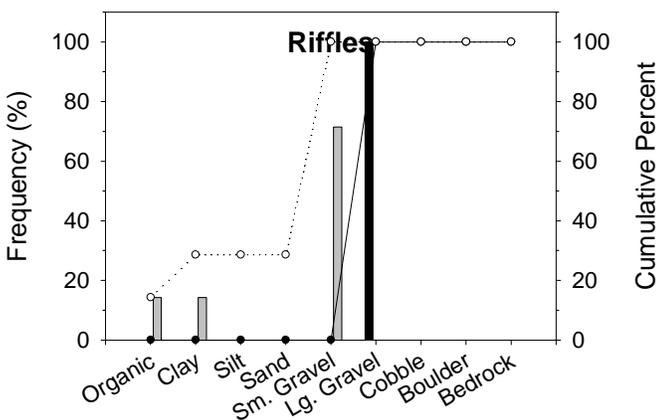
\*\*Left and right riparian widths were grouped (not added) together for calculations

<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	100

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	3
Mean Channel Gradient (%):	2
Median Water Temperature (C):	21

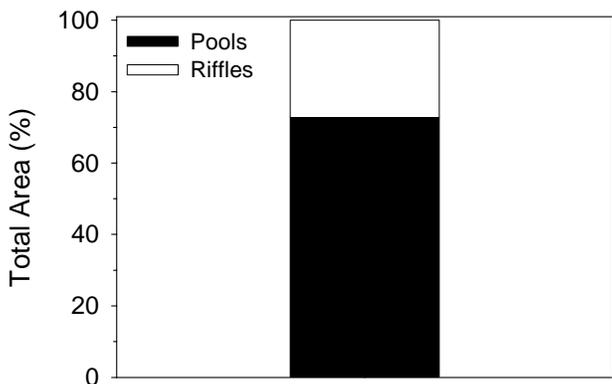


Maximum and average depths and residual pool depths for pools and riffles in stream section 003374, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

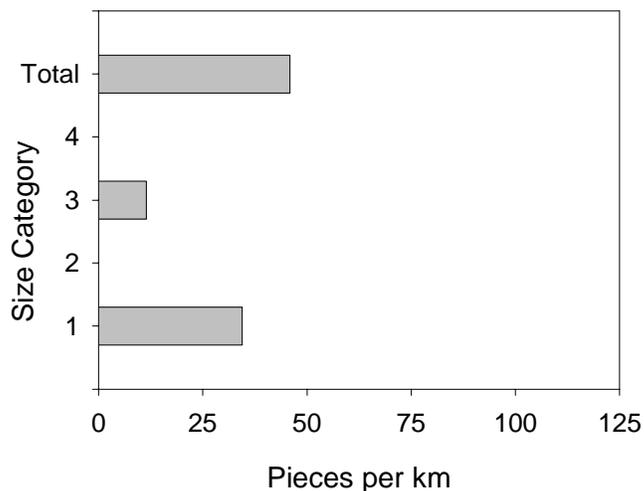


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 003374, summer 2005.



Estimated area of stream section 003374 in pools and riffles as calculated using BVET techniques, summer 2005.

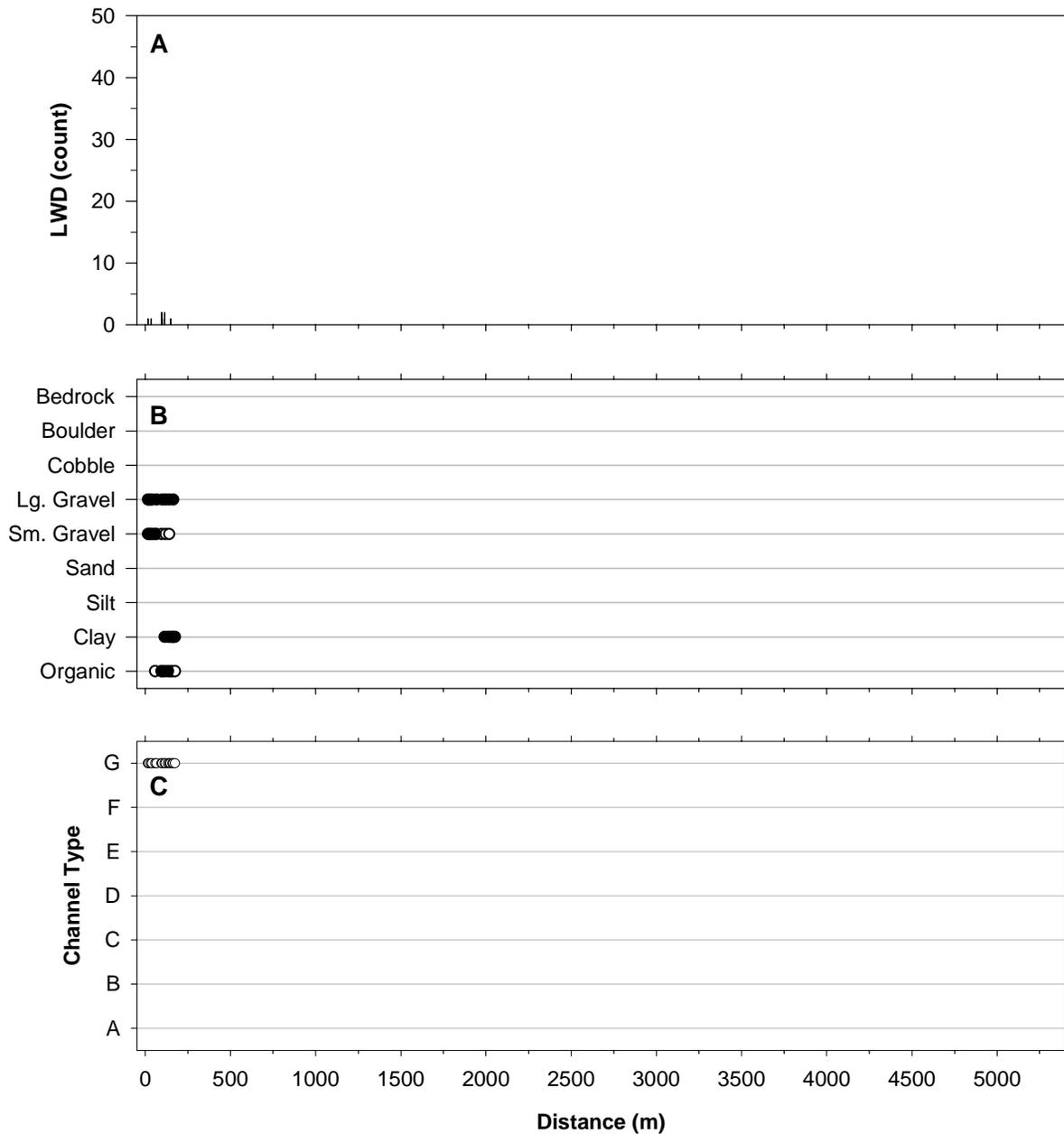


LWD per kilometer in stream section 003374, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 003374, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
SCH	41.3		IN ON LEFT
OTR	73.8		SMALL CHANNEL ENTERS STREAM ON RIGHT (PROBABLY FOR RUNOFF)
OTR	125.8		VERY SMALL OXBOW TO LEFT OF STREAM
END			SURVEY ENDED AT 2:30 ON 7/26/05. REASON STREAM BECOMES IMPASSABLE.



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 003374, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 003374, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

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<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	1	15.3	AVG BF=30. MAX BF=50
R	7	164.1	MAX BF =35 AVG BF = 25
END			SURVEY ENDED AT 2:30 ON 7/26/05. REASON STREAM BECOMES IMPASSABLE.

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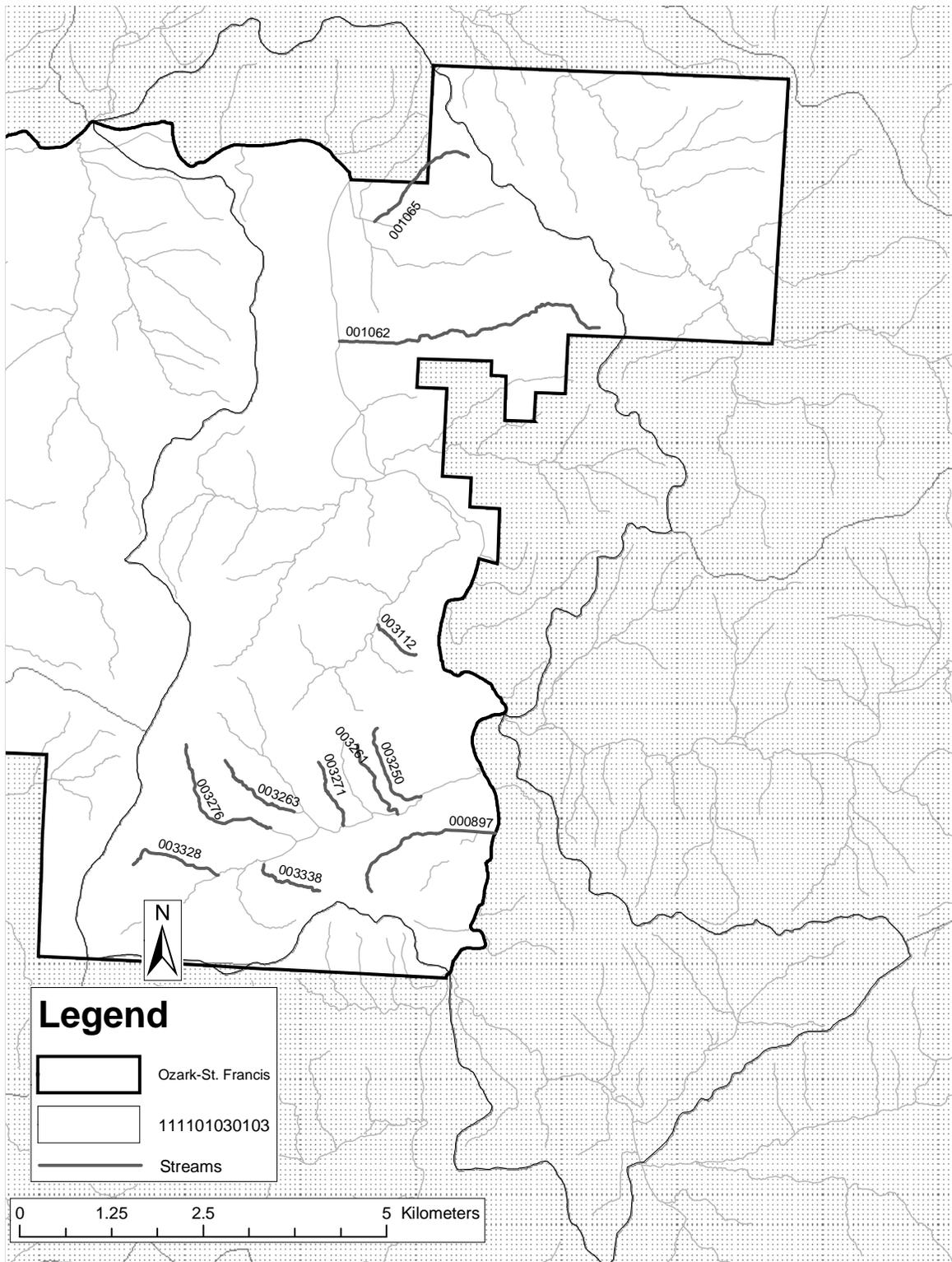


Figure 19. Stream reaches in watershed 111101030103 during summer 2005 with incomplete data due to dry stream channels, refer to table 3 for more information.

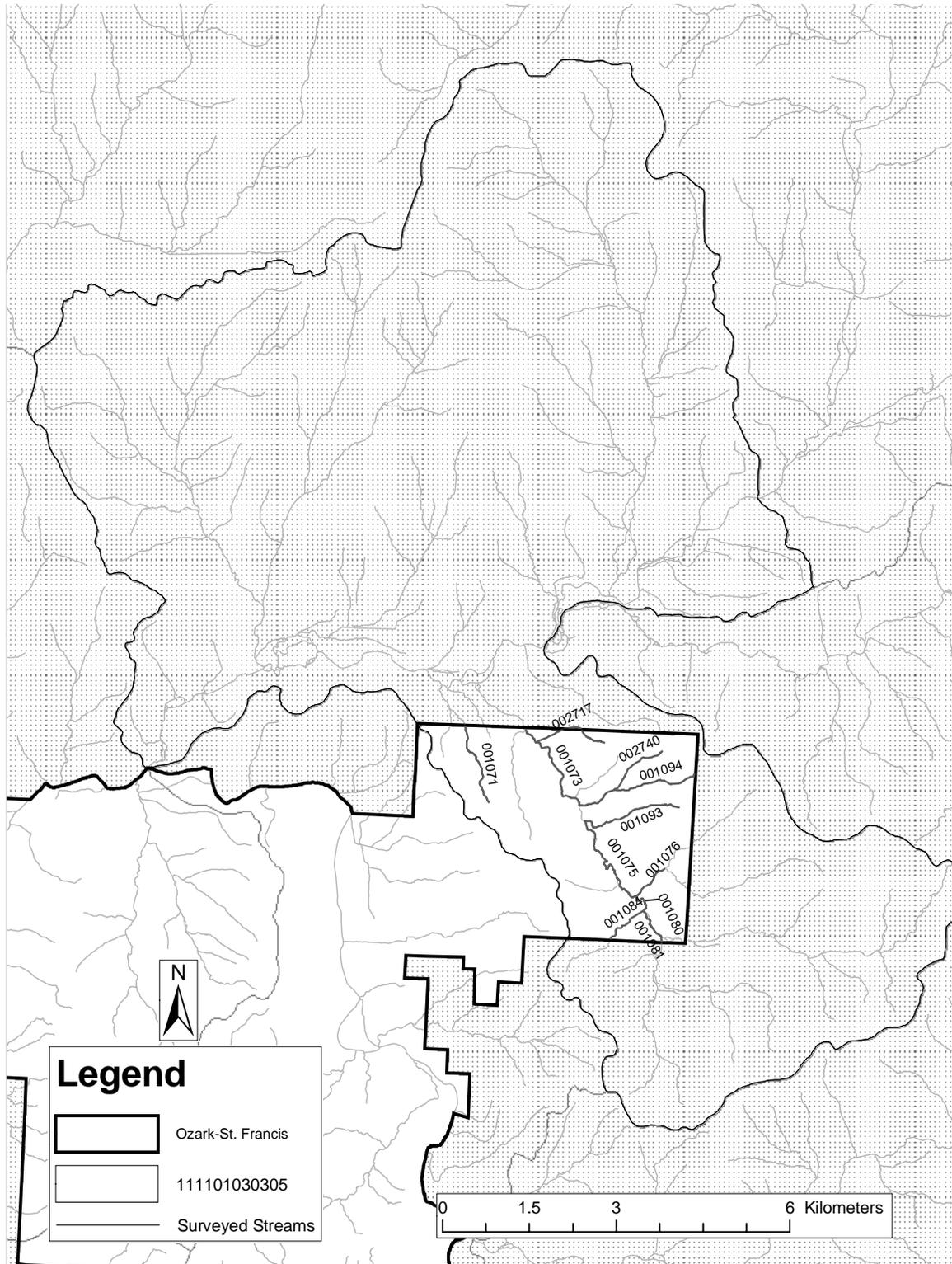


Figure 20. Stream reaches visited in watershed 111101030305 during summer 2005.

<b>Stream:</b>	001073, Wildcat Creek
District:	Boston Mountain
USGS Quadrangle:	Robinson
6 <sup>th</sup> Level HUC	111101030305
Survey Date:	7/26/2005
Downstream Starting Point:	FOREST BOUNDARY AT FENCE WEST OF CO. RD. 851
Total Distance Surveyed (km):	1.1

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	80	20
Total Area (m <sup>2</sup> ):	6090±1035	1498±469
Correction Factor Applied:	1.11	1.03
Number of Paired Samples:	5	4
Total Count:	26	19
Number per km:	24	17
Mean Area (m <sup>2</sup> ):	234	79
Mean Maximum Depth (cm):	81	19
Mean Average Depth (cm):	42	12
Mean Residual Depth (cm):	23	--
Percent Surveyed as Glides:	23	--
Percent Surveyed as Runs:	--	11
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	16
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	7
> 5 m long, > 55 cm diameter:	4
Total:	27

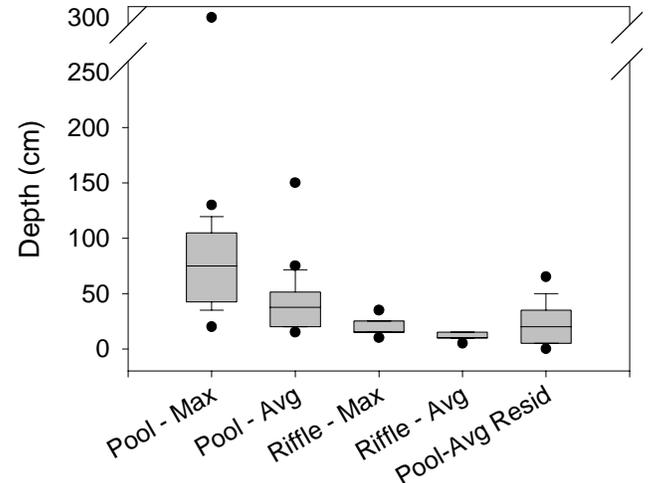
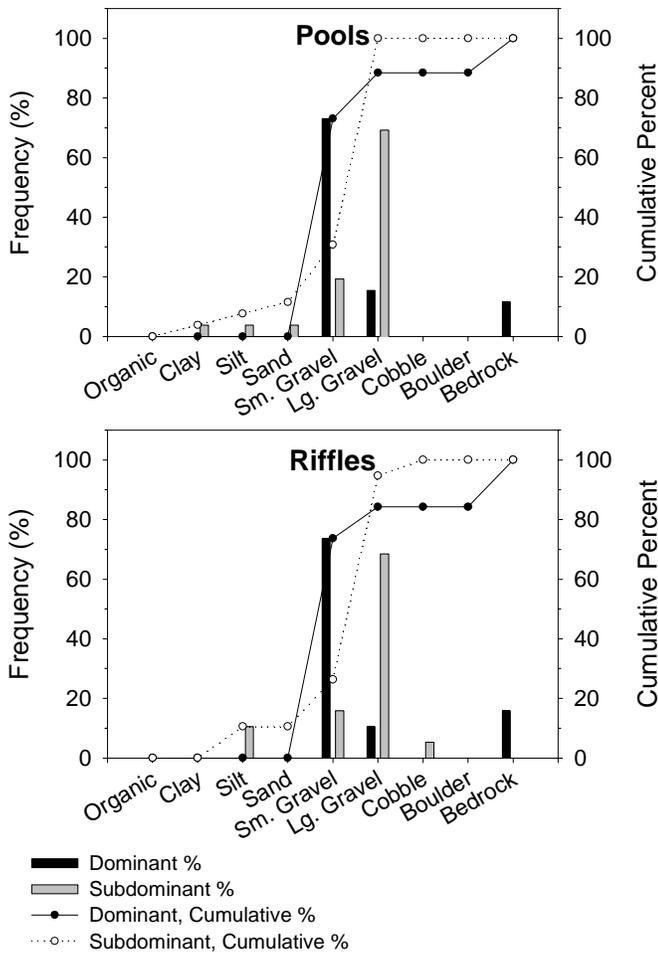
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	15	3
Maximum	23	8
75 <sup>th</sup> Percentile	16	5
25 <sup>th</sup> Percentile	12	1
Minimum	11	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

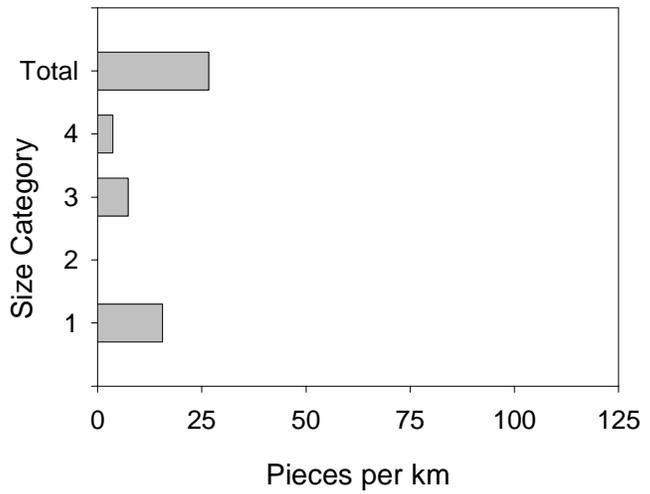
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	67
D:	0
E:	0
F:	33
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	9
Mean Channel Gradient (%):	1
Median Water Temperature (C):	24



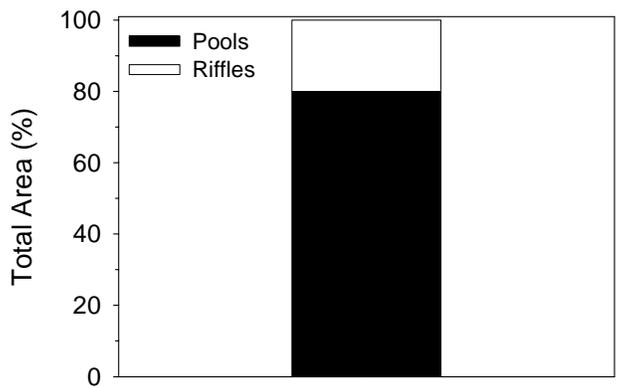
Maximum and average depths and residual pool depths for pools and riffles in stream section 001073, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001073, summer 2005.



LWD per kilometer in stream section 001073, summer 2005. Y-axis labels are LWD size classes described below.

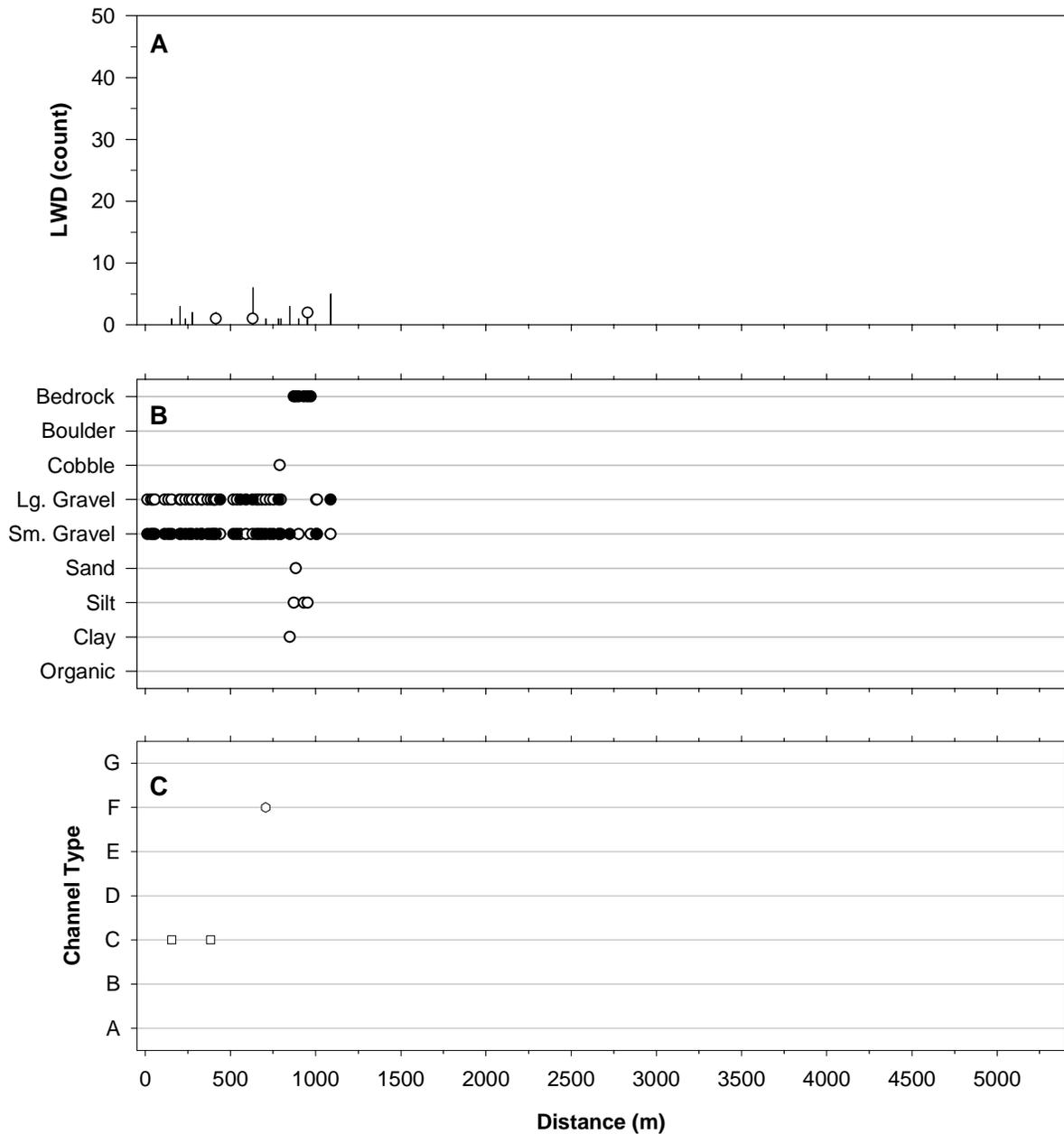
- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter



Estimated area of stream section 001073 in pools and riffles as calculated using BVET techniques, summer 2005.

Stream features found on stream section 001073, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
TRIB	245.7	0.5	ON LEFT
P	328.5	4	SITE FLAGGED FOR SHOCKING BY ONF, PINK FLAG
FORD	422.8		GRAVEL/DIRT CROSSING
G	537	3	SITE FLAGGED FOR SHOCKING BY ONF, PINK FLAG
SCH	539.4		IN ON LEFT
R	652.5	2	SITE FLAGGED FOR SHOCKING BY ONF, PINK FLAG
TRIB	751.5	2	ON RIGHT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen’s channel types (Rosgen 1996) in stream section 001073, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001073, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	3	154.4	BANKFULL DEPTH AVG 65, MAX 75
R	8	383.7	BANKFULL DEPTH AVG 35, MAX 45
FORD		422.8	GRAVEL/DIRT CROSSING
R	13	706.6	BANKFULL DEPTH AVG 35, MAX 45
R	18	952	BANKFULL DEPTH AVG 35, MAX 55

<b>Stream:</b>	001075, 001080 and 001081; Wildcat Creek
District:	Boston Mountain
USGS Quadrangle:	Robinson
6 <sup>th</sup> Level HUC	111101030305
Survey Date:	7/25/2005
Downstream Starting Point:	SWINGING BRIDGE AT CORNER FS BOUNDARY
Total Distance Surveyed (km):	2.6

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	67	33
Total Area (m <sup>2</sup> ):	8674±503	4265±924
Correction Factor Applied:	1.09	1.48
Number of Paired Samples:	9	7
Total Count:	72	59
Number per km:	28	23
Mean Area (m <sup>2</sup> ):	120	72
Mean Maximum Depth (cm):	66	17
Mean Average Depth (cm):	35	12
Mean Residual Depth (cm):	24	--
Percent Surveyed as Glides:	14	--
Percent Surveyed as Runs:	--	10
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	29
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	11
> 5 m long, > 55 cm diameter:	2
Total:	42

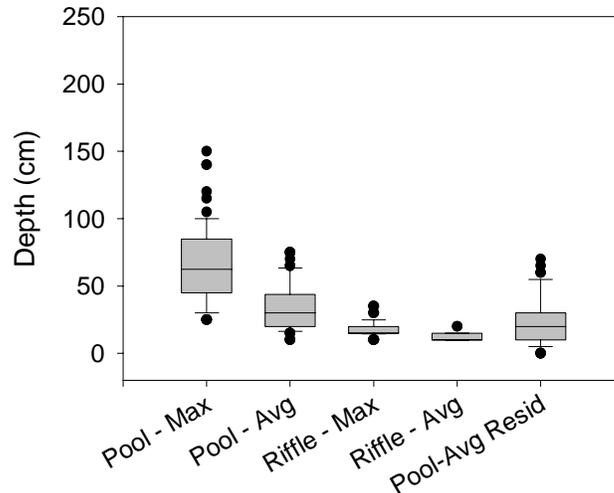
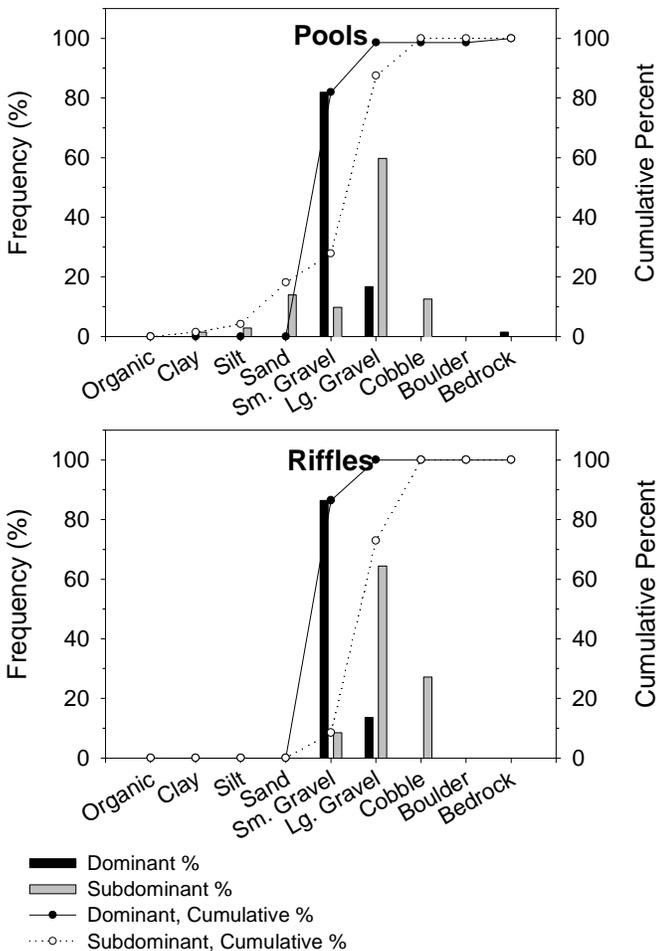
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	15	5
Maximum	21	11
75 <sup>th</sup> Percentile	20	8
25 <sup>th</sup> Percentile	12	3
Minimum	4	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

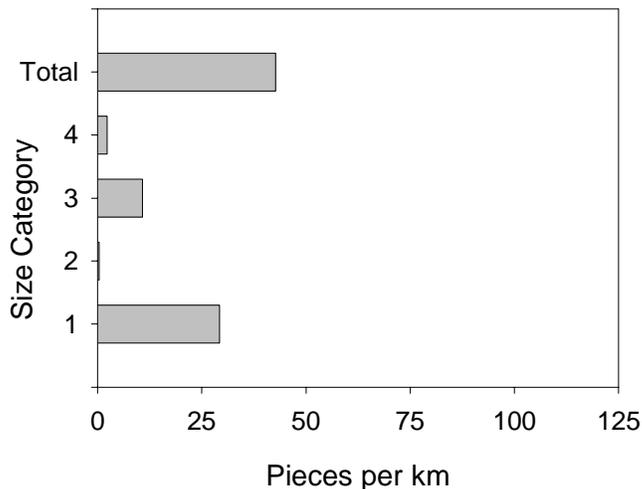
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	100
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	6
Mean Channel Gradient (%):	1
Median Water Temperature (C):	24



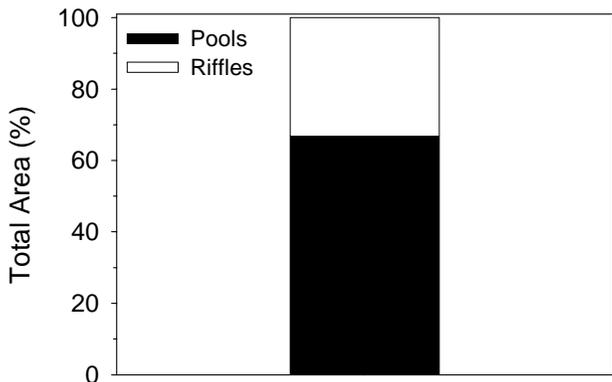
Maximum and average depths and residual pool depths for pools and riffles in stream sections 001075, 001080 and 001081, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream sections 001075, 001080 and 001081, summer 2005.



LWD per kilometer in stream sections 001075, 001080 and 001081, summer 2005. Y-axis labels are LWD size classes described below.

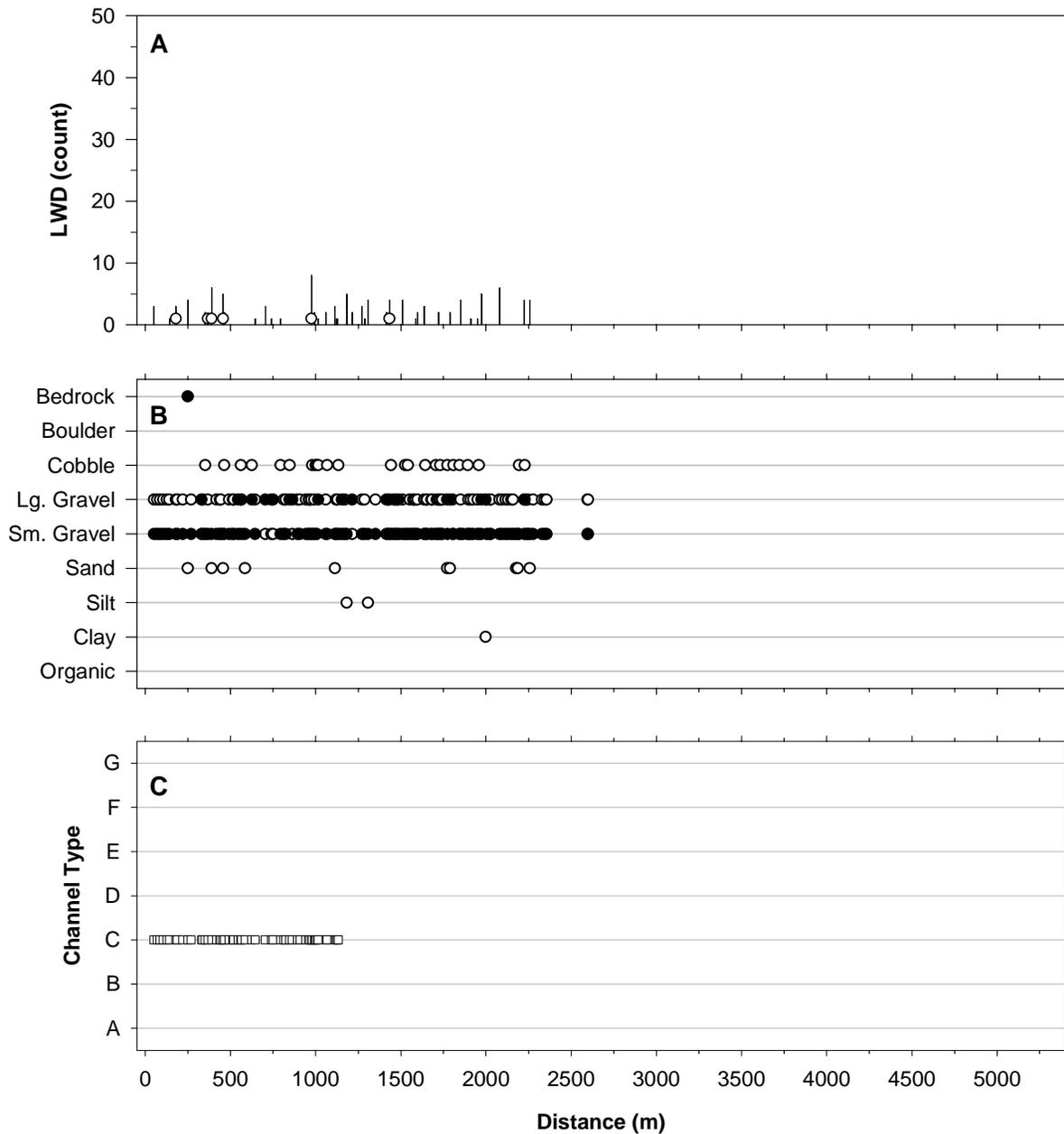
- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter



Estimated area of stream sections 001075, 001080 and 001081 in pools and riffles as calculated using BVET techniques, summer 2005.

Stream features found on stream sections 001075, 001080 and 001081, BVET habitat survey, summer 2005. Distance is meters from start of survey.

Stream Feature	Distance (m)	Width (m)	Comments
SCH	55.5		ON RIGHT
SCH	104.7		OUT ON RIGHT
SCH	209.9	3	IN ON RIGHT
SCH	395.8		IN ON RIGHT
SCH	419.9		OUT ON RIGHT
SCH	438.5		IN ON RIGHT
SCH	452.8		OUT ON RIGHT
SCH	457		IN ON RIGHT
SCH	547.6		IN ON RIGHT
SCH	566.4		OUT ON RIGHT
SCH	586.9		IN ON LEFT
SCH	625		OUT ON LEFT
SCH	644.7		IN ON RIGHT
SCH	656.9		OUT ON RIGHT
SCH	688.8		IN ON RIGHT
P	740.7	5	SITE FLAGGED FOR SHOCKING BY ONF, YELLOW FLAG
SCH	1007.1		IN ON RIGHT
SCH	1153		IN ON RIGHT
SCH	1172		OUT ON RIGHT
SCH	1279.3		IN ON LEFT
SCH	1297.8		OUT ON LEFT
FORD	1350.8		ATVS DROVE DOWN STREAM
SCH	1410.8		IN ON LEFT
SCH	1422.8		OUT ON LEFT
SCH	1562		IN ON LEFT
SCH	1575.9		OUT ON LEFT
TRIB	1887.5		001084 ON RIGHT
SCH	1895.9		IN ON RIGHT
SCH	1926		OUT ON RIGHT
TRIB	2574		ON RIGHT
V	2600	4	CONCRETE BOX, PERCH 30, HEIGHT 1.1M., CONCRETE BOTTOM, LENGTH AT 2612.4



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream sections 001075, 001080 and 001081, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream sections 001075, 001080 and 001081, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	5	268.5	BANKFULL DEPTH AVG 50, MAX 65
R	10	463.5	SIDE CHANNEL ON RIGHT
RN	15	749.9	BANKFULL DEPTH AVG 55, MAX 60
R	25	1132.9	HEAVY COW PATH CROSSES STREAM, BANKFULL DEPTH AVG 40, MAX 55
R	35	1575.9	BANKFULL DEPTHS AVG 35, MAX 45
R	45	1865.6	BANKFULL DEPTH AVG 45, MAX 65
R	55	2227.8	BANKFULL DEPTH AVG 35, MAX 45
V		2600	CONCRETE BOX, PERCH 30, HEIGHT 1.1M., CONCRETE BOTTOM, LENGTH AT 2612.4

<b>Stream:</b>	001084
District:	Boston Mountain
USGS Quadrangle:	Robinson
6 <sup>th</sup> Level HUC	111101030305
Survey Date:	7/25/2005
Downstream Starting Point:	AT CONFLUENCE WITH WILDCAT CREEK NEAR POWER LINE ON 871
Total Distance Surveyed (km):	0.8

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	56	44
Total Area (m <sup>2</sup> ):	806±168	637±377
Correction Factor Applied:	0.93	1.07
Number of Paired Samples:	6	5
Total Count:	44	36
Number per km:	57	47
Mean Area (m <sup>2</sup> ):	18	18
Mean Maximum Depth (cm):	27	9
Mean Average Depth (cm):	16	4
Mean Residual Depth (cm):	13	--
Percent Surveyed as Glides:	23	--
Percent Surveyed as Runs:	--	3
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	2	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	6
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	49
> 5 m long, > 55 cm diameter:	0
Total:	55

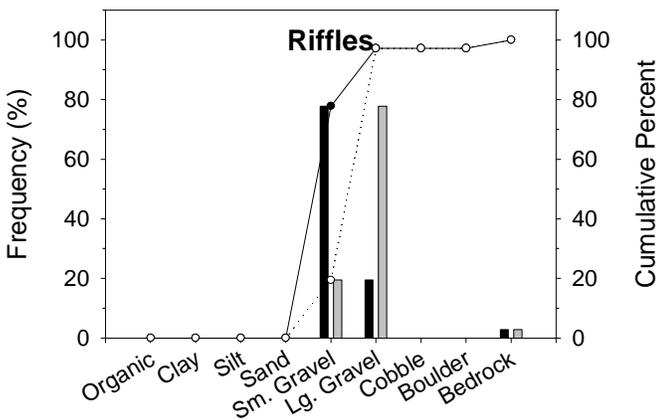
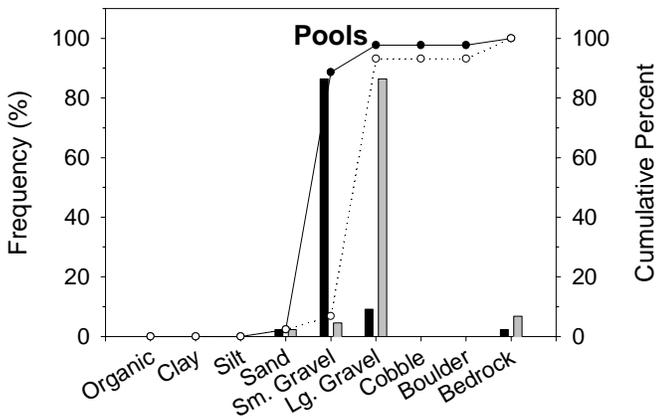
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	4	0
Maximum	6	1
75 <sup>th</sup> Percentile	5	0
25 <sup>th</sup> Percentile	3	0
Minimum	3	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

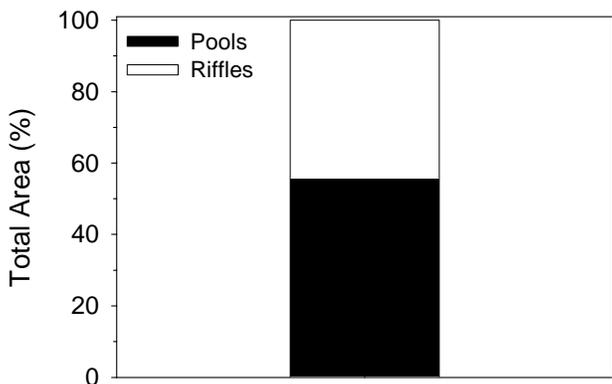
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	4
Mean Channel Gradient (%):	4
Median Water Temperature (C):	21.5

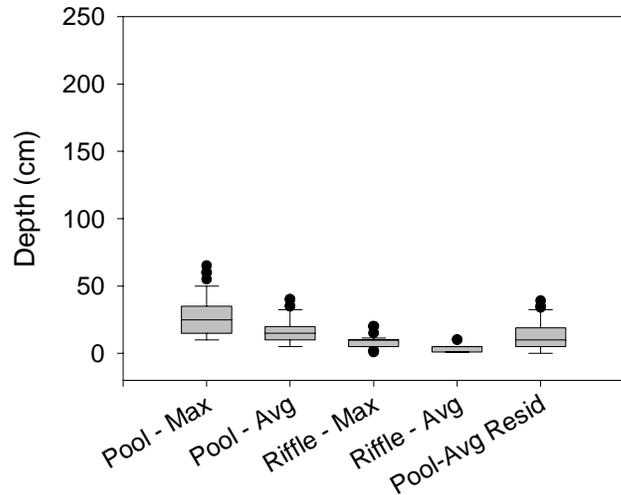


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

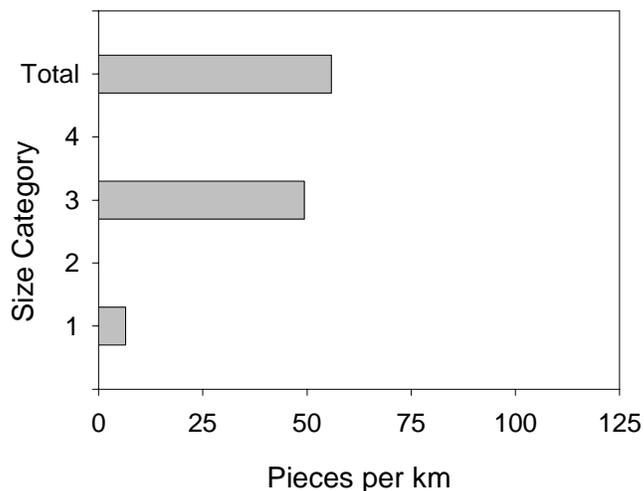
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001084, summer 2005.



Estimated area of stream section 001084 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001084, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

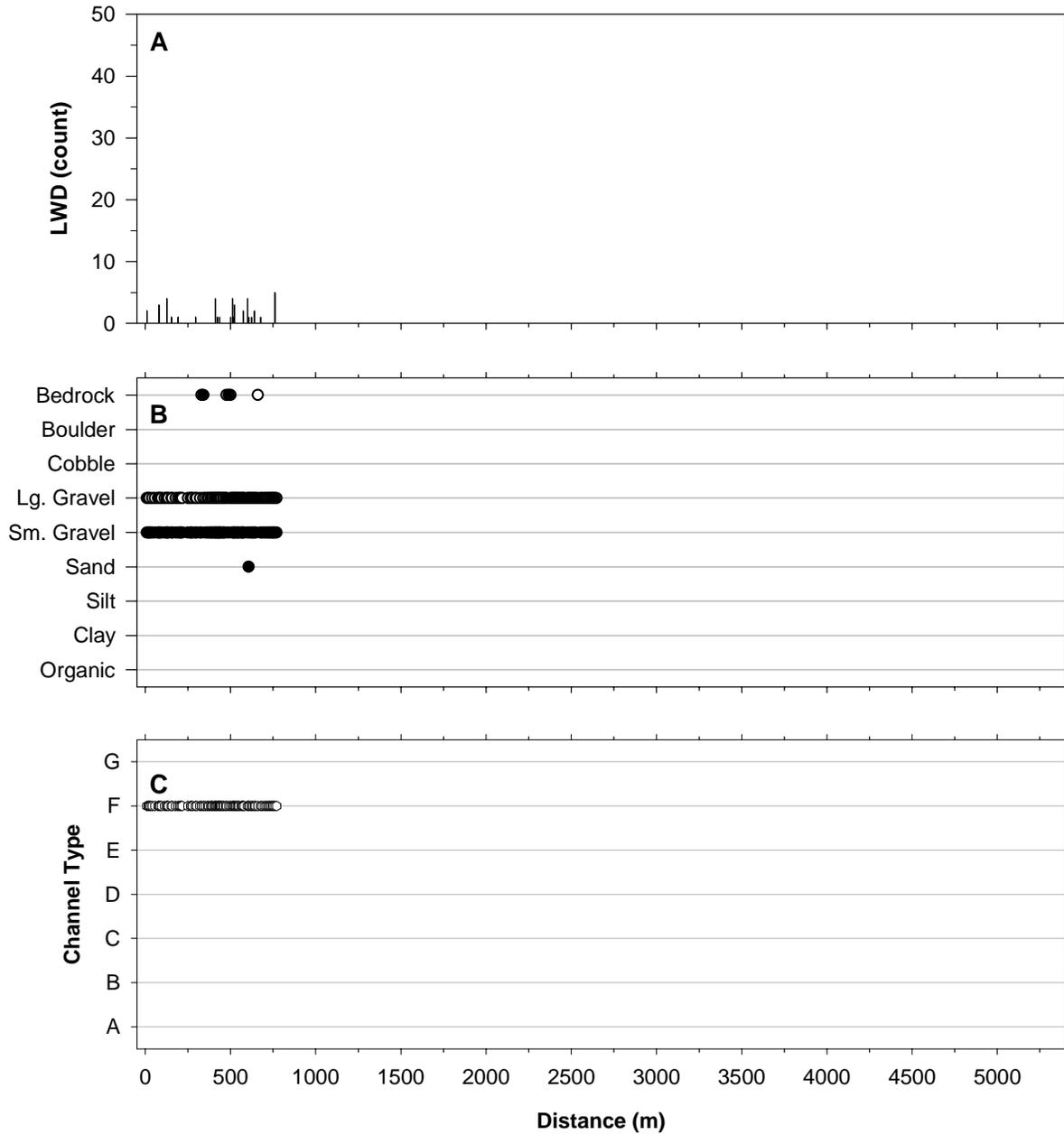


LWD per kilometer in stream section 001084, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001084, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
FORD	41.2		CATTLE CROSSING
OTR	41.2		FENCE
FORD	57.9		CATTLE XING BANKS TRAMPLED
FORD	98		CATTLE XING
FORD	153		CATTLE XING
FORD	192		CATTLE XING
FORD	201.7		CATTLE XING
FORD	251		CATTLE XING
FORD	312		CATTLE XING
TRIB	350	1	LEFT
FORD	471.7		CATTLE XING
UNGR	504.1		
UNGR	512		
FORD	529.9		CATTLE XING
SEEP	666.9		GOOD FLOW ON RIGHT, BRICK STRUCTURE BUILT AROUND IT
FORD	669.9		CATTLE XING
OTR	728.7		BARBED WIRE FENCE
SEEP	750.3		LEFT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 001084, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001084, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	4	75	
FORD		251	CATTLE XING
R	14	320	
R	24	490.4	FISH
SEEP		666.9	GOOD FLOW ON RIGHT, BRICK STRUCTURE BUILT AROUND IT
P	44	770	SPRING POOL, FISH AND CRAYFISH PRESENT

<b>Stream:</b>	001085
District:	Boston Mountain
USGS Quadrangle:	Robinson
6 <sup>th</sup> Level HUC	111101030305
Survey Date:	7/25/2005
Downstream Starting Point:	CONFLUENCE WITH WILDCAT CREEK AT CULVERT ON 871
Total Distance Surveyed (km):	0.2

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	69	31
Total Area (m <sup>2</sup> ):	486±61	221±142
Correction Factor Applied:	1.28	1.46
Number of Paired Samples:	4	3
Total Count:	9	9
Number per km:	36	36
Mean Area (m <sup>2</sup> ):	54	25
Mean Maximum Depth (cm):	46	12
Mean Average Depth (cm):	23	6
Mean Residual Depth (cm):	18	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	11
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	48
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	69
> 5 m long, > 55 cm diameter:	0
Total	117

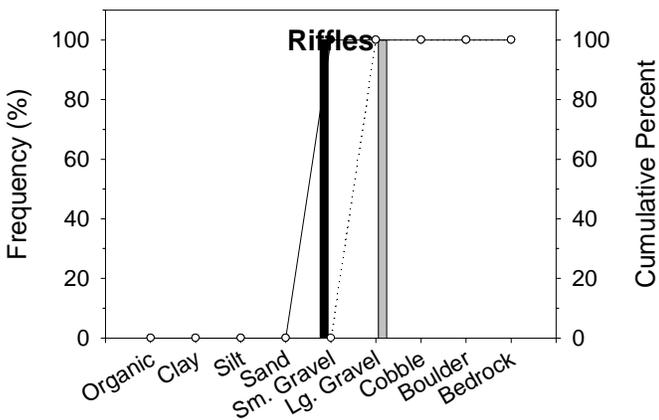
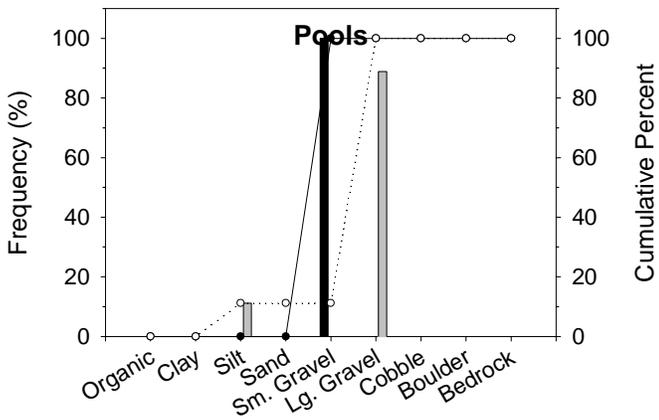
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	5	0
Maximum	5	1
75 <sup>th</sup> Percentile	5	0
25 <sup>th</sup> Percentile	5	0
Minimum	5	0

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

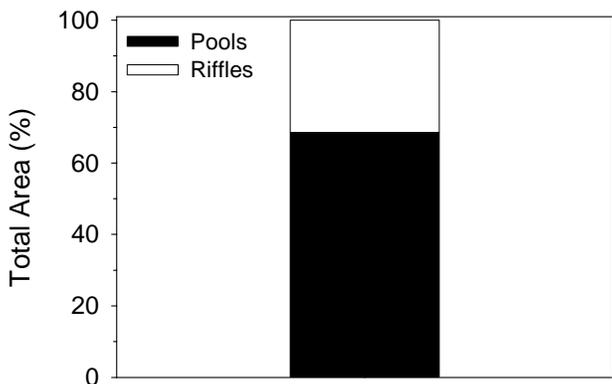
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	5
Mean Channel Gradient (%):	1
Median Water Temperature (C):	25

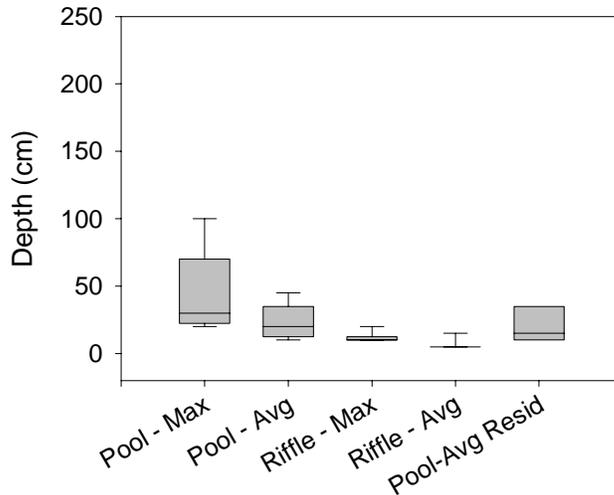


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

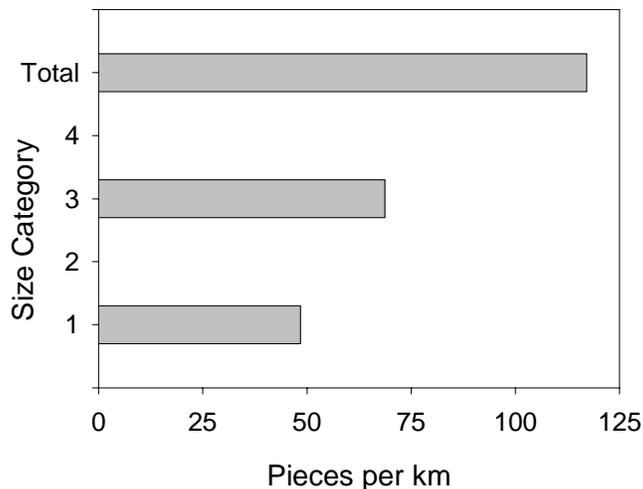
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001085, summer 2005.



Estimated area of stream section 001085 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001085, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

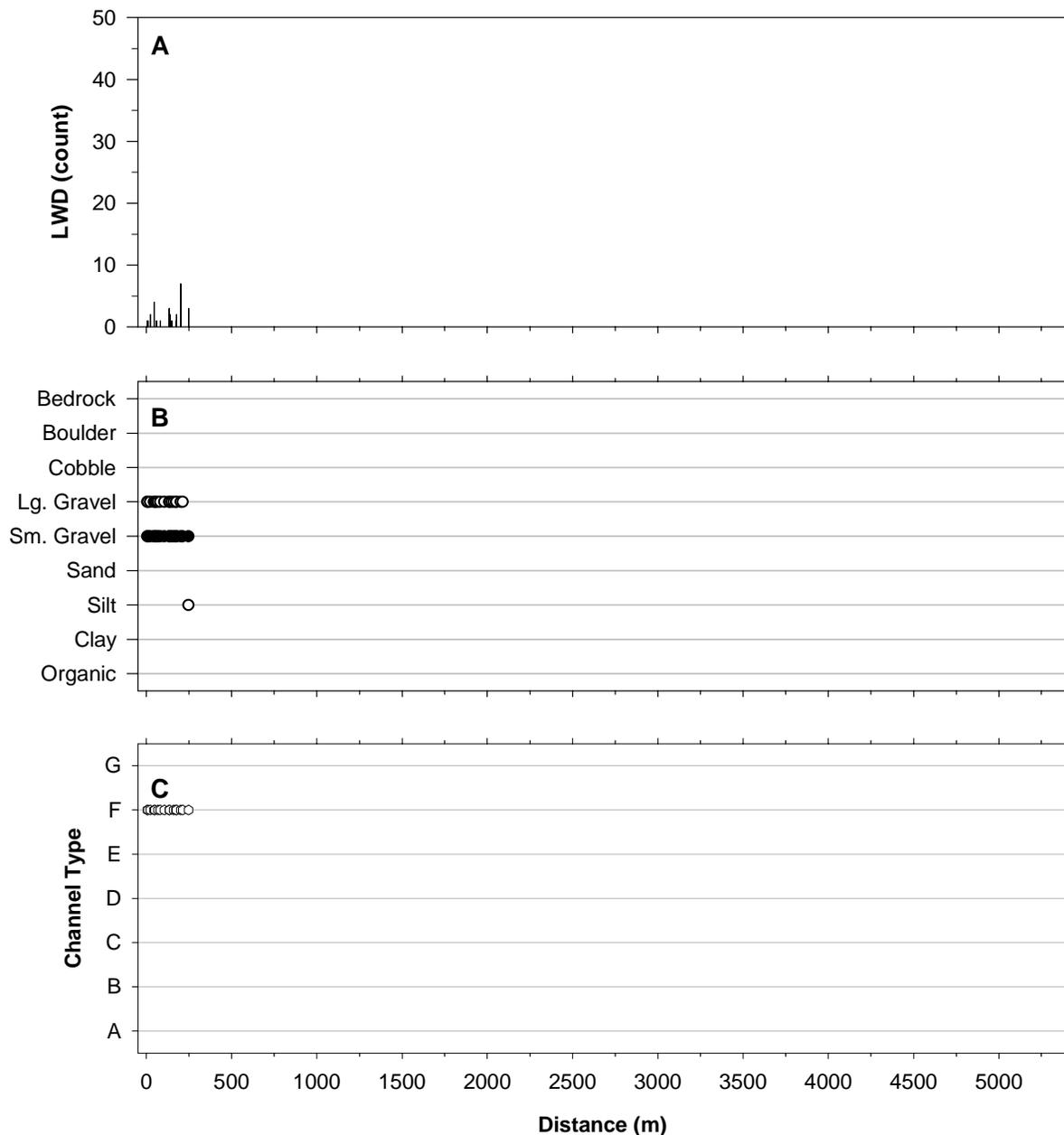


LWD per kilometer in stream section 001085, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001085, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
NONE			



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 001085, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001085, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
RN	2	45.2	

<b>Stream:</b>	001094
District:	Boston Mountain
USGS Quadrangle:	Robinson
6 <sup>th</sup> Level HUC	111101030305
Survey Date:	7/26/2005
Downstream Starting Point:	AT FS BOUNDARY JUST UPSTREAM OF 68 BRIDGE
Total Distance Surveyed (km):	0.2

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	52	48
Total Area (m <sup>2</sup> ):	214±115	196±0
Correction Factor Applied:	0.84	0.87
Number of Paired Samples:	3	2
Total Count:	12	9
Number per km:	53	40
Mean Area (m <sup>2</sup> ):	18	22
Mean Maximum Depth (cm):	28	6
Mean Average Depth (cm):	15	1
Mean Residual Depth (cm):	13	--
Percent Surveyed as Glides:	0	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	8	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	49
< 5 m long, > 55 cm diameter:	0
> 5 m long, 10 cm – 55 cm diameter:	53
> 5 m long, > 55 cm diameter:	4
Total -	106

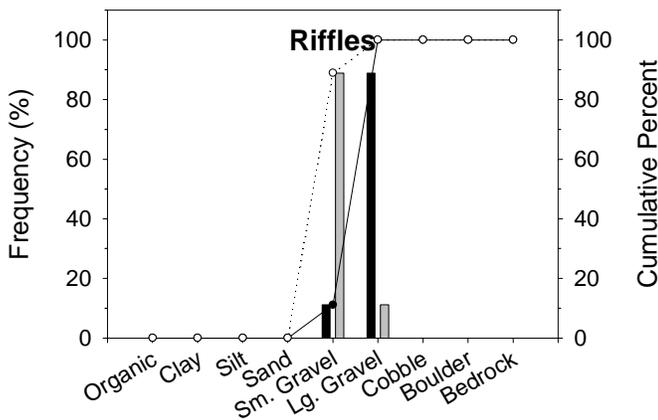
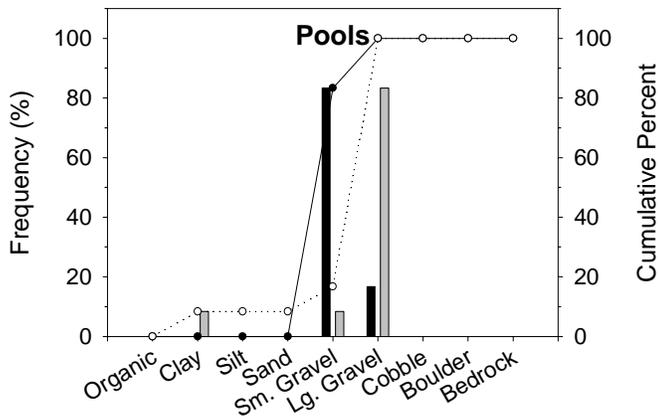
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	8	2
Maximum	8	4
75 <sup>th</sup> Percentile	8	3
25 <sup>th</sup> Percentile	8	1
Minimum	8	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

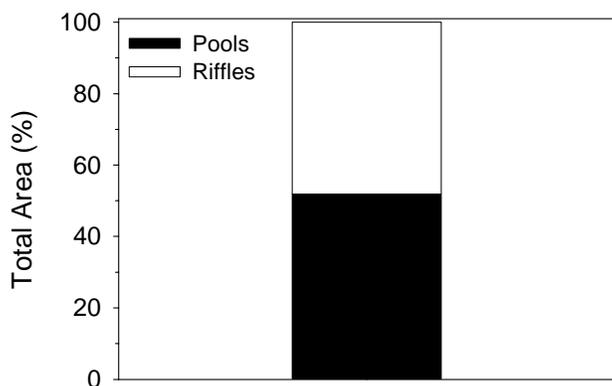
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	100
C:	0
D:	0
E:	0
F:	0
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	4
Mean Channel Gradient (%):	2
Median Water Temperature (C):	20

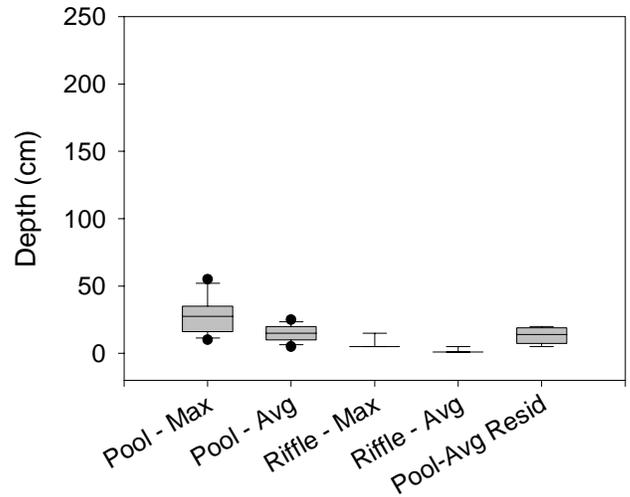


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

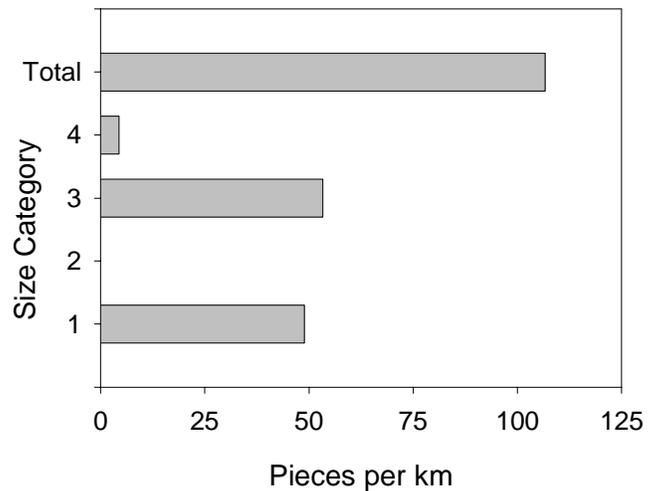
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 001094, summer 2005.



Estimated area of stream section 001094 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 001094, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

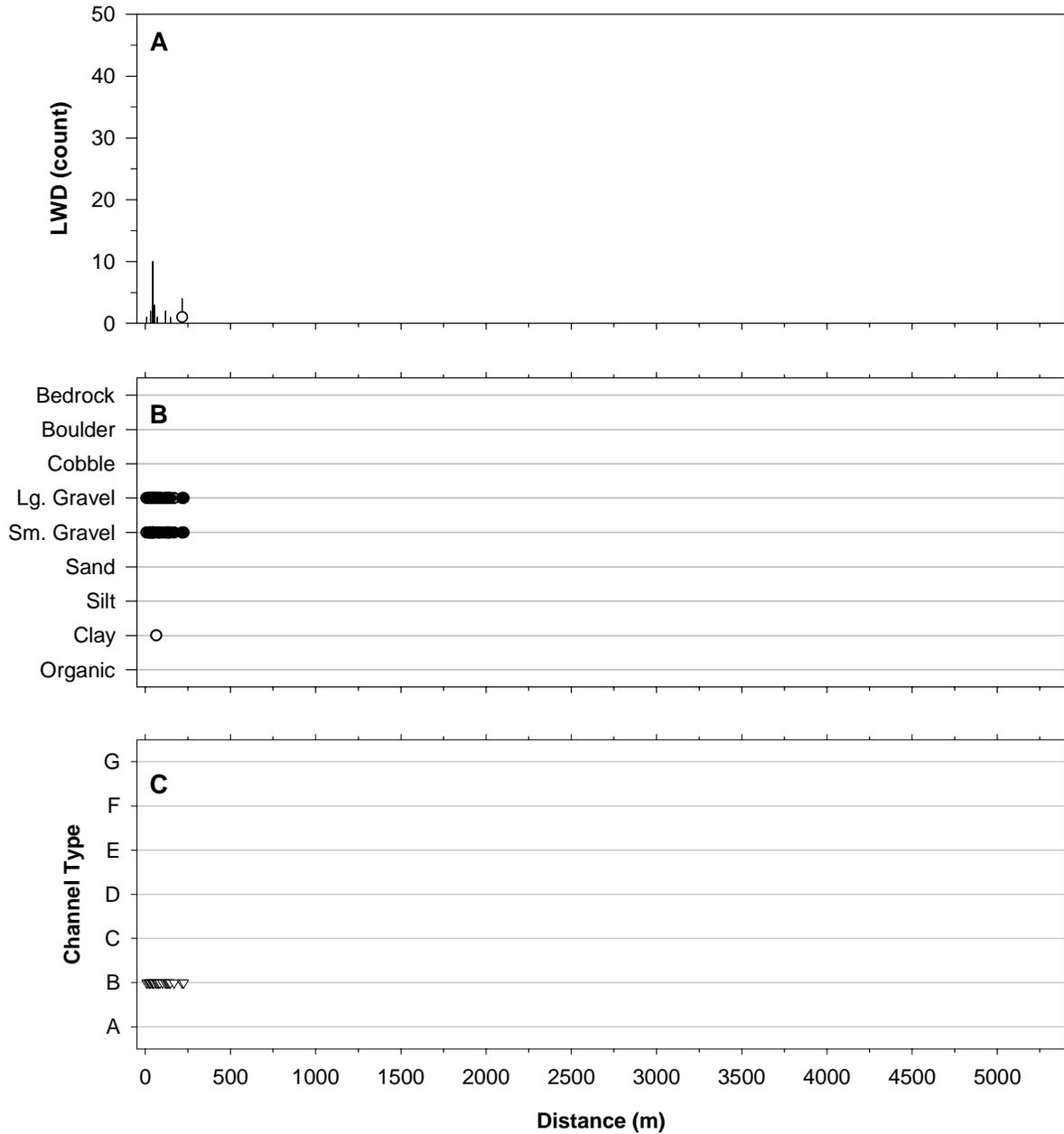


LWD per kilometer in stream section 001094, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 001094, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
UNGR	21.1		
UNGR	58.3		
OTR	161		DEAD DOG IN WATER
TRIB	225	2	LEFT, STREAM 002740
OTR			LOTS OF ILLEGAL DUMPING ALONG 852, APPLIANCES, GARBAGE, DEAD ANIMALS



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 001094, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 001094, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	6	118	GRAVEL ROAD 852 ON IMMEDIATE LEFT
OTR		161	DEAD DOG IN WATER

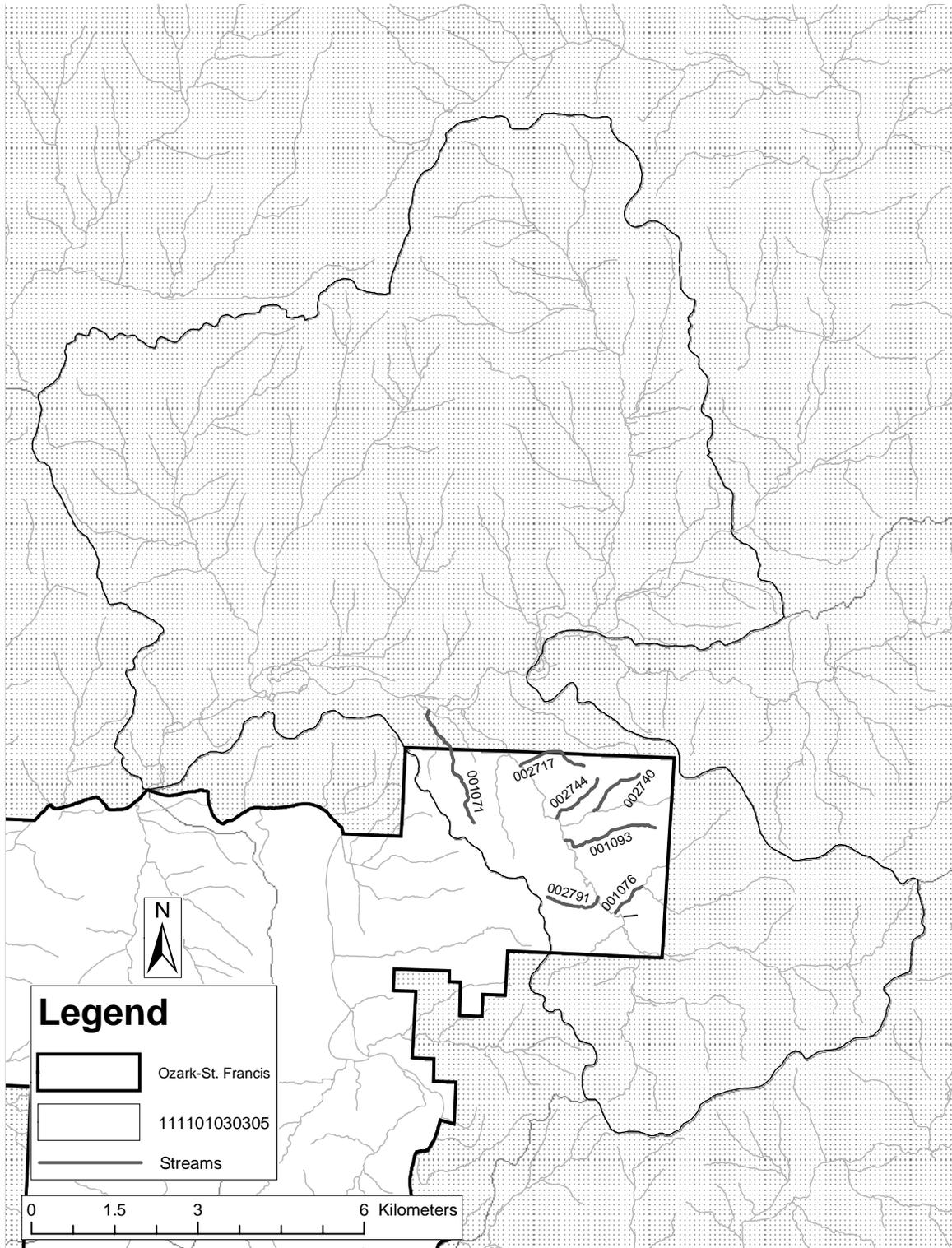


Figure 21. Stream reaches in watershed 111101030305 during summer 2005 with incomplete data due to dry or assumed dry stream channels, refer to table 3 for more information

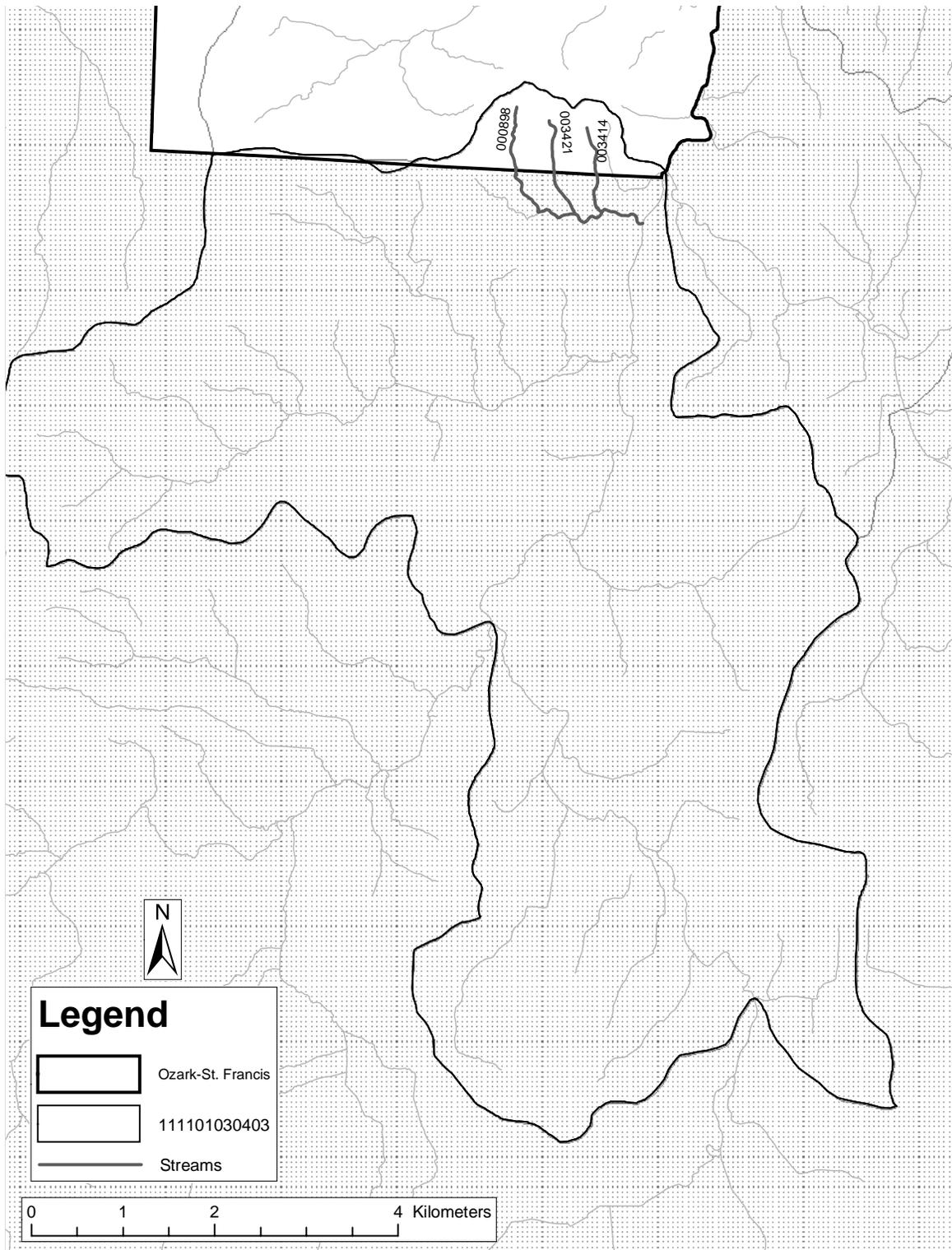


Figure 22. Stream reaches in watershed 111101030403 during summer 2005 with incomplete data due to dry or assumed dry stream channels, refer to table 3 for more information

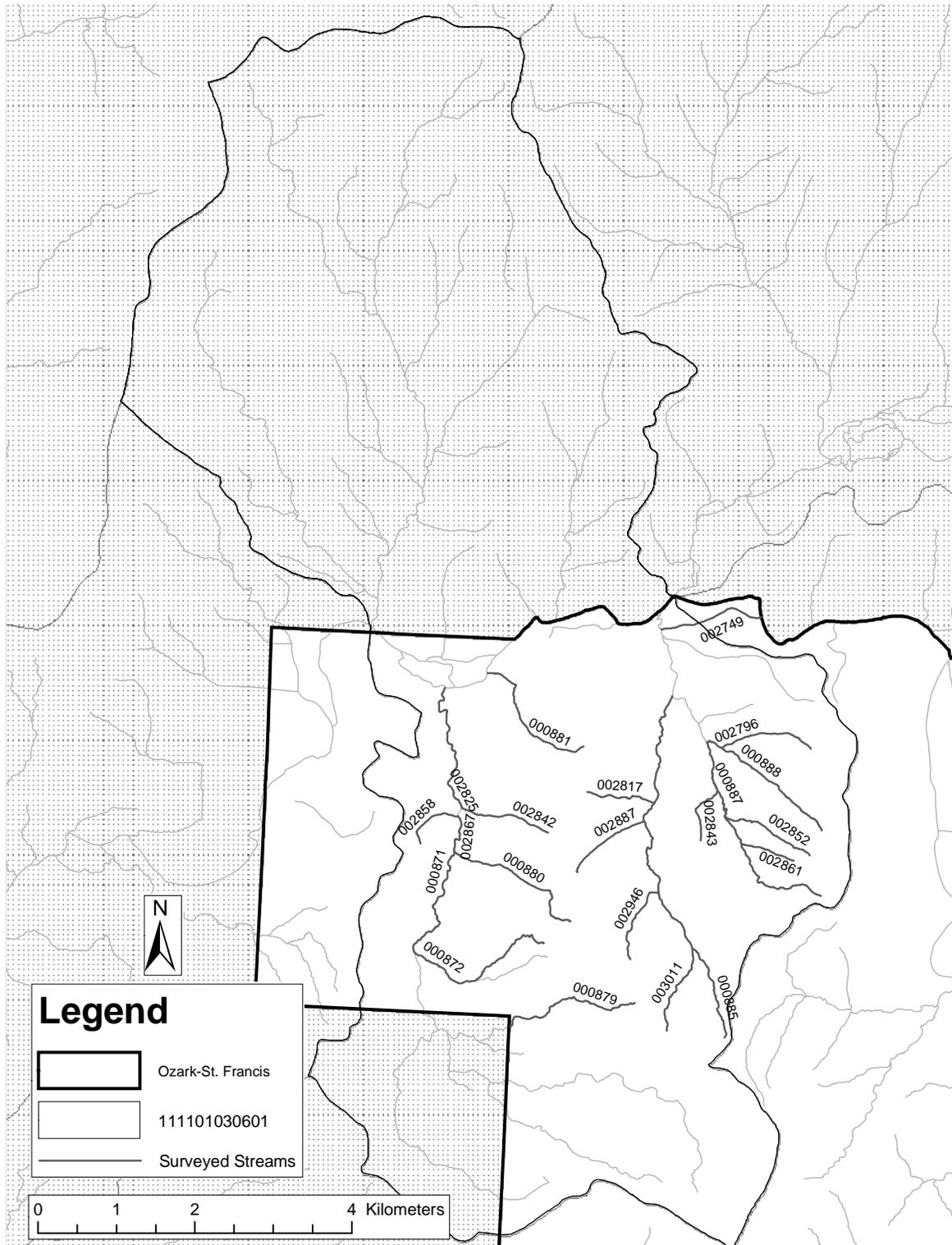


Figure 23. Stream reaches visited in watershed 111101030601 during summer 2005.

<b>Stream:</b>	000871 and 002867, Chambers Hollow
District:	Boston Mountain
USGS Quadrangle:	Gallatin
6 <sup>th</sup> Level HUC	111101030601
Survey Date:	7/26/2005
Downstream Starting Point:	FOREST SERVICE BOUNDARY, BARBED WIRE FENCE
Total Distance Surveyed (km):	1.4

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	69	31
Total Area (m <sup>2</sup> ):	4000±2438	1811±448
Correction Factor Applied:	1.02	1.24
Number of Paired Samples:	3	3
Total Count:	30	26
Number per km:	22	19
Mean Area (m <sup>2</sup> ):	133	70
Mean Maximum Depth (cm):	86	14
Mean Average Depth (cm):	53	9
Mean Residual Depth (cm):	45	--
Percent Surveyed as Glides:	10	--
Percent Surveyed as Runs:	--	4
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	7	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	19
< 5 m long, > 55 cm diameter:	3
> 5 m long, 10 cm – 55 cm diameter:	12
> 5 m long, > 55 cm diameter:	4
Total:	38

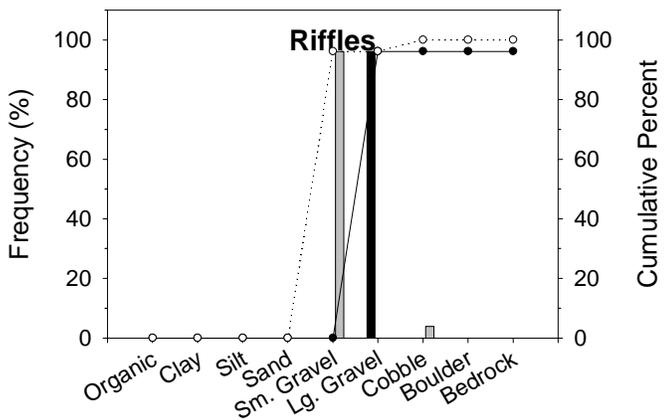
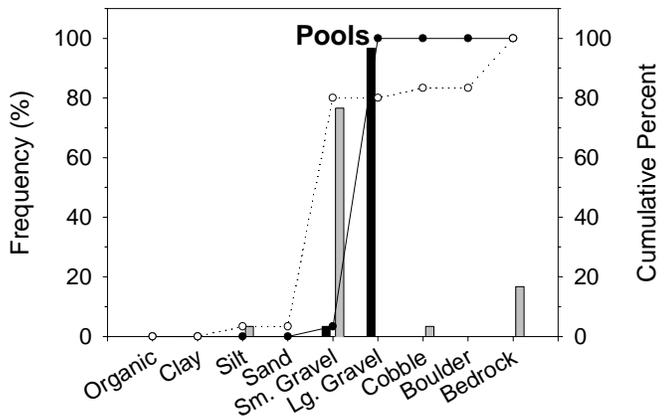
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	18	5
Maximum	19	11
75 <sup>th</sup> Percentile	19	10
25 <sup>th</sup> Percentile	17	1
Minimum	16	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

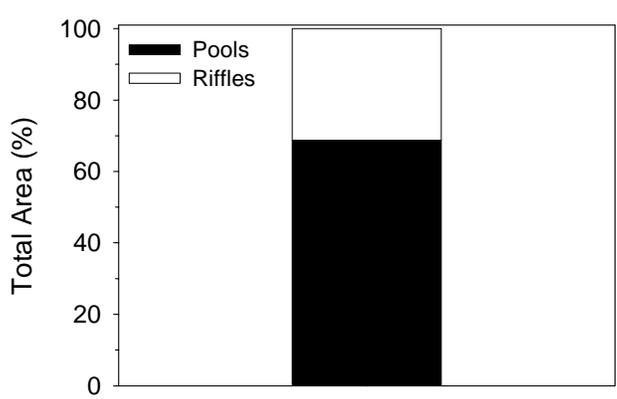
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	8
Mean Channel Gradient (%):	2
Median Water Temperature (C):	23

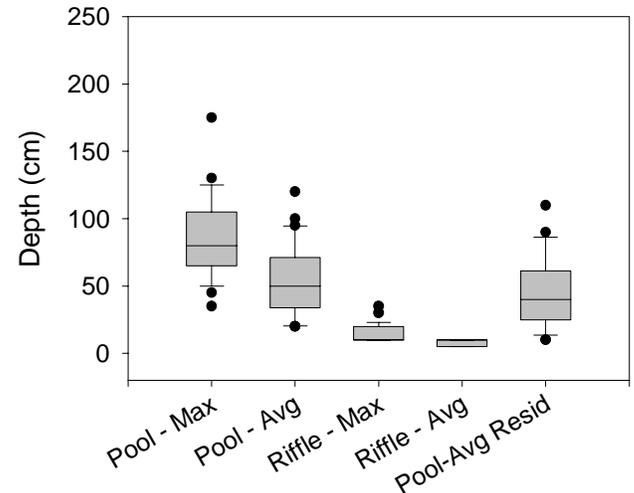


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

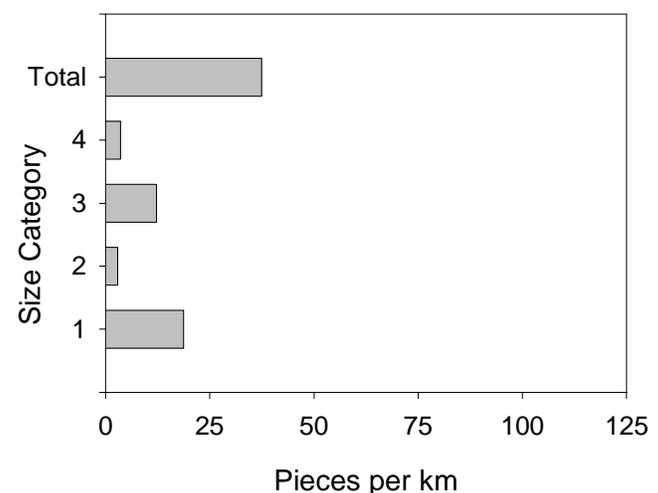
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream sections 000871 and 002867, summer 2005.



Estimated area of stream sections 000871 and 002867 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream sections 000871 and 002867, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

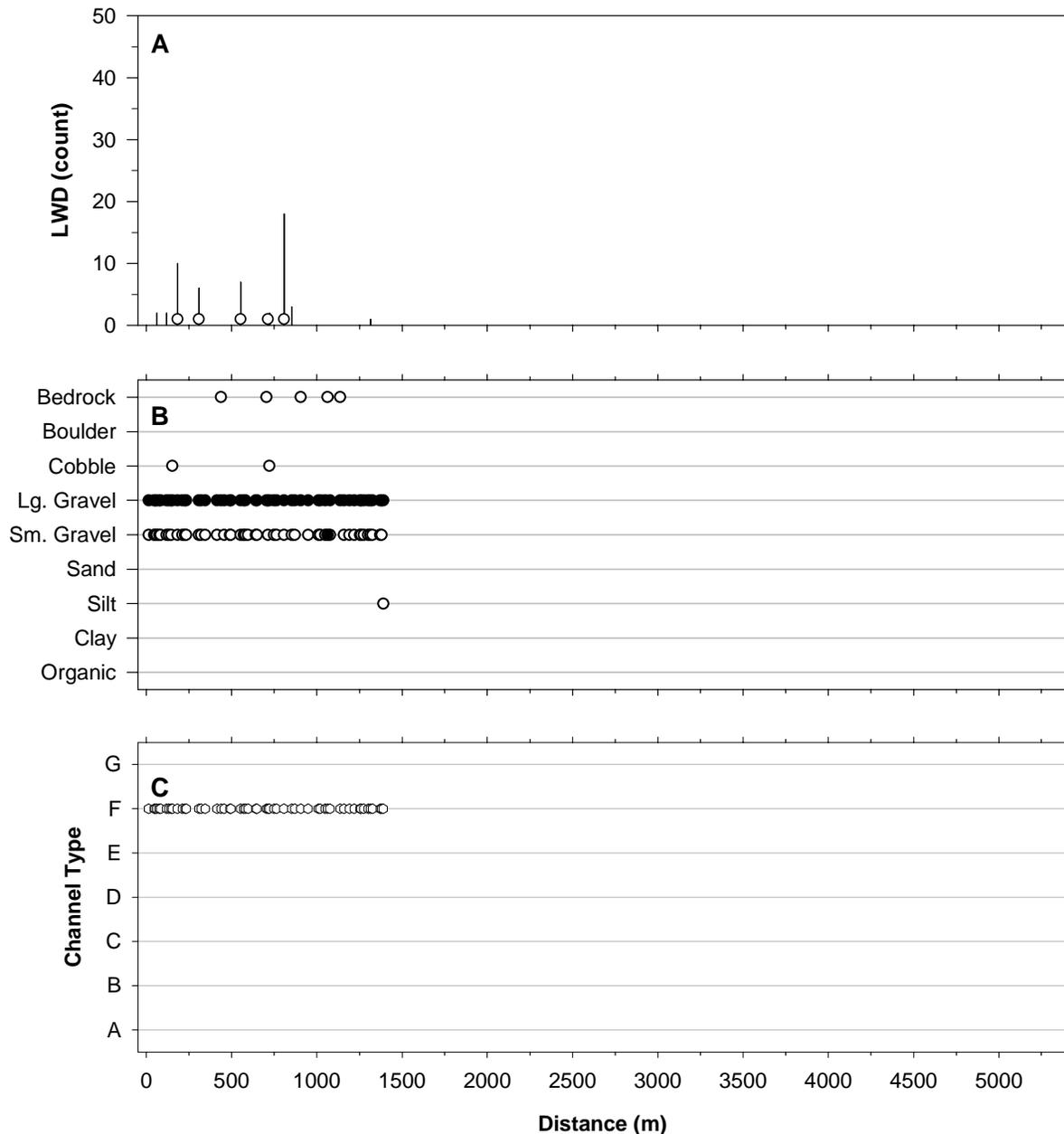


LWD per kilometer in stream sections 000871 and 002867, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream sections 000871 and 002867, BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
TRIB	197	1	
R	233.4	2	SITE FLAGGED FOR SHOCKING BY ONF, YELLOW FLAG THAT SAYS BOTTOM OF FISH SAMPLE
TRIB	490.9	1	
P	553	4	SITE FLAGGED FOR SHOCKING BY ONF, YELLOW FLAG THAT SAYS TOP OF FISH SAMPLE



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream sections 000871 and 002867, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream sections 000871 and 002867, during BVET habitat survey, summer 2005.  
Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	1	13.2	11110103002867 starts here
R	11	495.2	
P	22	1048.7	STREAM FLOWS THROUGH HOLES IN ROCKS
R	21	1159.8	

<b>Stream:</b>	000885
District:	Boston Mountain
USGS Quadrangle:	Gallatin
6 <sup>th</sup> Level HUC	111101030601
Survey Date:	7/25/2005
Downstream Starting Point:	FOREST BOUNDARY BY AN OLD FENCE AT PRIVATE
Total Distance Surveyed (km):	0.5

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	43	57
Total Area (m <sup>2</sup> ):	514±NC	695±NC
Correction Factor Applied:	0.97	1.13
Number of Paired Samples:	1	1
Total Count:	16	12
Number per km:	33	25
Mean Area (m <sup>2</sup> ):	32	58
Mean Maximum Depth (cm):	50	13
Mean Average Depth (cm):	25	9
Mean Residual Depth (cm):	18	--
Percent Surveyed as Glides:	13	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	0	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	37
< 5 m long, > 55 cm diameter:	2
> 5 m long, 10 cm – 55 cm diameter:	6
> 5 m long, > 55 cm diameter:	0
Total:	45

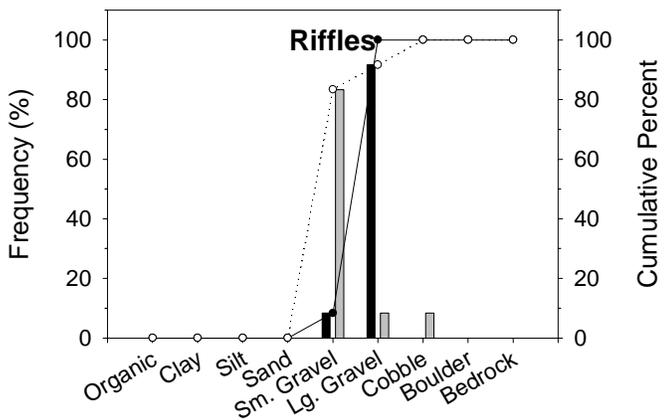
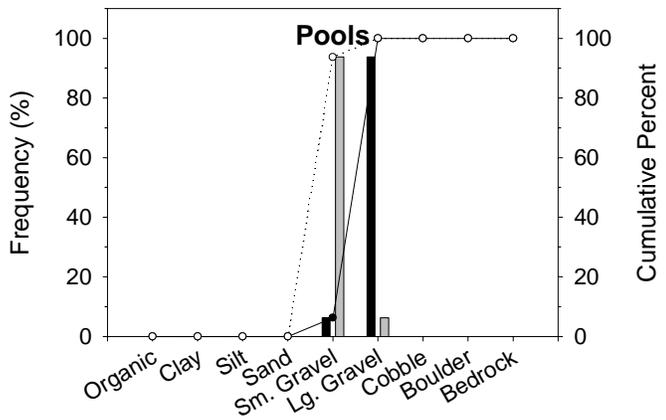
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	10	1
Maximum	10	2
75 <sup>th</sup> Percentile	10	2
25 <sup>th</sup> Percentile	10	1
Minimum	10	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

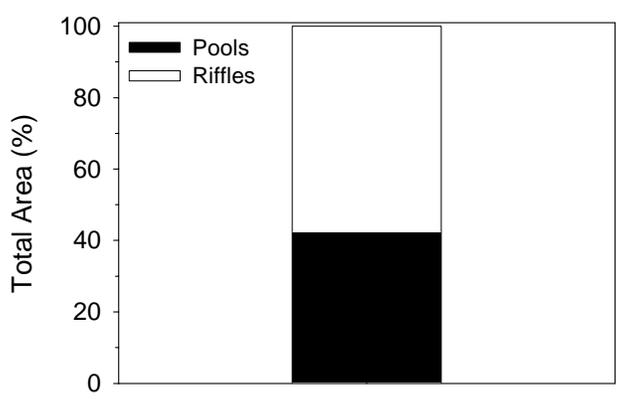
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	0
D:	0
E:	0
F:	100
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	7
Mean Channel Gradient (%):	2
Median Water Temperature (C):	16

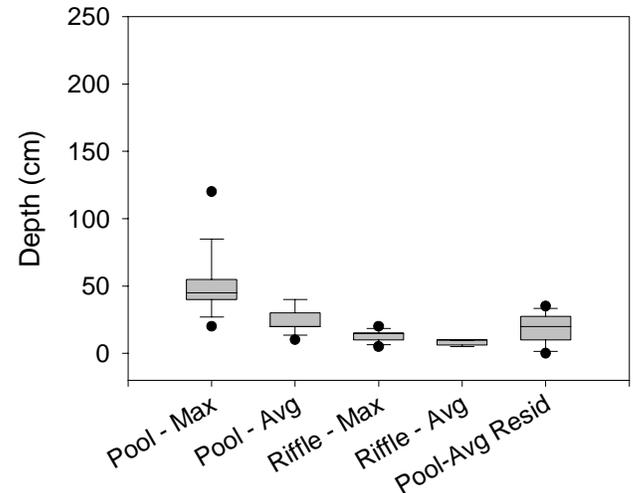


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

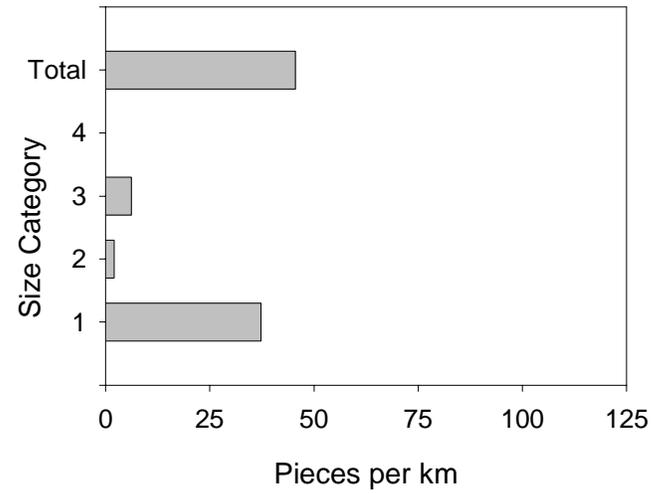
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 000885, summer 2005.



Estimated area of stream section 000885 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 000885, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

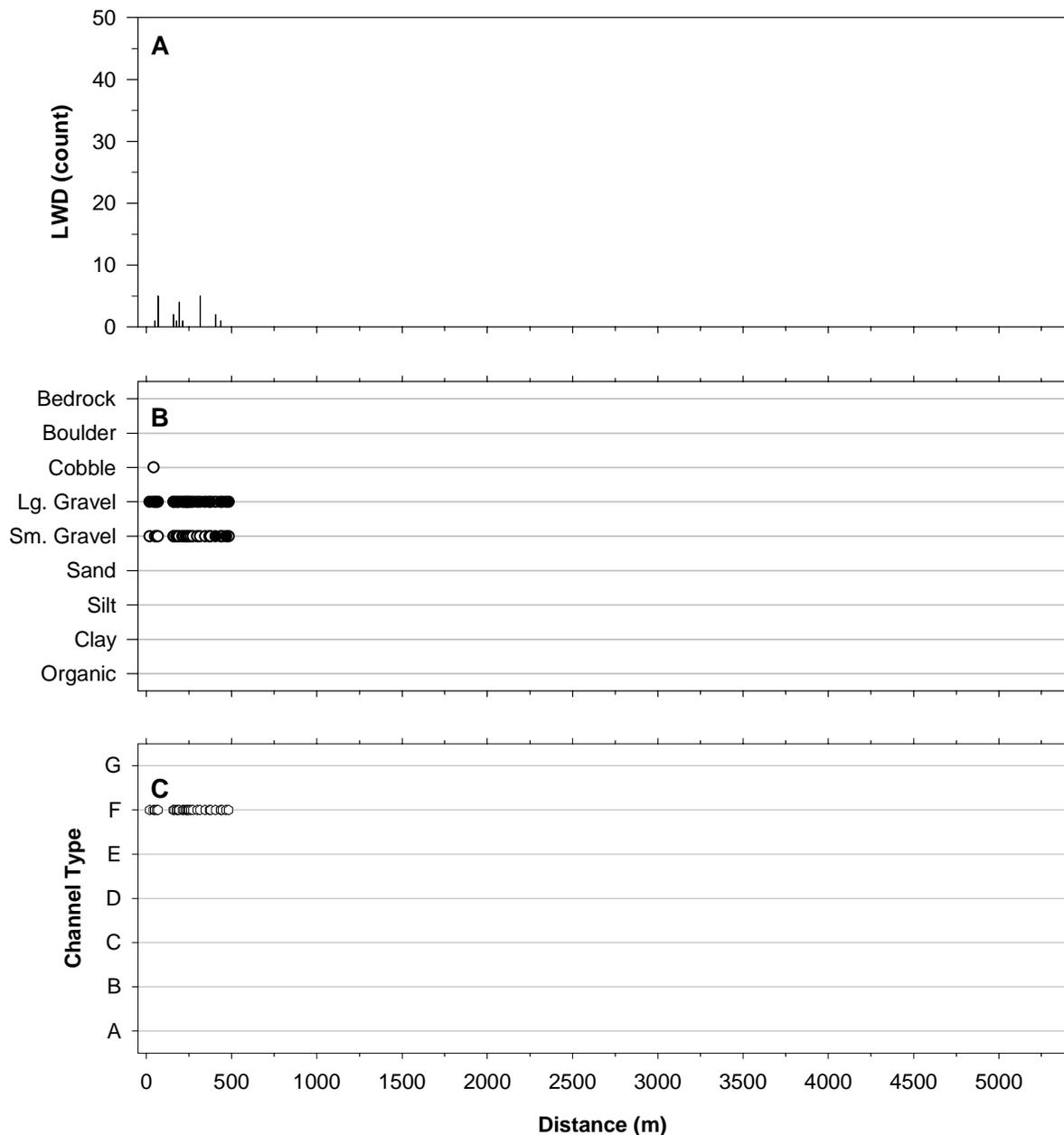


LWD per kilometer in stream section 000885, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 000885, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
TRIB	2.7	0.5	LEFT
TRAIL	76.4		HORSETRAIL CROSSING
UNGR	902.8		END SURVEY- STREAM DRY FOR 500 M



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 000885, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 000885, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
TRAIL		76.4	HORSETRAIL CROSSING
R	10	377.6	

<b>Stream:</b>	002825
District:	Boston Mountain
USGS Quadrangle:	Gallatin
6 <sup>th</sup> Level HUC	111101030601
Survey Date:	7/25/2005
Downstream Starting Point:	CONFLUENCE WITH ILLINOIS RIVER
Total Distance Surveyed (km):	1.3

	<b>Pools</b>	<b>Riffles</b>
Percent of Total Stream Area:	67	33
Total Area (m <sup>2</sup> ):	3466±648	1703±712
Correction Factor Applied:	1.02	1.06
Number of Paired Samples:	3	3
Total Count:	23	22
Number per km:	18	17
Mean Area (m <sup>2</sup> ):	151	77
Mean Maximum Depth (cm):	88	17
Mean Average Depth (cm):	53	10
Mean Residual Depth (cm):	43	--
Percent Surveyed as Glides:	22	--
Percent Surveyed as Runs:	--	0
Percent Surveyed as Cascades:	--	0
Percent with >35% Fines:	4	0

<b>Large Woody Debris Size</b>	<b>Pieces per km</b>
< 5 m long, 10 cm – 55 cm diameter:	47
< 5 m long, > 55 cm diameter:	6
> 5 m long, 10 cm – 55 cm diameter:	12
> 5 m long, > 55 cm diameter:	1
Total:	66

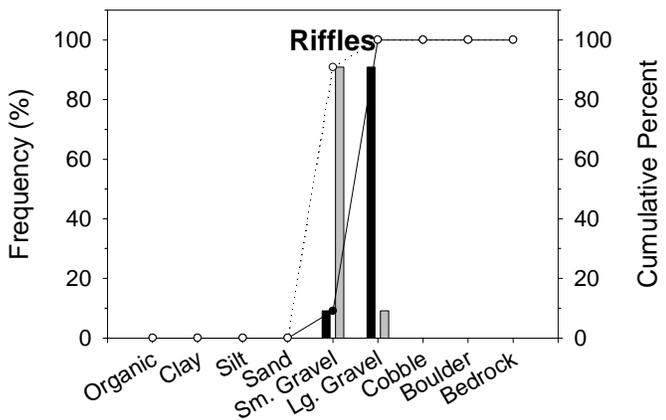
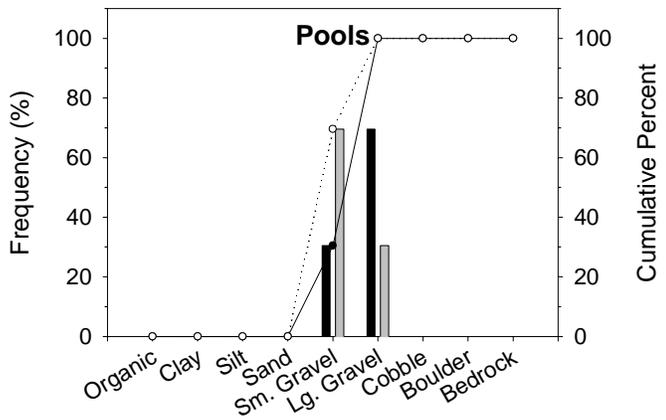
<b>Riparian Width</b>	<b>Total Width* (m)</b>	<b>Left &amp; Right Width** (m)</b>
Mean	27	9
Maximum	40	17
75 <sup>th</sup> Percentile	35	14
25 <sup>th</sup> Percentile	20	2
Minimum	12	1

\*Left riparian, right riparian, and bankfull channel widths were added together for calculations

\*\*Left and right riparian widths were grouped (not added) together for calculations

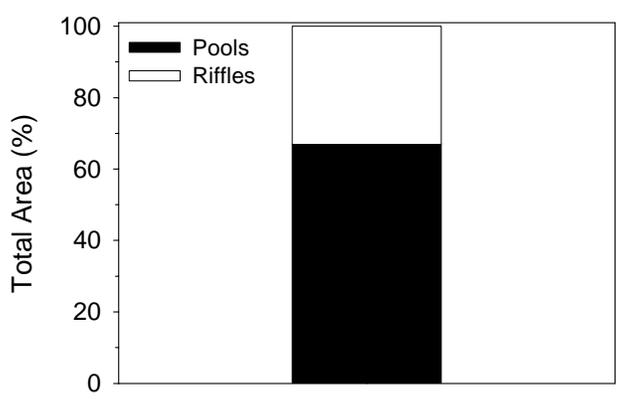
<b>Rosgen's Channel Type</b>	<b>Frequency (%)</b>
A:	0
B:	0
C:	29
D:	0
E:	0
F:	71
G:	0

<b>Other Stream Attributes</b>	
Mean Bankfull Channel Width (m):	9
Mean Channel Gradient (%):	2
Median Water Temperature (C):	22

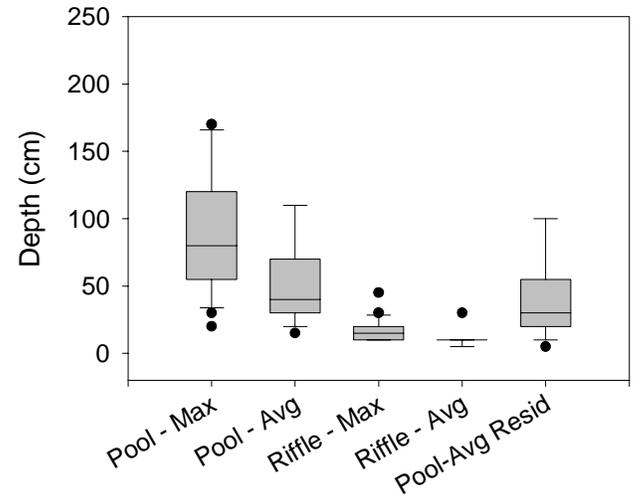


- █ Dominant %
- █ Subdominant %
- Dominant, Cumulative %
- Subdominant, Cumulative %

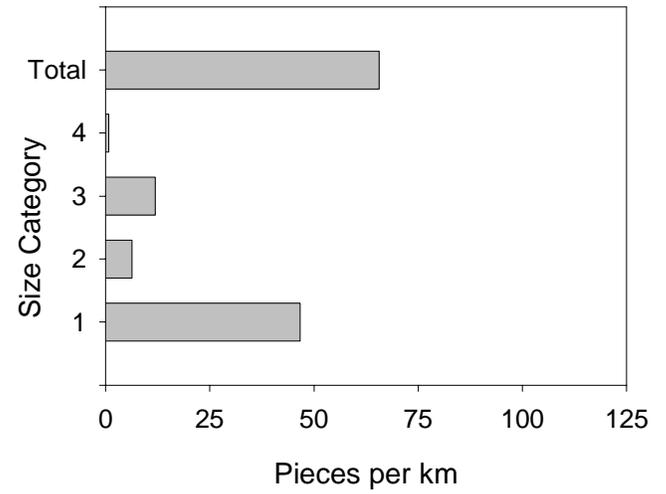
Frequency (percent) and cumulative percent of dominant and subdominant substrate occurrence for pools and riffles in stream section 002825, summer 2005.



Estimated area of stream section 002825 in pools and riffles as calculated using BVET techniques, summer 2005.



Maximum and average depths and residual pool depths for pools and riffles in stream section 002825, summer 2005. The top and bottom of the boxes represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the bar in the center of the box represents the median, whiskers represent the 10<sup>th</sup> and 90<sup>th</sup> percentiles, and closed circles represent the entire range of the data.

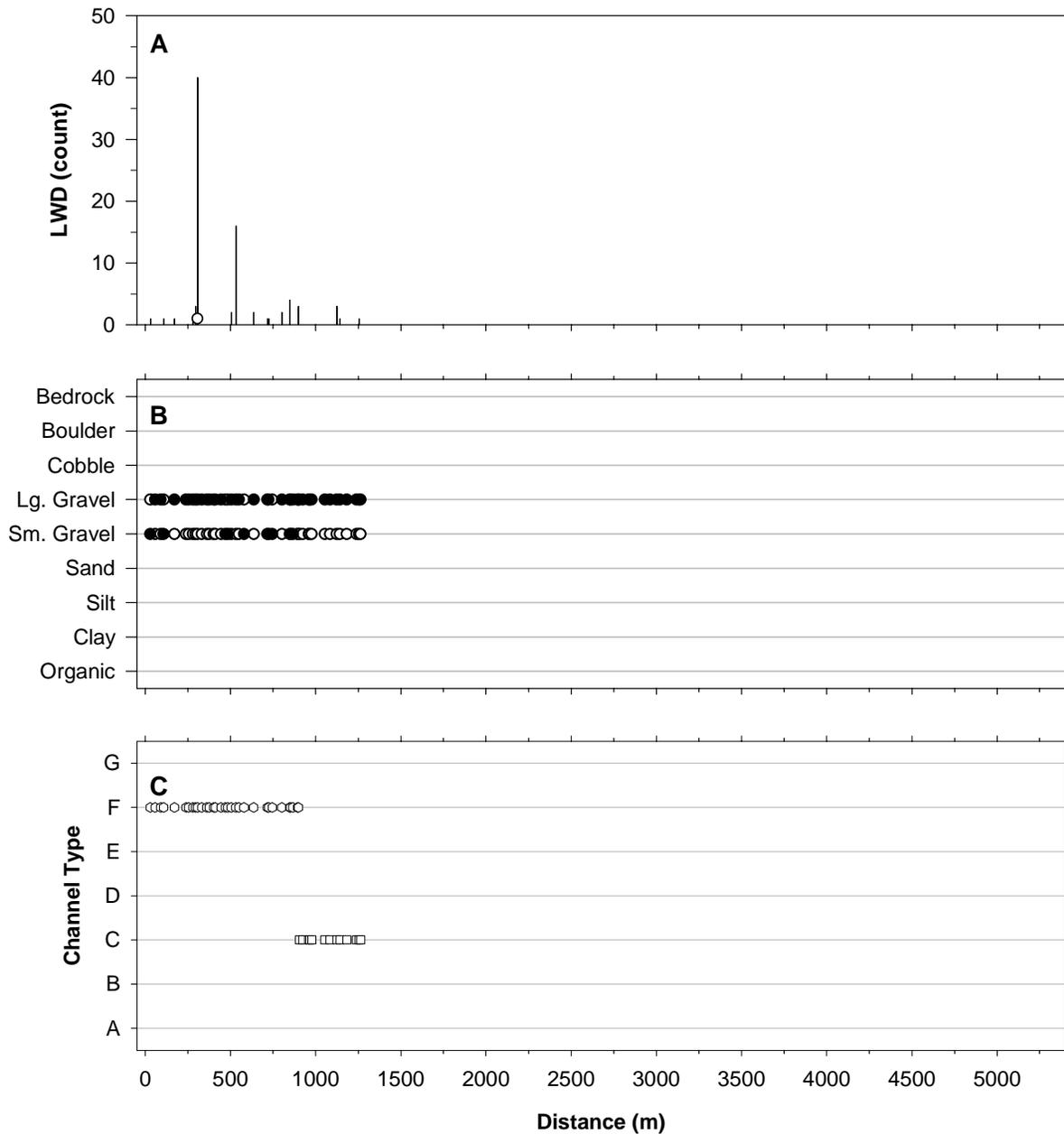


LWD per kilometer in stream section 002825, summer 2005. Y-axis labels are LWD size classes described below.

- Size 1: < 5 m long, 10-55 cm diameter
- Size 2: < 5 m long, > 55 cm diameter
- Size 3: > 5 m long, 10-55 cm diameter
- Size 4: > 5 m long, > 55 cm diameter

Stream features found on stream section 002825, BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Stream Feature</b>	<b>Distance (m)</b>	<b>Width (m)</b>	<b>Comments</b>
V	445.8		3 OUTLETS,ANNULARCMP, DIAM 140 CM, DISTANCE TO END 456.8, FOREST SERVICE ROAD 1754
SCH			RIGHT
SCH			OUT ON RIGHT



Distribution and abundance of LWD, distribution of substrates, and distribution of Rosgen's channel types (Rosgen 1996) in stream section 002825, summer 2005. LWD, substrate, and channel type were recorded for each habitat unit in the stream. X-axis indicates distance upstream from Forest Service Boundary. Vertical bars on (A) indicate total count of LWD; open circles represent the amount of the total LWD that was >5 m in length, >55 cm in diameter (size 4). Closed circles on (B) are dominant substrates, open circles are subdominant substrates. See Appendix A for substrate sizes. See Appendix A for channel type descriptions from (C).

Photos taken on stream section 002825, during BVET habitat survey, summer 2005. Distance is meters from start of survey.

<b>Unit Type</b>	<b>Unit Number</b>	<b>Distance (m)</b>	<b>Comments</b>
R	7	411.4	
R	17	904.1	
R	23	1264.2	MEASURED FOR THIRD PAIRED SAMPLE, END SURVEY- APPROX FOREST BOUNDARY- DID NOT SEE BLAZES

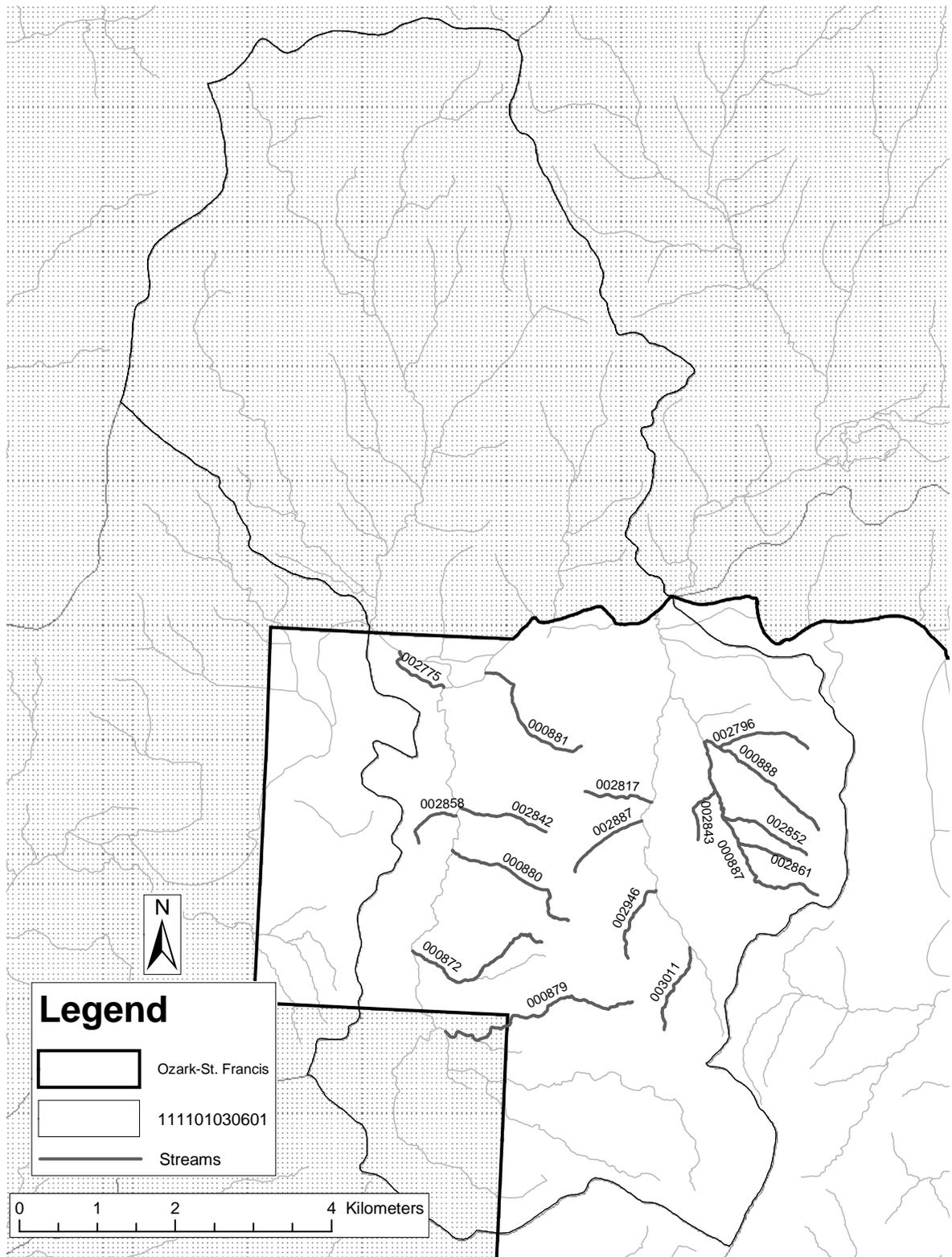


Figure 24. Stream reaches in watershed 111101030601 during summer 205 with incomplete data due to dry or assumed dry stream channels, refer to table 3 for more information

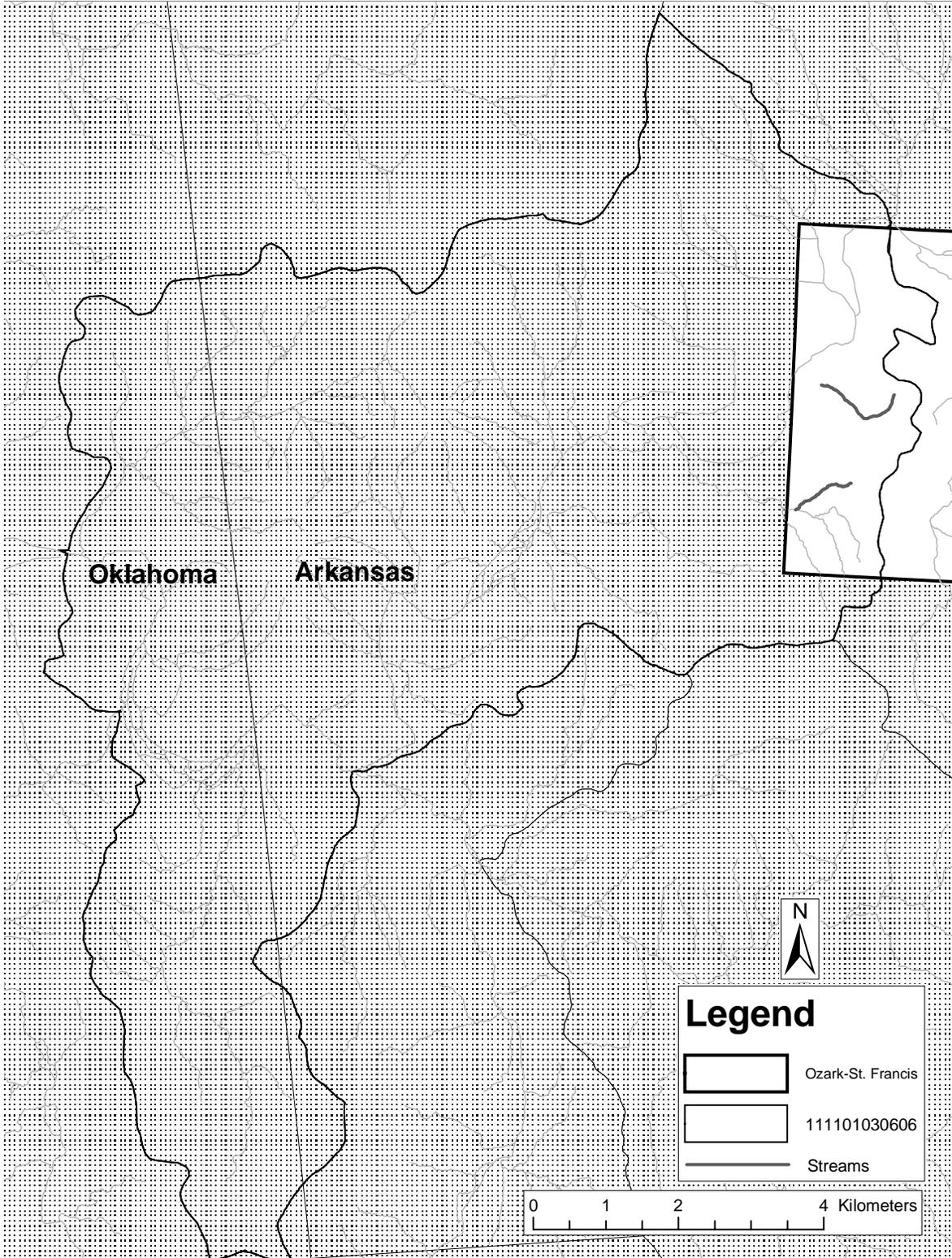


Figure 25. Stream reaches in watershed 111101030606 during summer 2005 with incomplete data due to no access, refer to table 3 for more information

## **Electrofishing Results**

Table 4. Species captured by backpack electrofishing reaches on the ONF, summer 2005.

Family	species	common name	abbreviation
Aphredoderidae	<i>Aphredoderus sayanus</i>	Pirate perch	PP
Catostomidae	<i>Erimyzon oblongus</i>	Creek chubsucker	CCS
	<i>Hypentelium nigricans</i>	Northern hog sucker	NH
Centrarchidae	<i>Moxostoma erythrurum</i>	Golden redhorse	GR
	<i>Catostomid spp.</i>	Sucker species	Ss
	<i>Lepomis cyanellus</i>	Green sunfish	GS
	<i>Lepomis macrochirus</i>	Bluegill	BG
	<i>Lepomis megalotis</i>	Longear sunfish	LS
	<i>Micropterus salmoides</i>	Largemouth Bass	LB
	<i>Campostoma anomalum</i>	Central stoneroller	CS
	<i>Lythrurus umbratilis</i>	Redfin shiner	RS
	<i>Notropis boops</i>	Bigeye shiner	BS
	<i>Pimephales notatus</i>	Bluntnose minnow	BM
Cyprinidae	<i>Semotilus atromaculatus</i>	Creek chub	CC
	<i>Cyprinid spp.</i>	Cyprinid species	Cs
	<i>Esox americanus</i>	Grass pickerel	GP
	<i>Fundulus olivaceus</i>	Blackspotted topminnow	BT
	<i>Noturus exilis</i>	Slender madtom	SM
	<i>Etheostoma bleennioides</i>	Greenside darter	GD
	<i>Etheostoma spectabile</i>	Orangetroat darter	OD
	<i>Etheostoma whipplei</i>	Redfin darter	RD
	<i>Etheostoma spp.</i>	Darter species	Es

Table 5. The number of individuals of each species captured in stream reaches on the Magazine Ranger District, ONF using backpack electrofishing in summer 2005. See Table 4 for species abbreviations. Column totals show total number of individuals captured (count) and total number of reaches where species was captured (reaches). Row total shows total number of species captured in each reach.

Reach	PP	CCS	NH	GR	Ss	GS	BG	LS	LB	CS	RS	BS	BM	CC	Cs	GP	BT	SM	GD	BM	OD	RD	Es	Total	
<b>111102021102</b>																									
000461	0	0	0	0	0	1	0	0	3	18	0	1	1	9	3	0	0	5	0	1	0	1	0	10	
000462	0	0	17	7	5	0	0	0	0	157	0	0	2	23	4	0	0	4	38	2	12	0	0	11	
005033	0	0	1	0	0	0	1	0	0	64	0	4	4	0	1	0	0	9	1	4	5	0	0	10	
000879	0	0	3	0	0	0	0	1	1	1	0	1	6	16	0	0	0	0	0	6	0	0	0	7	
<b>111102040303</b>																									
003776	0	10	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
111102040401																									
001098	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<b>111102040403</b>																									
000040	1	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	2	0	0	0	6	
000041	0	2	0	0	0	0	1	1	0	6	1	1	0	0	0	2	1	0	0	0	0	0	0	8	
000042	0	0	0	0	0	0	0	0	0	15	6	0	0	0	0	1	1	1	0	0	1	0	0	6	
000043	2	3	0	0	0	9	0	1	0	43	12	33	12	0	1	0	2	1	0	12	4	4	0	14	
000044	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0	1	0	0	3	
000045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	2	
000047	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
000302	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	1	0	0	3	
001169	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
001171	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	
001173	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	3	
Count:	3	16	21	7	5	12	4	3	4	339	20	41	27	48	12	9	5	20	39	27	24	6	1	1	
Reaches:	2	4	3	1	1	4	2	3	2	11	4	6	6	3	6	5	4	5	2	6	6	3	1	1	

**Appendix A: Categories used during BVET inventories**

Table 6. LWD categories: Size classes used to categorize large woody debris during BVET habitat surveys on the Ozark NF summer 2005. Woody debris < 1.0 m in length or < 10 cm in diameter were omitted.

Category	Length (m)	Diameter (cm)
1	1-5	10-55
2	1-5	>55
3	>5	10-55
4	>5	>55
	rootwad	rootwad

Table 7. Substrate categories: Size classes used to categorize substrate particles during BVET habitat surveys on the Ozark NF summer 2005. Size was visually estimated on the intermediate axis (b-axis).

Type	Number	Size
Organic matter	1	Leaves, detritus, etc.
Clay	2	Sticky, holds form when rolled into a ball
Silt	3	Slippery, does not hold form when rolled into a ball
Sand	4	Silt – 2 mm, gritty does not hold form when rolled into a ball
Small gravel	5	3 – 16 mm, sand to fingernail
Large gravel	6	17 – 64 mm, fingernail to fist
Cobble	7	65 – 256 mm, fist to head
Boulder	8	> 256 mm, bigger than head
Bedrock	9	