Current Condition of Streams on the Glenwood Ranger District, George Washington - Jefferson National Forest, Virginia

Center for Aquatic Technology Transfer
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Blacksburg, VA 24061-0321

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Introduction - In Spring 1997 we began stream habitat surveys on the Glenwood Ranger District (GRD), George Washington - Jefferson National Forest (GW - JNF) to quantify current stream conditions. Habitat in over 60 miles of stream (40 streams) was classified and inventoried between 31 May and 31 July 1997 using Basinwide Visual Estimation Techniques (BVET [Dolloff et. al 1993]).

We modified standard BVET methods to measure stream habitat parameters identified in the George Washington (GW) forest plan. Included in the forest plan is an outline of the desired-future-condition (DFC) for all the streams within the GW based on physical habitat. The pertinent DFCs for the GW include woody debris loading of 125 to 300 pieces per mile and 30 to 70 percent of the total stream habitat in pools. The use of BVET allowed us to estimate woody debris loading, percentage of pool and riffle area, and the width of the riparian area of streams in the GRD. Further, we were able to map the distribution of woody debris in all streams surveyed.

The purpose of this report is to describe the current conditions of GRD streams in a format useful to the GRD and the GW-JNF. The inclosed information is intended as a baseline for GRD managers involved in habitat improvement projects or land use decisions.

Methods - Two-stage visual estimation techniques were used to quantify habitat and DFCs in selected GRD streams. During the first stage, all habitat units were classified and the surface area and depth were estimated. Sampling strata were based on naturally occurring habitat units such as pools (an area in the stream with low water velocity, streambed gradient near zero, and a smooth water surface) and riffles (an area in the stream with relatively steep gradient, shallow water, relatively high velocity, and turbulent surface). Surveys began at confluences for streams confined to the GRD and at the downstream USFS boundary for all other streams. Surveys were terminated when we encountered an upstream USFS property boundary or determined the stream to be intermittent.

Habitat in each stream was classified and inventoried by a two-person crew. One crew member identified each habitat unit by type, estimated surface area, and estimated the average and maximum depth of each habitat unit. Average depth of each habitat unit was estimated by taking depth measurements at various places across the channel profile with a graduated staff marked in 0.1-ft increments. Depth at the riffle crest was also measured (0.1 ft) at the tail of each pool. The length (0.1 ft) of each habitat unit was measured with a hip chain.

Another crew member classified and inventoried large woody debris (LWD), associated with each habitat unit, within the stream channel and recorded the data on a Husky Hunter field computer. LWD was divided into four classes: 1) less than 15-ft long, less than 14-in diameter, 2) less than 15-ft long, greater than 14-in diameter, 3) greater than 15-ft long, less than 14-in diameter, and 4) greater than 15-ft long, greater than 14-in diameter. All LWD less than 4-ft long and less than 4-in diameter were omitted from the survey.

The first unit of each habitat type selected for intensive sampling (accurate measurement of surface area - second stage sampling) was determined randomly. Additional units were selected systematically (one unit out of 20 for each habitat type). The width of these systematically selected habitat units was measured with a 50-ft measuring tape at intervals ranging from about 5 ft to 15 ft. Interval size was determined by the length and the morphology of the unit (e.g., intervals of measured widths increased with increasing unit length).

The relationship between the estimated surface area and the measured surface area typically is strongly and positively correlated when the estimates are made by experienced

personnel; thus, visual estimates were corrected by multiplying all estimates by a calibration ratio (Hankin and Reeves 1988). The calibration ratio ($\hat{Q}$), the estimated true total area ($\hat{M}$) and the variance of the area estimator $\hat{V}(\hat{M})$ were calculated separately for each habitat type and each stream.

In each of the systematically selected riffles we also estimated the stream channel width (ft) at bankfull and riparian width (ft) as described by Harrelson et. al 1994. We used this information to describe the channel and flood plain associated with each stream.

BVET calculations were computed using a Statistical Analysis Systems (SAS) program developed by Dr. Patricia Flebbe (140 Cheatham Hall, VA Tech, Blacksburg, VA 24061-0321). Data were summarized using a Quattro Pro spreadsheet.

User's Guide - Stream Summaries are organized alphabetically by U. S. Geological Survey Topographic Quadrangle. Data for each stream were collected, analyzed, and presented separately. Each stream summary contains: 1) synopsis of stream characteristics , 2) percent pools and riffles graph, 3) LWD size graph, 4) LWD distribution graph, and 5) boxplot of riparian measurements. Streams without riparian boxplots were streams with less than two riparian measurements. GW-JNF DFCs are indicated on all pertinent graphs.

We also included references tables of all streams surveyed which will allow managers to quickly assess the present condition of GRD streams in relation to pertinent DFCs. Streams are arranged by DFC parameters (percent pool habitat and LWD pieces per mile) in descending order. DFCs are indicated within each table.

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, Forest Service, Southeastern Forest Experimental Station. 25 pp.

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.

Harrelson, Cheryl C.; Rawlins, C. L.; Potyondy, John P. 1994. Stream channel reference sites: an illustrated guide to field technique. Gen. Tech. Rep. RM-245. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 61p.

Acknowledgments

We would like to thank the following people for their contributions to this report: Dan Andrews, Chris Burcher, Sara Grove, Deidre Watson, Mike Robertshaw, Keith Whalen, and Powell Wheeler.

Reference Tables

Table 1. Large woody debris (LWD) pieces per mile in streams on the Glenwood Ranger District. Streams above the double line meet GW-JNF DFCs.

Stream	LWD per mile	Miles Surveyed
East Fork Elk Creek Tributary	852.9	1.2
Stony Creek	662.3	2
Bellamy Creek	588.3	0.8
Overstreet Creek	579.4	2
Hunting Creek	531.1	2.7
Apple Orchard Falls	488	1.8
Falling Water Creek	473.7	1.1
Reed Creek	352	2.3
Hopper Creek	326	0.8
Cornelius Creek	309.6	2.2
Sprouts Run	280.3	3.5
Gilmore Creek	279.9	1.3
McFalls Creek	265.3	3.6
North Buffalo Creek	222.7	1.1
Sulpher Spring Hollow	213.6	0.8
McCoglin Branch	211.8	0.7
Little Hellgate Creek	207	1.1
Little Cove Creek	200	0.5
Smith Branch	200	1.1
Cove Creek	197.2	1.7
North Creek	195.8	1.9
Chestnut Run	187.2	0.6
Colon Hollow	184.7	1.1
Peters Creek	181.8	1.9
Snow Creek	178	1.7
Back Run	175.9	1.7
Big Hellgate Creek	175.6	0.9
Snakeden Tributary	168.3	1
Billy's Branch	158.7	0.7
Falling Rock Creek	157.1	0.8
Matts Creek	148.1	2.1
	**********	
	LWD ≤ 125 pieces per mile	
	**********	
Belfast Creek	117.9	1.4
Middle Creek	117	2.5
Jennings Creek	112.7	5.9
Yellowstone Branch	108.3	1.1
Opossum Hollow	76.8	1.7

Table 1. Continued.

Stream	LWD per mile	Miles Surveyed
East Fork Elk Creek	65.5	3.1
Elk Creek	50	0.8
Battery Creek	46.3	0.4

Table 2. Percent pool habitat of streams surveyed on the Glenwood Ranger District. Streams above the line meet GW-JNF DFCs.

Stream	Percent Pool Habitat	Miles Surveyed
Elk Creek	64	0.8
Cove Creek	59.4	1.7
Yellowstone Branch	54.9	1.1
Matts Creek	49.6	2.1
North Creek	48.4	1.9
East Fork Elk Creek	47.6	3.1
Smith Branch	45.8	1.1
Little Cove Creek	45.5	0.5
Big Hellgate Creek	45.2	0.9
Jennings Creek	42.9	5.9
Chestnut Run	37.5	0.6
McCoglin Branch	36.9	0.7
Sprouts Run	36.2	3.5
Overstreet Creek	35.9	2
Stony Creek	35.8	2
McFalls Creek	35.2	3.6
Cornelius Creek	34.6	2.2
Back Run	33.9	1.7
Colon Hollow	33.3	1.1
Hunting Creek	33.1	2.7
Gilmore Creek	31.5	1.3
Belfast Creek	31.3	1.4
	**********	
	Pool Habitat ≤ 30%	
	**********	
Snow Creek	28.5	1.7
North Buffalo Creek	28.3	1.1
Falling Water Creek	27.5	1.1
Middle Creek	27.4	2.5
Apple Orchard Falls	27.2	1.8
Snakeden Tributary	26.5	1

Table 2. Continued.

Stream	Percent Pool Habitat	Miles Surveyed
Falling Rock Creek	26.3	0.8
Peters Creek	21.8	1.9
Little Hellgate Creek	20.6	1.1
East Fork Elk Creek Tributary	20.1	1.2
Hopper Creek	18.3	0.8
Opossum Creek	17.5	1.7
Sulpher Spring Creek	17.3	1.7
Reed Creek	16.6	2.3
Bellamy Creek	12.5	0.8
Battery Creek	12.1	0.4
Billy's Branch	2.5	0.7

Stream Summaries

Arnold Valley Quadrangle

Stream: Apple Orchard Falls
Quadrangle: Arnold Valley
Sample Date: 06/18/97
Downstream Starting Point: Confluence with North Creek
Total Distance Surveyed: 1.82 miles

Percent of Total Area - Pools: 27.2%

Number of Pools: 175
Number of Pools per Mile: 96
Total Pool Area: 35,085.8 sq. ft. ± 3,335.9
Mean Pool Area: 200.5 sq. ft.
Correction Factor: 1.07
Mean Maximum Depth: 1.8'
Mean Average Depth: 1.2'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 72.8%

Number of Riffles: 130
Number of Riffles per Mile: 71
Total Riffle Area: 93,755.9 sq. ft. ± 16,999.3
Mean Riffle Area: 721.2 sq. ft.
Correction Factor: 1.18
Mean Maximum Depth: 0.8'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 488.0

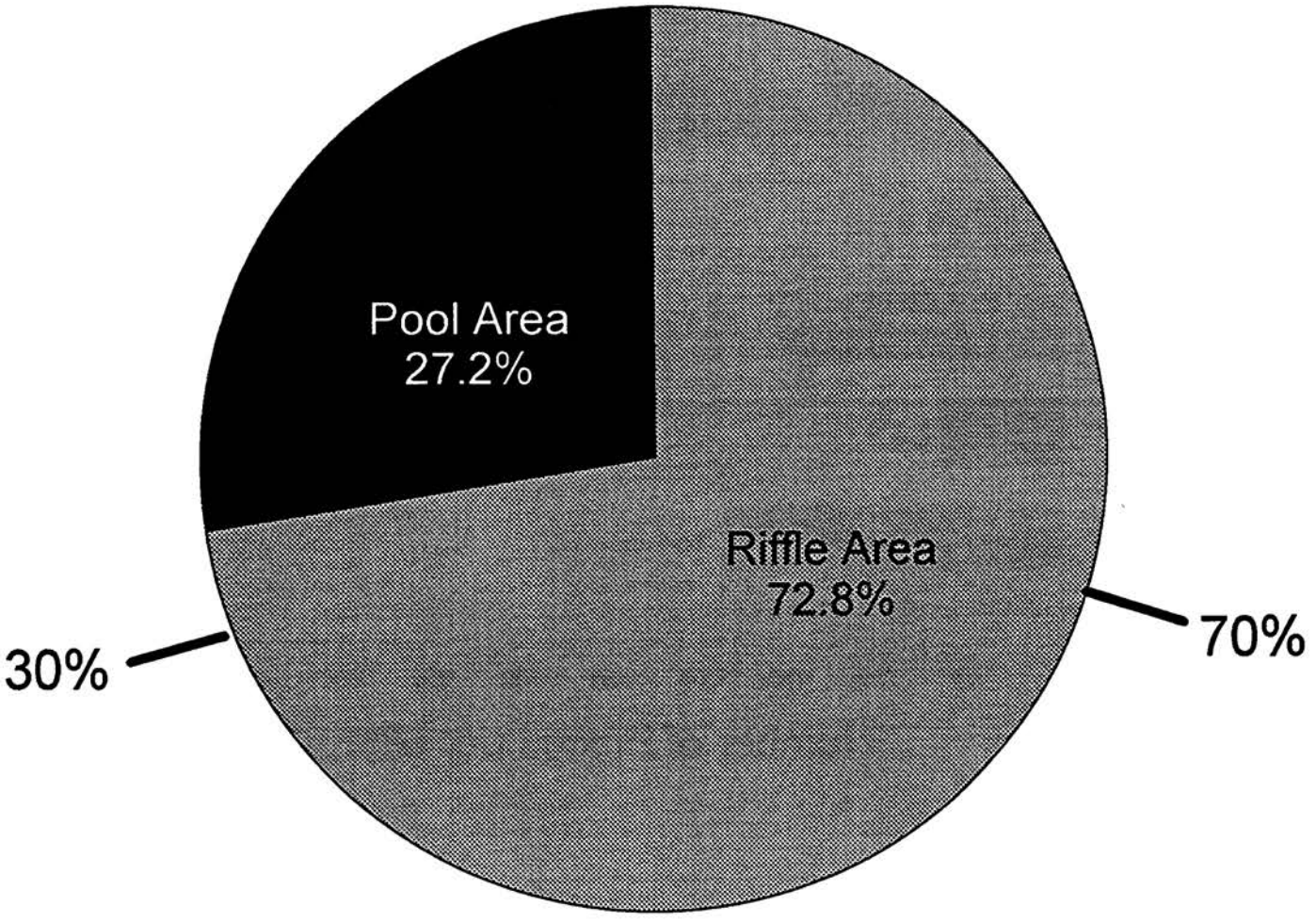
Wood < 15' and < 14": 184.8
Wood < 15' and > 14": 64.1
Wood > 15' and < 14": 194.1
Wood > 15' and > 14": 45.0

Mean Channel Width: 25.8'
Mean Riparian Width: 68.1'

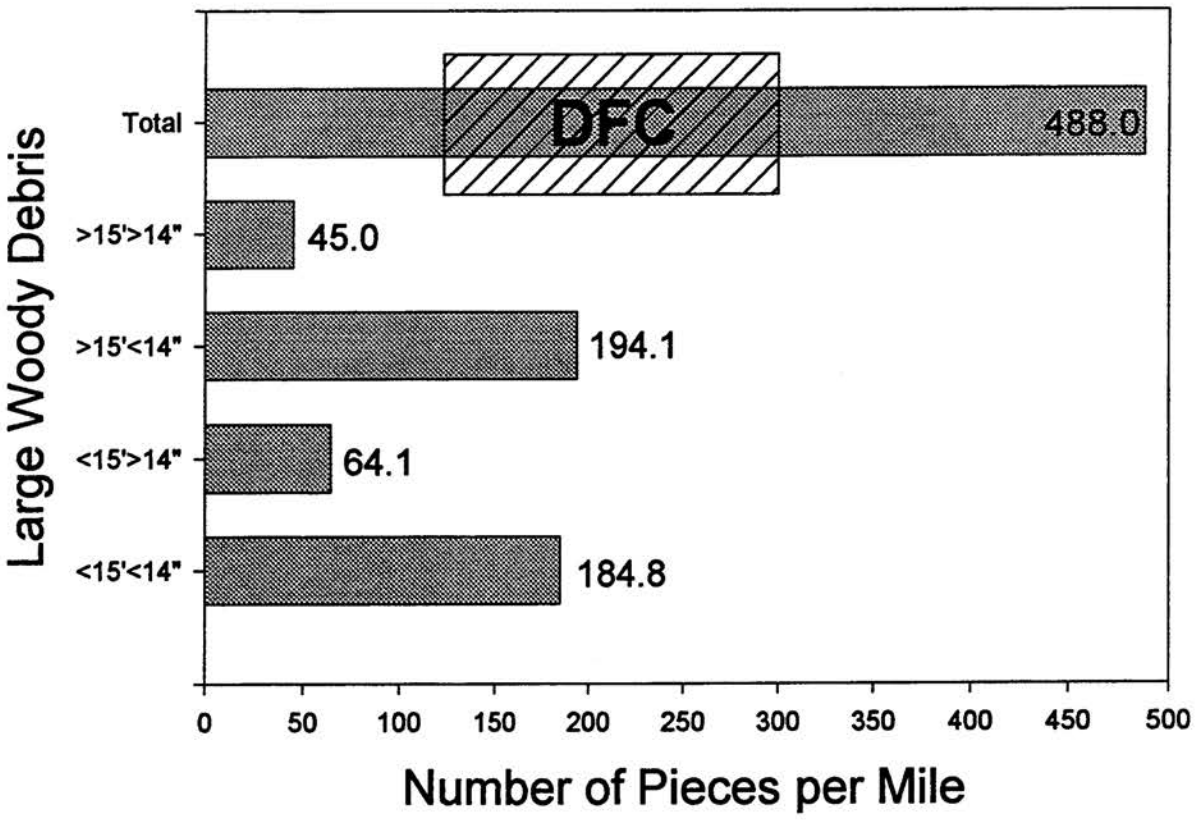
Mean Maximum Riparian Distance (either side): 32.9'
Mean Minimum Riparian Distance (either side): 9.5'
Maximum Riparian Width (Total): 112.9'
Minimum Riparian Width (Total): 36.0'

Apple Orchard Falls Pool:Riffle Ratio

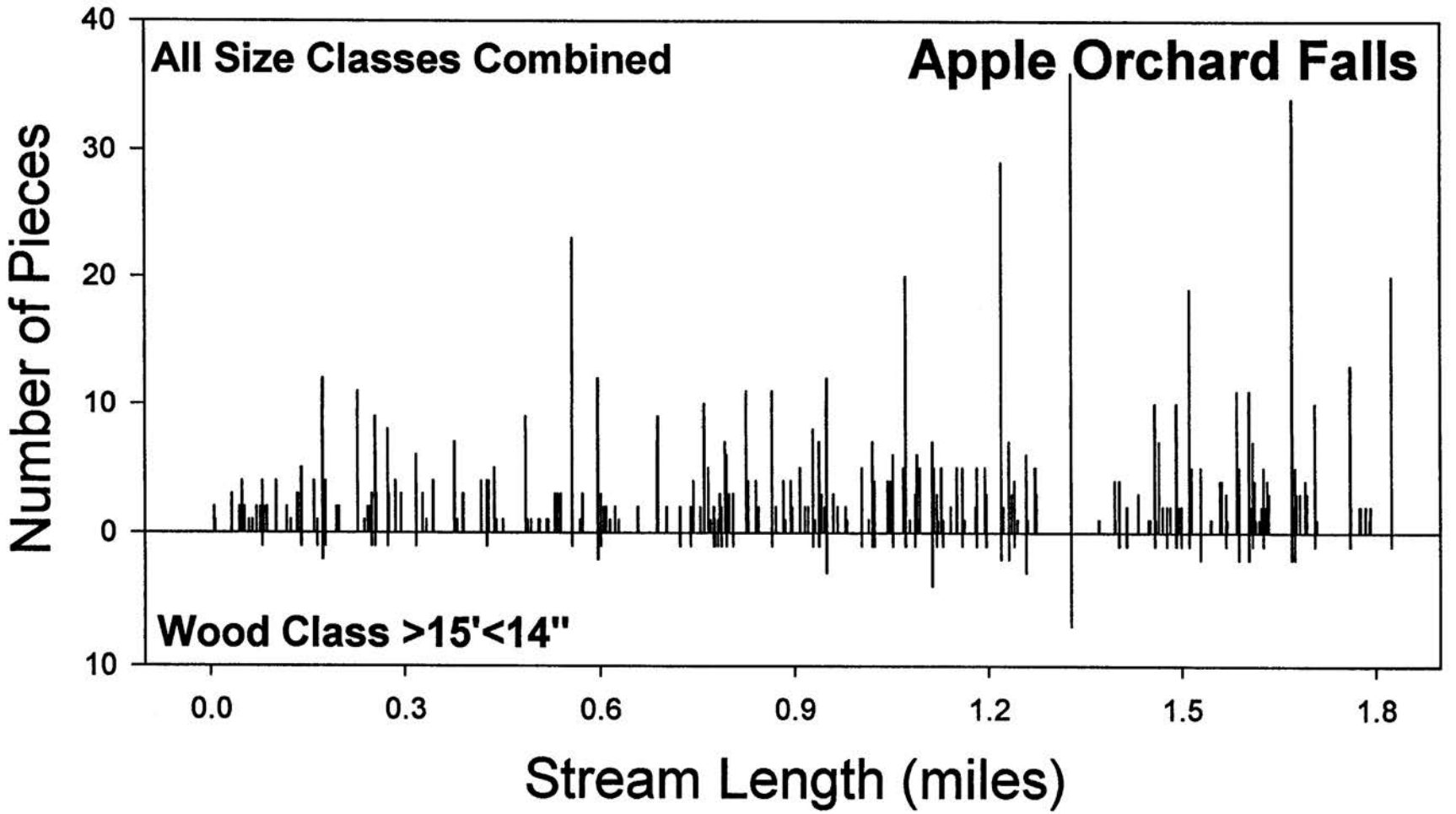
DFC: 30 - 70% of the Total Area in Pool Habitat



Apple Orchard Falls

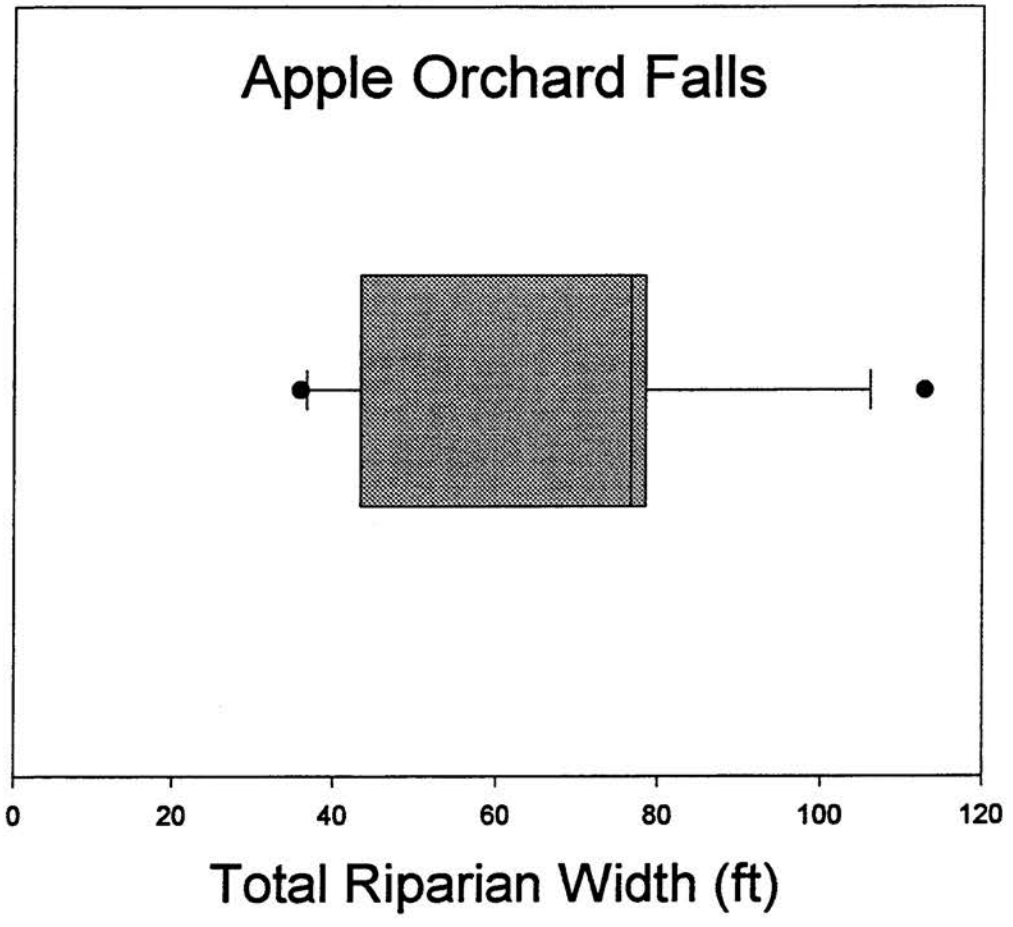


Large Woody Debris Distribution



Riparian Width

Stream: Apple Orchard Falls
Number of measurements: 7
Mean width: 68.1 Std Dev: 26.8
Max: 112.9 Min: 36.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Back Run
Quadrangle: Arnold Valley
Sample Date: 07/17/97
Downstream Starting Point: Cave Mountain Lake
Total Distance Surveyed: 1.66 miles

Percent of Total Area - Pools: 33.9%

Number of Pools: 175
Number of Pools per Mile: 105
Total Pool Area: 31,207.0 sq. ft. ± 2,486.0
Mean Pool Area: 178.3 sq. ft.
Correction Factor: 0.99
Mean Maximum Depth: 1.2'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.3'

Percent of Total Area - Riffles: 66.1%

Number of Riffles: 151
Number of Riffles per Mile: 91
Total Riffle Area: 60,845.6 sq. ft. ± 4,971.7
Mean Riffle Area: 403.0 sq. ft.
Correction Factor: 0.97
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 175.9

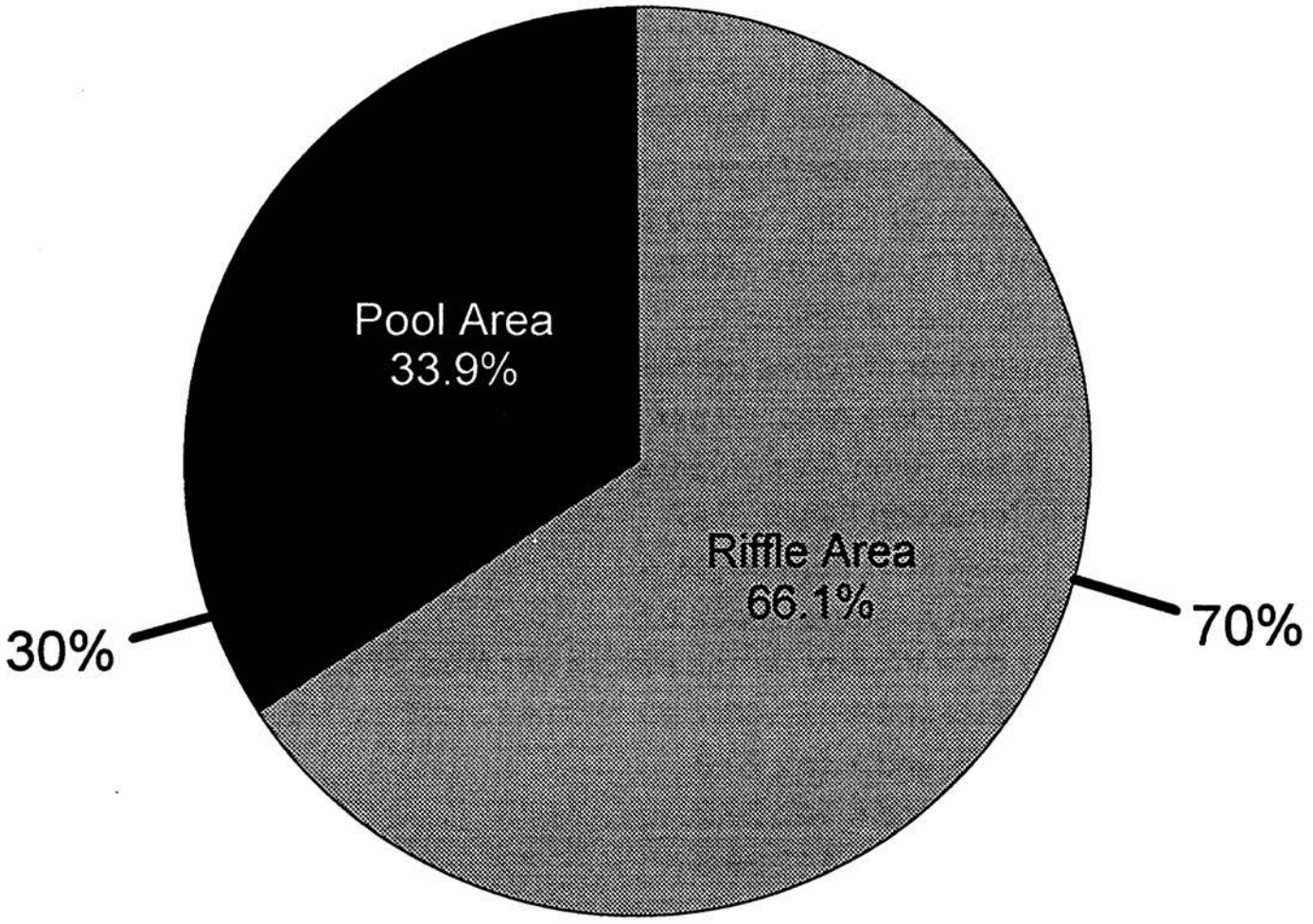
Wood < 15' and < 14": 68.1
Wood < 15' and > 14": 28.9
Wood > 15' and < 14": 39.2
Wood > 15' and > 14": 39.8

Mean Channel Width: 17.9'
Mean Riparian Width: 91.5'

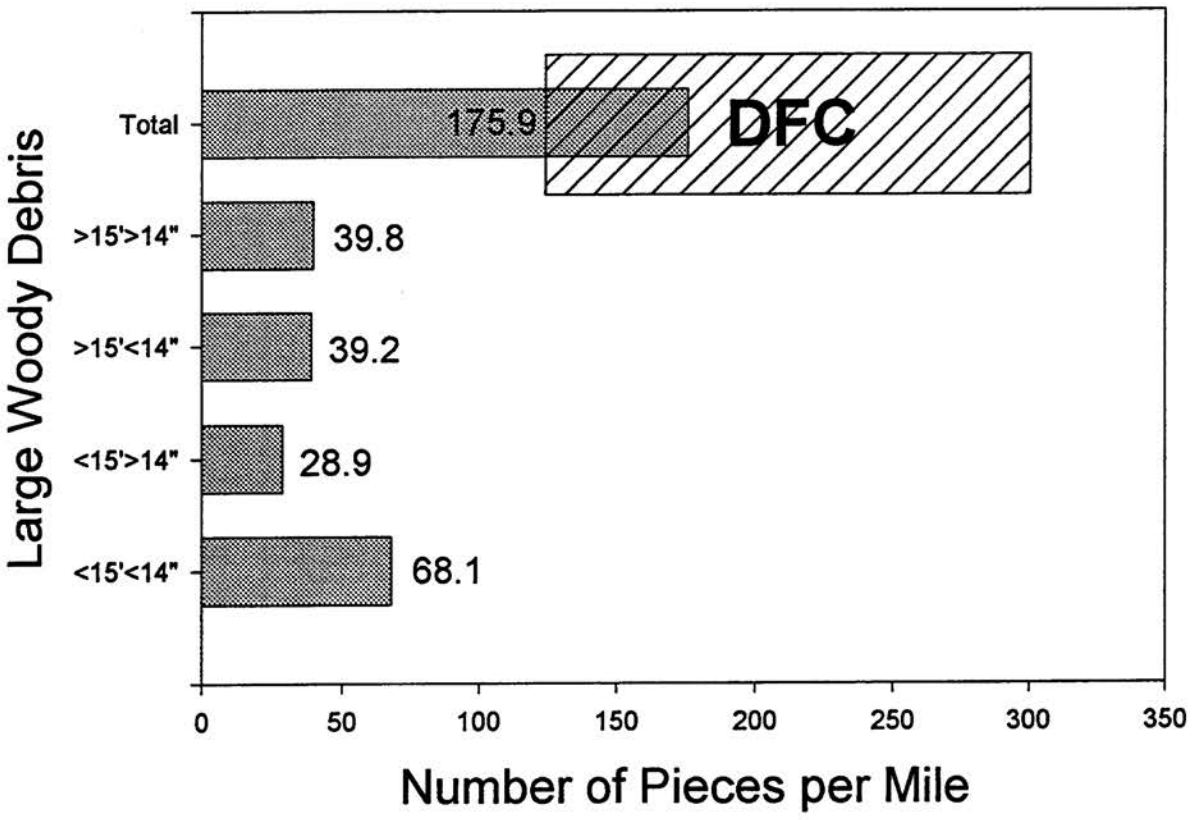
Mean Maximum Riparian Distance (either side): 14.8'
Mean Minimum Riparian Distance (either side): 62.6'
Maximum Riparian Width (Total): 241.6'
Minimum Riparian Width (Total): 29.5'

Back Run
Pool:Riffle Ratio

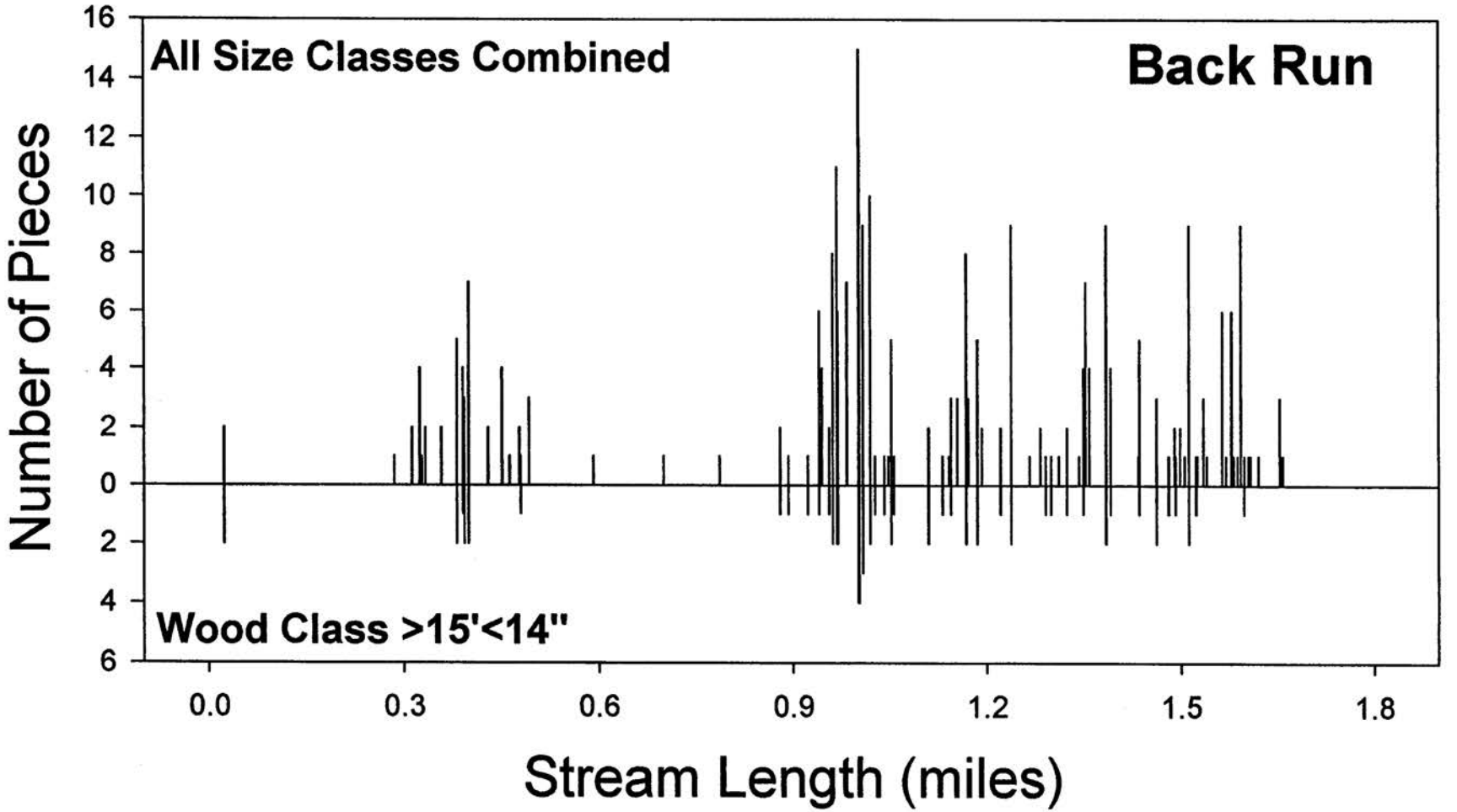
DFC: 30 - 70% of the Stream Area in Pool Habitat



Back Run

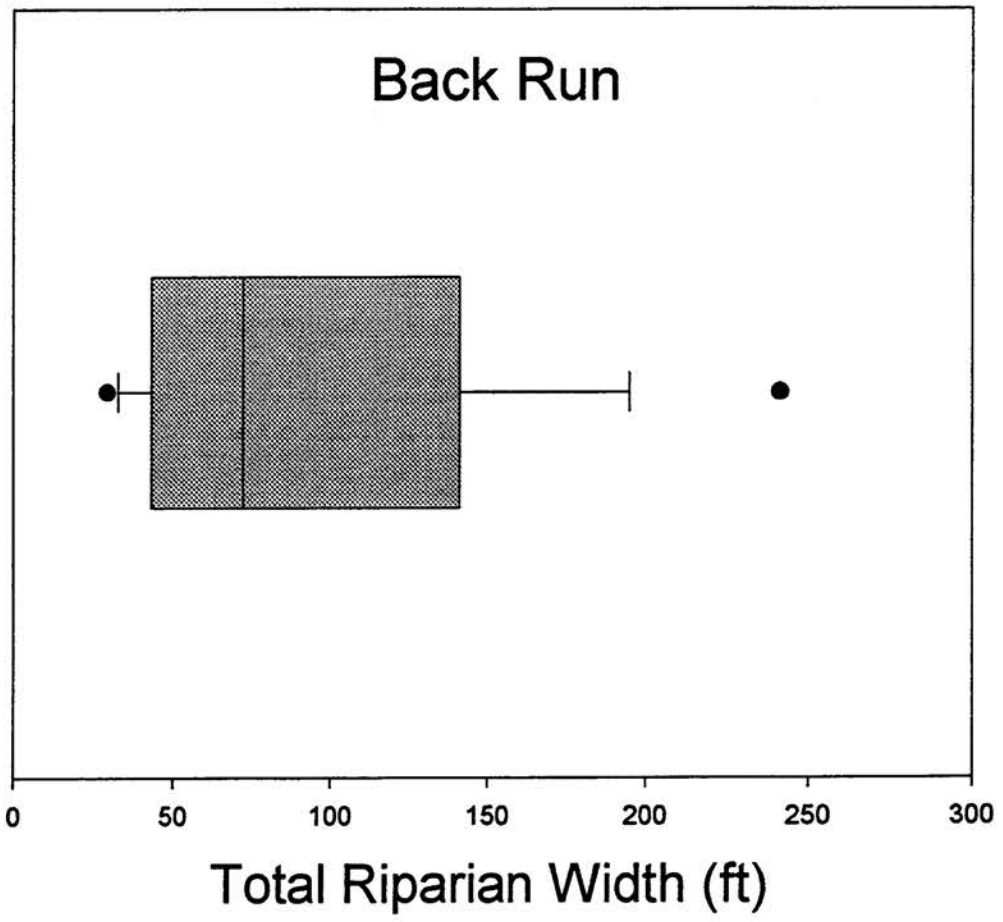

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
175.9
DFC
39.8
39.2
28.9
68.1
0
50
100
150
200
250
300
350
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Back Run
Number of measurements: 10
Mean width: 91.5 Std Dev: 66.9
Max: 241.6 Min: 29.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Chestnut Run
Quadrangle: Arnold Valley
Sample Date: 06/17/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.63 miles

Percent of Total Area - Pools: 37.5%

Number of Pools: 65
Number of Pools per Mile: 103
Total Pool Area: 12,348.1 sq. ft. ± 2,763.2
Mean Pool Area: 190.0 sq. ft.
Correction Factor: 1.14
Mean Maximum Depth: 1.1'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 62.5%

Number of Riffles: 49
Number of Riffles per Mile: 78
Total Riffle Area: 20,617.2 sq. ft. ± 14,527.5
Mean Riffle Area: 420.8 sq. ft.
Correction Factor: 1.09
Mean Maximum Depth: 0.8'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 187.2

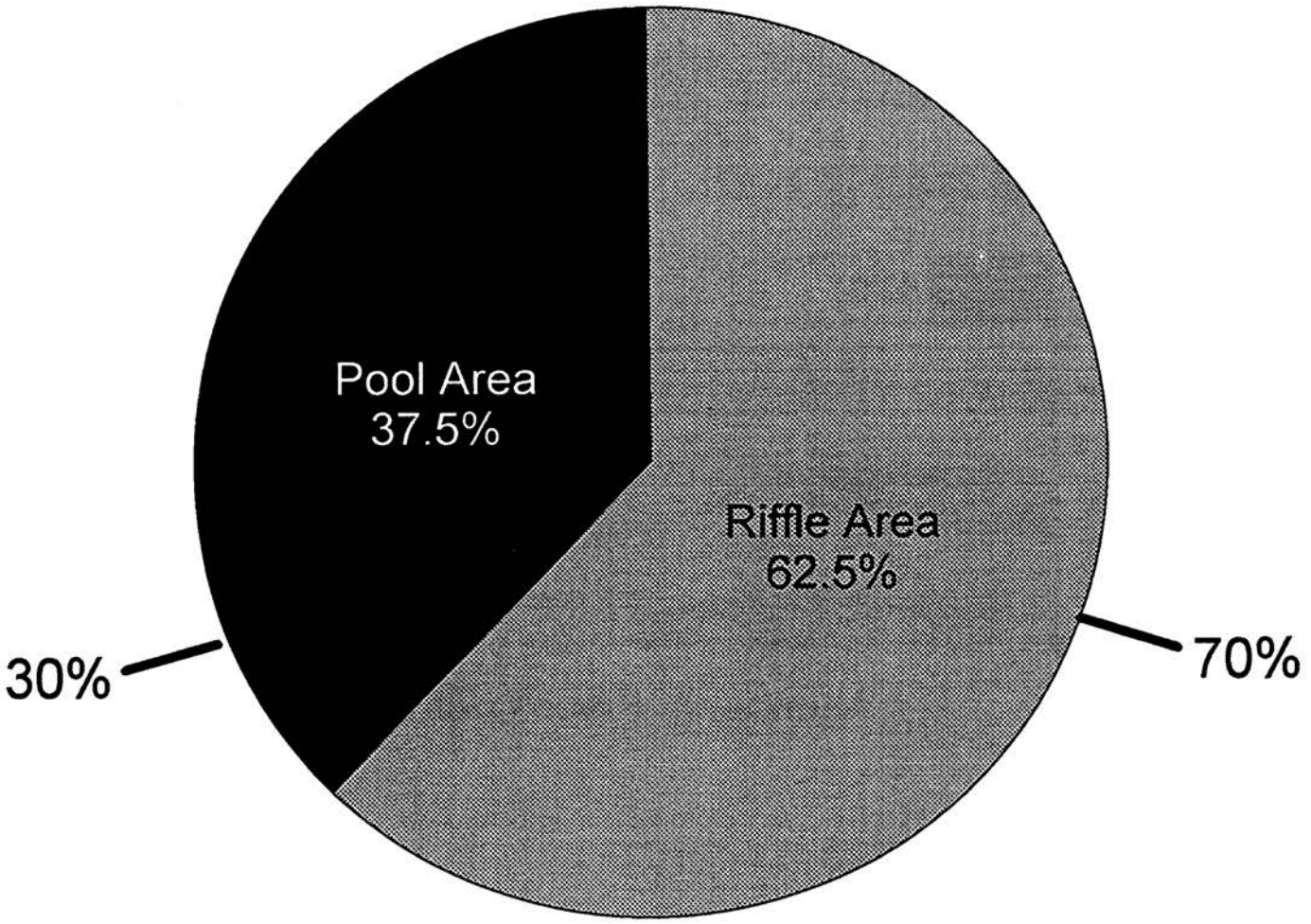
Wood < 15' and < 14": 106.3
Wood < 15' and > 14": 11.1
Wood > 15' and < 14": 46.0
Wood > 15' and > 14": 23.8

Mean Channel Width: 15.5'
Mean Riparian Width: 107.0'

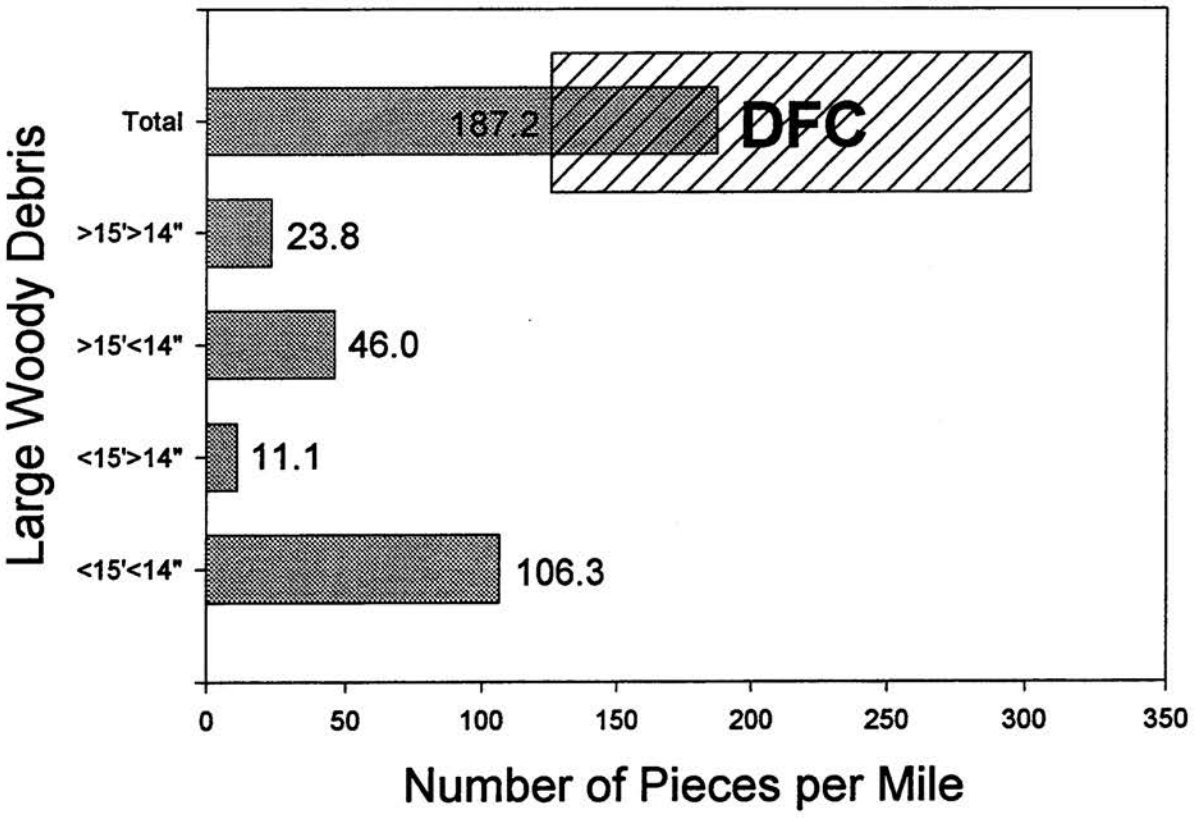
Mean Maximum Riparian Distance (either side): 85.8'
Mean Minimum Riparian Distance (either side): 5.7'
Maximum Riparian Width (Total): 107.7'
Minimum Riparian Width (Total): 106.3'

Chestnut Run
Pool:Riffle Ratio

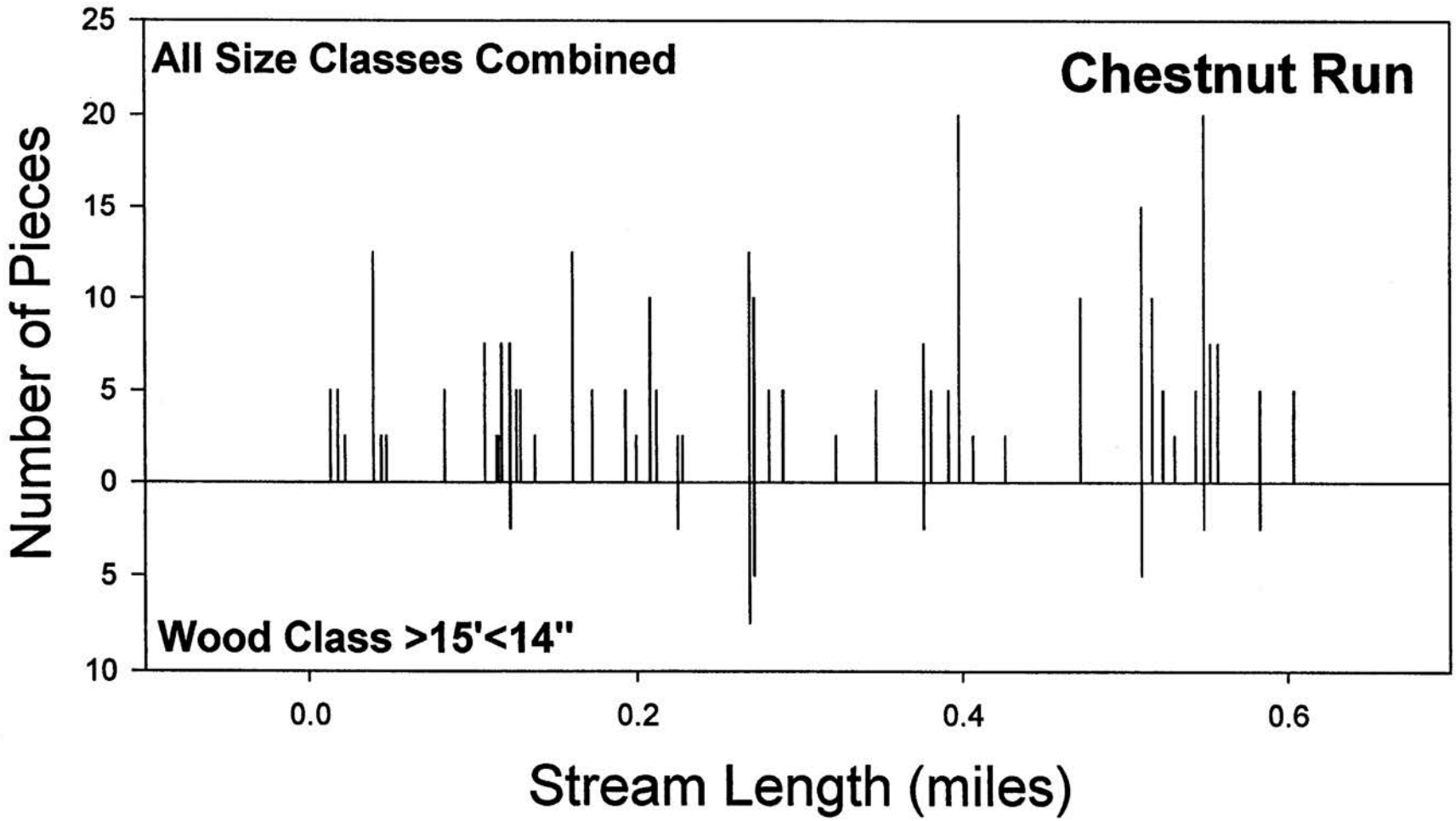
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Chestnut Run

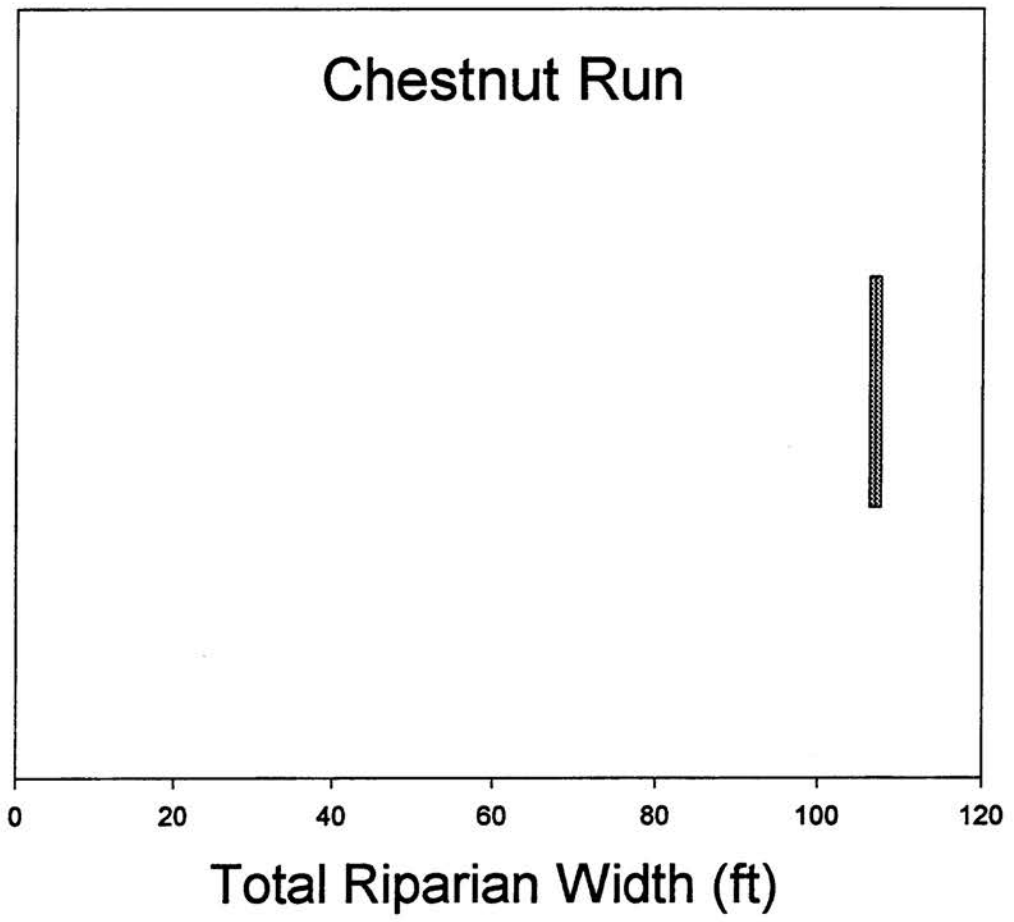


Large Woody Debris Distribution



Riparian Width

Stream: Chestnut Run
Number of measurements: 2
Mean width: 107.0 Std Dev: 1.0
Max: 107.0 Min: 106.3



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Colon Hollow
Quadrangle: Arnold Valley
Sample Date: 06/17/97
Downstream Starting Point: Confluence with North Creek
Total Distance Surveyed: 1.11 miles

Percent of Total Area - Pools: 33.3%

Number of Pools: 112
Number of Pools per Mile: 101
Total Pool Area: 15,242.6 sq. ft. ± 1,671.1
Mean Pool Area: 136.1 sq. ft.
Correction Factor: 1.12
Mean Maximum Depth: 0.9'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 66.7%

Number of Riffles: 91
Number of Riffles per Mile: 82
Total Riffle Area: 30,478.1 sq. ft. ± 16,250.2
Mean Riffle Area: 334.9 sq. ft.
Correction Factor: 1.06
Mean Maximum Depth: 0.6'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 184.7

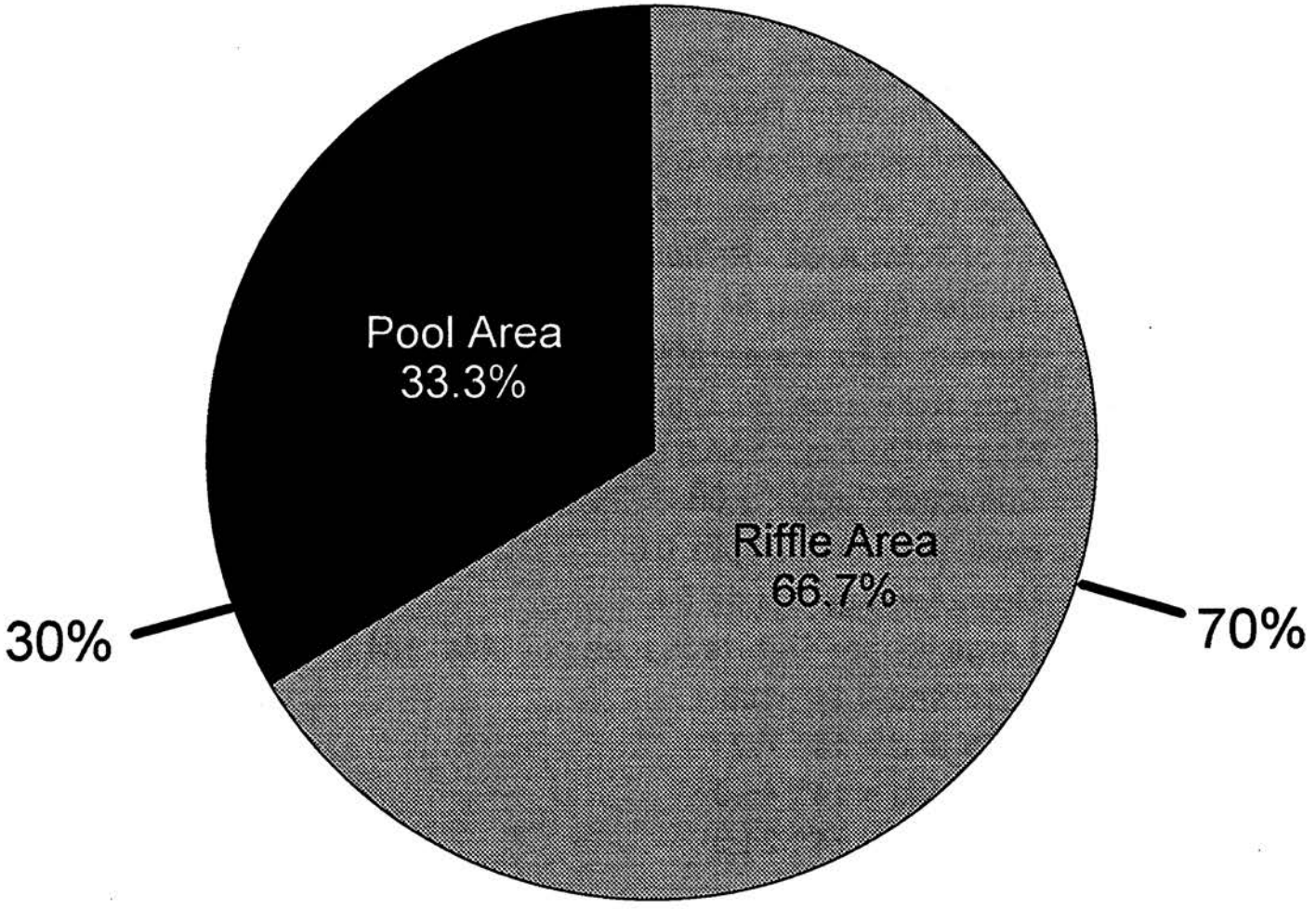
Wood < 15' and < 14": 108.1
Wood < 15' and > 14": 7.2
Wood > 15' and < 14": 45.0
Wood > 15' and > 14": 24.3

Mean Channel Width: 16.0'
Mean Riparian Width: 78.6'

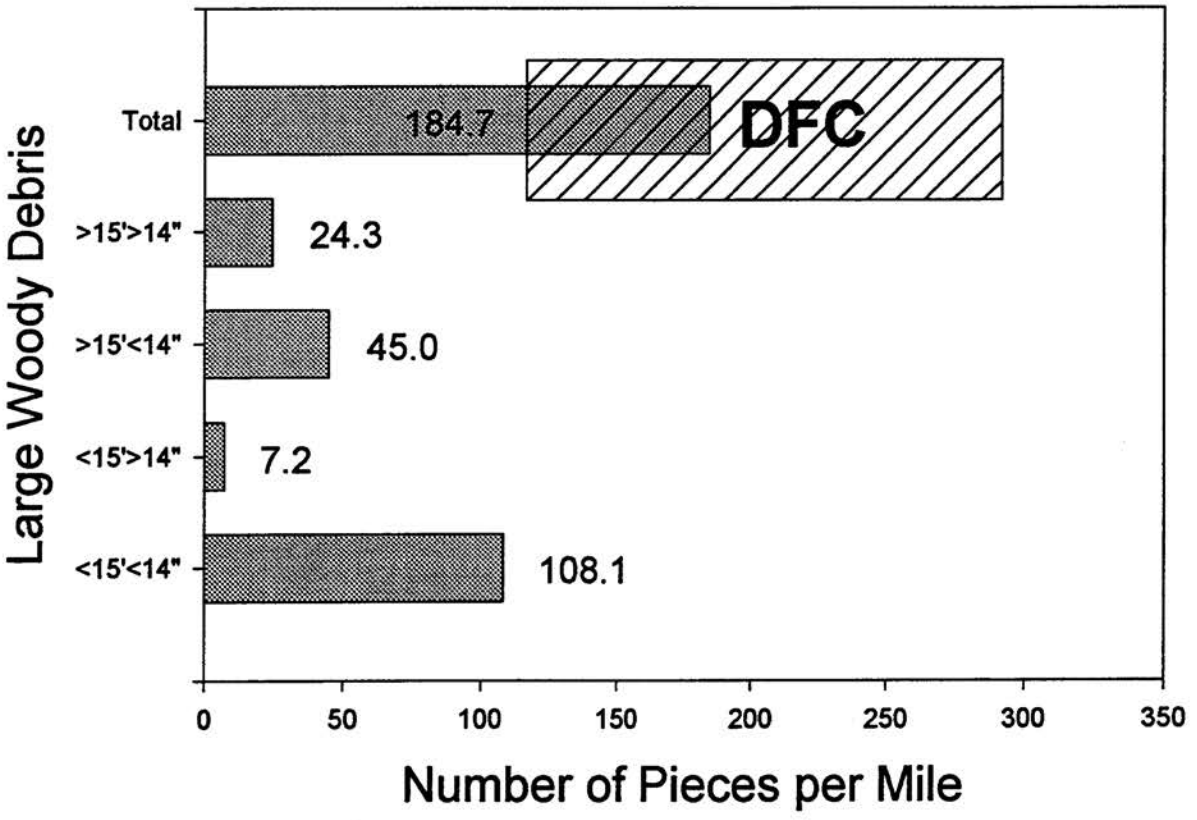
Mean Maximum Riparian Distance (either side): 51.3'
Mean Minimum Riparian Distance (either side): 11.3'
Maximum Riparian Width (Total): 147.2'
Minimum Riparian Width (Total): 28.3'

Colon Hollow
Pool:Riffle Ratio

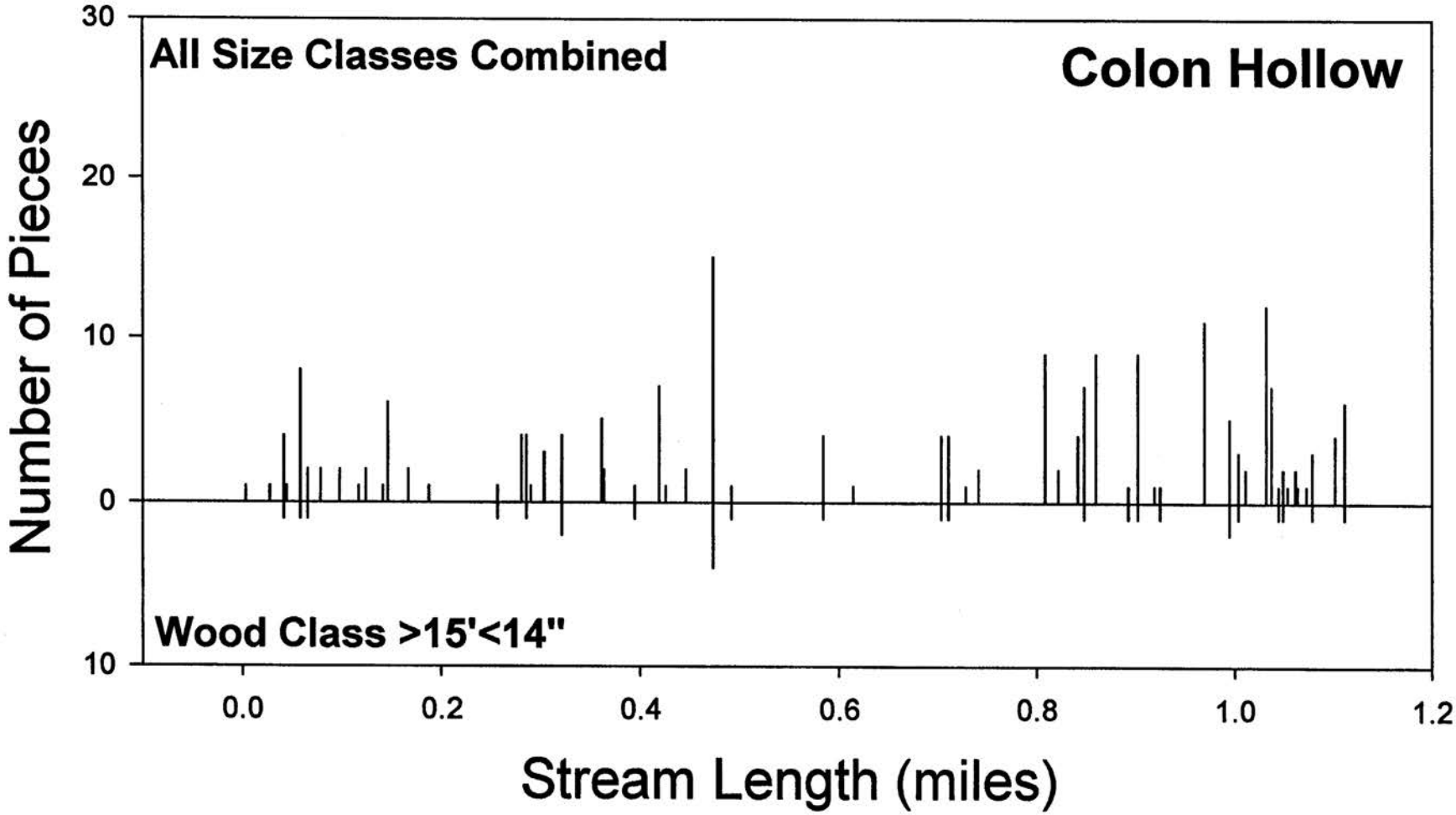
DFC: 30 - 70% of the Stream Area in Pool Habitat



Colon Hollow

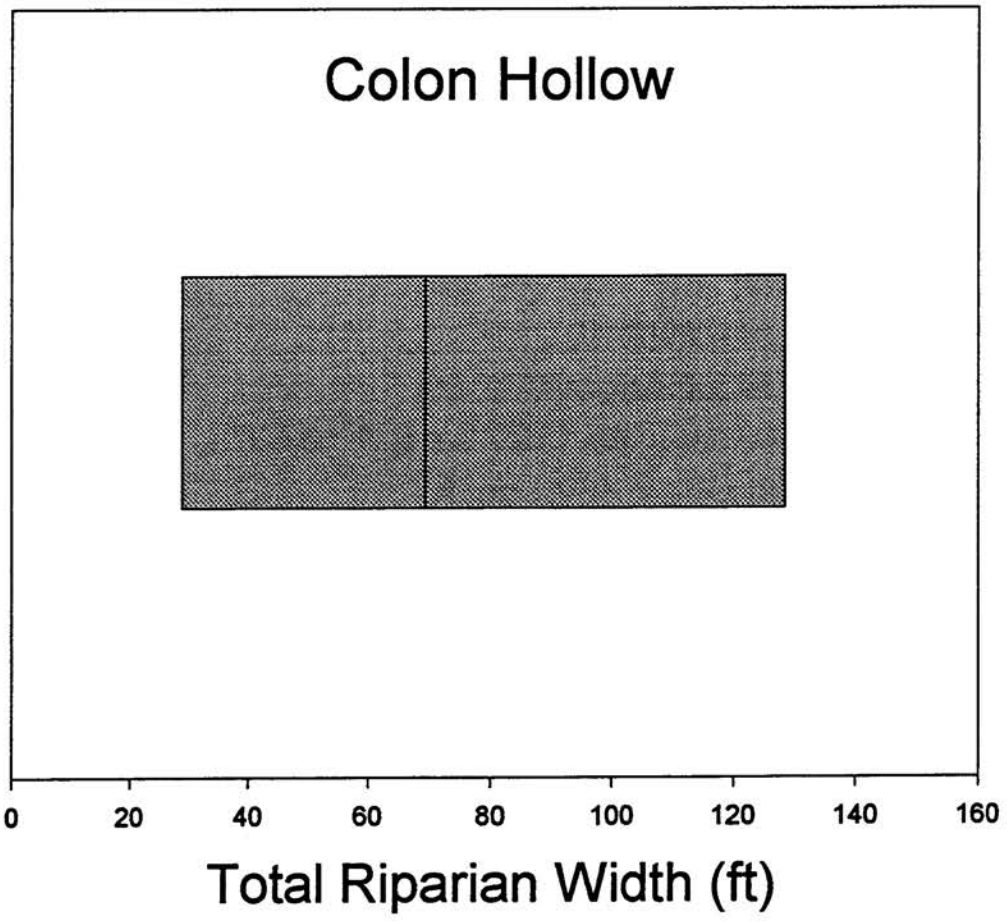


Large Woody Debris Distribution



Riparian Width

Stream: Colon Hollow
Number of measurements: 4
Mean width: 78.6 Std Dev: 59.5
Max: 147.2 Min: 28.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Cornelius Creek
Quadrangle: Arnold Valley
Sample Date: 06/19/97
Downstream Starting Point: Confl. with North Creek
Total Distance Surveyed: 2.19 miles

- **Percent of Total Area - Pools**: 34.6%
  - Number of Pools: 253
  - Number of Pools per Mile: 116
  - Total Pool Area: 46,660.3 sq. ft. ± 10,302.7
  - Mean Pool Area: 184.4 sq. ft.
  - Correction Factor: 1.02
  - Mean Maximum Depth: 1.9'
  - Mean Average Depth: 1.2'
  - Depth @ Riffle Crest: 0.4'
- **Percent of Total Area - Riffles**: 65.4%
  - Number of Riffles: 195
  - Number of Riffles per Mile: 89
  - Total Riffle Area: 88,150.7 sq. ft. ± 16,587.2
  - Mean Riffle Area: 452.1 sq. ft.
  - Correction Factor: 1.05
  - Mean Maximum Depth: 1.0'
  - Mean Average Depth: 0.6'

Number of Large Woody Debris Pieces per Mile: 309.6

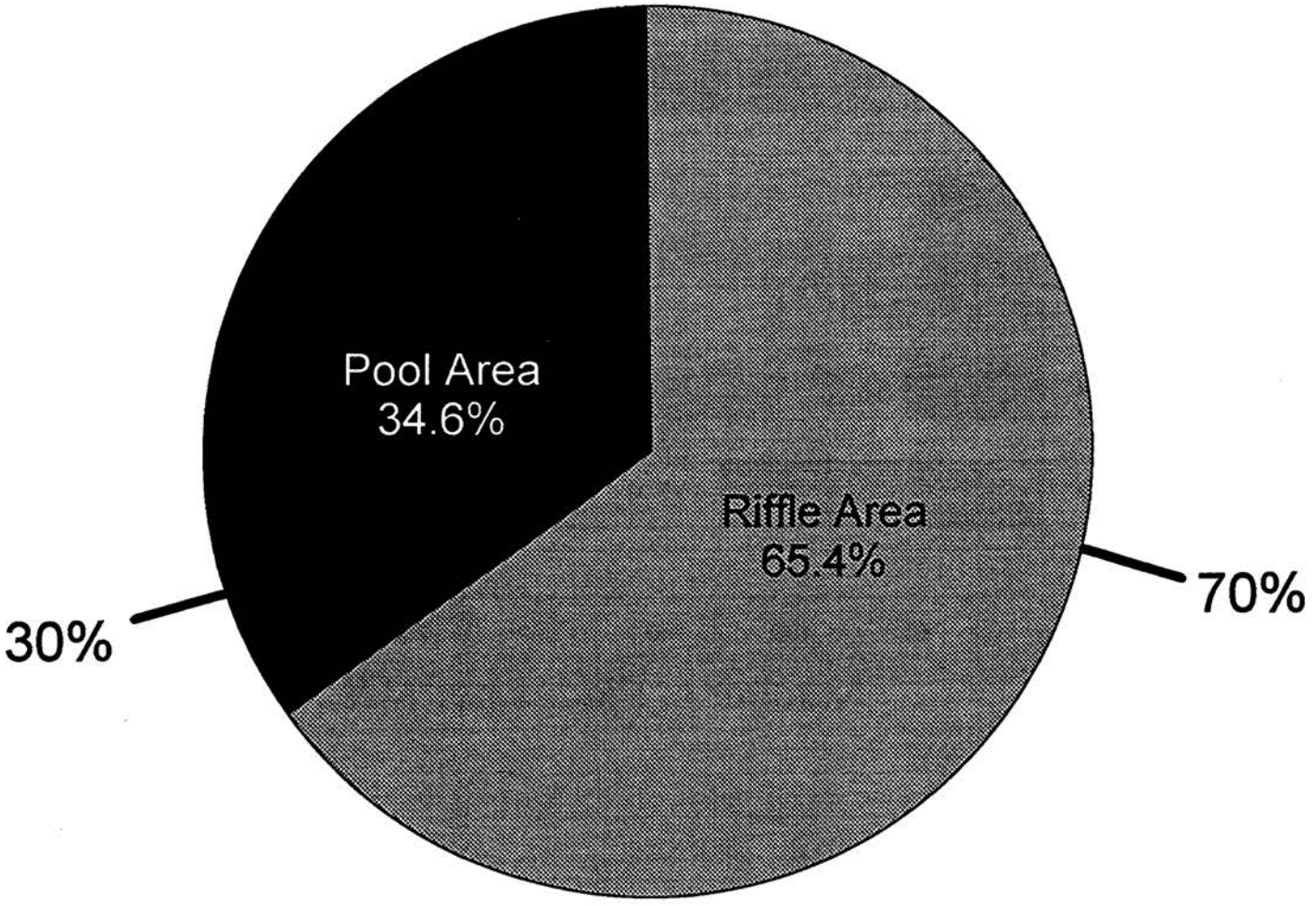
- Wood < 15' and < 14": 127.9
- Wood < 15' and > 14": 54.3
- Wood > 15' and < 14": 79.5
- Wood > 15' and > 14": 47.9

Mean Channel Width: 32.0'
Mean Riparian Width: 50.7'

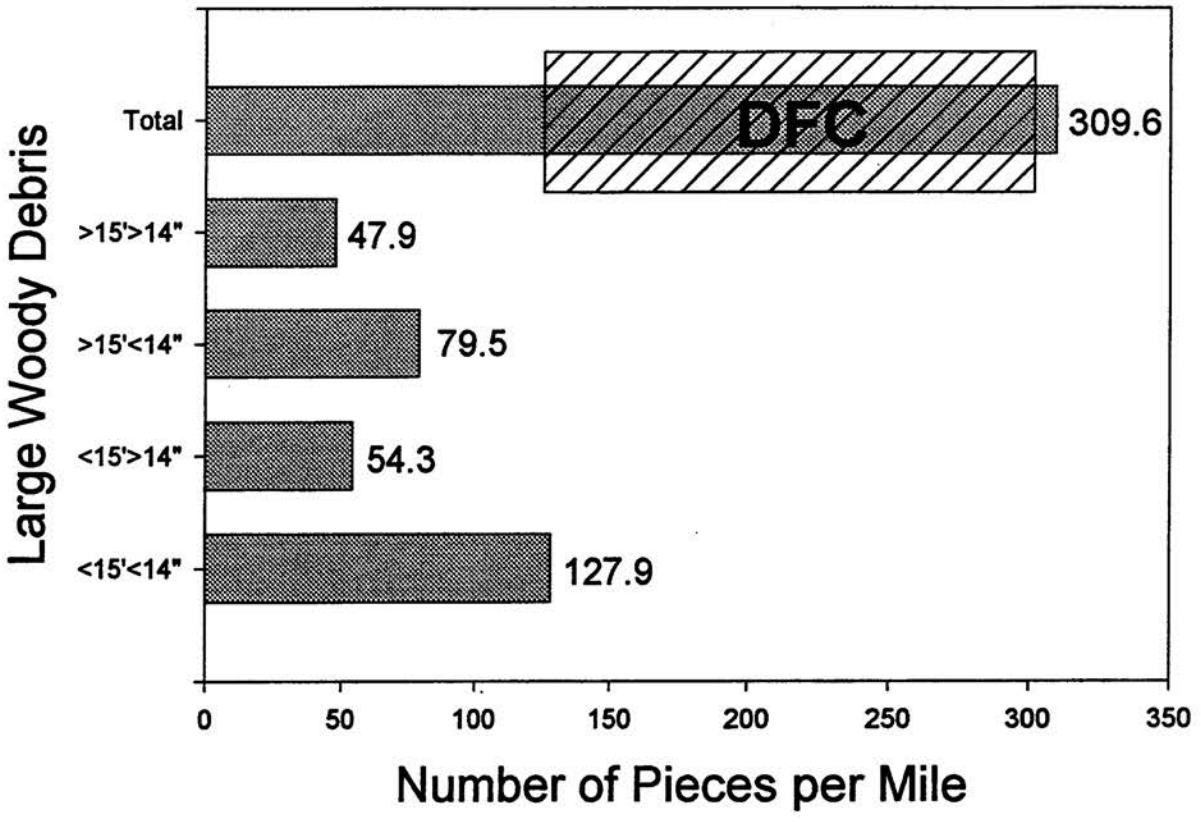
- Mean Maximum Riparian Distance (either side): 13.6'
- Mean Minimum Riparian Distance (either side): 5.1'
- Maximum Riparian Width (Total): 68.0'
- Minimum Riparian Width (Total): 30.9'

Cornelius Creek
Pool:Riffle Ratio

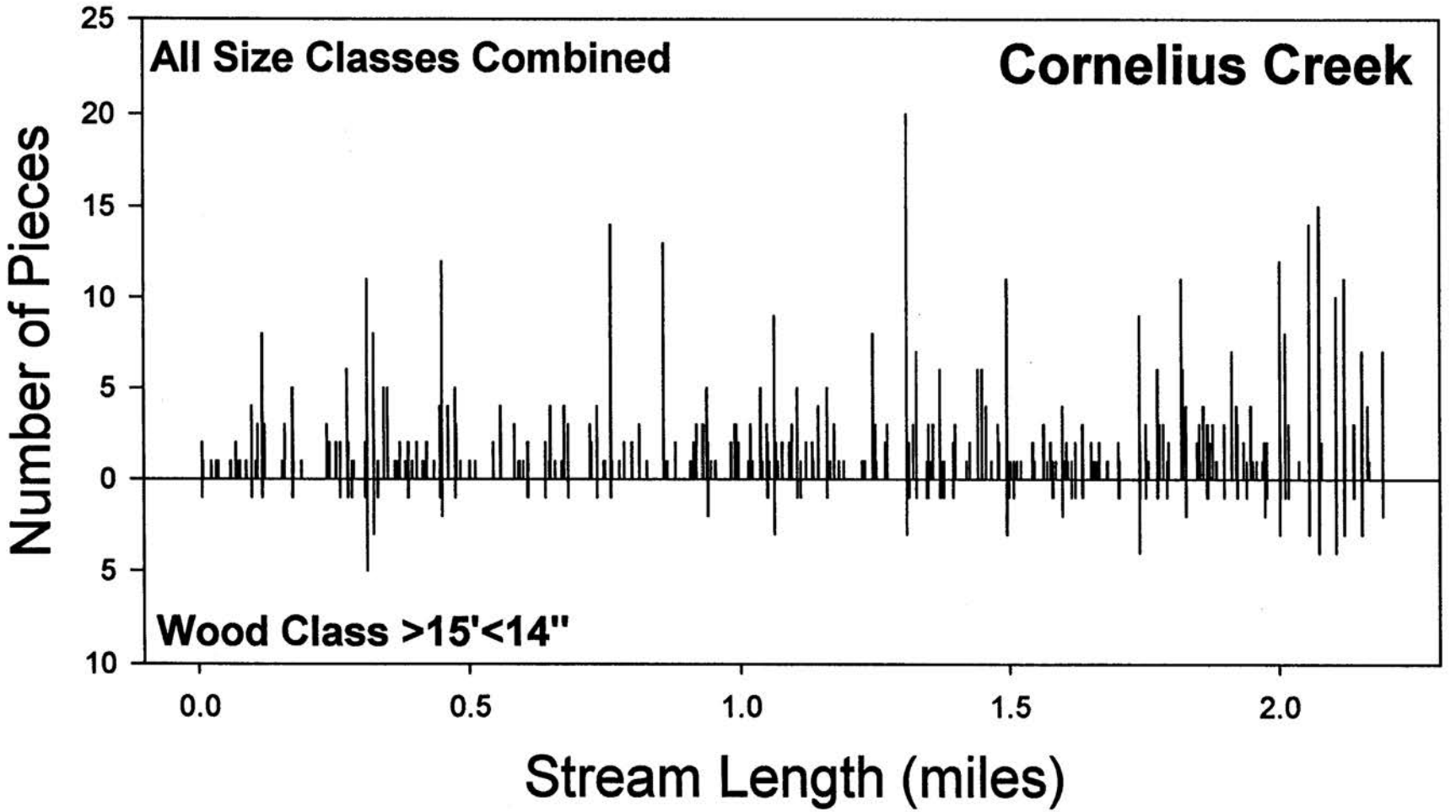
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Cornelius Creek

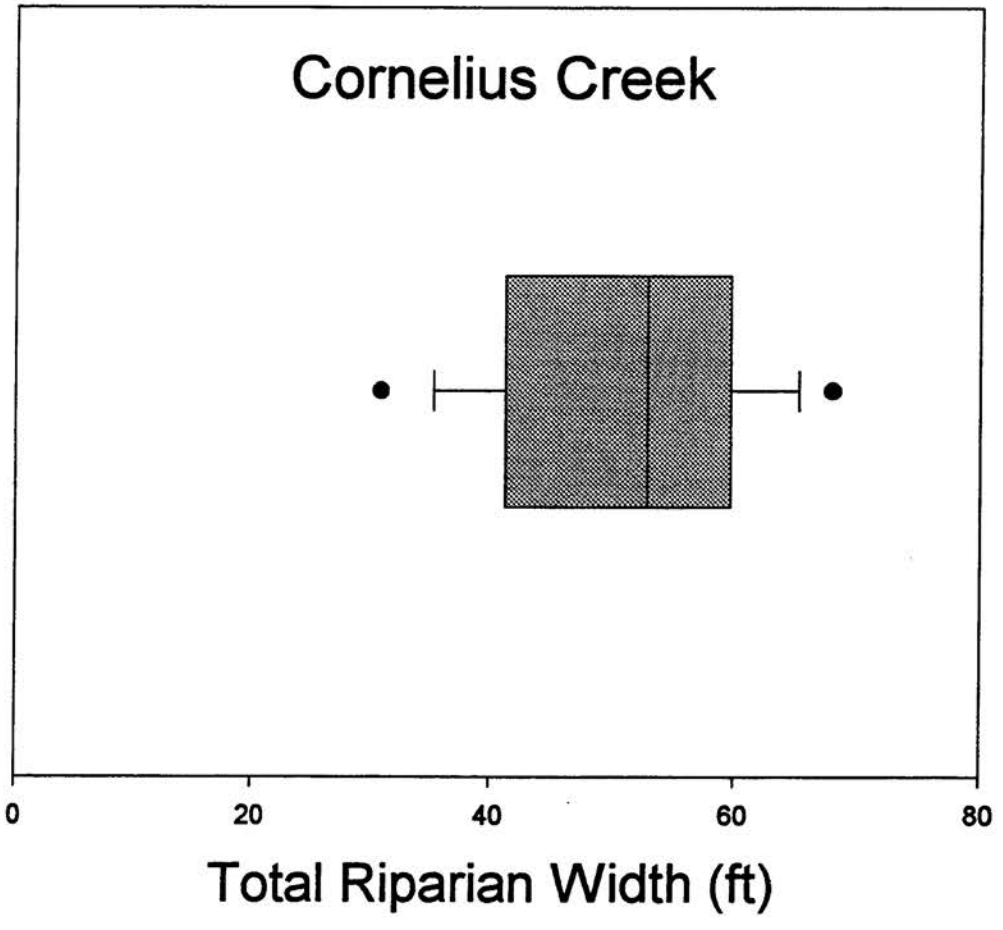


Large Woody Debris Distribution



Riparian Width

Stream: Cornelius Creek
Number of measurements: 10
Mean width: 50.7 Std Dev: 11.8
Max: 68.0 Min: 30.9



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: East Fork Elk Creek
Quadrangle: Arnold Valley
Sample Date: 07/15/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 3.07 miles

Percent of Total Area - Pools: 47.6%

Number of Pools: 208
Number of Pools per Mile: 68
Total Pool Area: 86,417.0 sq. ft. ± 4,160.8
Mean Pool Area: 415.5 sq. ft.
Correction Factor: 1.06
Mean Maximum Depth: 1.5'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.3'

Percent of Total Area - Riffles: 52.4%

Number of Riffles: 142
Number of Riffles per Mile: 46
Total Riffle Area: 95,065.8 sq. ft. ± 6,850.8
Mean Riffle Area: 669.5 sq. ft.
Correction Factor: 1.08
Mean Maximum Depth: 0.6'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 65.5

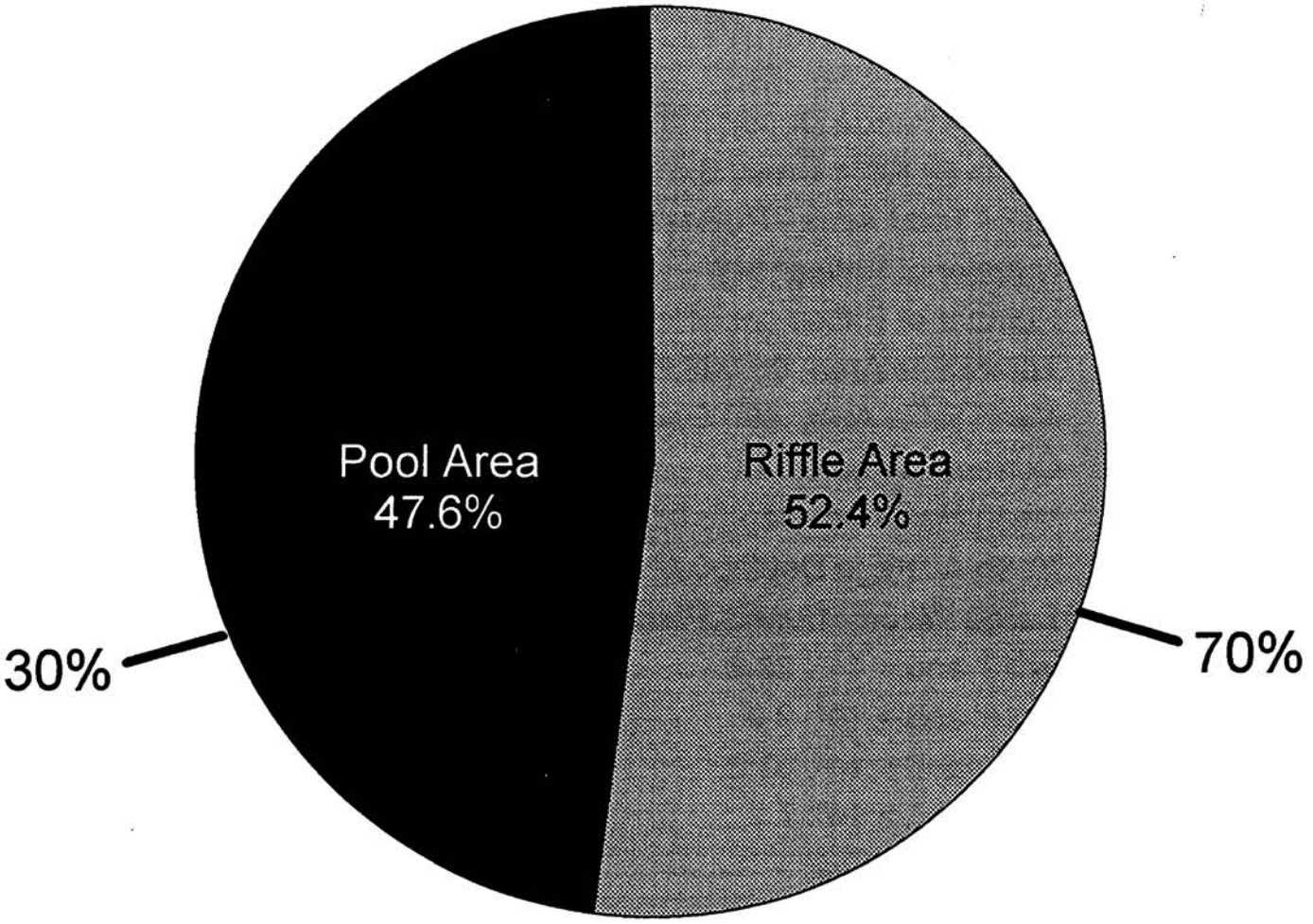
Wood < 15' and < 14": 22.8
Wood < 15' and > 14": 2.3
Wood > 15' and < 14": 33.2
Wood > 15' and > 14": 7.2

Mean Channel Width: 30.9'
Mean Riparian Width: 216.9'

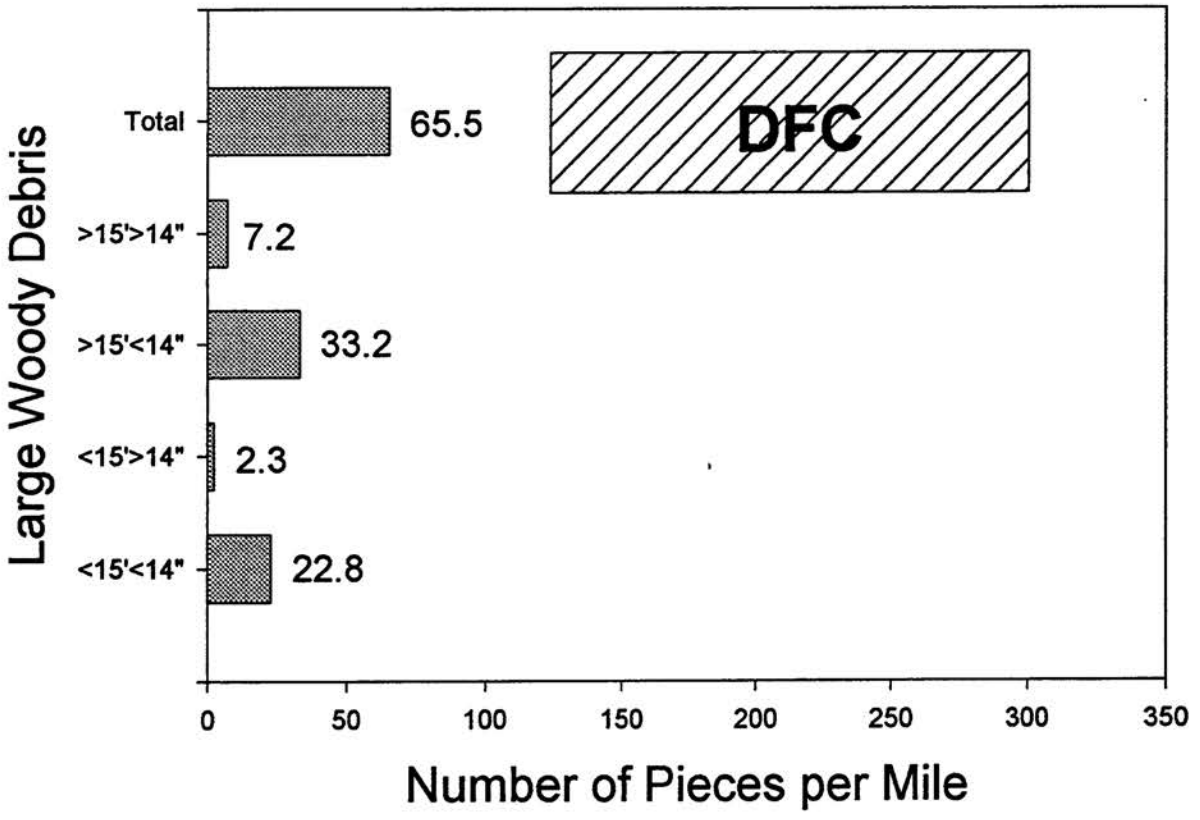
Mean Maximum Riparian Distance (either side): 125.7'
Mean Minimum Riparian Distance (either side): 60.3'
Maximum Riparian Width (Total): 659.0'
Minimum Riparian Width (Total): 41.8'

East Fork Elk Creek Pool:Riffle Ratio

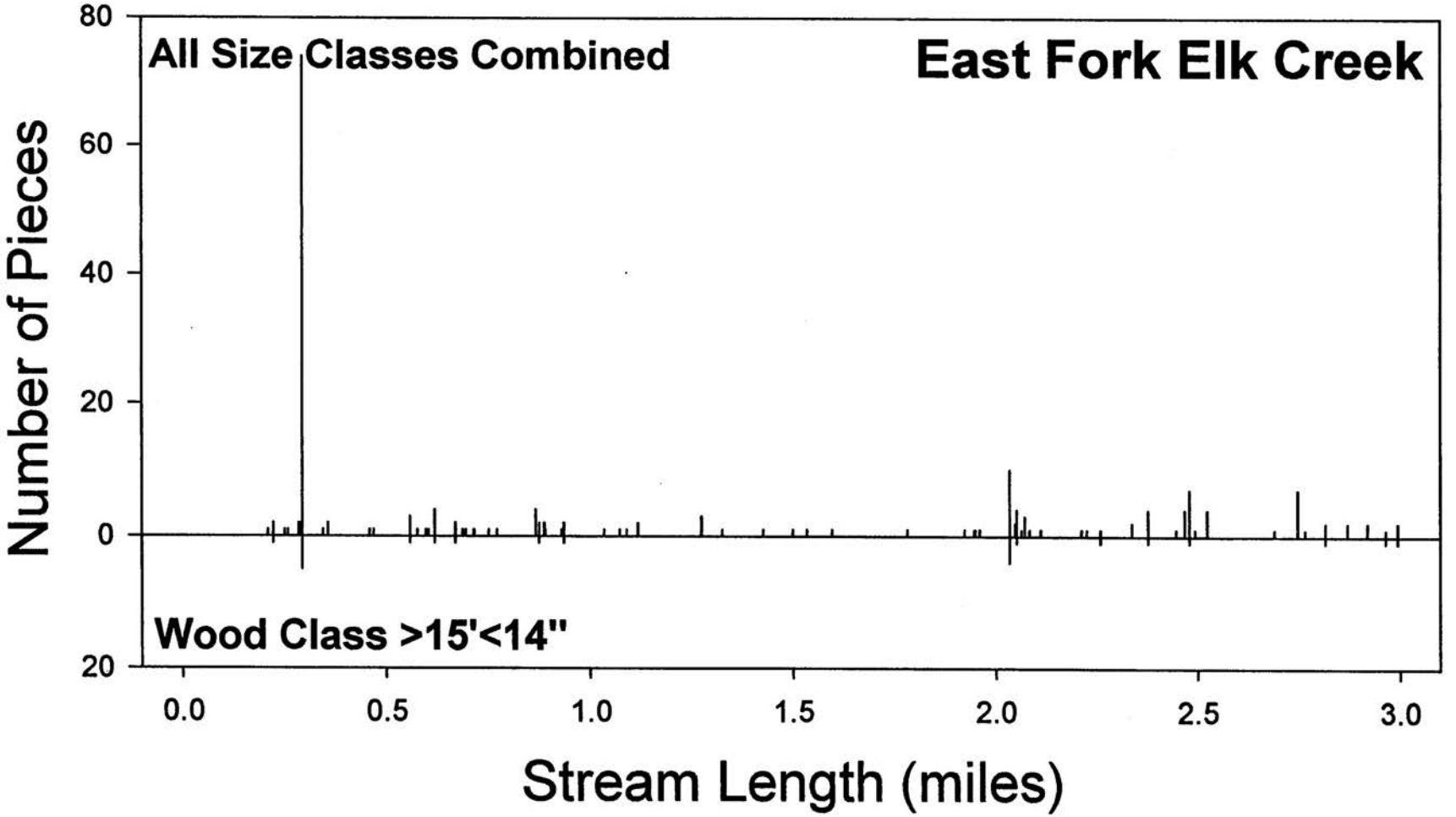
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



East Fork Elk Creek

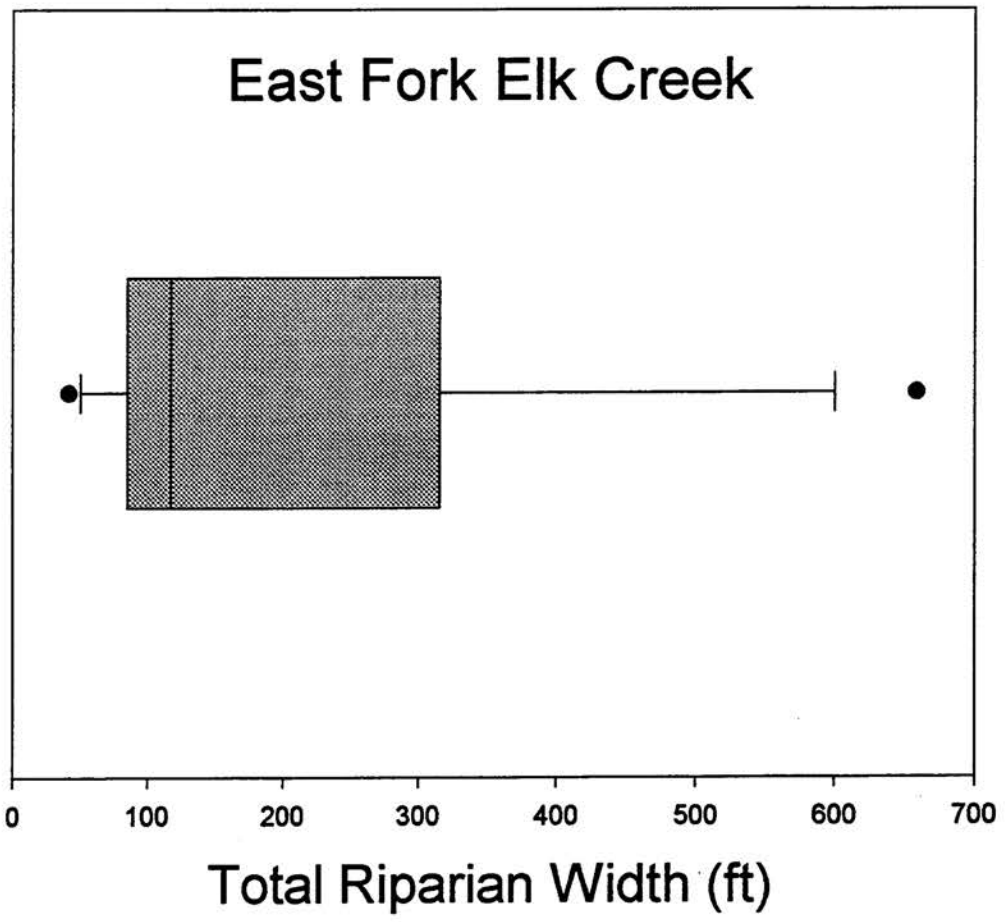


Large Woody Debris Distribution



Riparian Width

Stream: East Fork Elk Creek
Number of measurements: 7
Mean width: 216.9 Std Dev: 221.9
Max: 659.0 Min: 41.8



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Elk Creek
Quadrangle: Arnold Valley
Sample Date: 07/16/97
Downstream Starting Point: USFS Boundary; bridge
Total Distance Surveyed: 0.80 miles

Percent of Total Area - Pools: 64.0%

Number of Pools: 33
Number of Pools per Mile: 41
Total Pool Area: 35,490.0 sq. ft. ± 4,575.5
Mean Pool Area: 1,075.5 sq. ft.
Correction Factor: 1.06
Mean Maximum Depth: 1.5'
Mean Average Depth: 1.9'
Depth @ Riffle Crest: 1.1'

Percent of Total Area - Riffles: 36.0%

Number of Riffles: 19
Number of Riffles per Mile: 24
Total Riffle Area: 19,974.4 sq. ft.
Mean Riffle Area: 1,051.3 sq. ft.
Correction Factor: 1.15
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 50.0

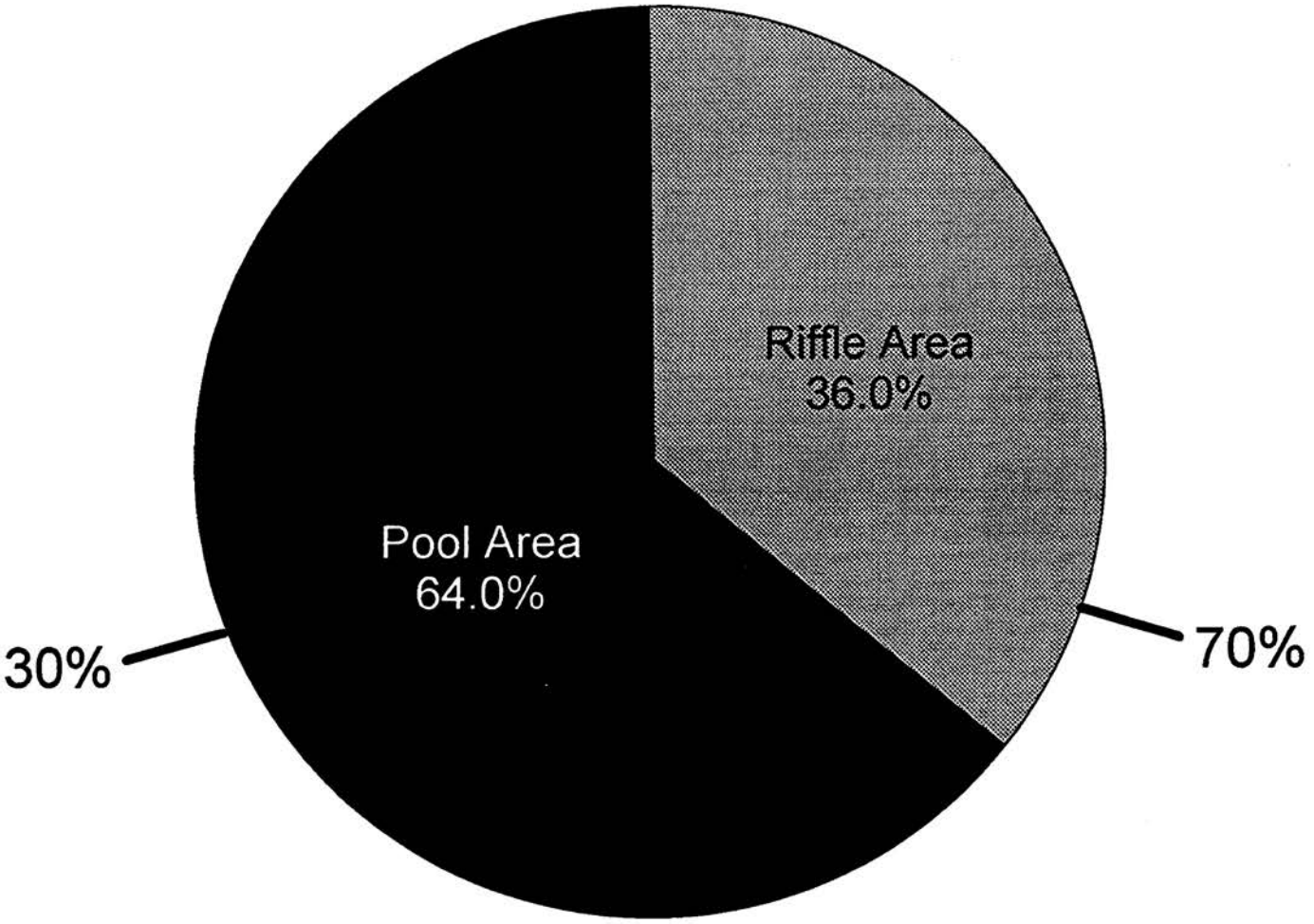
Wood < 15' and < 14": 30.0
Wood < 15' and > 14": 5.0
Wood > 15' and < 14": 15.0
Wood > 15' and > 14": 0.0

Mean Channel Width: 36.1'
Mean Riparian Width: 60.6'

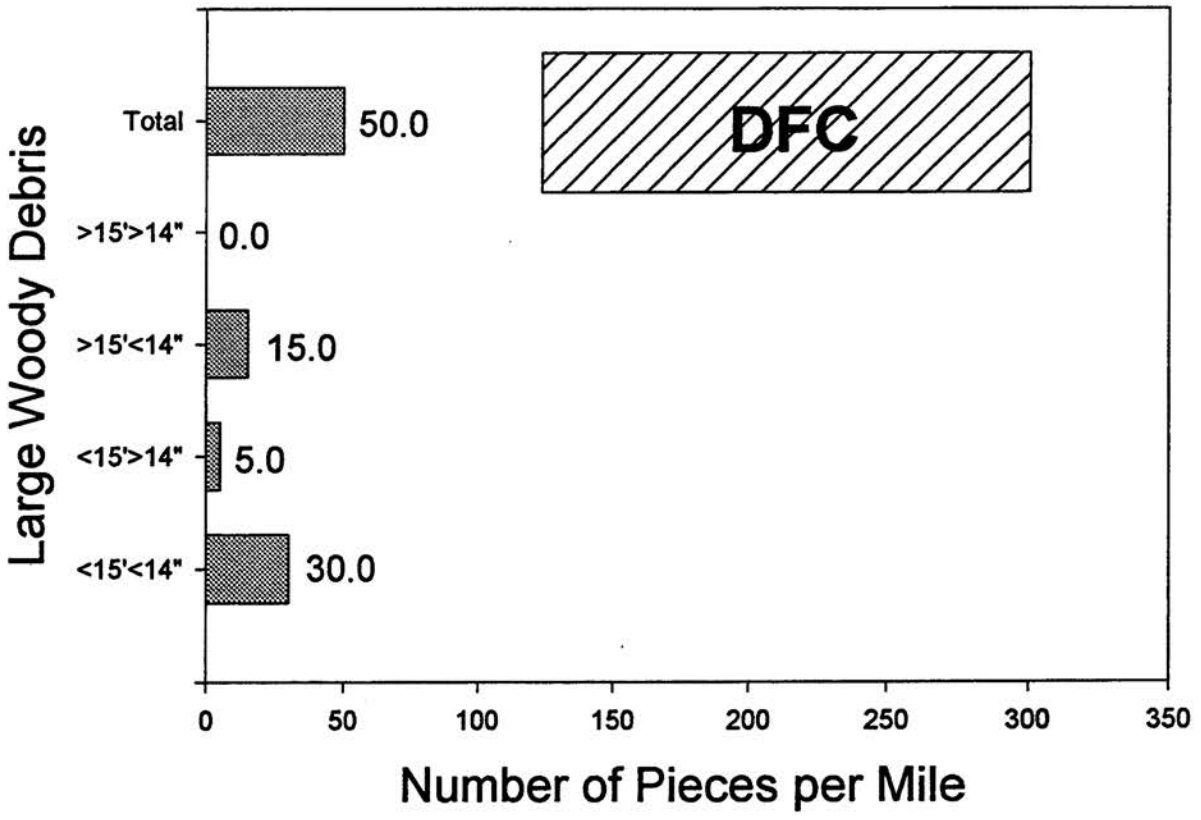
Mean Maximum Riparian Distance (either side): 16.6'
Mean Minimum Riparian Distance (either side): 7.9'
Maximum Riparian Width (Total): N/A
Minimum Riparian Width (Total): N/A

Elk Creek
Pool:Riffle Ratio

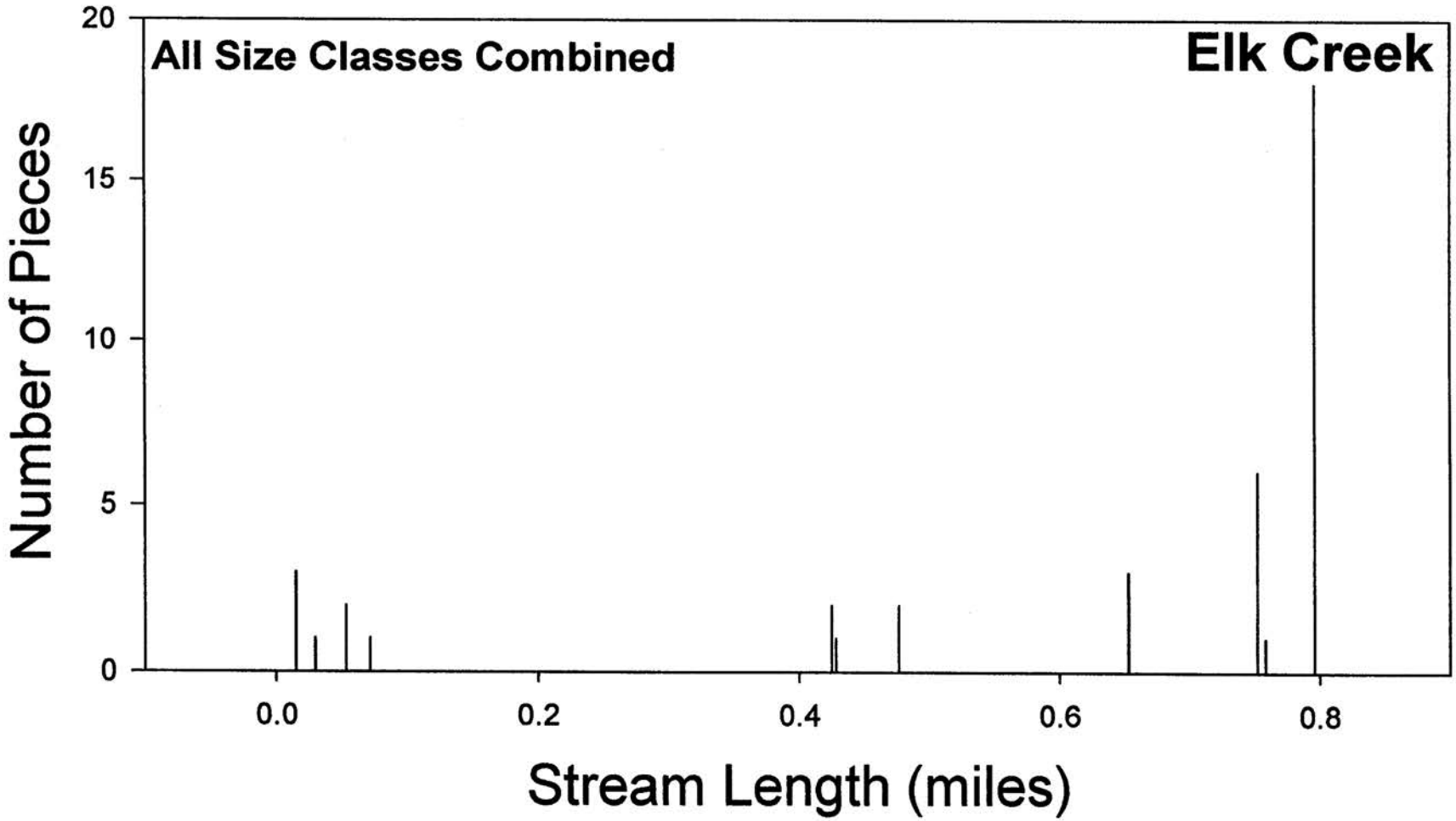
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Elk Creek


Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
50.0
0.0
15.0
5.0
30.0
DFC
0
50
100
150
200
250
300
350
Number of Pieces per Mile

Large Woody Debris Distribution



Stream: Gilmore Hollow
Quadrangle: Arnold Valley
Sample Date: 06/19/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.34 miles

Percent of Total Area - Pools: 31.5%

Number of Pools: 122
Number of Pools per Mile: 91
Total Pool Area: 14,282.0 sq. ft. ± 1,325.1
Mean Pool Area: 117.1 sq. ft.
Correction Factor: 1.01
Mean Maximum Depth: 1.2'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.3'

Percent of Total Area - Riffles: 68.5%

Number of Riffles: 104
Number of Riffles per Mile: 78
Total Riffle Area: 31,129.6 sq. ft. ± 3,277.8
Mean Riffle Area: 299.3 sq. ft.
Correction Factor: 0.97
Mean Maximum Depth: 0.8'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 279.9

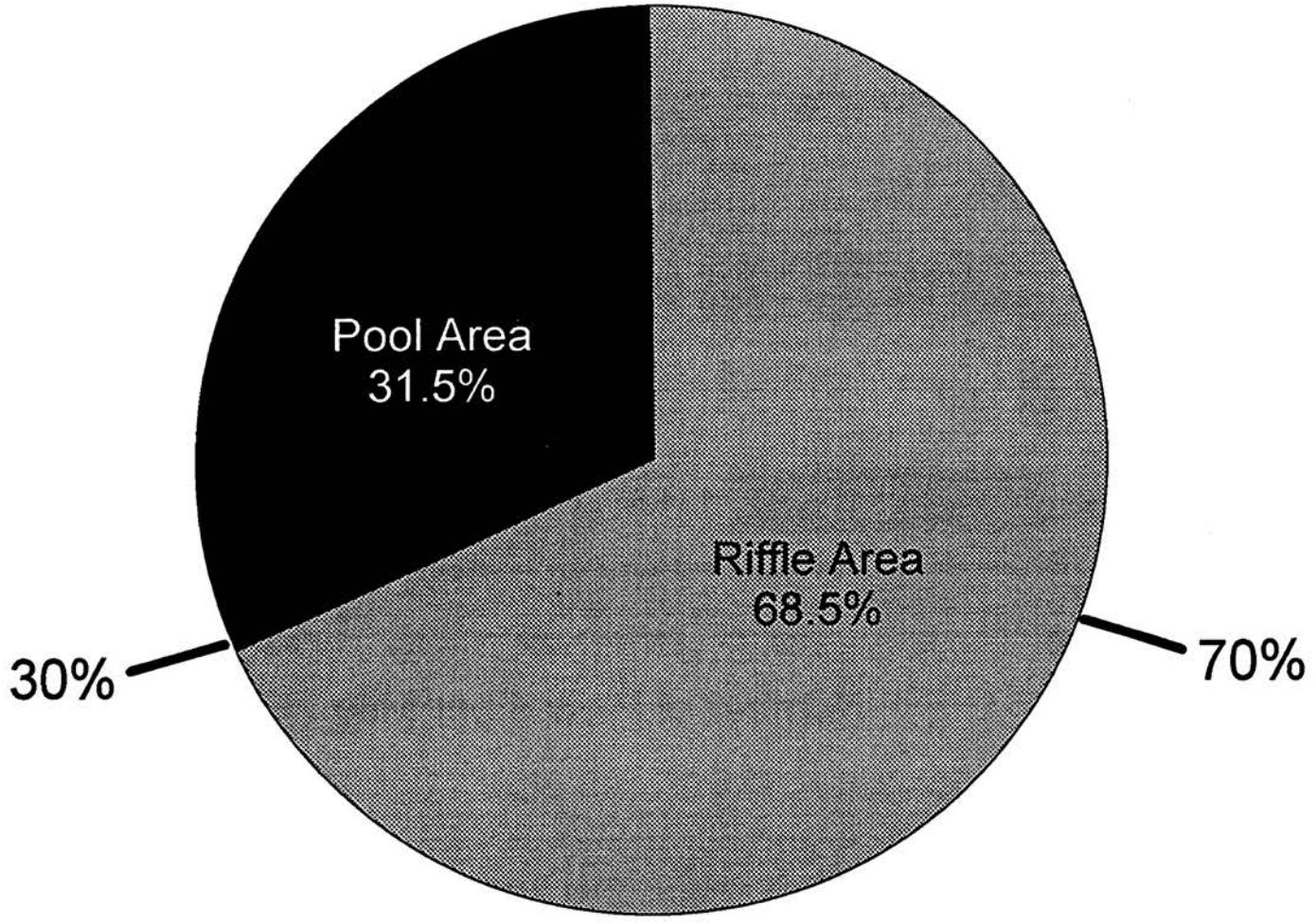
Wood < 15' and < 14": 124.6
Wood < 15' and > 14": 11.2
Wood > 15' and < 14": 135.1
Wood > 15' and > 14": 9.0

Mean Channel Width: 15.2'
Mean Riparian Width: 49.5'

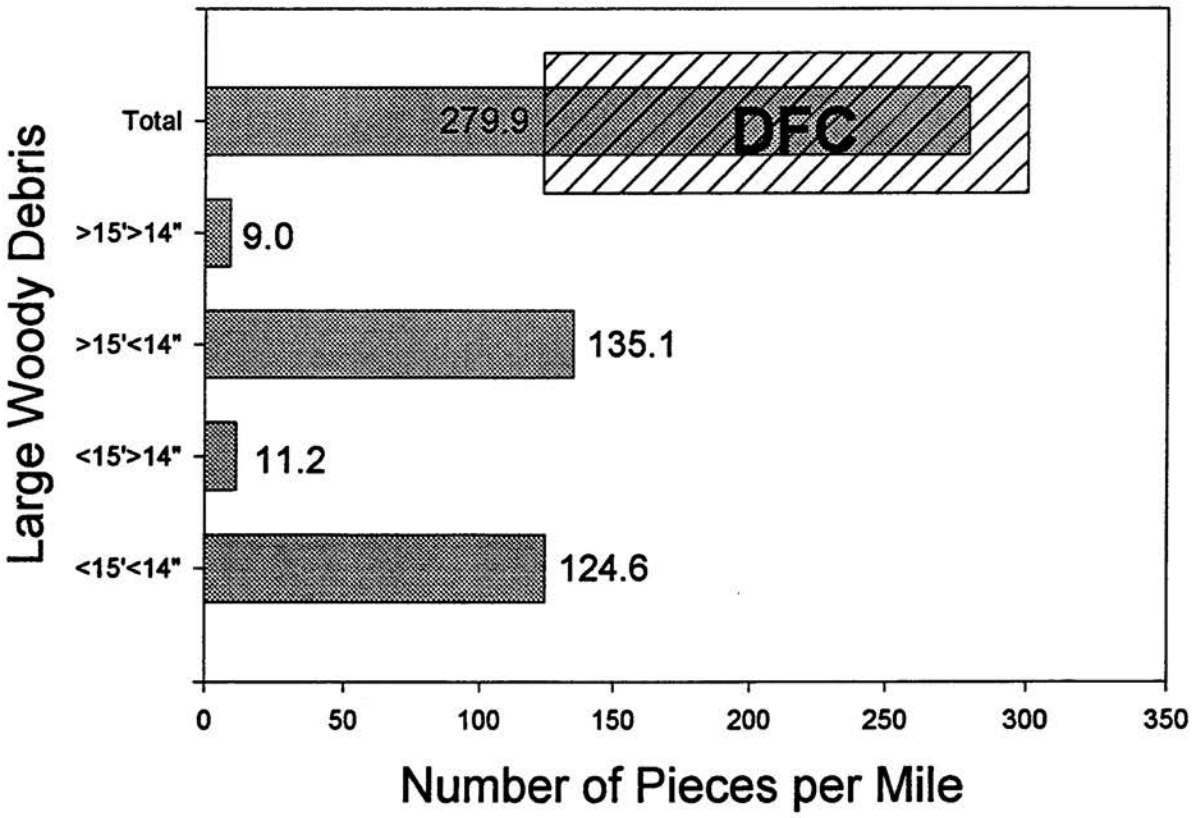
Mean Maximum Riparian Distance (either side): 8.3'
Mean Minimum Riparian Distance (either side): 25.9'
Maximum Riparian Width (Total): 97.0'
Minimum Riparian Width (Total): 22.5'

Gilmore Hollow
Pool:Riffle Ratio

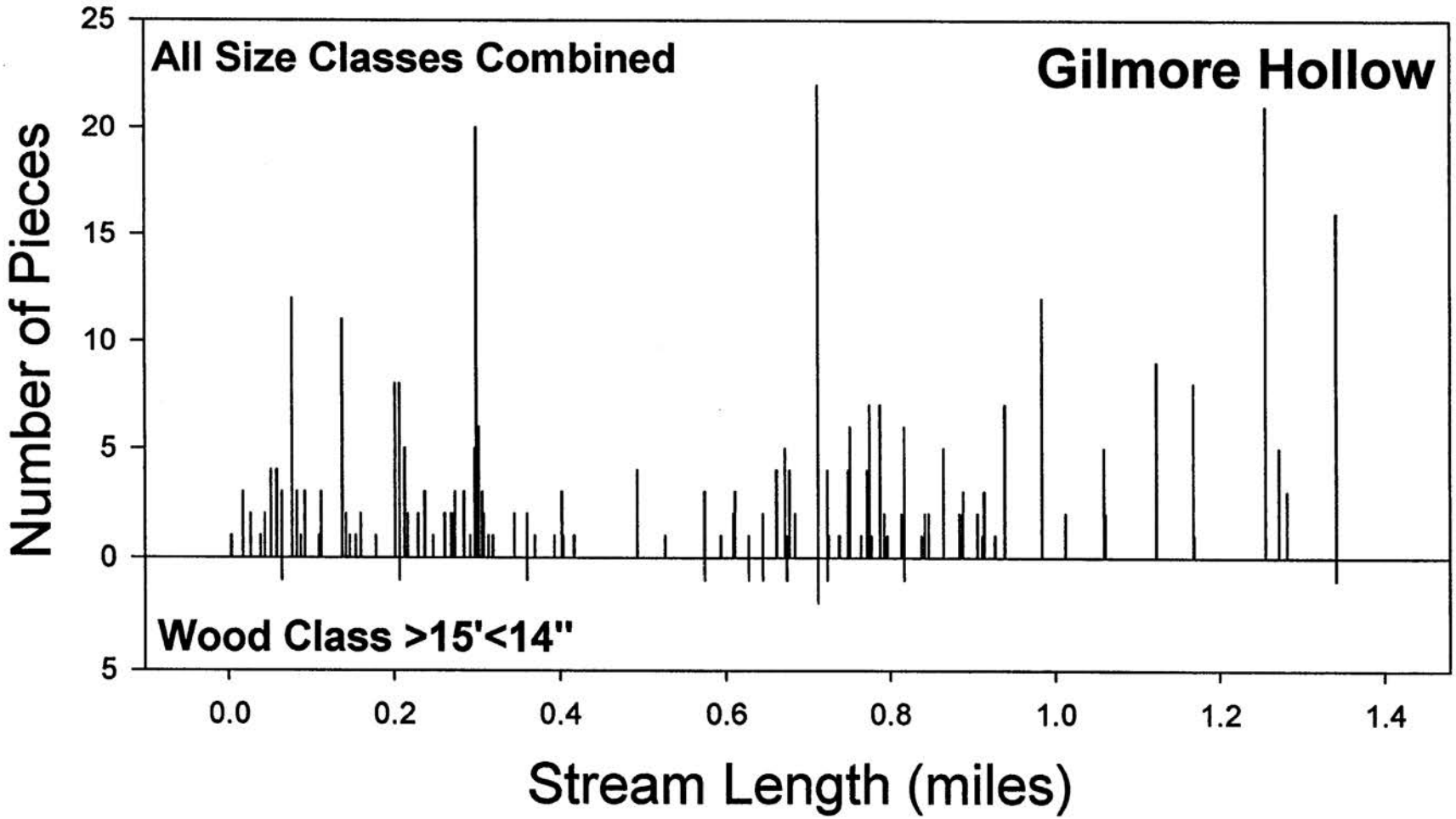
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Gilmore Hollow

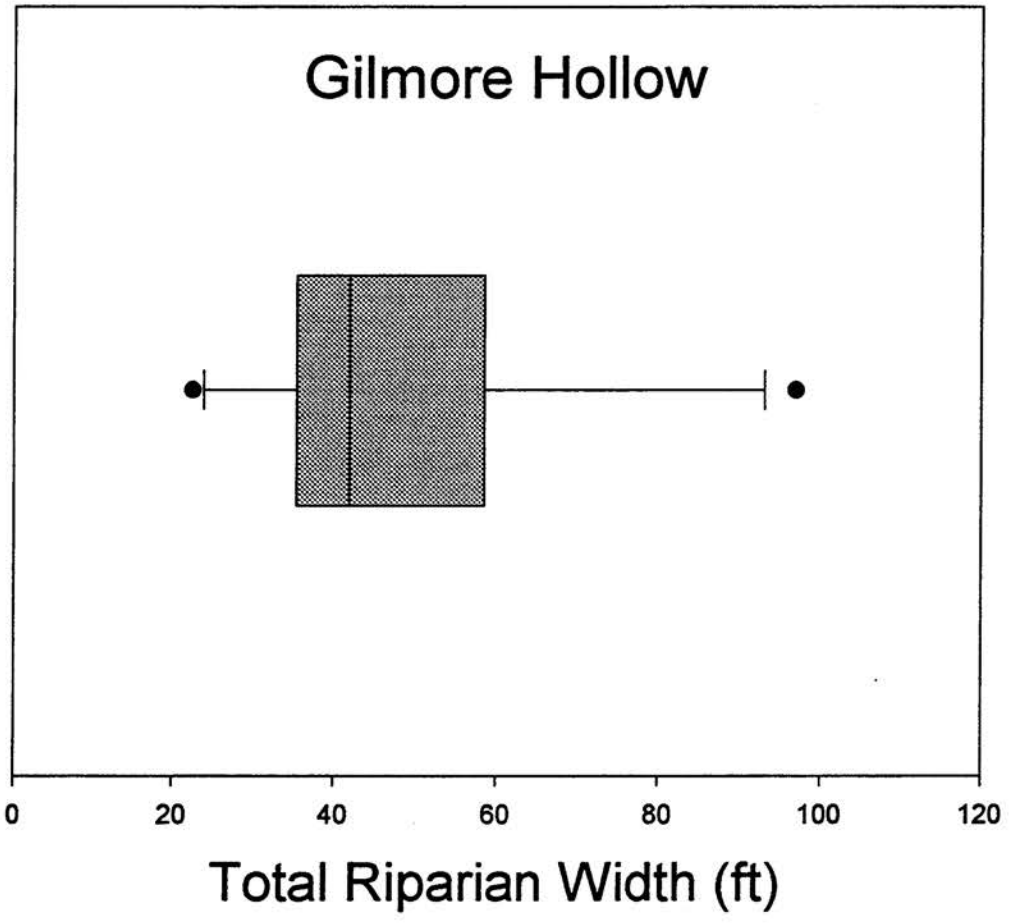


Large Woody Debris Distribution



Riparian Width

Stream: Gilmore Hollow
Number of measurements: 6
Mean width: 49.5 Std Dev: 26.1
Max: 97.0 Min: 22.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Hopper Creek
Quadrangle: Arnold Valley
Sample Date: 06/18/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.77 miles

Percent of Total Area - Pools: 18.3%

Number of Pools: 64
Number of Pools per Mile: 83.1
Total Pool Area: 6,543.8 sq. ft. ± 913.9
Mean Pool Area: 102.2 sq. ft.
Correction Factor: 1.01
Mean Maximum Depth: 1.4'
Mean Average Depth: 0.7'
Depth @ Riffle Crest: 0.3'

Percent of Total Area - Riffles: 81.7%

Number of Riffles: 52
Number of Riffles per Mile: 67.5
Total Riffle Area: 29,125.0 sq. ft. ± 3,428.8
Mean Riffle Area: 560.1 sq. ft.
Correction Factor: 0.93
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 326.0

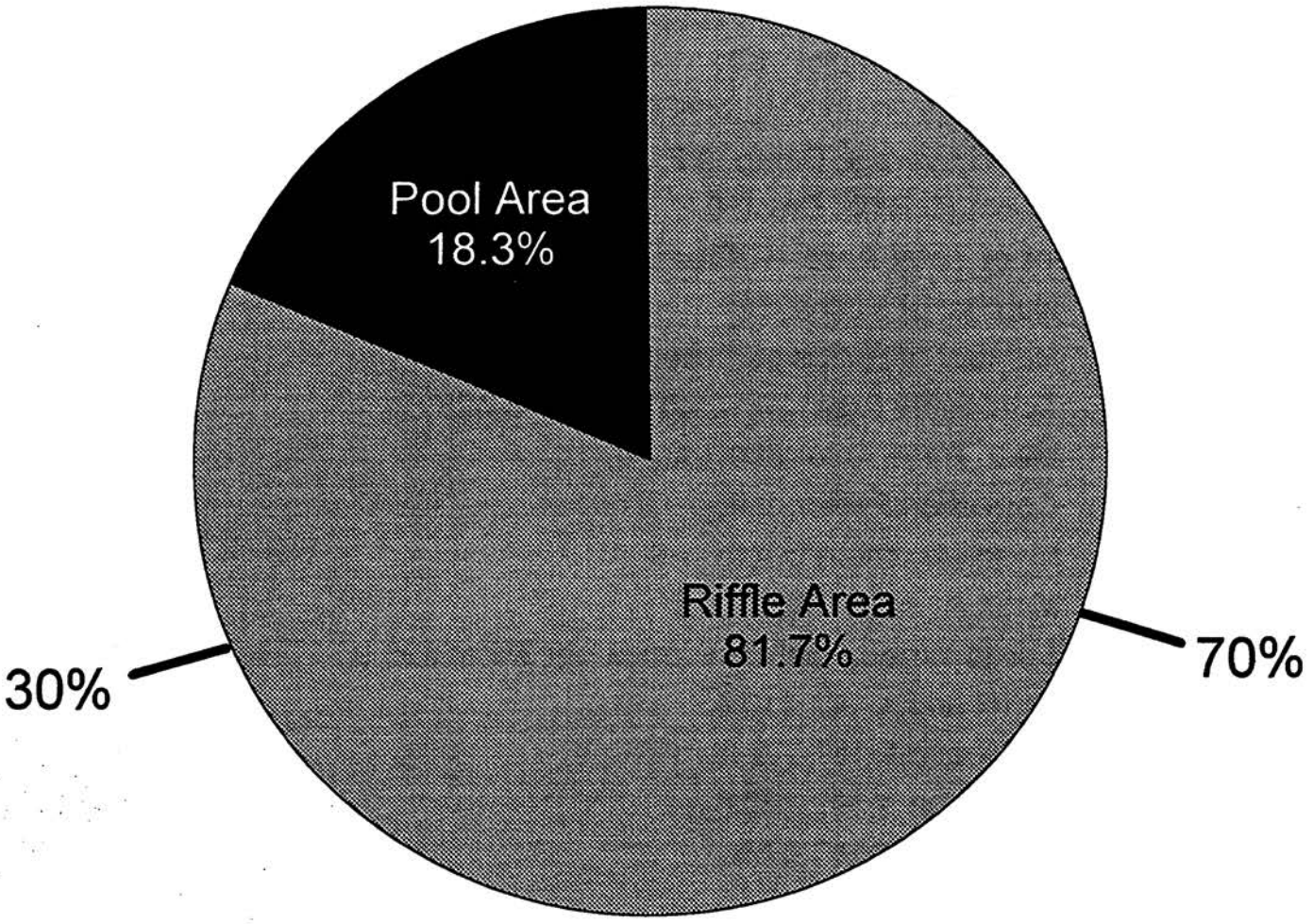
Wood < 15' and < 14": 110.4
Wood < 15' and > 14": 7.8
Wood > 15' and < 14": 120.8
Wood > 15' and > 14": 87.0

Mean Channel Width: 19.8'
Mean Riparian Width: 35.7'

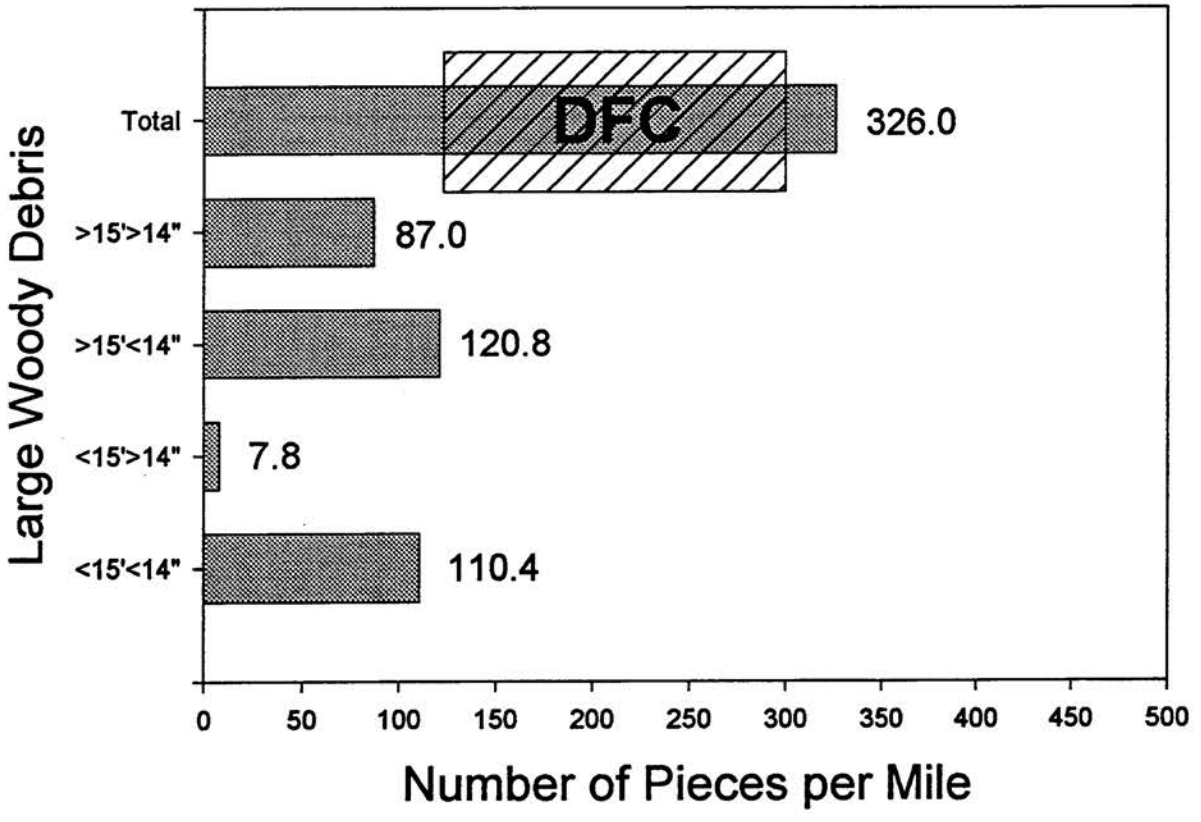
Mean Maximum Riparian Distance (either side): 10.9'
Mean Minimum Riparian Distance (either side): 4.9'
Maximum Riparian Width (Total): 43.6'
Minimum Riparian Width (Total): 26.4'

Hopper Creek
Pool:Riffle Ratio

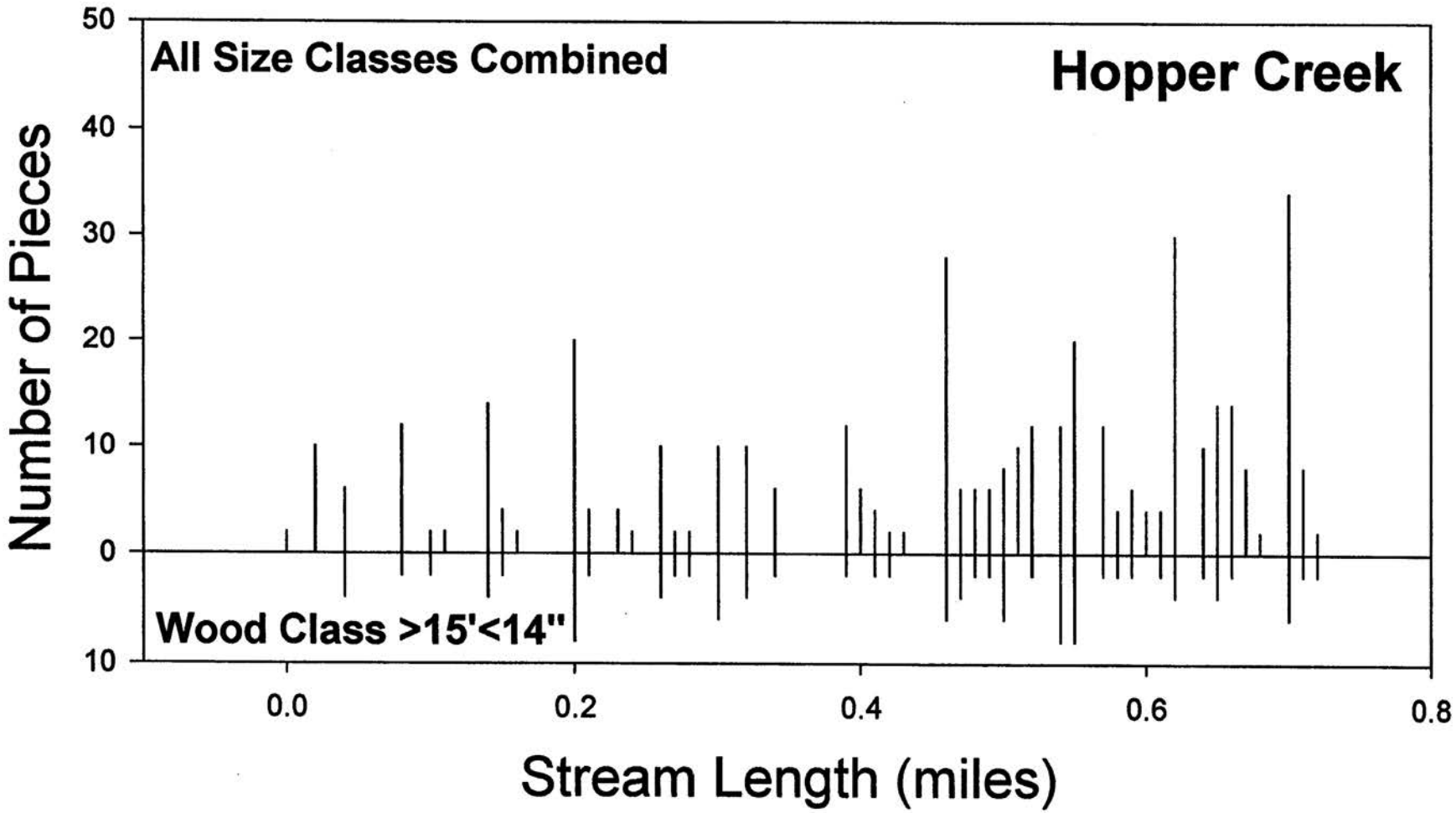
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Hopper Creek

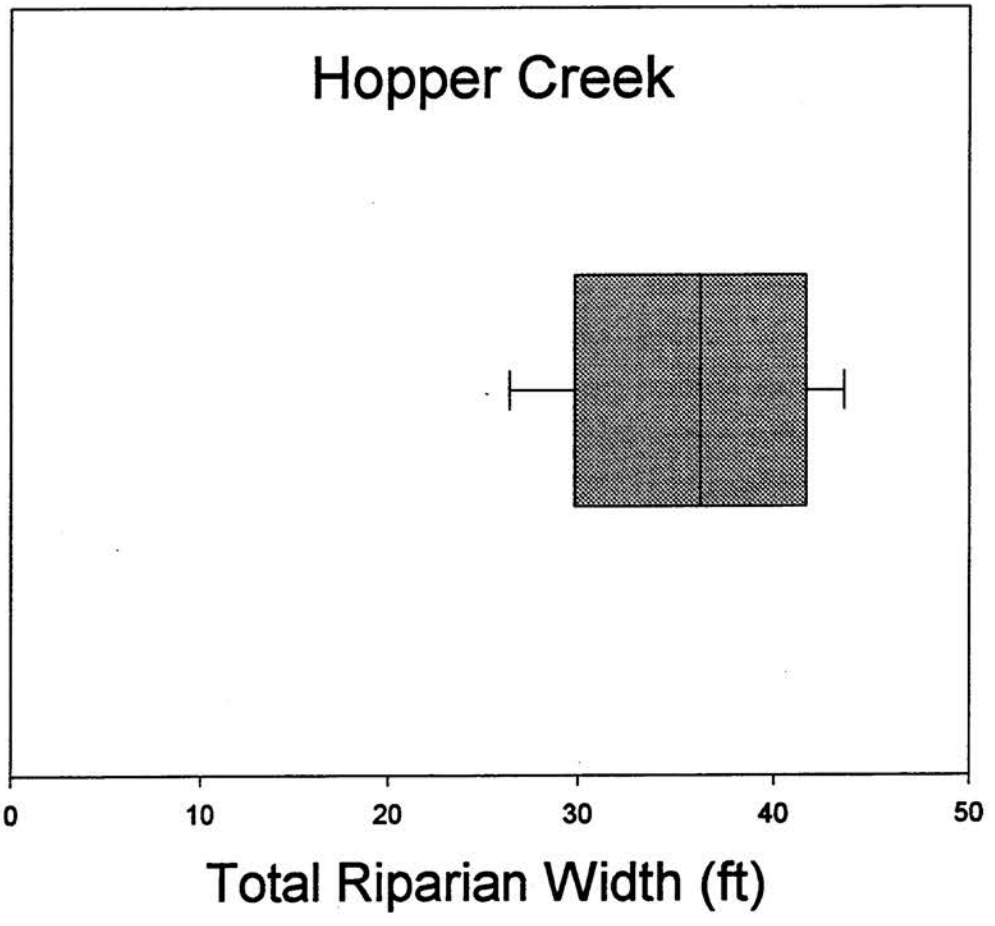


Large Woody Debris Distribution



Riparian Width

Stream: Hopper Creek
Number of measurements: 5
Mean width: 35.7 Std Dev: 7.06
Max: 43.6 Min: 26.4



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Jennings Creek
Quadrangle: Arnold Valley
Sample Date: 07/21/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 5.85 miles

Percent of Total Area - Pools: 42.9%

Number of Pools: 273
Number of Pools per Mile: 46.7
Total Pool Area: 218,014.9 sq. ft. ± 30,172.5
Mean Pool Area: 798.6 sq. ft.
Correction Factor: 1.00
Mean Maximum Depth: 1.8'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 57.1%

Number of Riffles: 217
Number of Riffles per Mile: 37.1
Total Riffle Area: 290,371.4 sq. ft. ± 12,584.4
Mean Riffle Area: 1338.1 sq. ft.
Correction Factor: 1.05
Mean Maximum Depth: 1.1'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 112.7

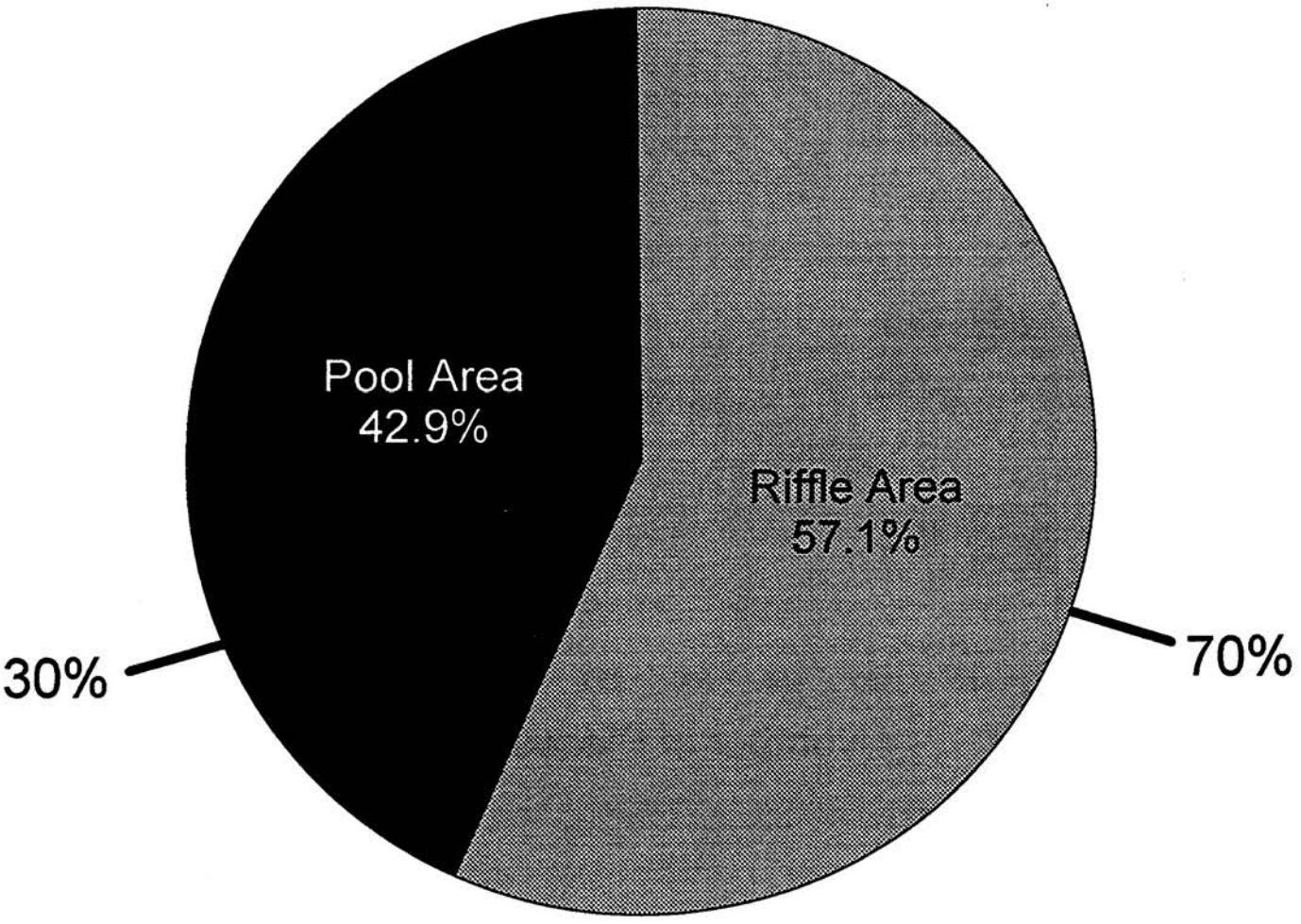
Wood < 15' and < 14": 46.2
Wood < 15' and > 14": 3.4
Wood > 15' and < 14": 44.1
Wood > 15' and > 14": 19.0

Mean Channel Width: 39.5'
Mean Riparian Width: 189.9'

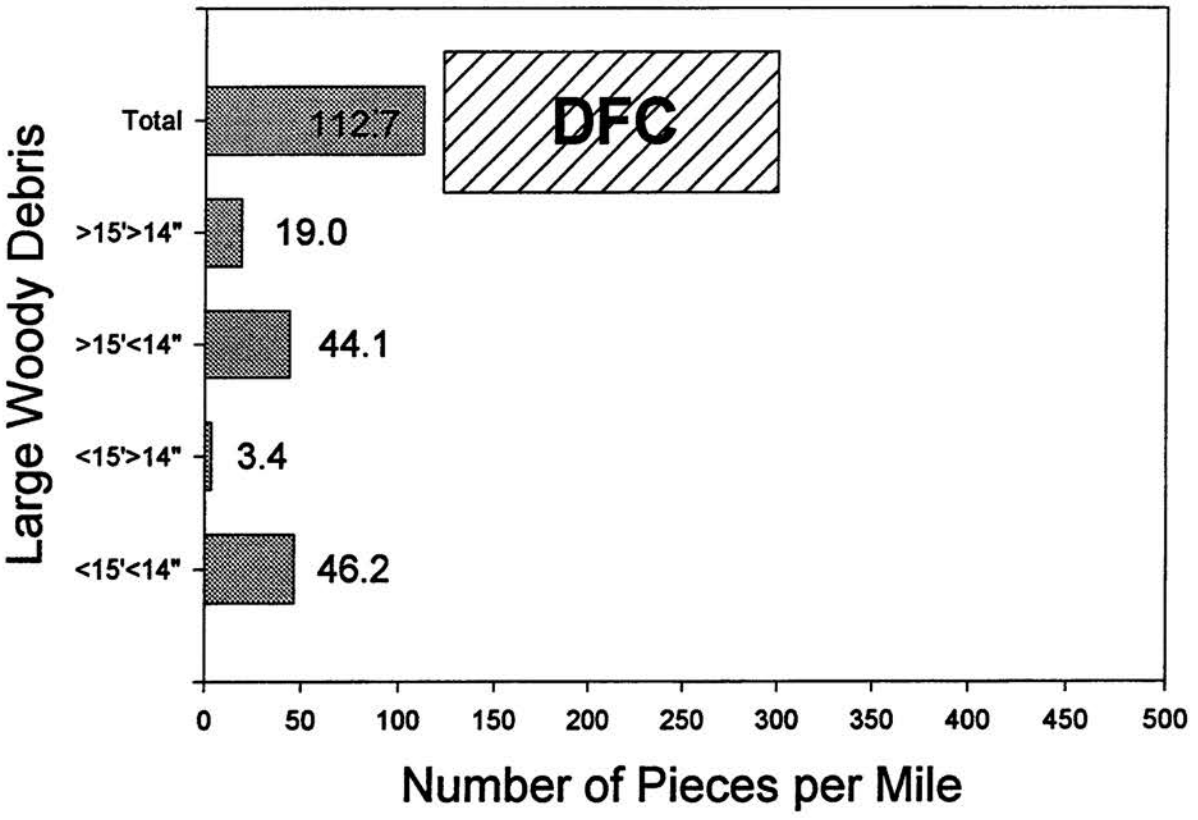
Mean Maximum Riparian Distance (either side): 103.7'
Mean Minimum Riparian Distance (either side): 45.7'
Maximum Riparian Width (Total): 383.2'
Minimum Riparian Width (Total): 65.0'

Jennings Creek
Pool:Riffle Ratio

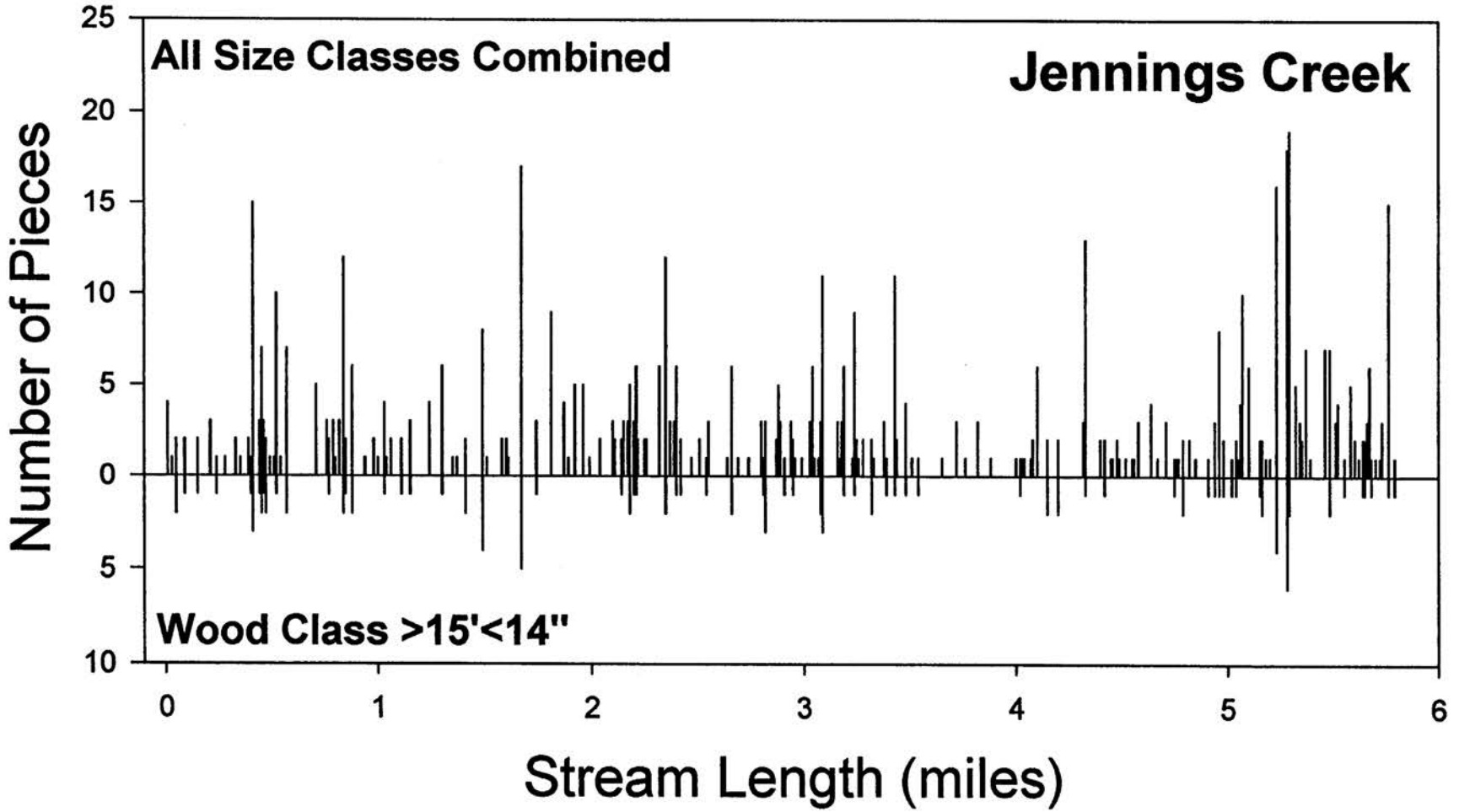
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Jennings Creek

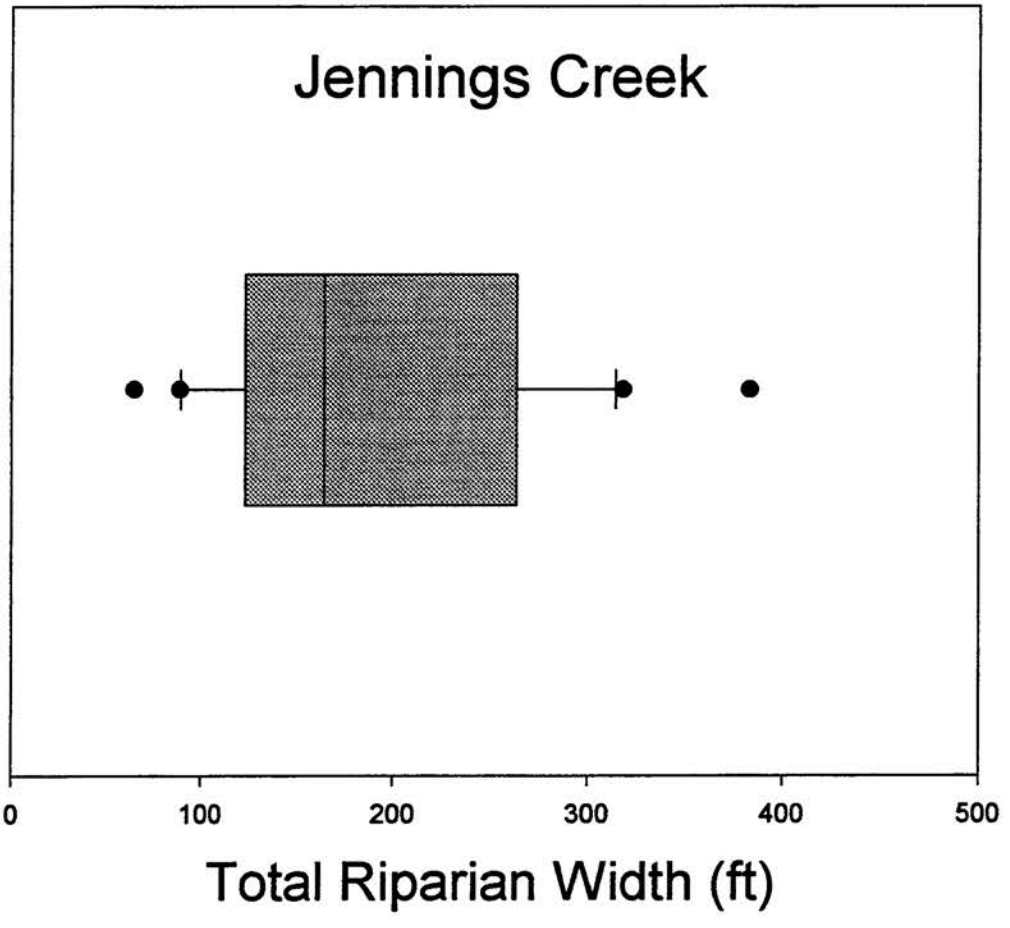


Large Woody Debris Distribution



Riparian Width

Stream: Jennings Creek
Number of measurements: 16
Mean width: 189.9 Std Dev: 90.7
Max: 383.2 Min: 65.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: McFalls Creek
Quadrangle: Arnold Valley
Sample Date: 07/02/97
Downstream Starting Point: Confluence with Jennings Creek
Total Distance Surveyed: 3.63 miles

Percent of Total Area - Pools: 35.2%

Number of Pools: 313
Number of Pools per Mile: 86
Total Pool Area: 58,495.8 sq. ft. ± 4,358.6
Mean Pool Area: 186.9 sq. ft.
Correction Factor: 1.03
Mean Maximum Depth: 1.2'
Mean Average Depth: 0.7'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 64.8%

Number of Riffles: 269
Number of Riffles per Mile: 74
Total Riffle Area: 107,912.6 sq. ft. ± 6,438.6
Mean Riffle Area: 401.2 sq. ft.
Correction Factor: 1.11
Mean Maximum Depth: 0.6'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 265.3

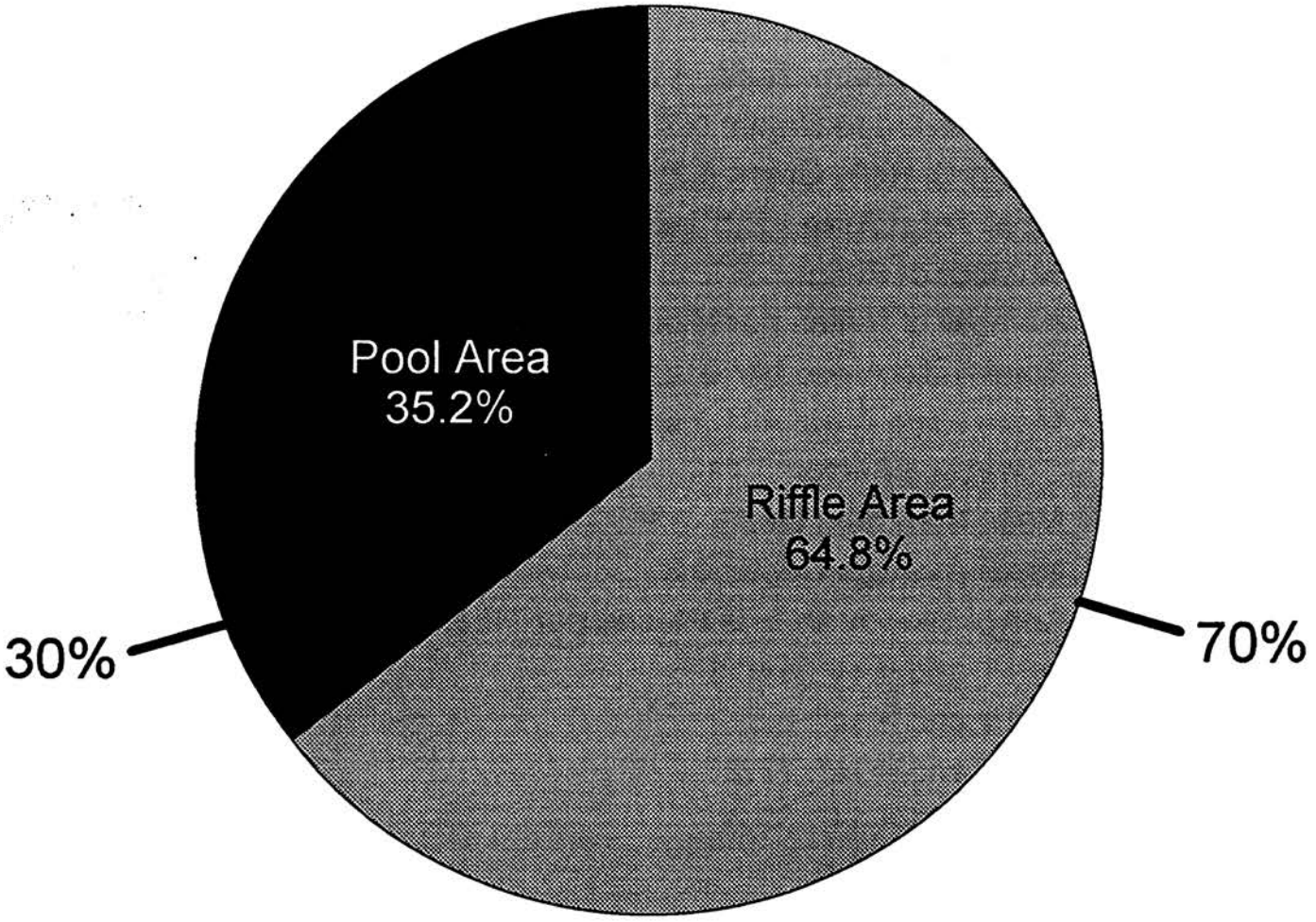
Wood < 15' and < 14": 140.3
Wood < 15' and > 14": 8.5
Wood > 15' and < 14": 77.2
Wood > 15' and > 14": 39.3

Mean Channel Width: 16.6'
Mean Riparian Width: 81.2'

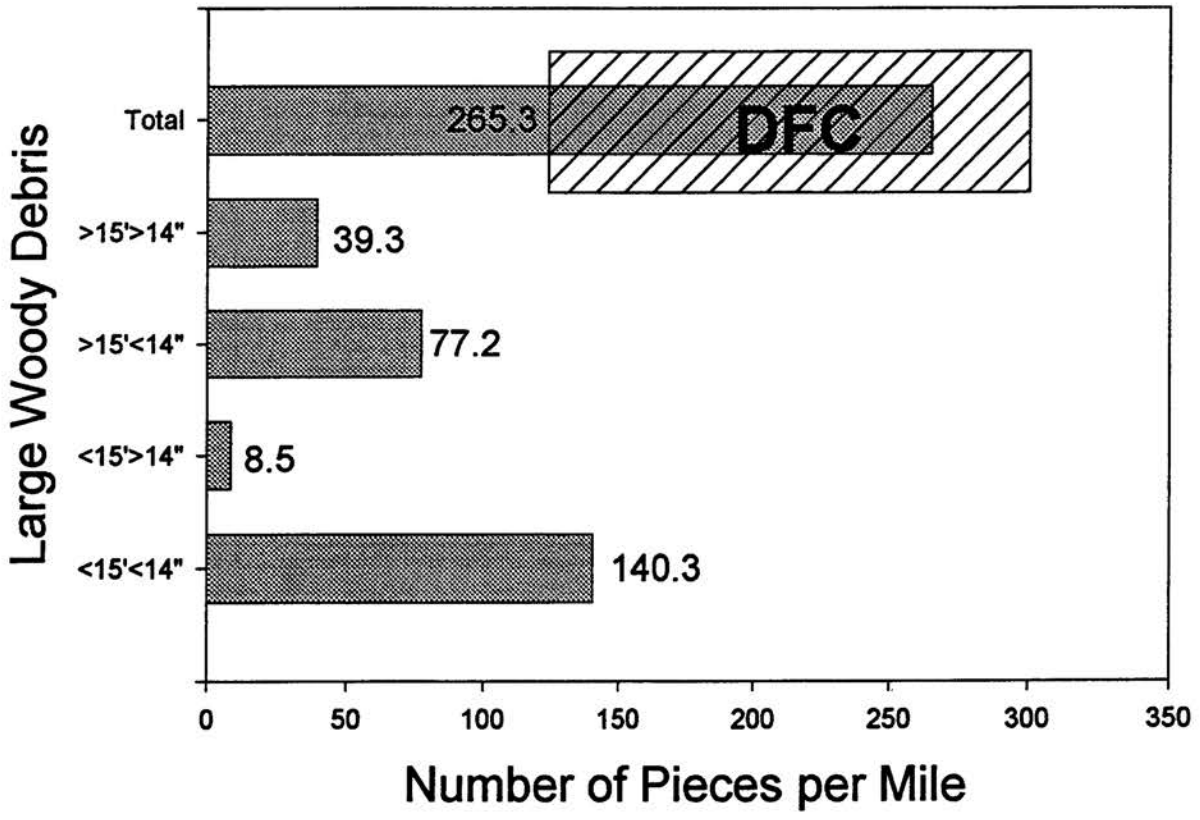
Mean Maximum Riparian Distance (either side): 47.9'
Mean Minimum Riparian Distance (either side): 16.7'
Maximum Riparian Width (Total): 147.7'
Minimum Riparian Width (Total): 30.0'

McFalls Creek Pool:Riffle Ratio

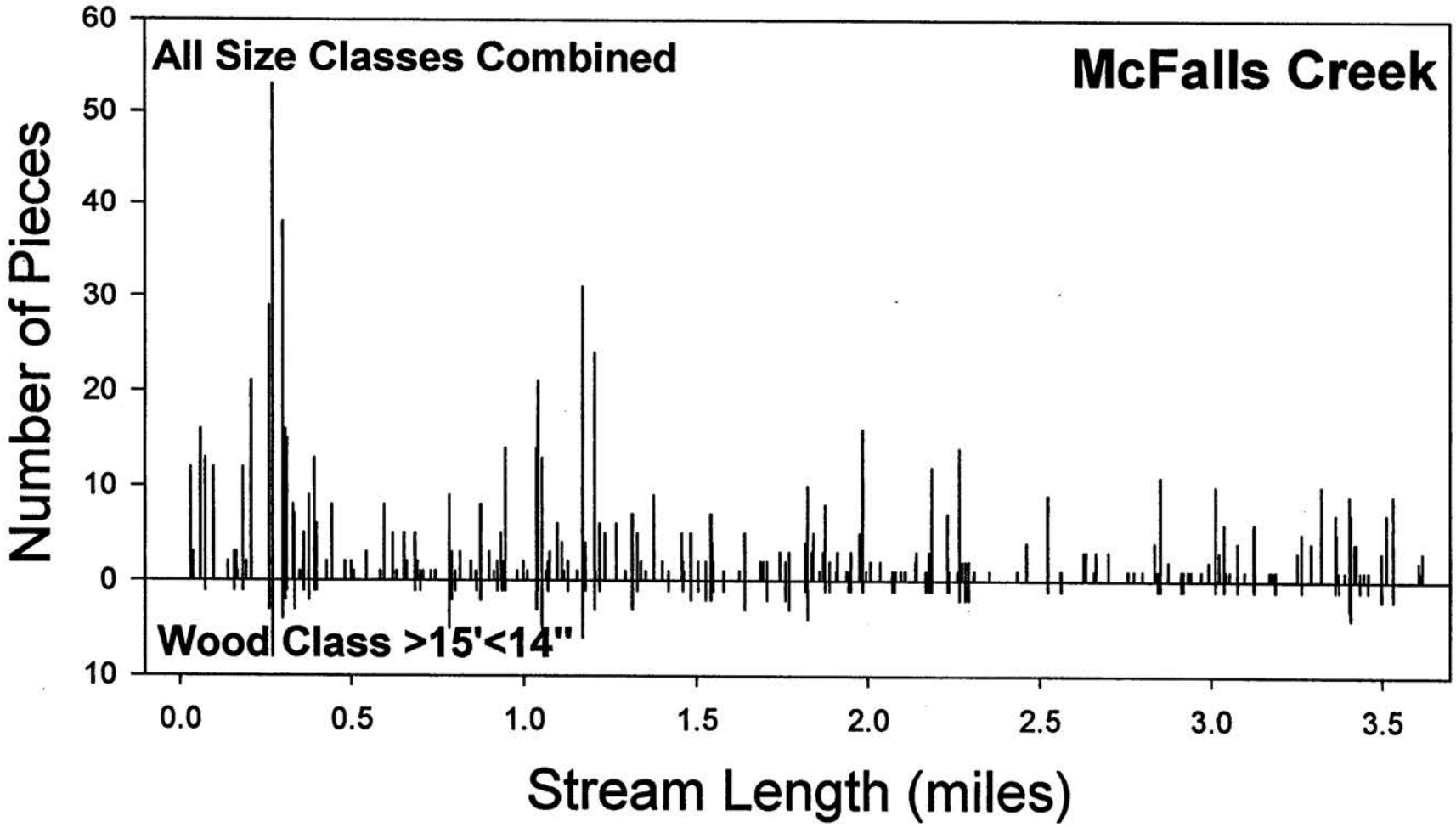
DFC: 30 - 70% of the Stream Area in Pool Habitat



McFalls Creek

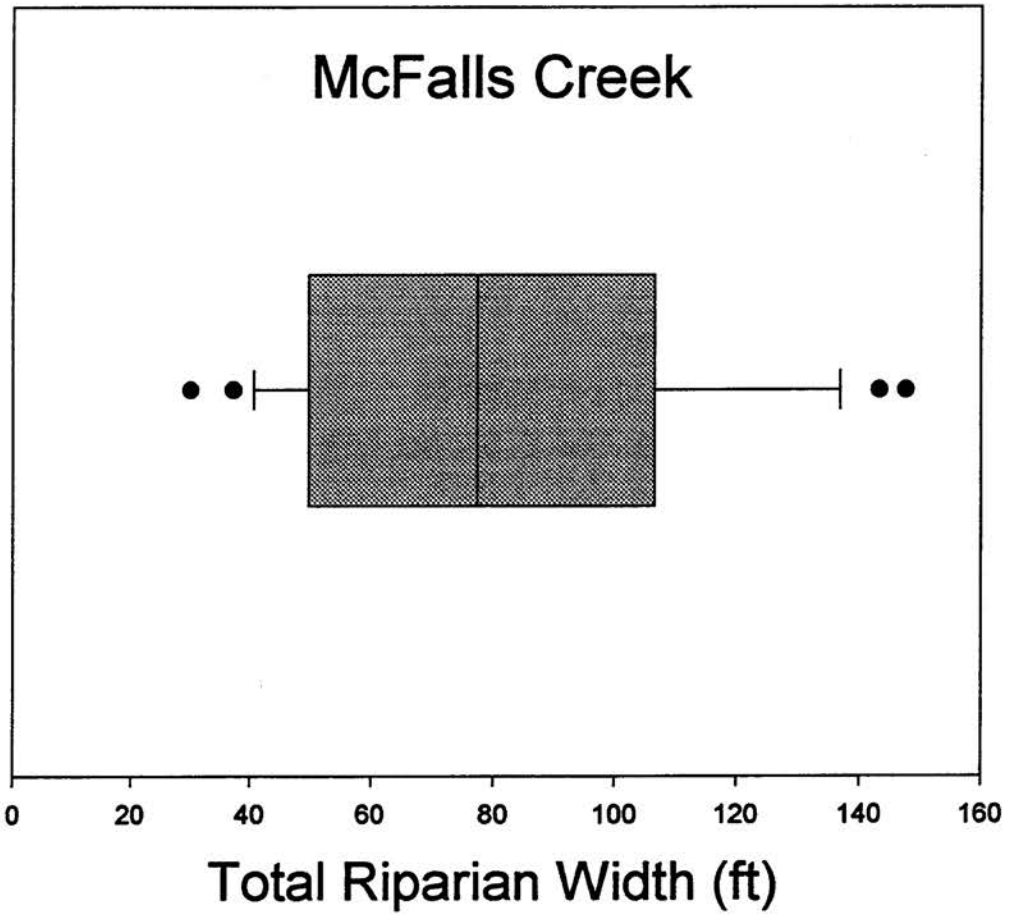


Large Woody Debris Distribution



Riparian Width

Stream: McFalls Creek
Number of measurements: 18
Mean width: 81.2 Std Dev: 35.8
Max: 147.7 Min: 30.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Middle Creek
Quadrangle: Arnold Valley
Sample Date: 06/30/97
Downstream Starting Point: Confluence with Jennings Creek
Total Distance Surveyed: 2.45 miles

Percent of Total Area - Pools: 27.4%

Number of Pools: 167
Number of Pools per Mile: 68
Total Pool Area: 40,199.1 sq. ft. ± 4,541.7
Mean Pool Area: 240.7 sq. ft.
Correction Factor: 1.03
Mean Maximum Depth: 1.6'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.5'

Percent of Total Area - Riffles: 72.6%

Number of Riffles: 152
Number of Riffles per Mile: 62
Total Riffle Area: 106,276.7 sq. ft. ± 29,568.2
Mean Riffle Area: 699.2 sq. ft.
Correction Factor: 1.13
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 117.0

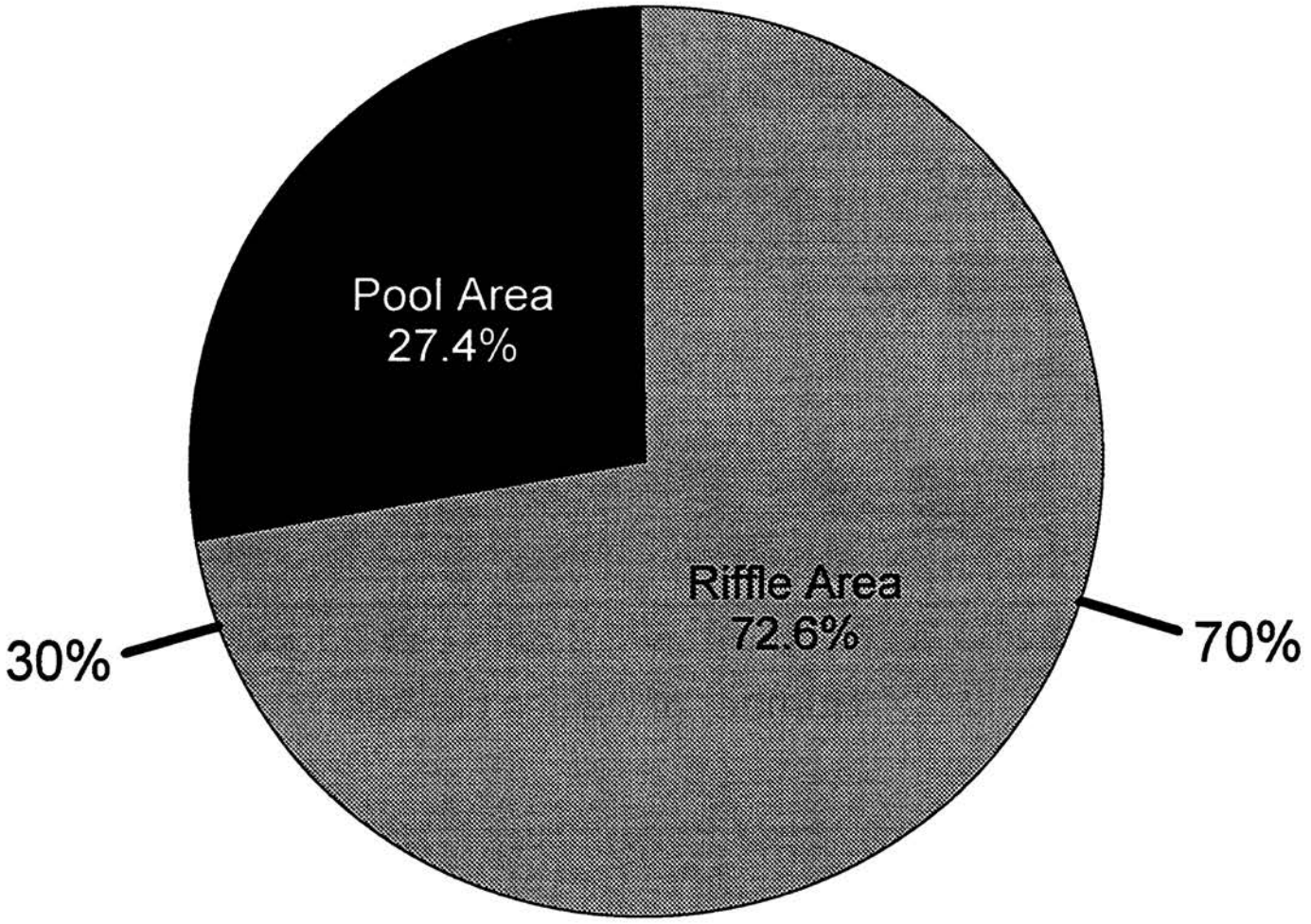
Wood < 15' and < 14": 53.2
Wood < 15' and > 14": 9.4
Wood > 15' and < 14": 38.4
Wood > 15' and > 14": 16.0

Mean Channel Width: 25.6'
Mean Riparian Width: 107.6'

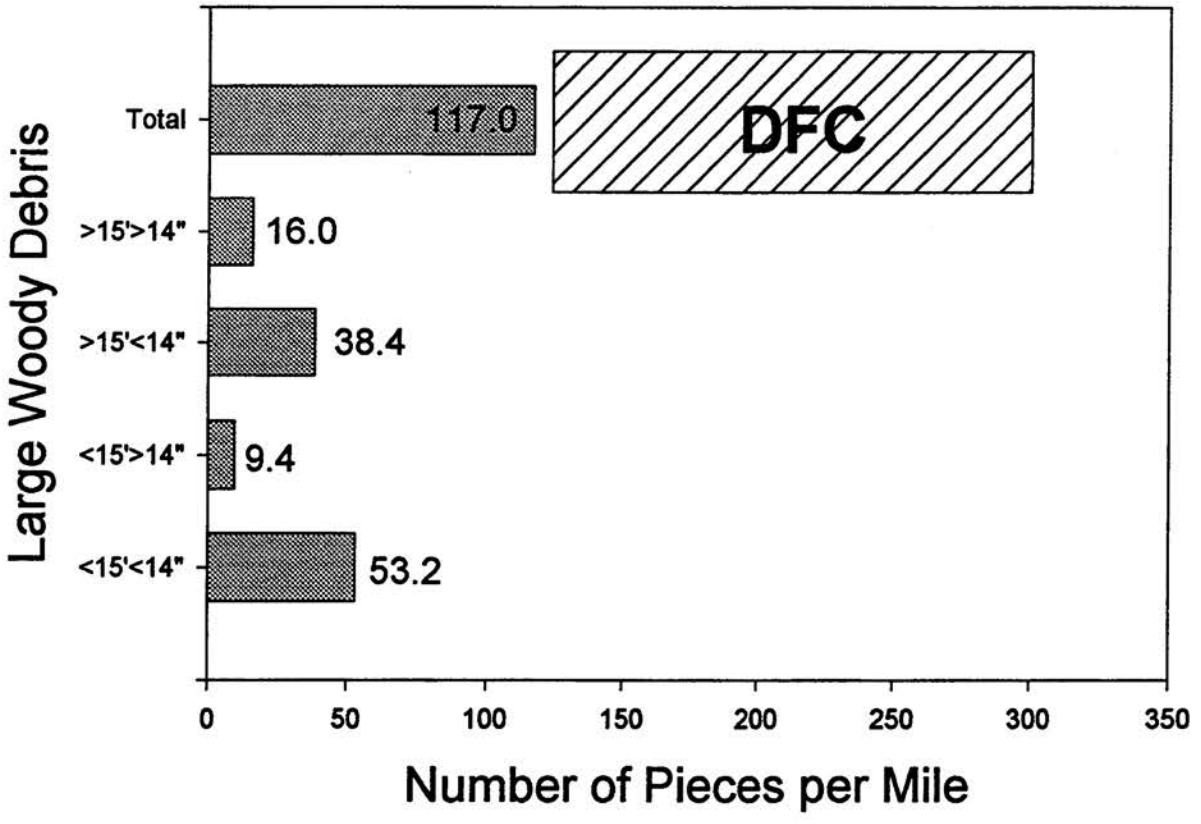
Mean Maximum Riparian Distance (either side): 65.9'
Mean Minimum Riparian Distance (either side): 16.1'
Maximum Riparian Width (Total): 172.5'
Minimum Riparian Width (Total): 48.8'

Middle Creek Pool:Riffle Ratio

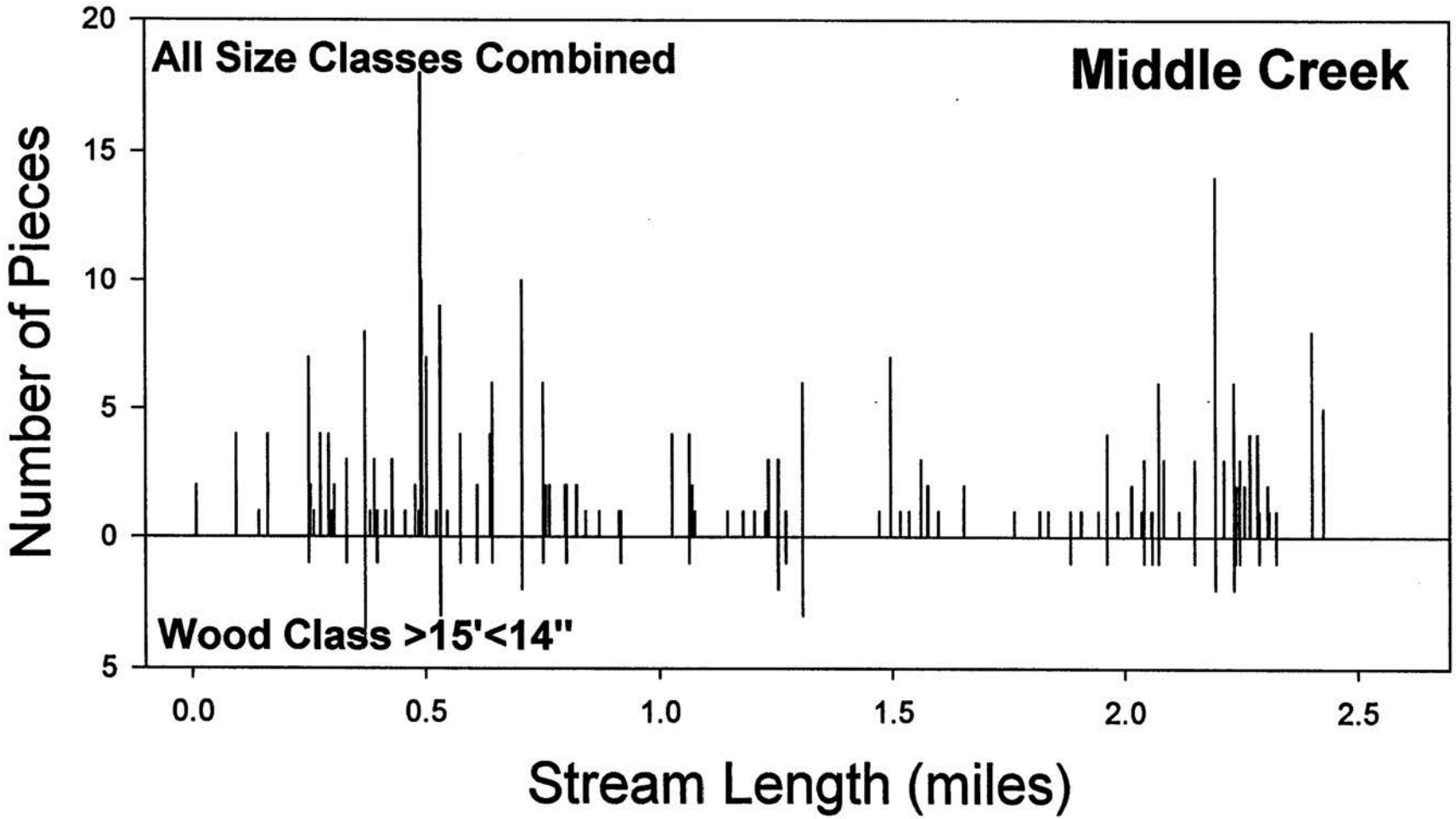
DFC: 30 - 70% of the Stream Area in Pool Habitat



Middle Creek

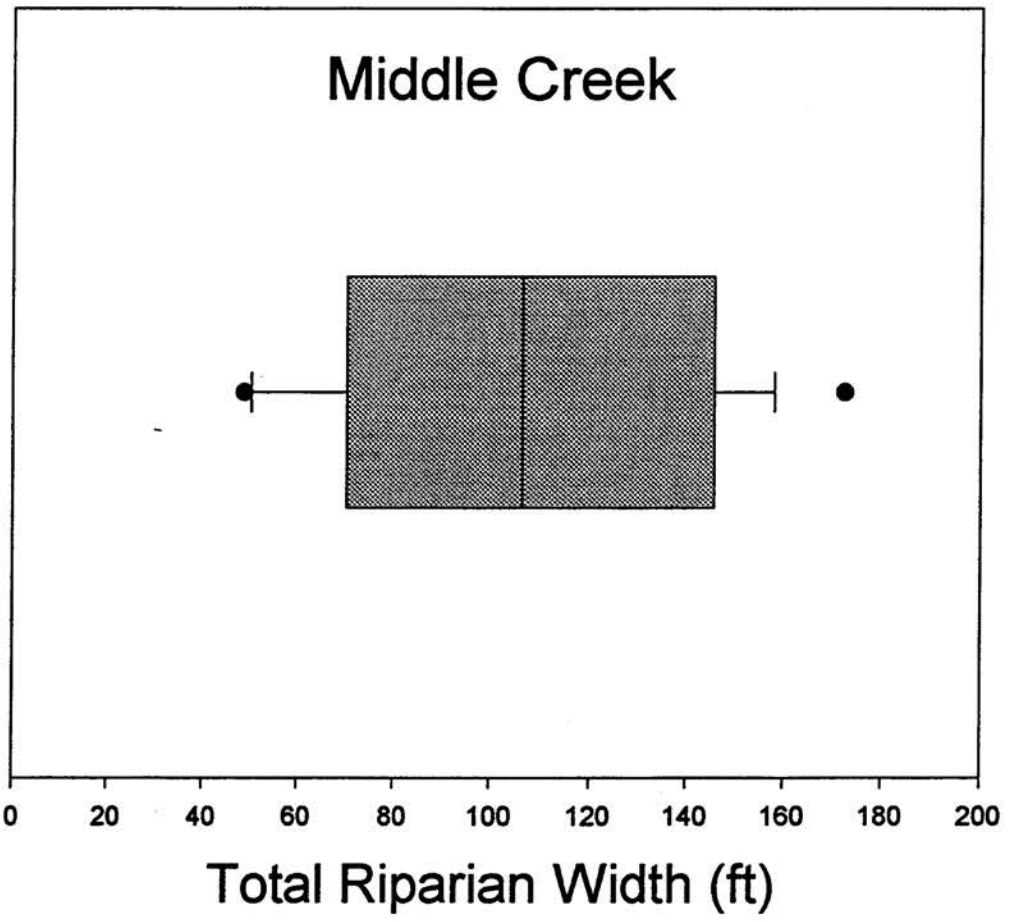


Large Woody Debris Distribution



Riparian Width

Stream: Middle Creek
Number of measurements: 13
Mean width: 107.6 Std Dev: 43.3
Max: 172.5 Min: 48.8



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: North Creek
Quadrangle: Arnold Valley
Sample Date: 07/09/97
Downstream Starting Point: Confluence with Jennings Creek
Total Distance Surveyed: 1.90 miles

Percent of Total Area - Pools: 48.4%

Number of Pools: 119
Number of Pools per Mile: 62
Total Pool Area: 115,097.6 sq. ft.
Mean Pool Area: 967.2 sq. ft.
Correction Factor: 1.25
Mean Maximum Depth: 2.2'
Mean Average Depth: 1.4'
Depth @ Riffle Crest: 0.6'

Percent of Total Area - Riffles: 51.6%

Number of Riffles: 85
Number of Riffles per Mile: 45
Total Riffle Area: 122,673.0 sq. ft.
Mean Riffle Area: 1,443.2 sq. ft.
Correction Factor: 1.46
Mean Maximum Depth: 1.2'
Mean Average Depth: 0.8'

Number of Large Woody Debris Pieces per Mile: 195.8

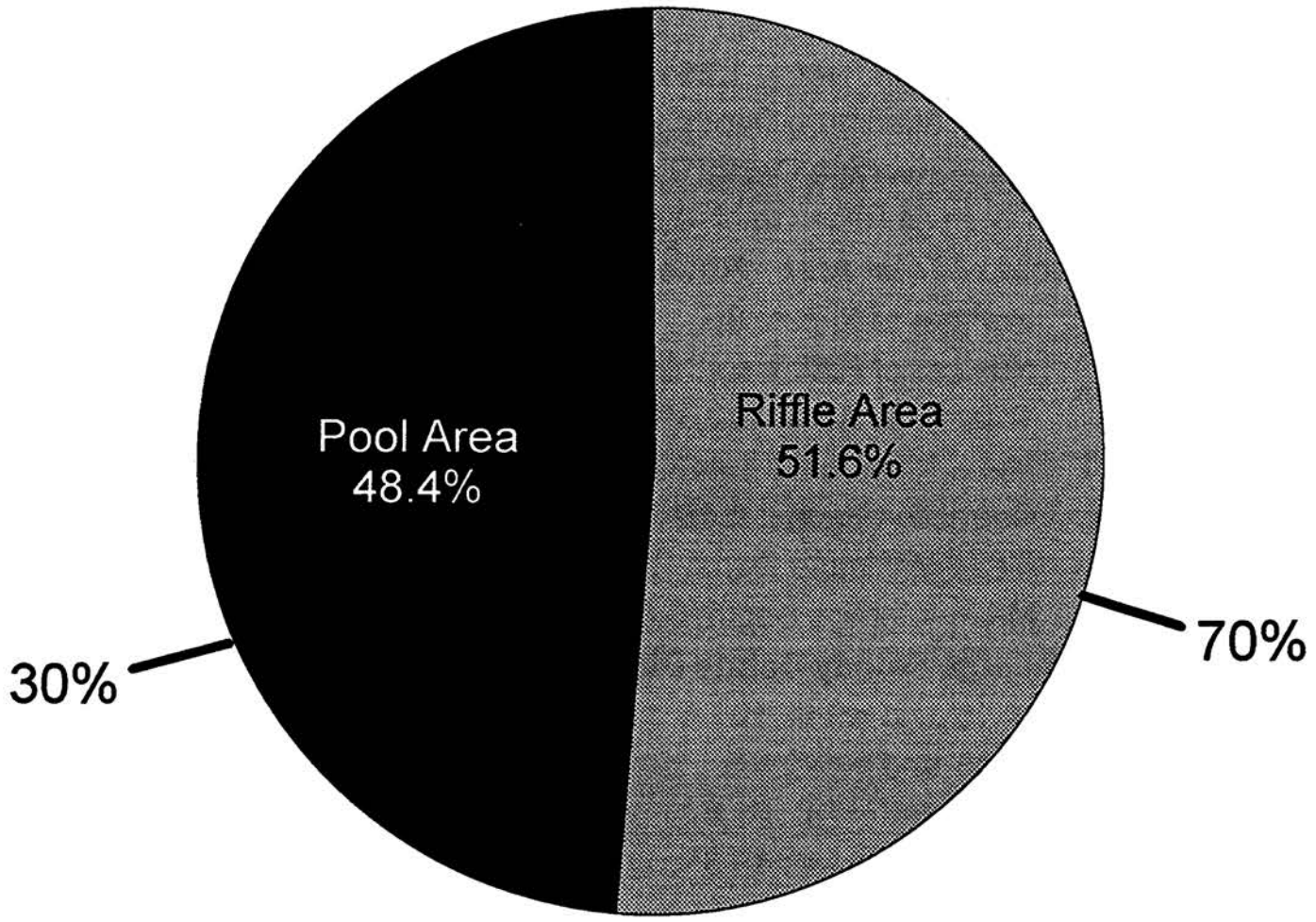
Wood < 15' and < 14": 109.4
Wood < 15' and > 14": 6.3
Wood > 15' and < 14": 61.8
Wood > 15' and > 14": 18.3

Mean Channel Width: 39.1'
Mean Riparian Width: 103.9'

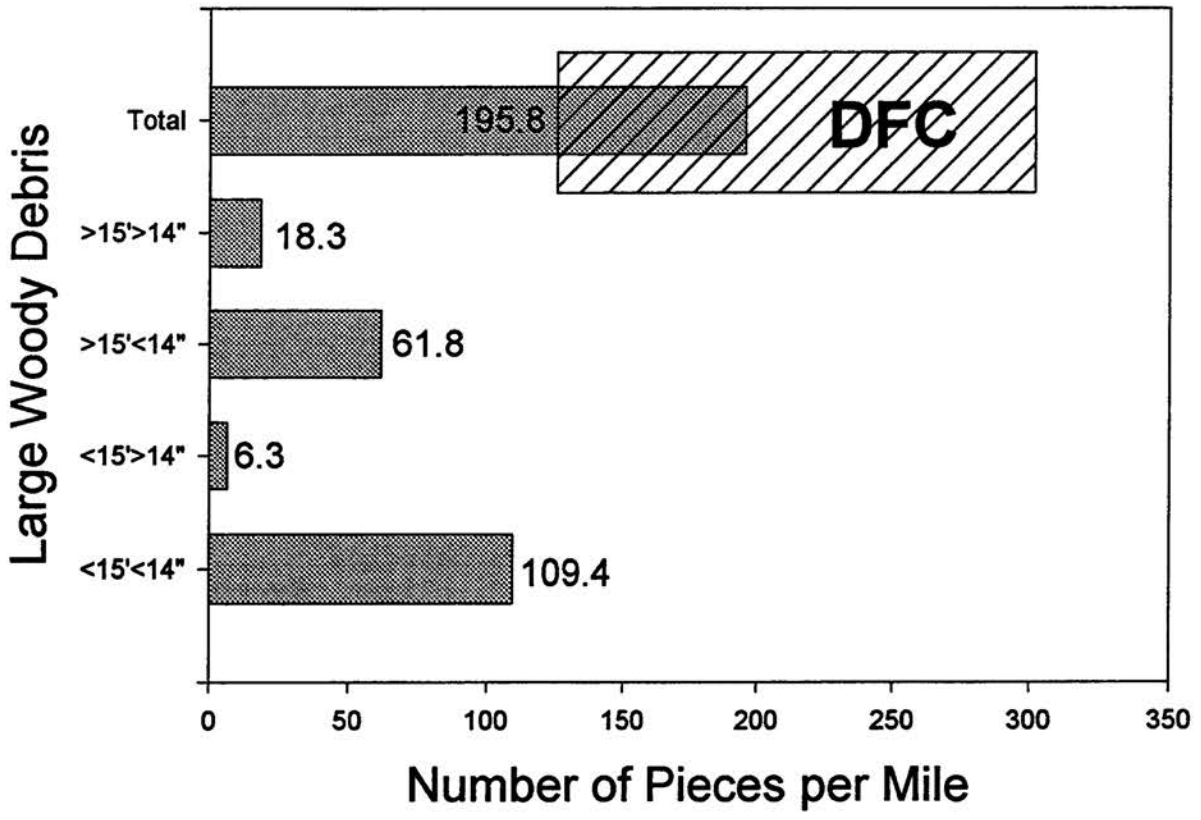
Mean Maximum Riparian Distance (either side): 51.8'
Mean Minimum Riparian Distance (either side): 13.0'
Maximum Riparian Width (Total): 122.0'
Minimum Riparian Width (Total): 89.5'

North Creek
Pool:Riffle Ratio

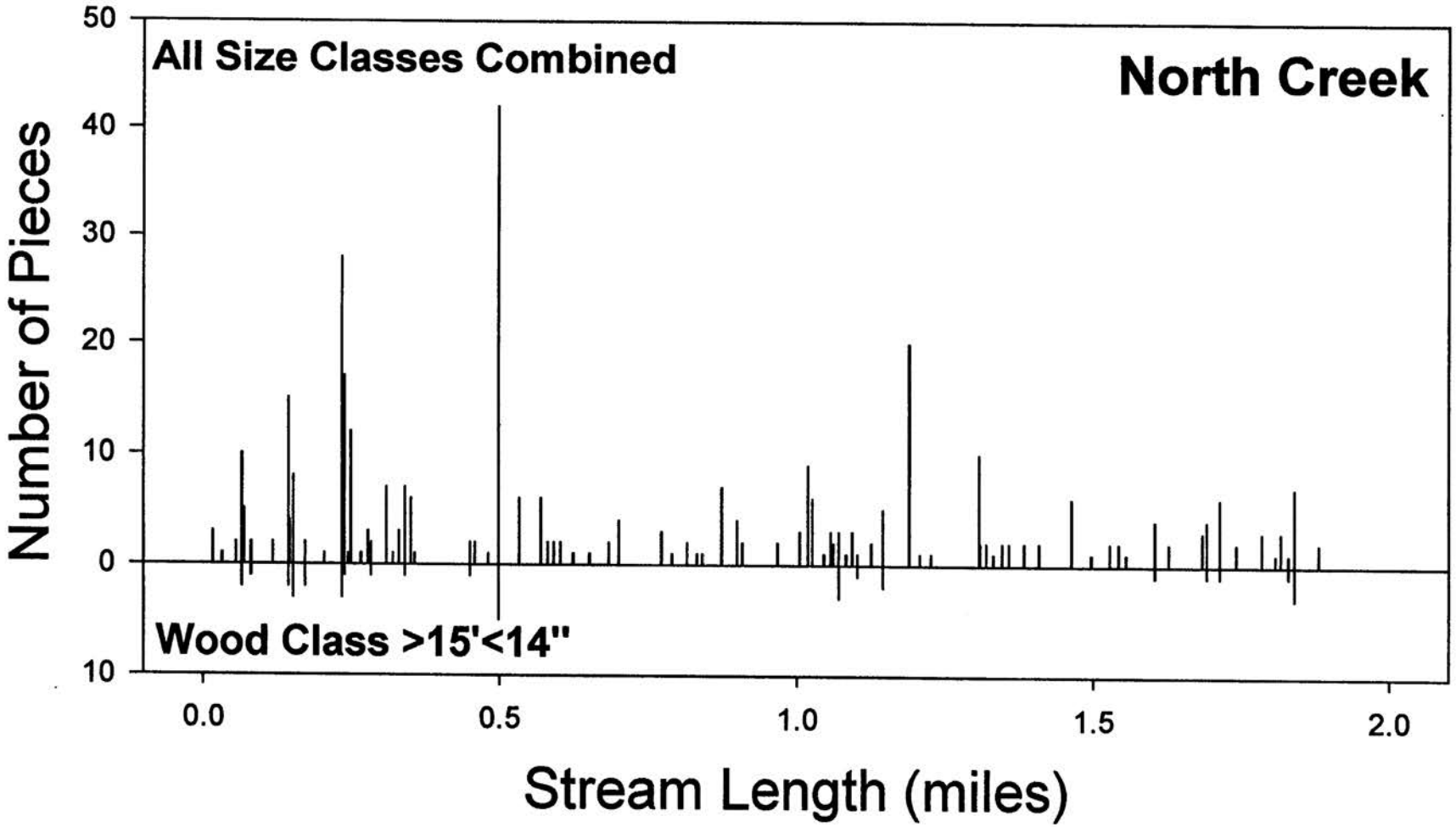
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



North Creek

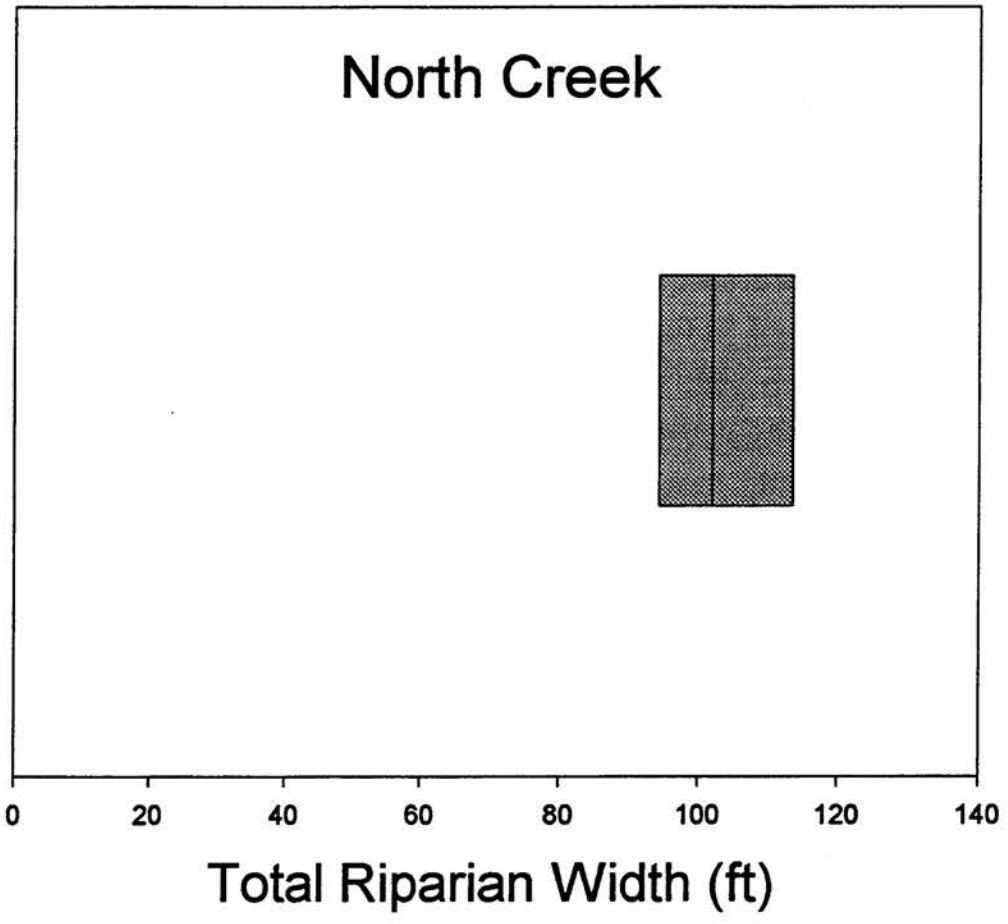

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
195.8
DFC
18.3
61.8
6.3
109.4
0
50
100
150
200
250
300
350
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: North Creek
Number of measurements: 4
Mean width: 103.9 Std Dev: 13.7
Max: 122.0 Min: 89.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Opossum Hollow
Quadrangle: Arnold Valley
Sample Date: 06/18/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.68 miles

Percent of Total Area - Pools: 17.5%

Number of Pools: 88
Number of Pools per Mile: 52
Total Pool Area: 13,764.5 sq. ft. ± 2,379.1
Mean Pool Area: 156.4 sq. ft.
Correction Factor: 0.91
Mean Maximum Depth: 1.6'
Mean Average Depth: 1.0'
Depth @ Riffle Crest: 0.6'

Percent of Total Area - Riffles: 82.5%

Number of Riffles: 87
Number of Riffles per Mile: 52
Total Riffle Area: 64,787.0 sq. ft. ± 7,917.1
Mean Riffle Area: 744.7 sq. ft.
Correction Factor: 0.93
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 76.8

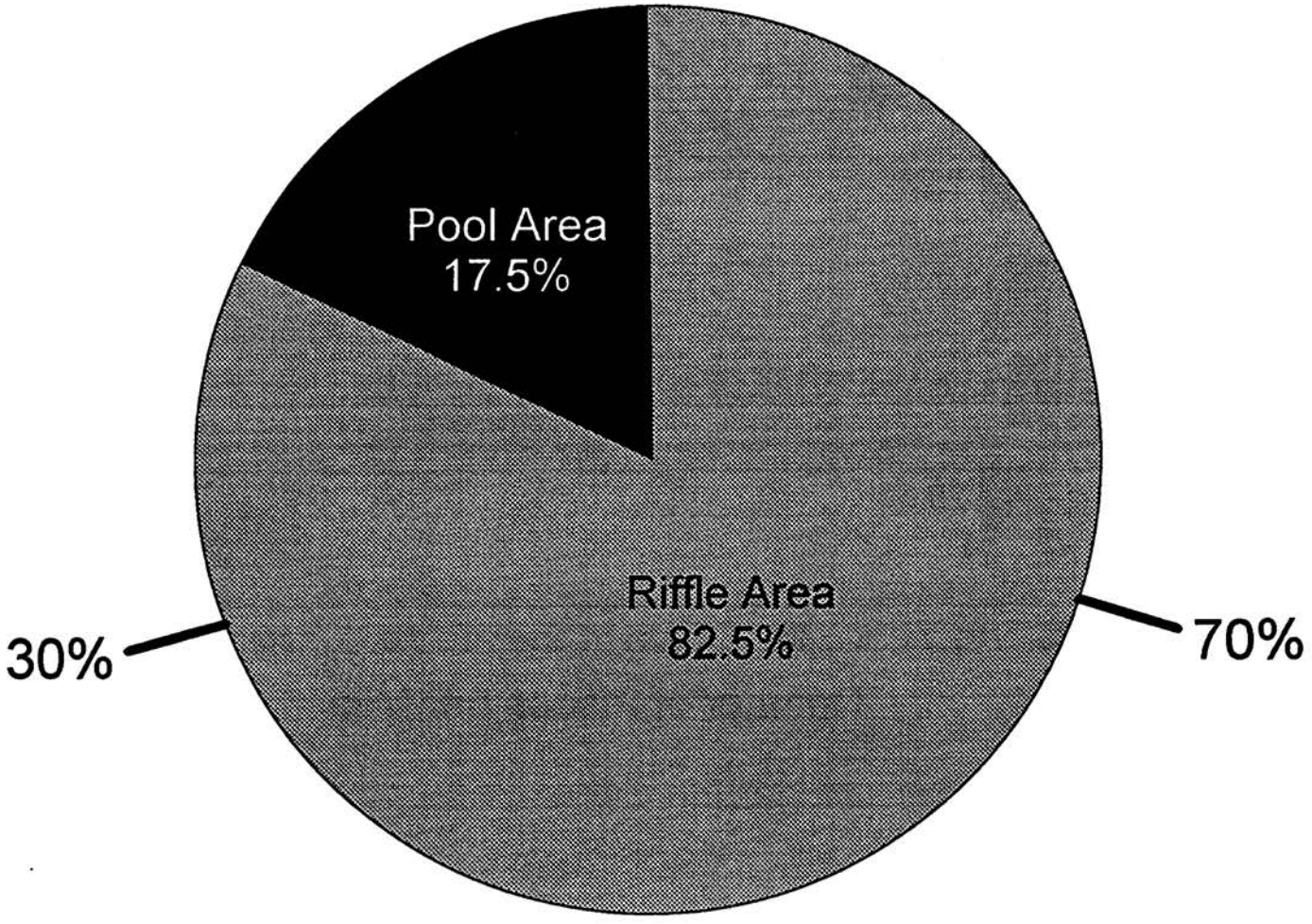
Wood < 15' and < 14": 25.0
Wood < 15' and > 14": 14.3
Wood > 15' and < 14": 13.7
Wood > 15' and > 14": 23.8

Mean Channel Width: 20.1'
Mean Riparian Width: 72.3'

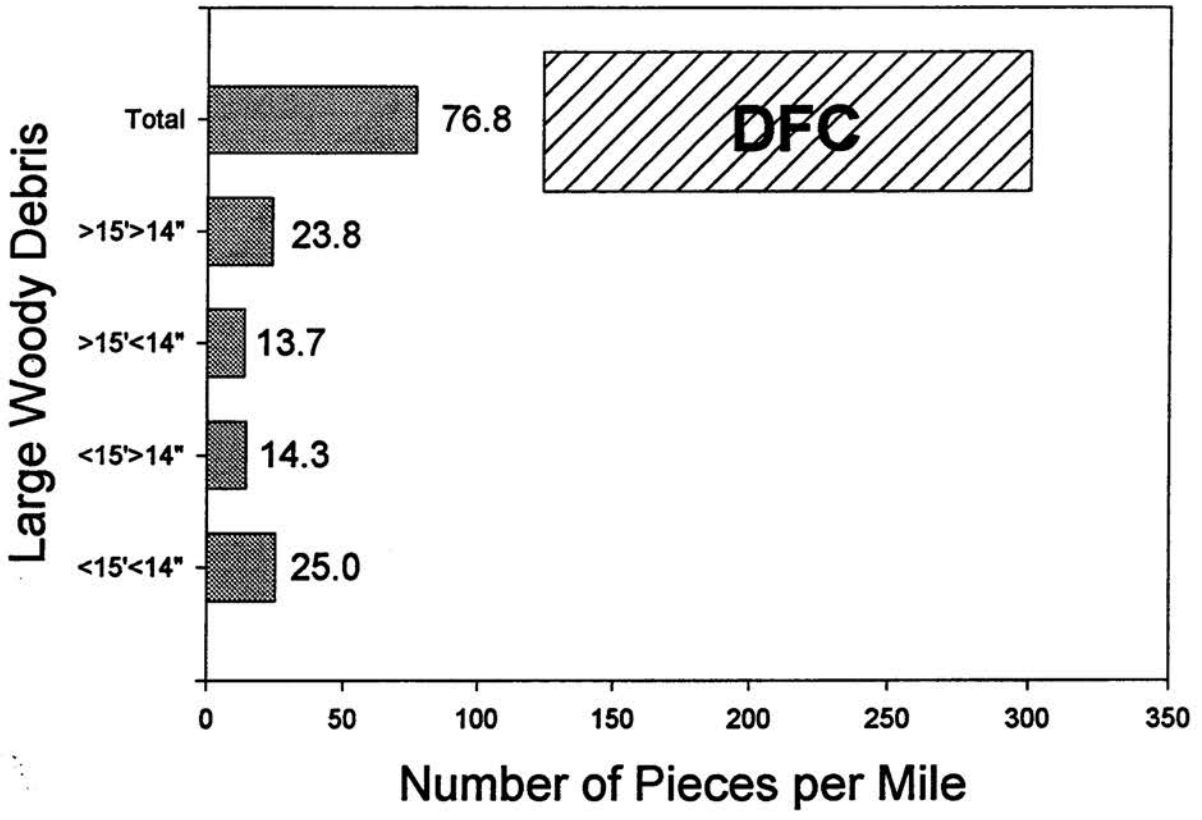
Mean Maximum Riparian Distance (either side): 34.2'
Mean Minimum Riparian Distance (either side): 18.0'
Maximum Riparian Width (Total): 156.5'
Minimum Riparian Width (Total): 37.8'

Opossum Hollow Pool:Riffle Ratio

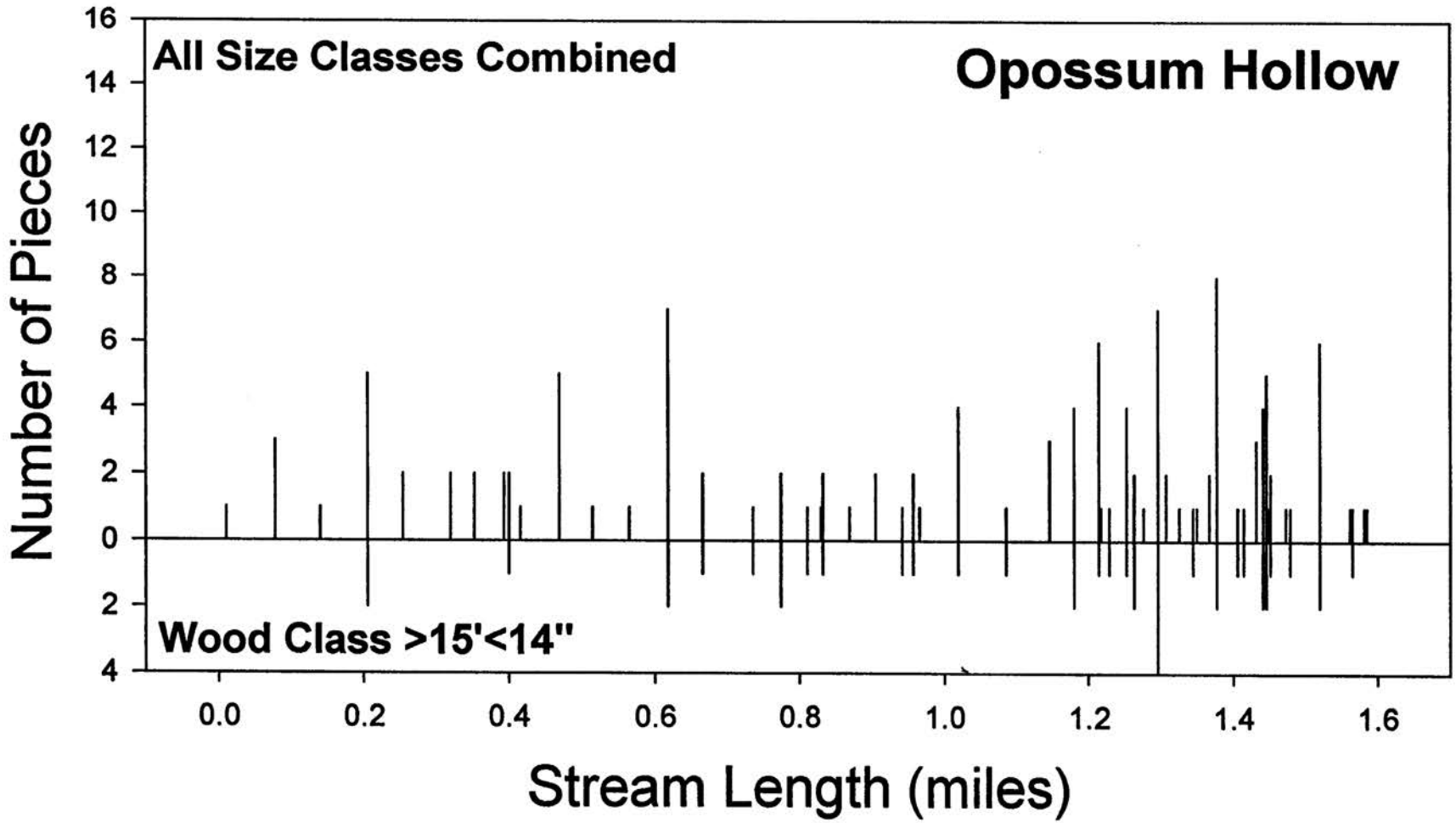
DFC: 30 - 70% of the Stream Area in Pool Habitat



Opossum Hollow

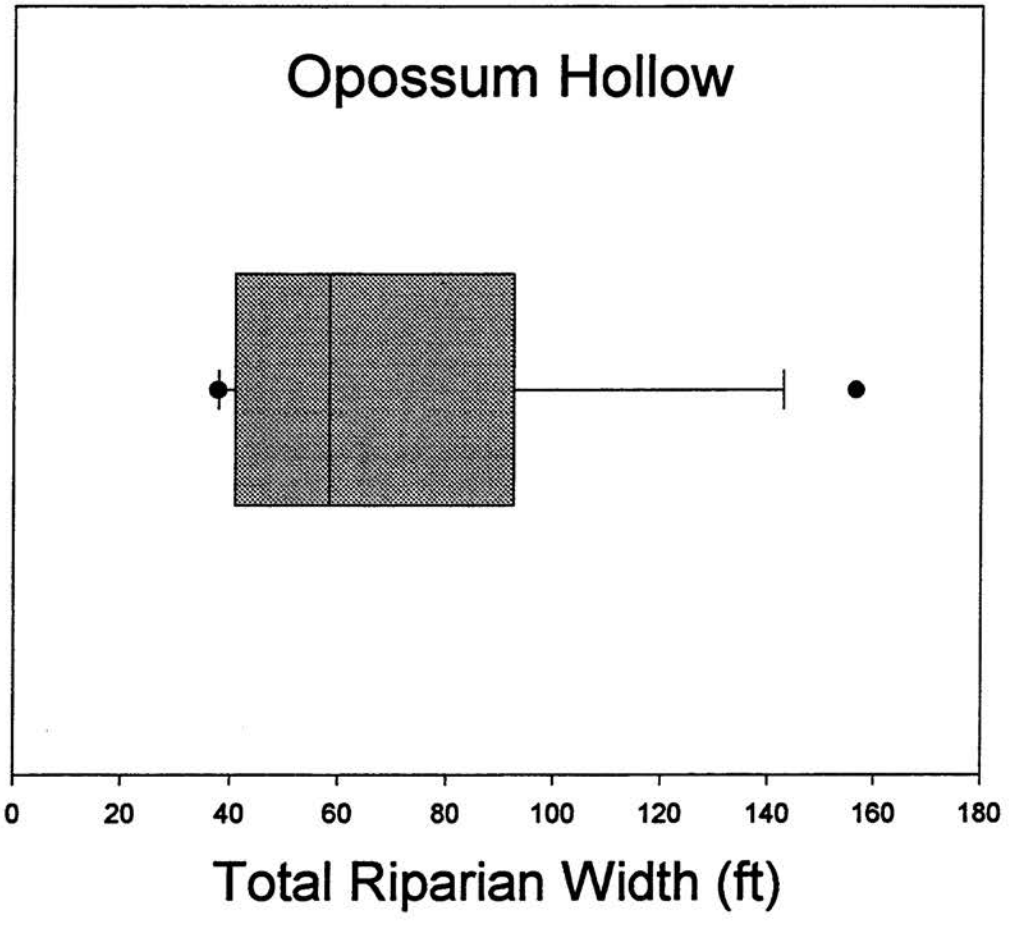


Large Woody Debris Distribution



Riparian Width

Stream: Oppossum Hollow
Number of measurements: 8
Mean width: 72.2 Std Dev: 41.7
Max: 156.5 Min: 37.8



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Snakeden Tributary
Quadrangle: Arnold Valley
Sample Date: 06/11/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.04 miles

Percent of Total Area - Pools: 26.5%

Number of Pools: 119
Number of Pools per Mile: 114
Total Pool Area: 10,497.1 sq. ft. ± 6,960.8
Mean Pool Area: 88.2 sq. ft.
Correction Factor: 1.22
Mean Maximum Depth: 1.3'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.3'

Percent of Total Area - Riffles: 73.5%

Number of Riffles: 104
Number of Riffles per Mile: 100
Total Riffle Area: 29,107.1 sq. ft. ± 5,644.0
Mean Riffle Area: 279.9 sq. ft.
Correction Factor: 1.15
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 168.3

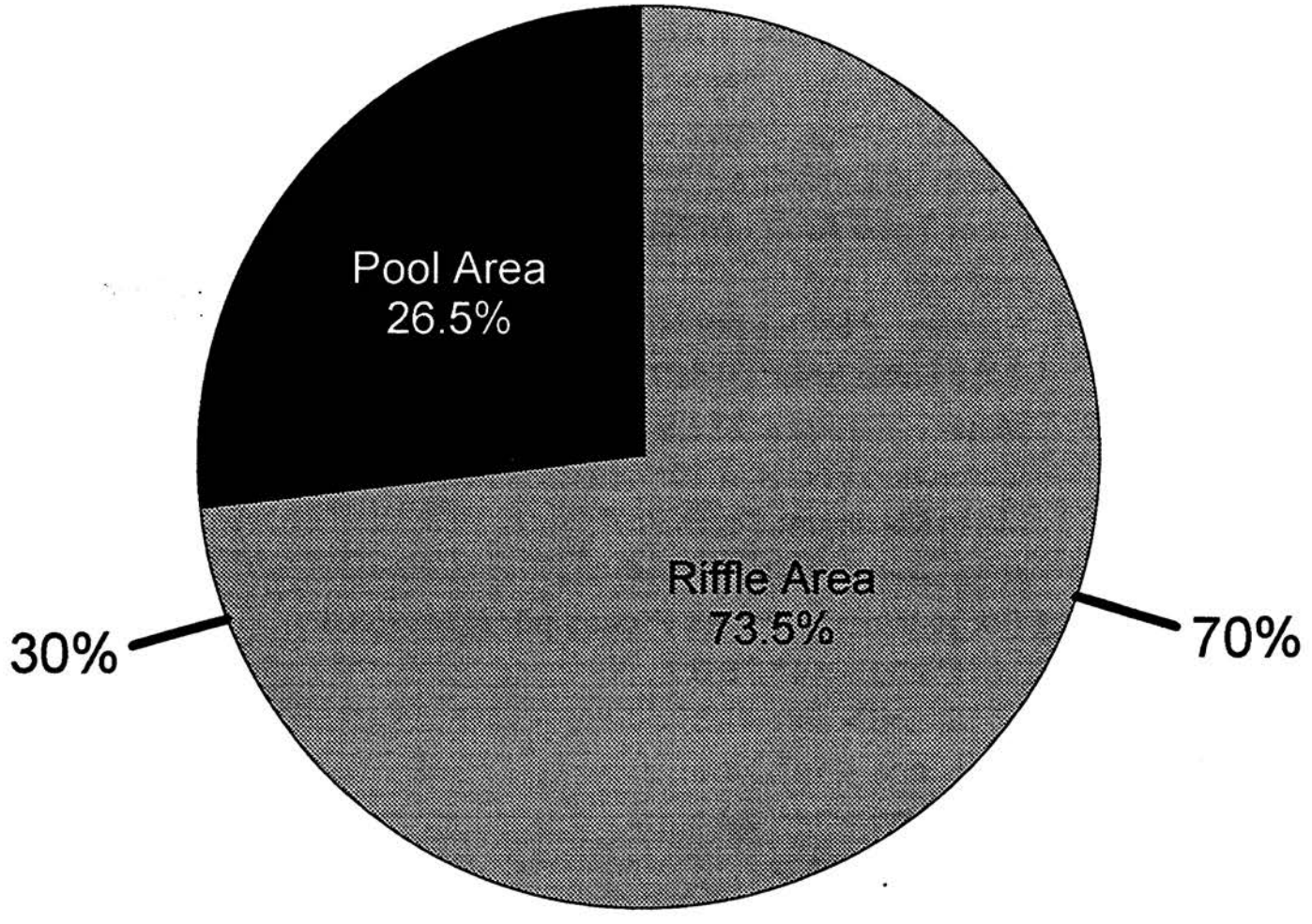
Wood < 15' and < 14": 76.0
Wood < 15' and > 14": 41.3
Wood > 15' and < 14": 28.9
Wood > 15' and > 14": 22.1

Mean Channel Width: 14.5'
Mean Riparian Width: 39.1'

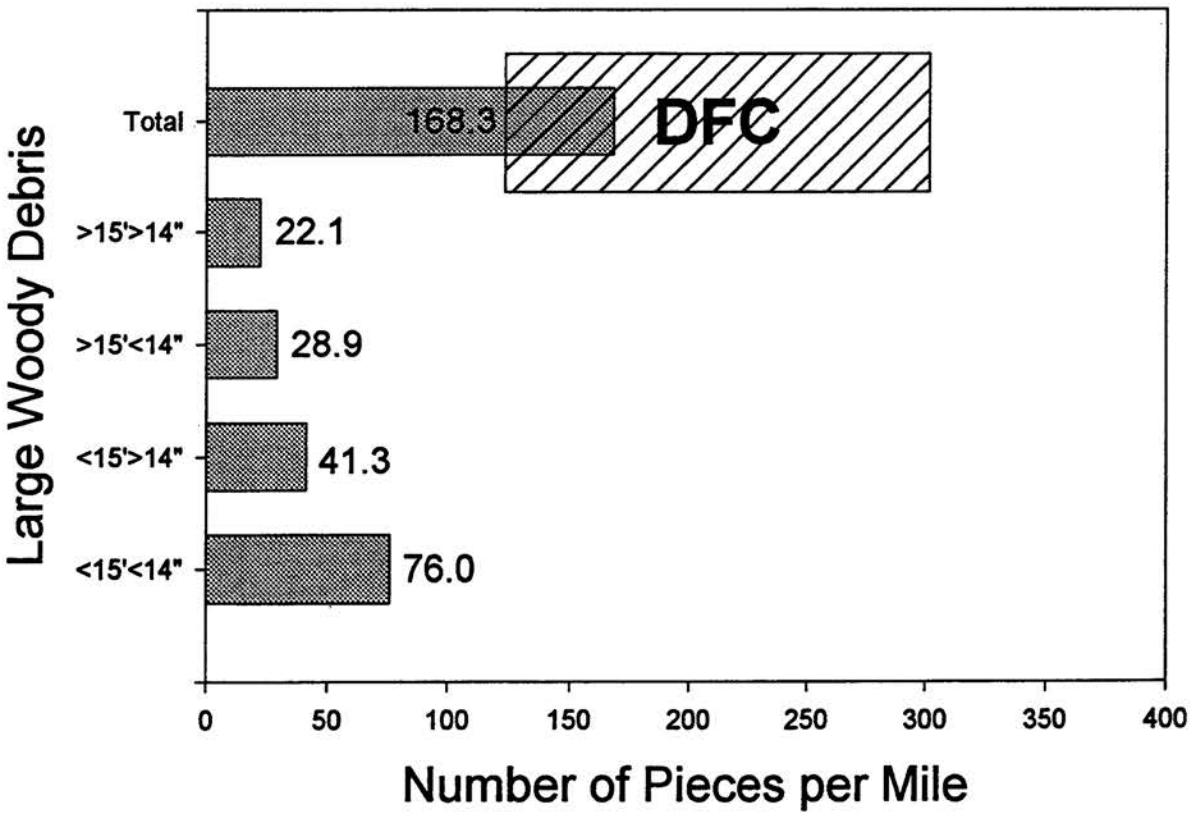
Mean Maximum Riparian Distance (either side): 15.4'
Mean Minimum Riparian Distance (either side): 9.2'
Maximum Riparian Width (Total): 65.2'
Minimum Riparian Width (Total): 25.8'

Snakeden Tributary Pool:Riffle Ratio

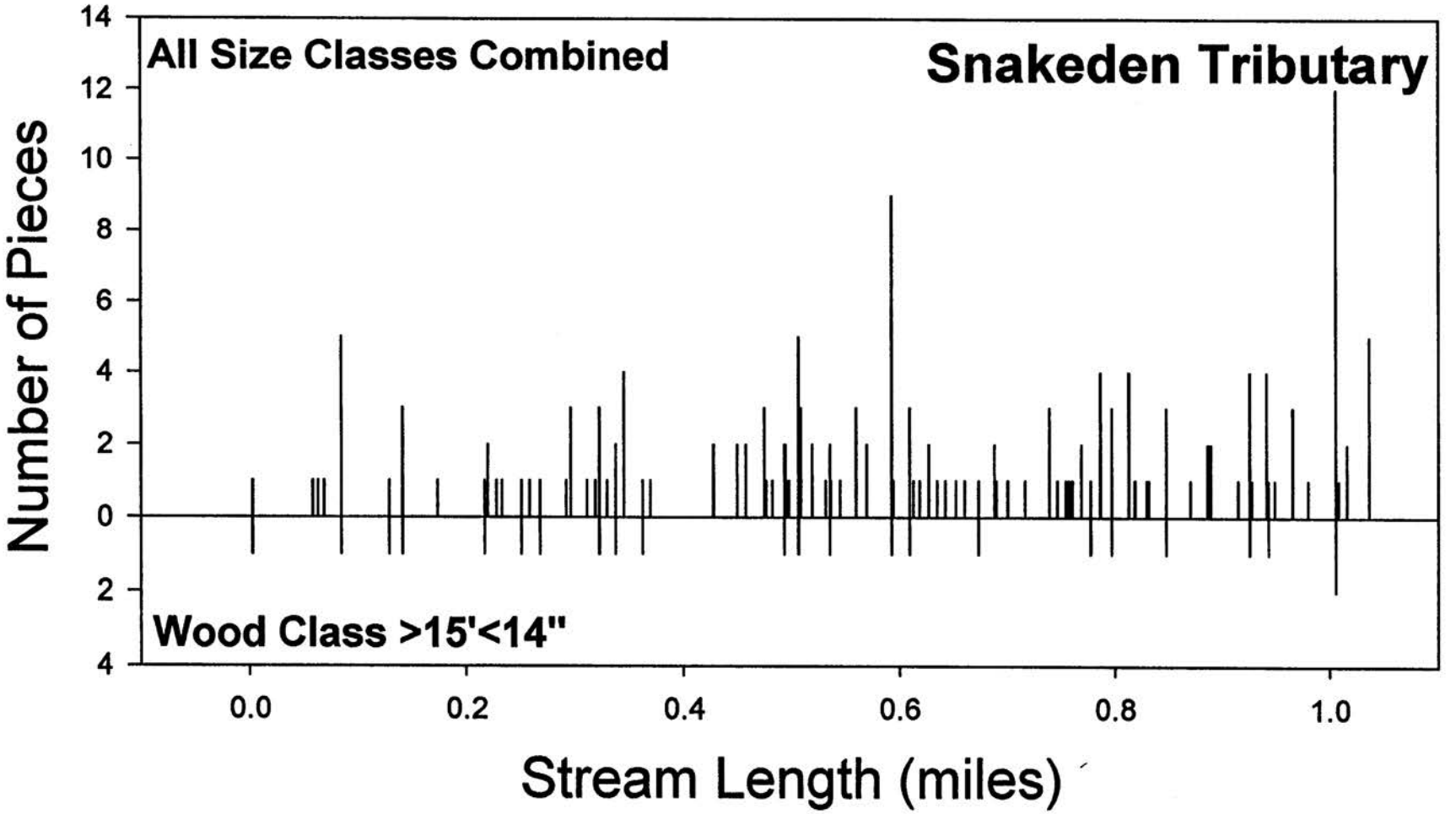
DFC: 30 - 70% of the Stream Area in Pool Habitat



Snakeden Tributary

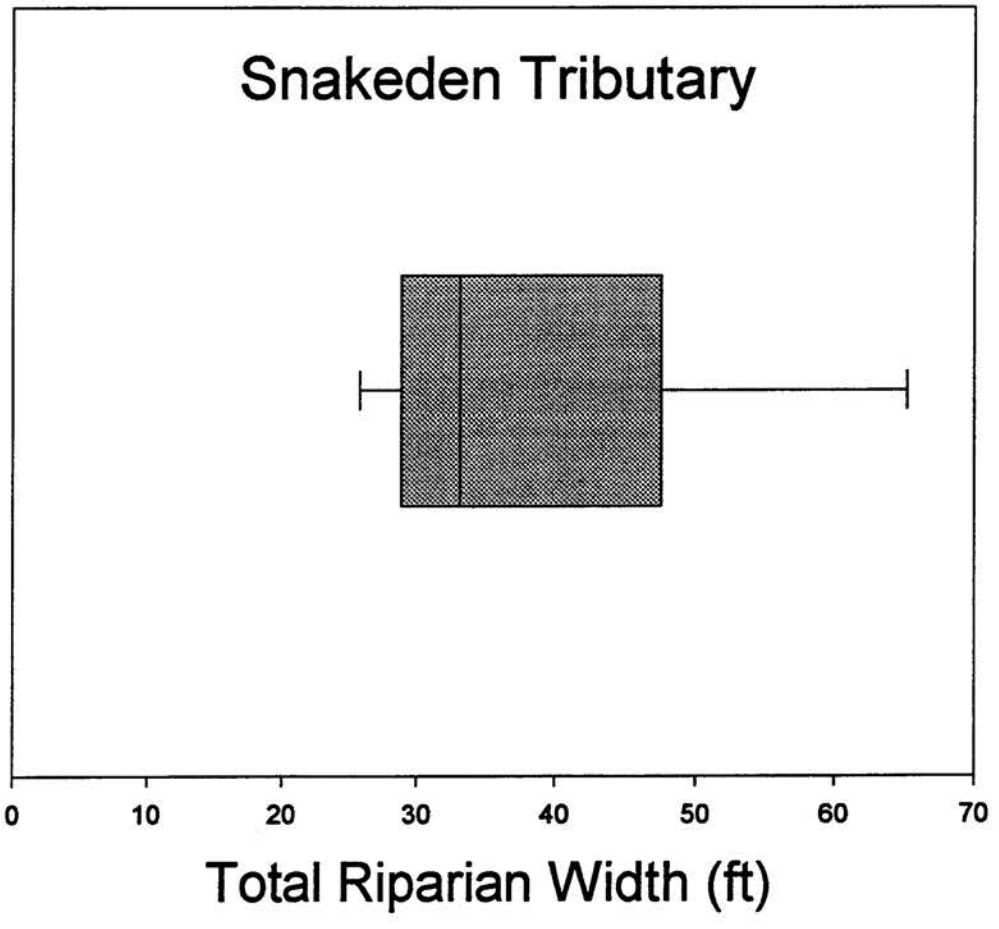


Large Woody Debris Distribution



Riparian Width

Stream: Snakeden Tributary
Number of measurements: 5
Mean width: 39.1 Std Dev: 15.7
Max: 65.2 Min: 25.8



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Sprouts Run
Quadrangle: Arnold Valley
Sample Date: 07/08/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 3.54 miles

Percent of Total Area - Pools: 36.2%

Number of Pools: 244
Number of Pools per Mile: 69
Total Pool Area: 50,229.6 sq. ft. ± 5,178.2
Mean Pool Area: 205.9 sq. ft.
Correction Factor: 0.89
Mean Maximum Depth: 1.3'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 63.8%

Number of Riffles: 208
Number of Riffles per Mile: 59
Total Riffle Area: 88,477.7 sq. ft. ± 7,119.1
Mean Riffle Area: 425.4 sq. ft.
Correction Factor: 1.02
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 280.2

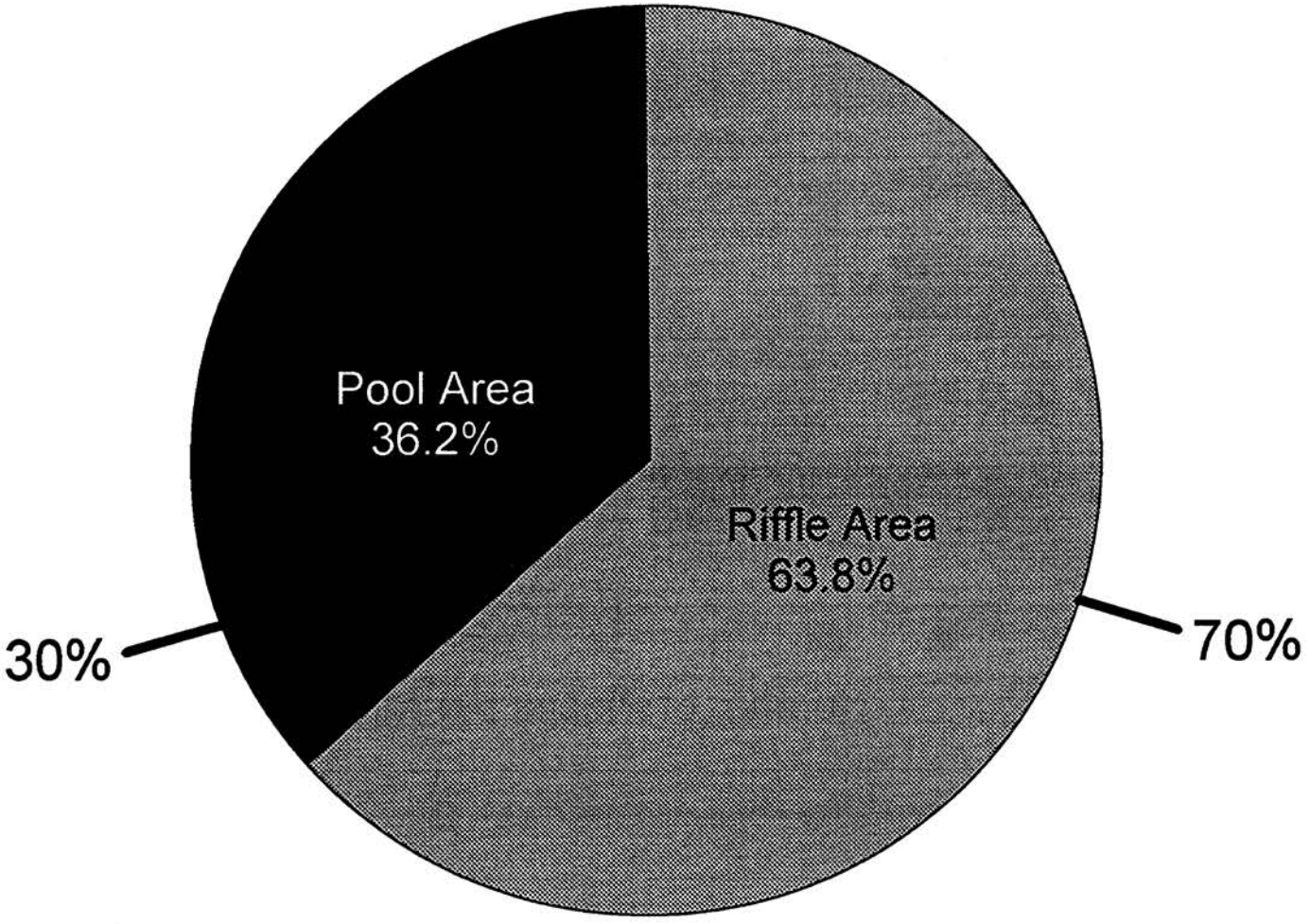
Wood < 15' and < 14": 178.0
Wood < 15' and > 14": 11.9
Wood > 15' and < 14": 68.6
Wood > 15' and > 14": 21.7

Mean Channel Width: 18.2'
Mean Riparian Width: 77.1'

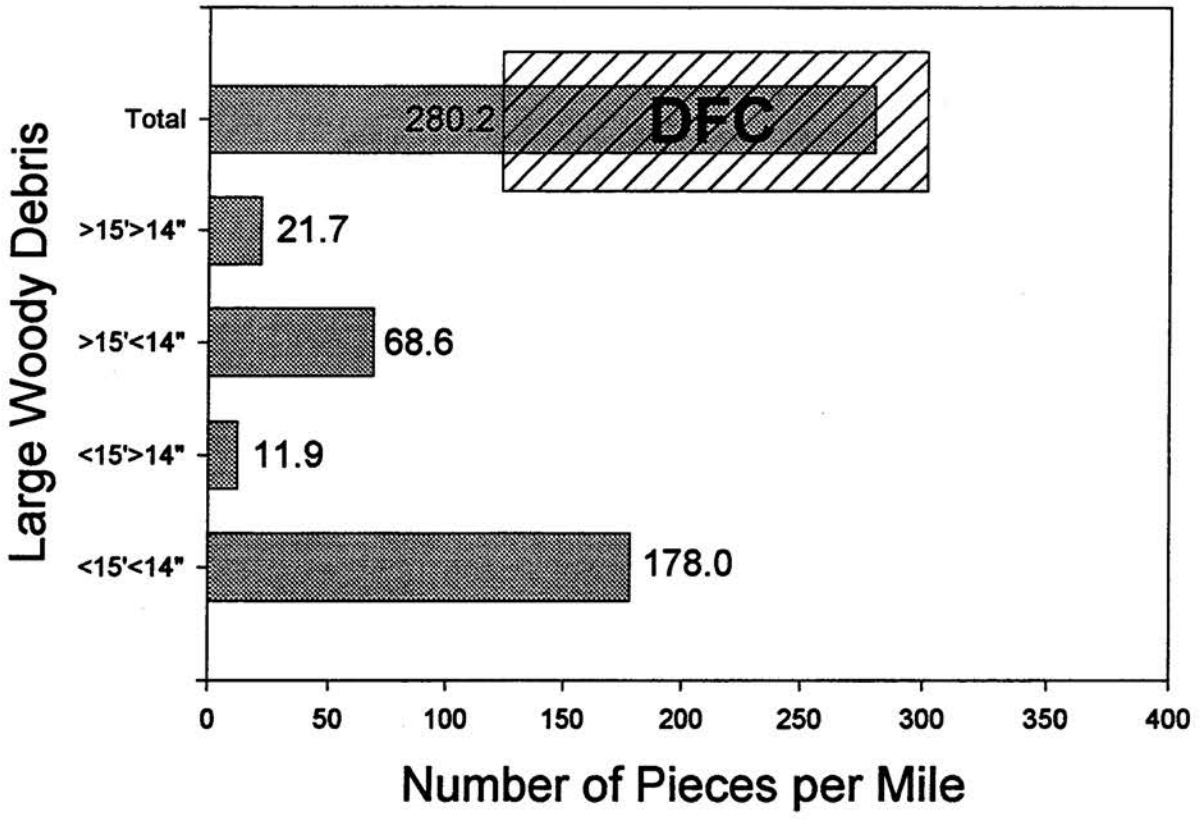
Mean Maximum Riparian Distance (either side): 42.7'
Mean Minimum Riparian Distance (either side): 16.2'
Maximum Riparian Width (Total): 144.7'
Minimum Riparian Width (Total): 26.5'

Sprouts Run
Pool:Riffle Ratio

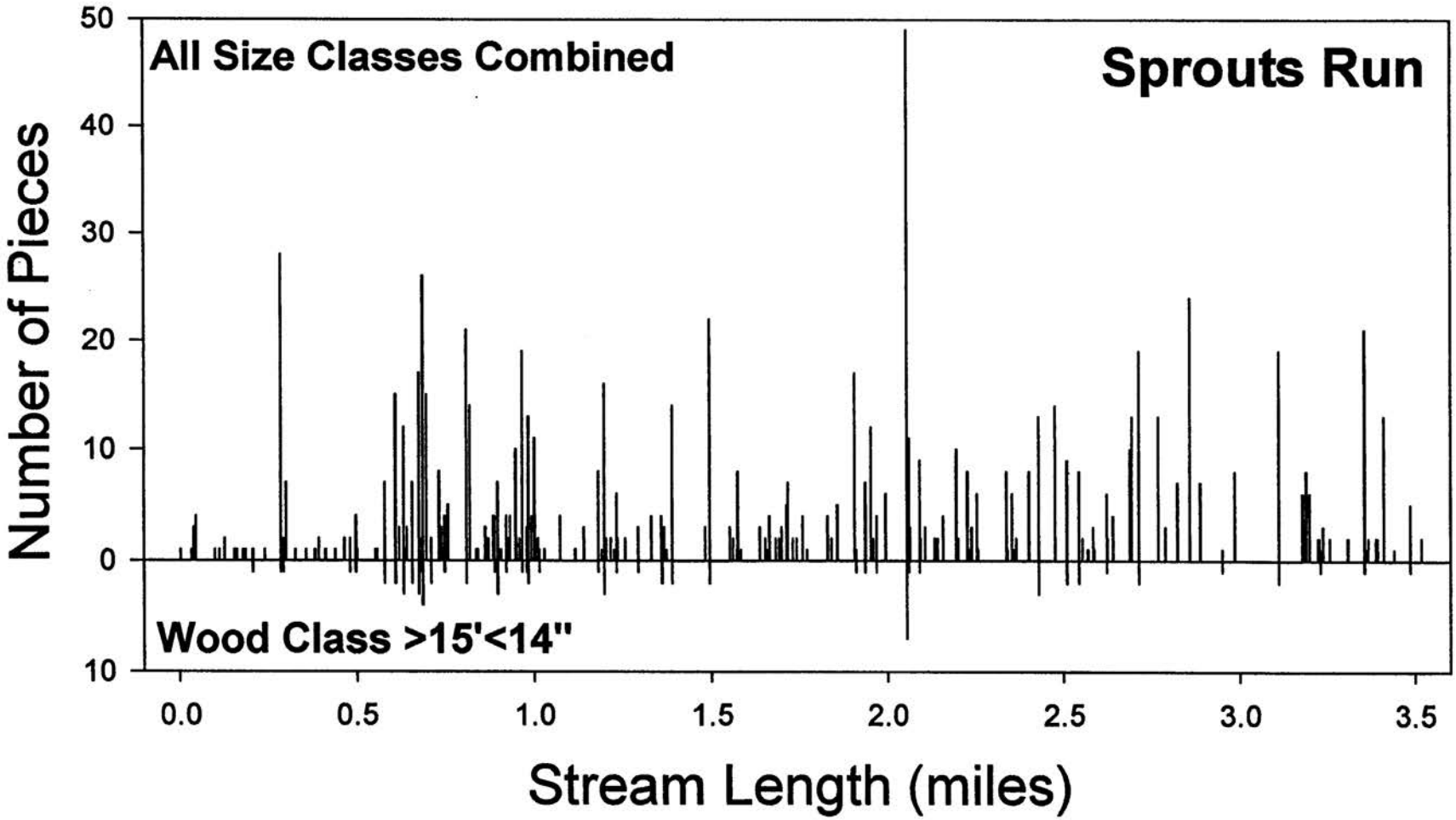
DFC: 30 - 70% of the Stream Area in Pool Habitat



Sprouts Run

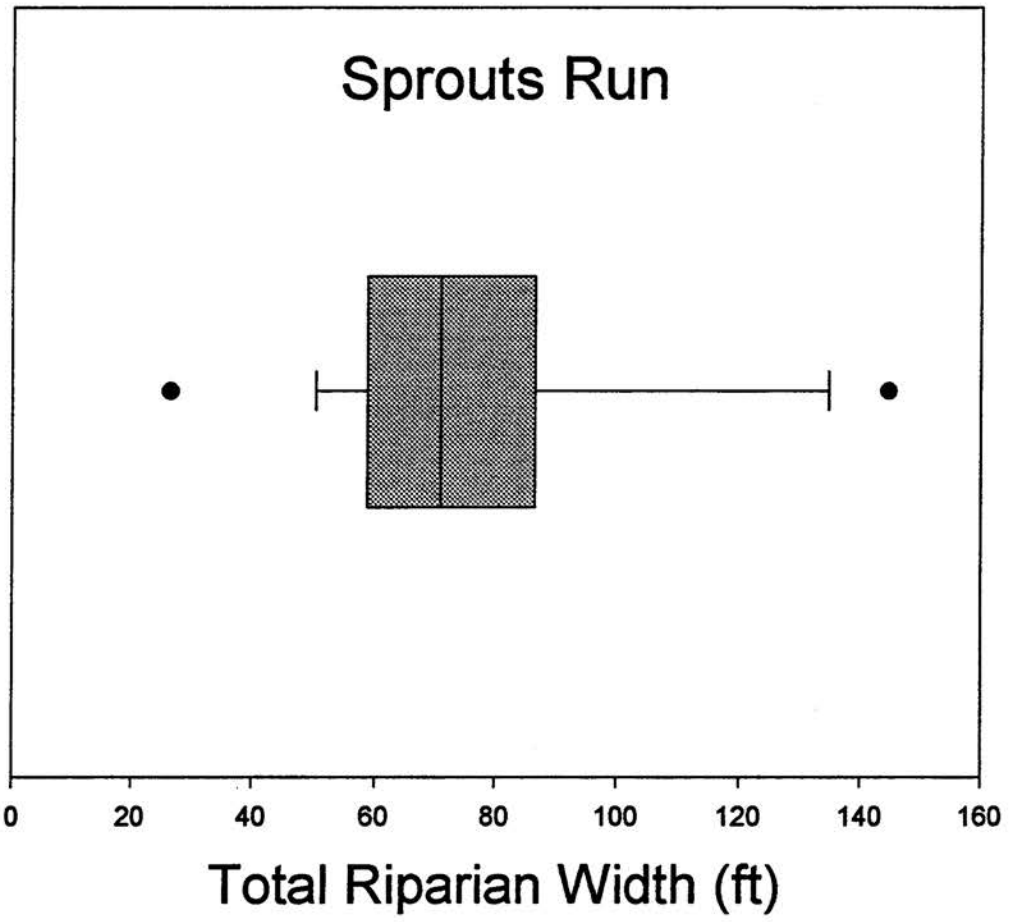

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
280.2
DFC
21.7
68.6
11.9
178.0
0
50
100
150
200
250
300
350
400
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Sprouts Run
Number of measurements: 15
Mean width: 77.1 Std Dev: 30.4
Max: 144.7 Min: 26.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Yellowstone Branch
Quadrangle: Arnold Valley
Sample Date: 07/27/97
Downstream Starting Point: Confl. with Jennings Creek
Total Distance Surveyed: 1.08 miles

Percent of Total Area - Pools: 54.9%

Number of Pools: 134
Number of Pools per Mile: 124
Total Pool Area: 21.071.0 sq. ft. ± 1,137.8
Mean Pool Area: 157.2 sq. ft.
Correction Factor: 1.16
Mean Maximum Depth: 1.1'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.1'

Percent of Total Area - Riffles: 45.1%

Number of Riffles: 86
Number of Riffles per Mile: 80
Total Riffle Area: 17,316.2 sq. ft. ± 1,148.6
Mean Riffle Area: 201.4 sq. ft.
Correction Factor: 1.38
Mean Maximum Depth: 0.4'
Mean Average Depth: 0.2'

Number of Large Woody Debris Pieces per Mile: 108.3

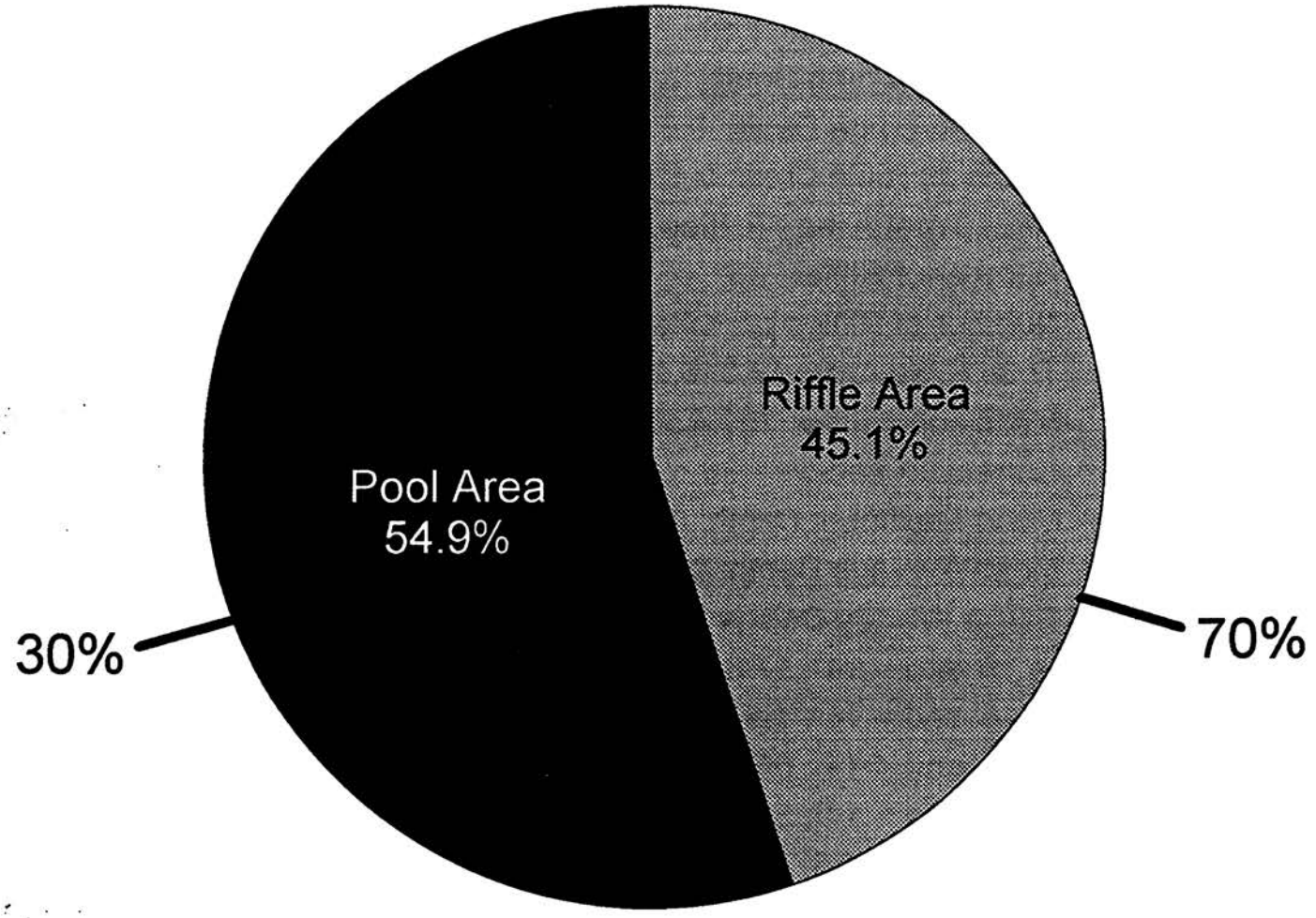
Wood < 15' and < 14": 17.6
Wood < 15' and > 14": 1.9
Wood > 15' and < 14": 50.0
Wood > 15' and > 14": 38.9

Mean Channel Width: 13.5'
Mean Riparian Width: 30.5'

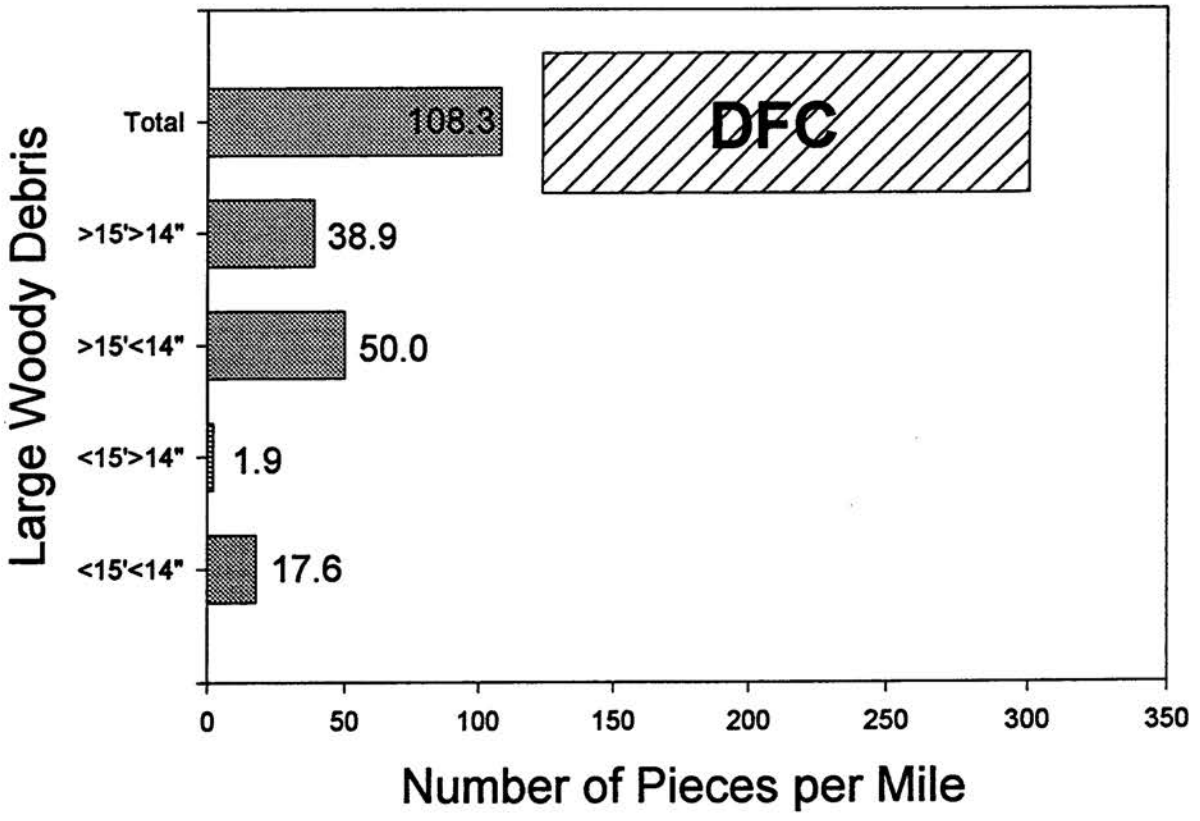
Mean Maximum Riparian Distance (either side): 12.6'
Mean Minimum Riparian Distance (either side): 4.4'
Maximum Riparian Width (Total): 42.1'
Minimum Riparian Width (Total): 22.5'

Yellowstone Branch Pool:Riffle Ratio

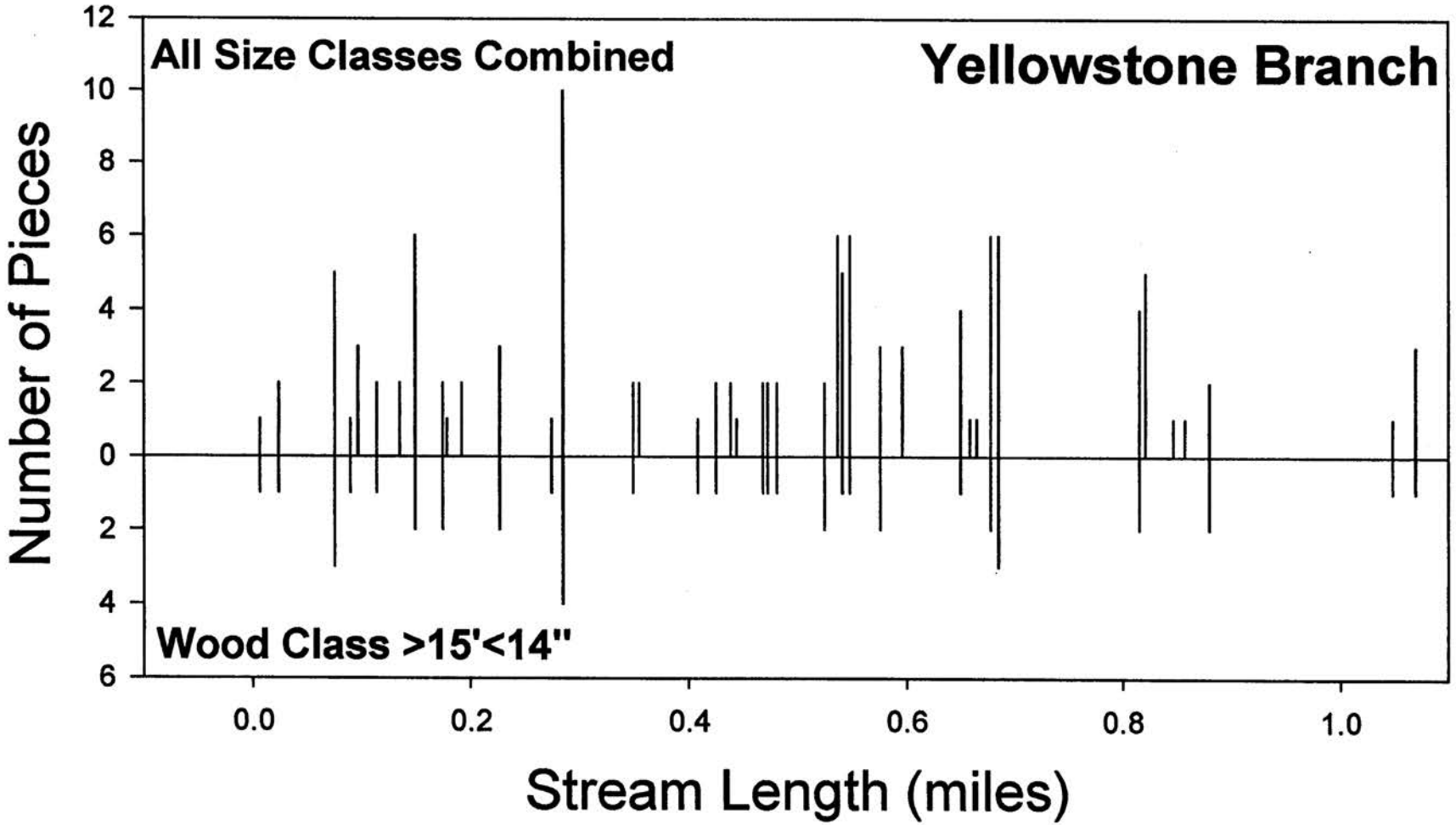
DFC: 30 - 70% of the Stream Area in Pool Habitat



Yellowstone Branch

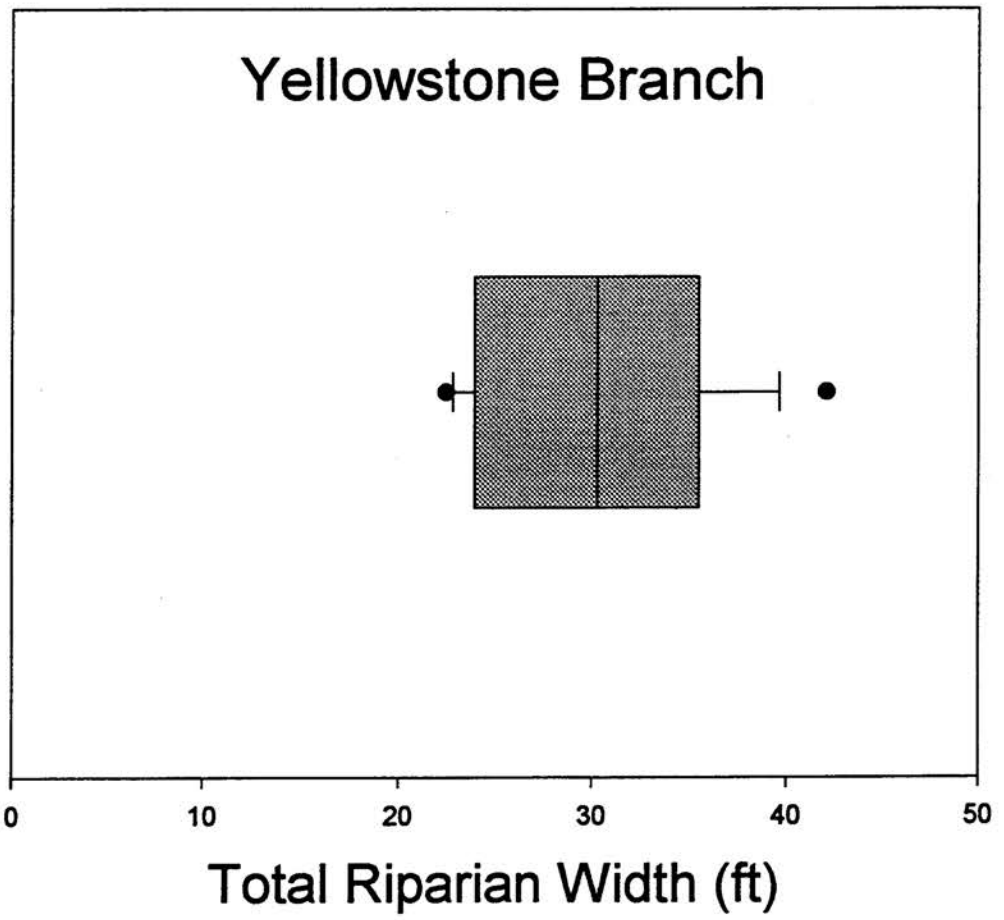


Large Woody Debris Distribution



Riparian Width

Stream: Yellowstone Branch
Number of measurements: 9
Mean width: 30.5 Std Dev: 6.9
Max: 42.1 Min: 22.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Buchanan Quadrangle

Stream: Cove Creek
Quadrangle: Buchanan
Sample Date: 06/30/97
Downstream Starting Point: Confl. with Jennings Creek
Total Distance Surveyed: 1.69 miles

Percent of Total Area - Pools: 59.4%

Number of Pools: 205
Number of Pools per Mile: 121
Total Pool Area: 31,763.1 sq. ft. ± 6,525.2
Mean Pool Area: 154.9 sq. ft.
Correction Factor: 0.99
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 40.6%

Number of Riffles: 148
Number of Riffles per Mile: 88
Total Riffle Area: 21,704.8 sq. ft. ± 6,277.4
Mean Riffle Area: 146.7 sq. ft.
Correction Factor: 1.11
Mean Maximum Depth: 0.5'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 197.2

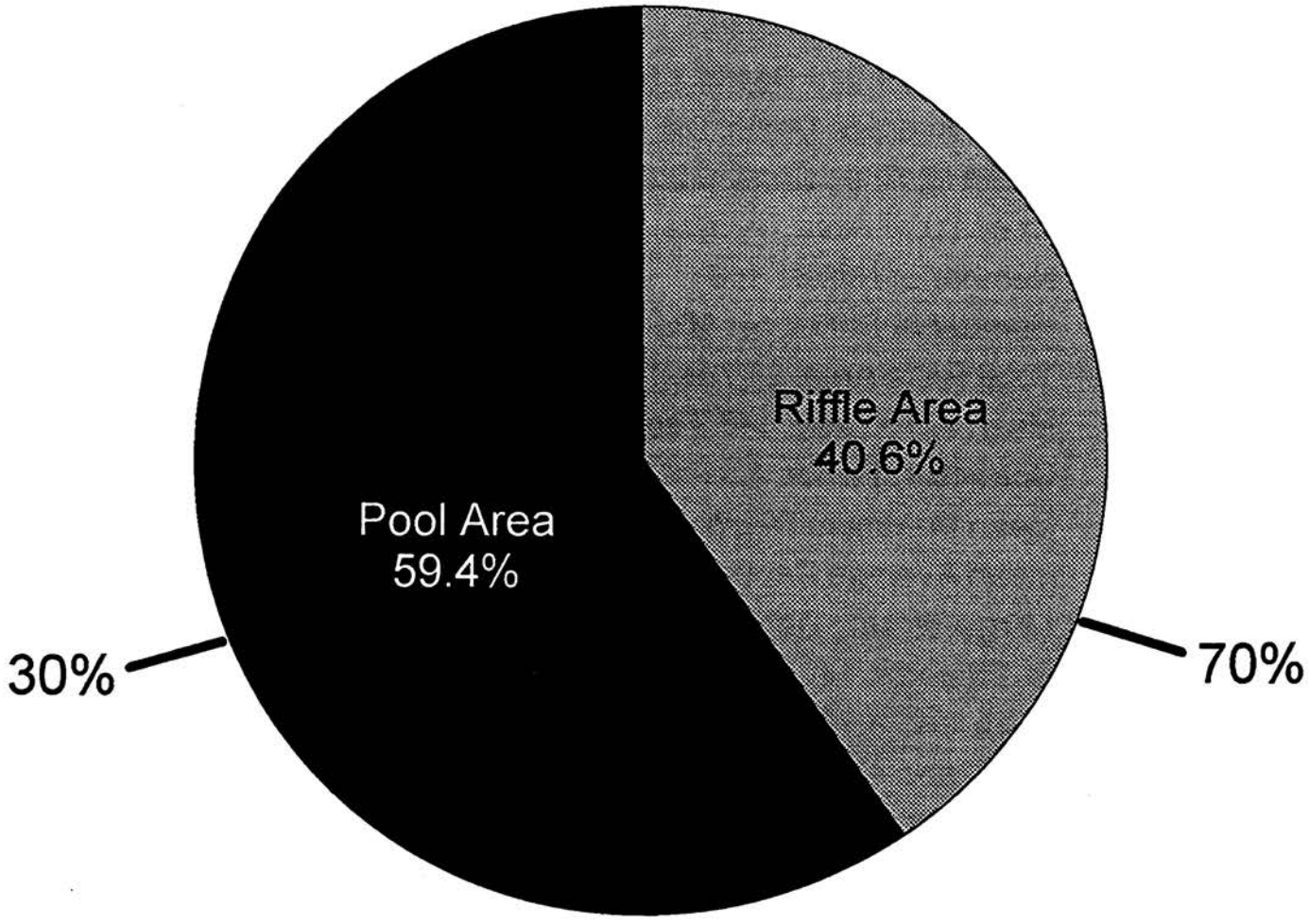
Wood < 15' and < 14": 110.4
Wood < 15' and > 14": 12.4
Wood > 15' and < 14": 48.4
Wood > 15' and > 14": 26.0

Mean Channel Width: 14.7'
Mean Riparian Width: 40.2'

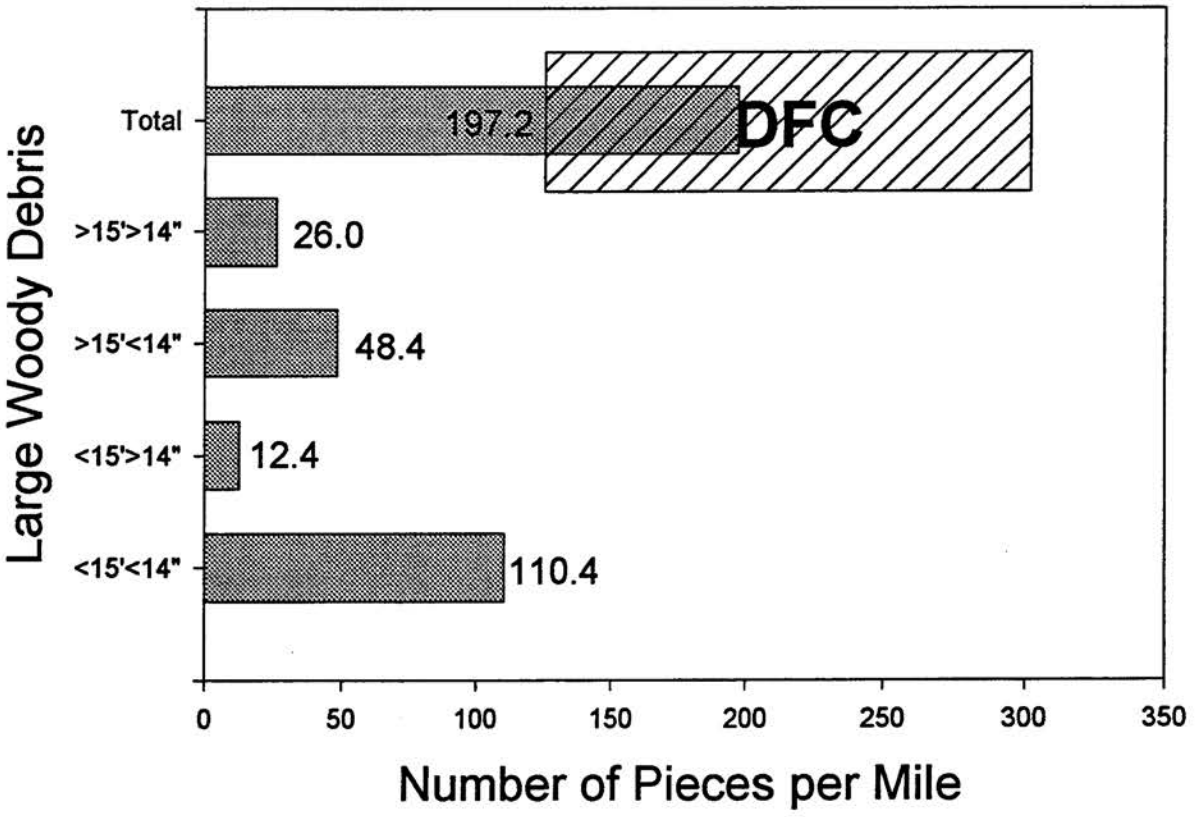
Mean Maximum Riparian Distance (either side): 17.0'
Mean Minimum Riparian Distance (either side): 8.5'
Maximum Riparian Width (Total): 64.0'
Minimum Riparian Width (Total): 21.2'

Cove Creek
Pool:Riffle Ratio

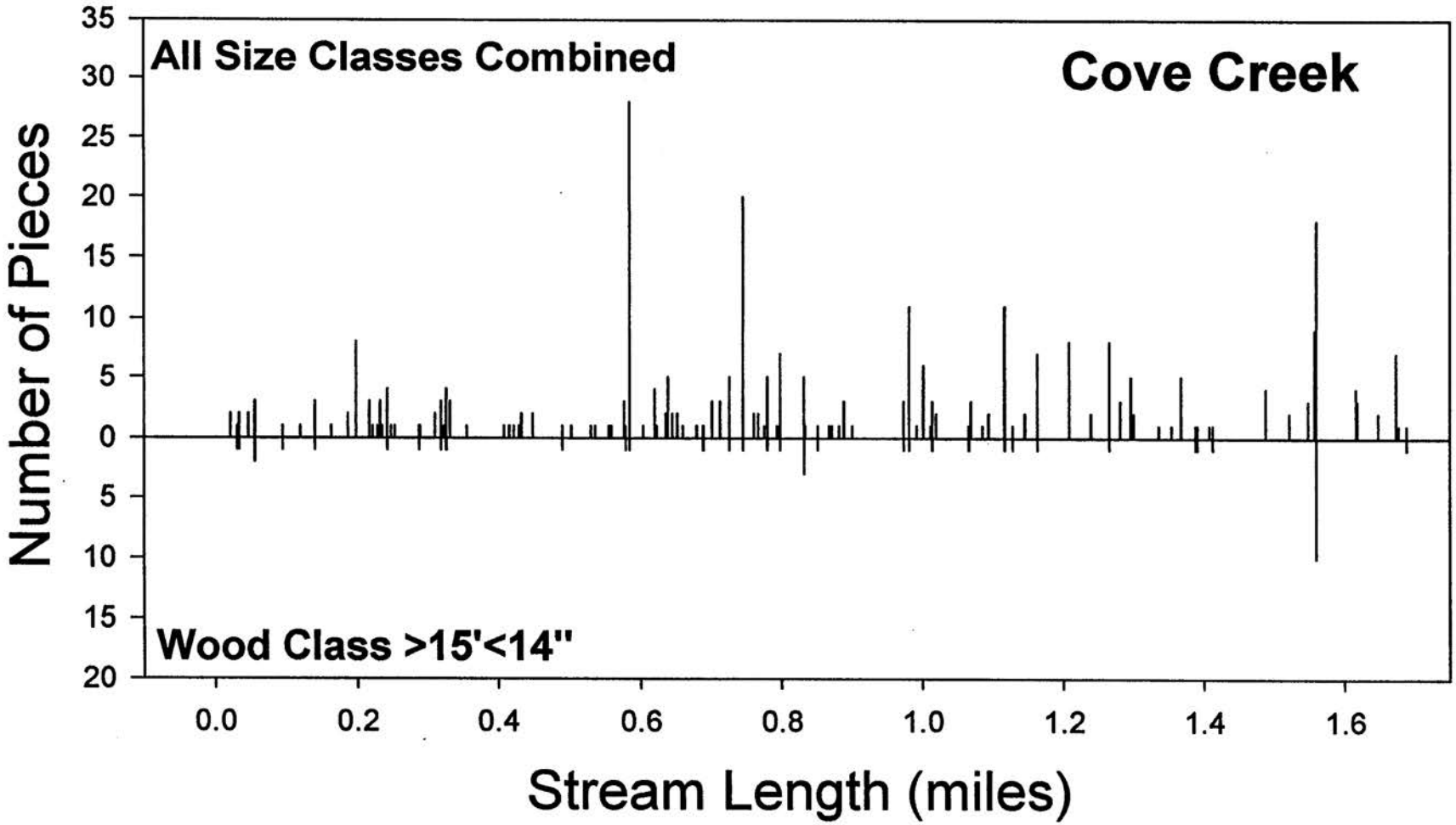
DFC: 30 - 70% of the Total Steam Area in Pool Habitat



Cove Creek

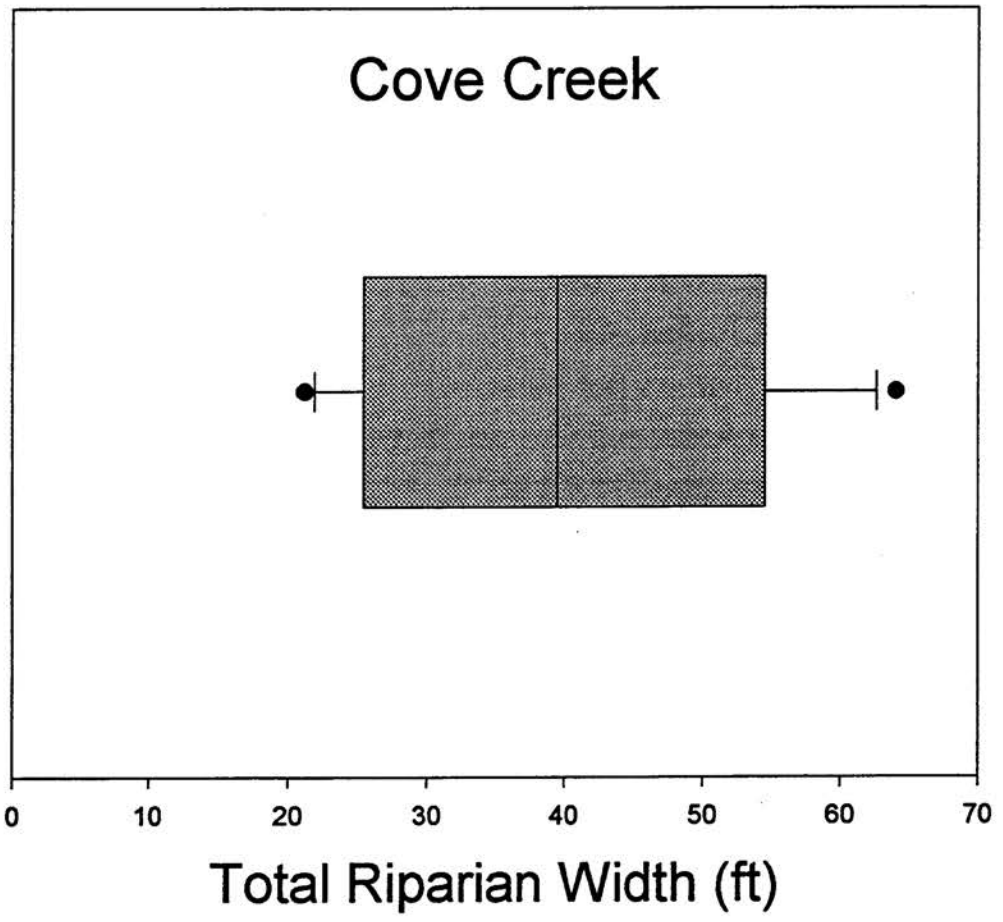

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
197.2
DFC
26.0
48.4
12.4
110.4
0
50
100
150
200
250
300
350
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Cove Creek
Number of measurements: 7
Mean width: 40.2 Std Dev: 16.6
Max: 64.0 Min: 21.2



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Little Cove Creek
Quadrangle: Buchanan
Sample Date: 06/10/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.46 miles

Percent of Total Area - Pools: 45.5%

Number of Pools: 56
Number of Pools per Mile: 122
Total Pool Area: 4,636.2 sq. ft. ± 1,347.2
Mean Pool Area: 82.8 sq. ft.
Correction Factor: 0.88
Mean Maximum Depth: 0.9'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.1'

Percent of Total Area - Riffles: 54.5%

Number of Riffles: 49
Number of Riffles per Mile: 107
Total Riffle Area: 5,553.7 sq. ft. ± 2,174.7
Mean Riffle Area: 113.3 sq. ft.
Correction Factor: 0.99
Mean Maximum Depth: 0.5'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 200.0

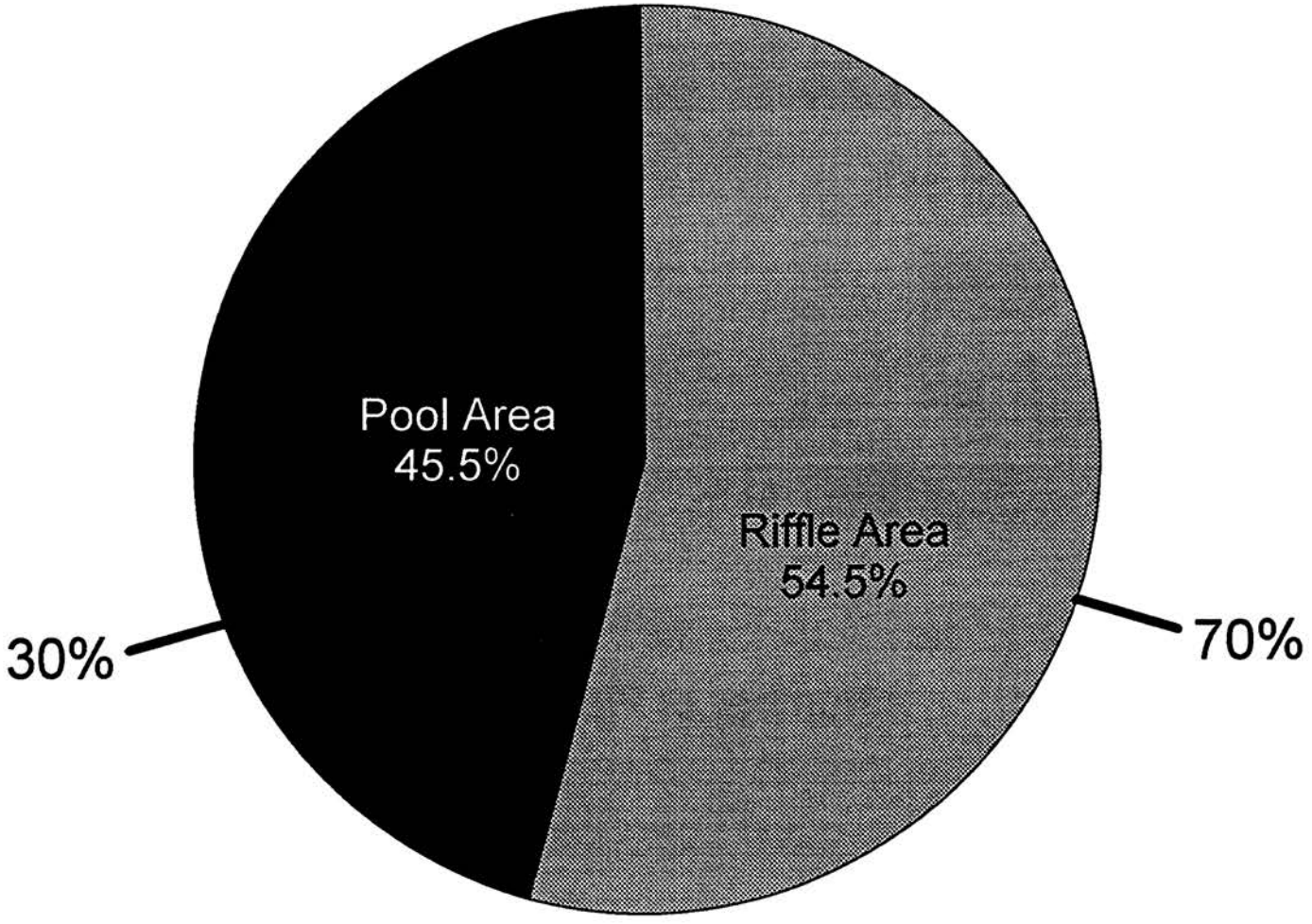
Wood < 15' and < 14": 97.8
Wood < 15' and > 14": 15.2
Wood > 15' and < 14": 52.2
Wood > 15' and > 14": 34.8

Mean Channel Width: 11.8'
Mean Riparian Width: 25.6'

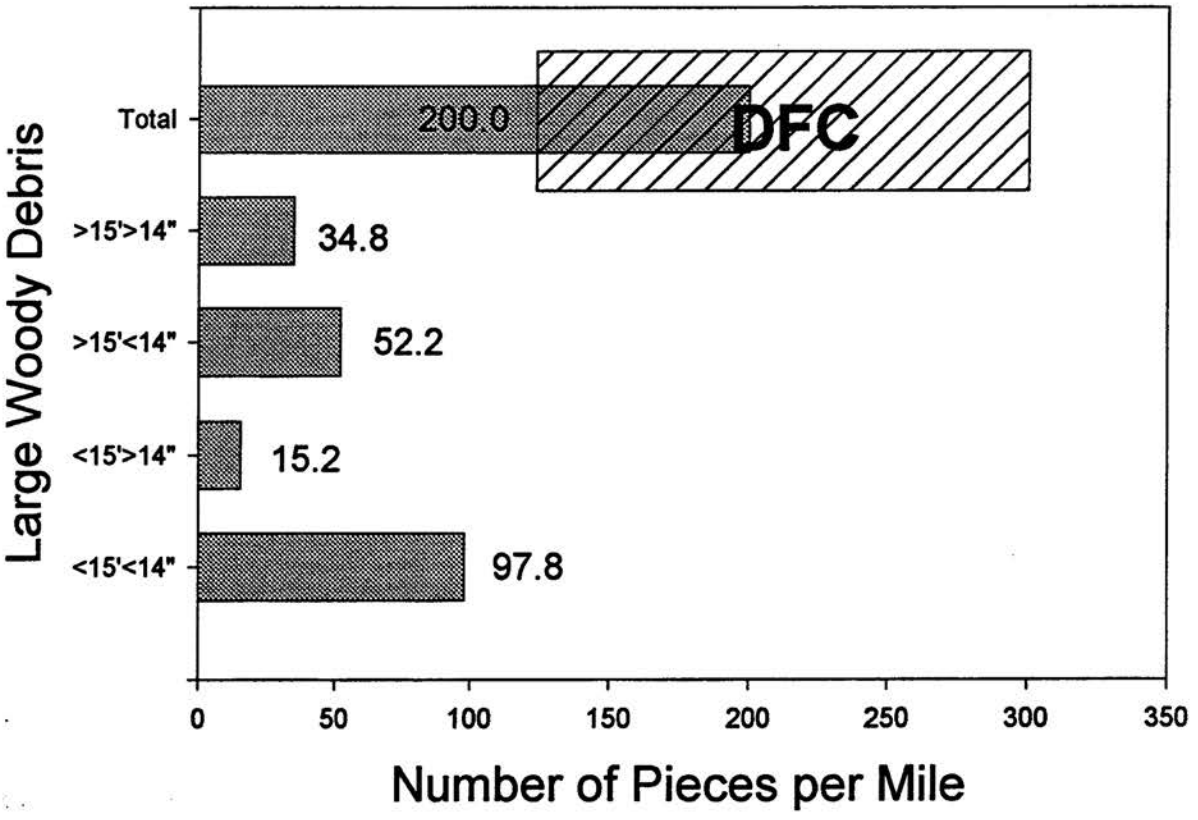
Mean Maximum Riparian Distance (either side): 10.4'
Mean Minimum Riparian Distance (either side): 3.4'
Maximum Riparian Width (Total): 41.0'
Minimum Riparian Width (Total): 16.5'

Little Cove Creek Pool:Riffle Ratio

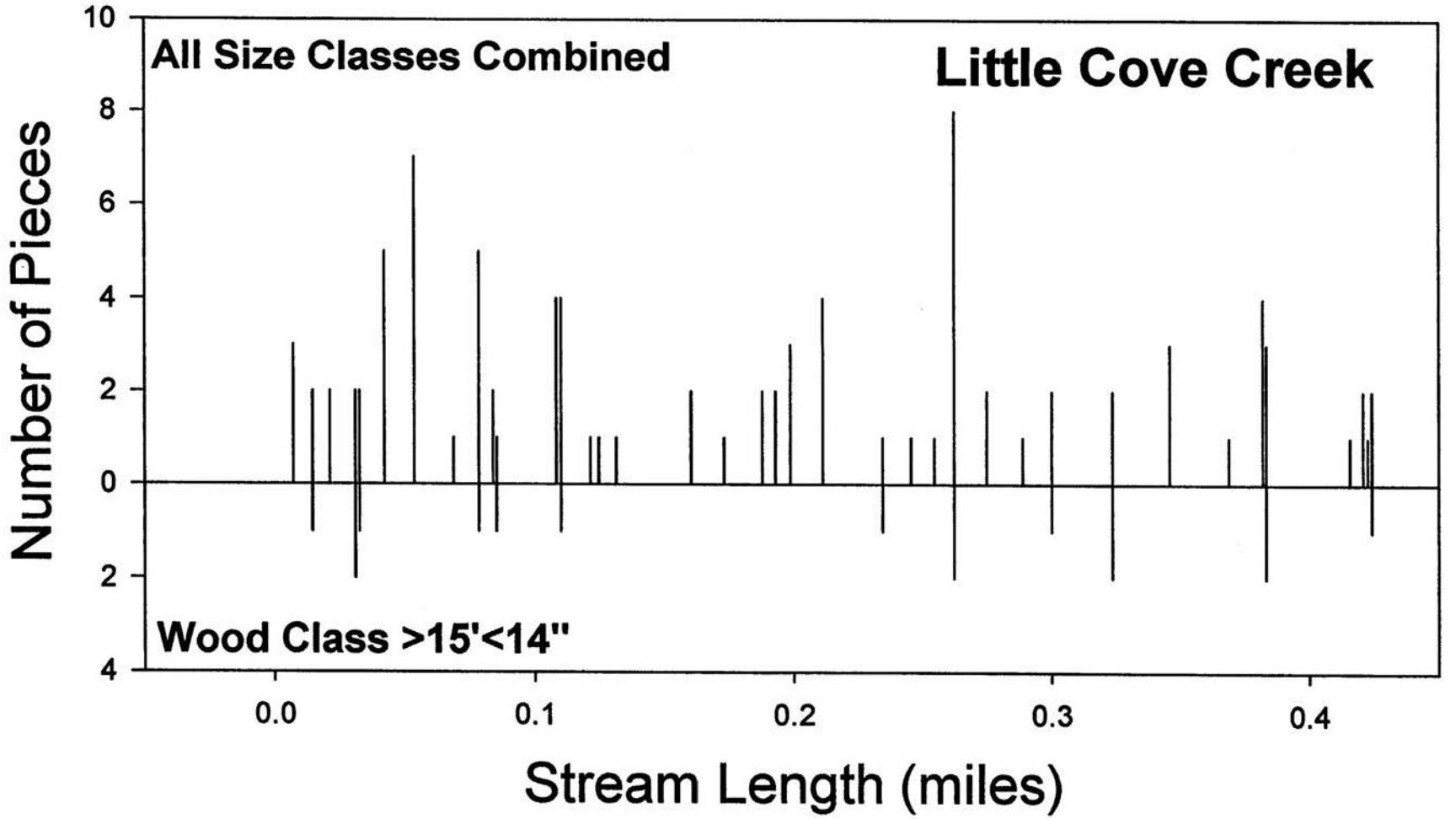
DFC: 30 - 70% of the Stream Area in Pool Habitat



Little Cove Creek

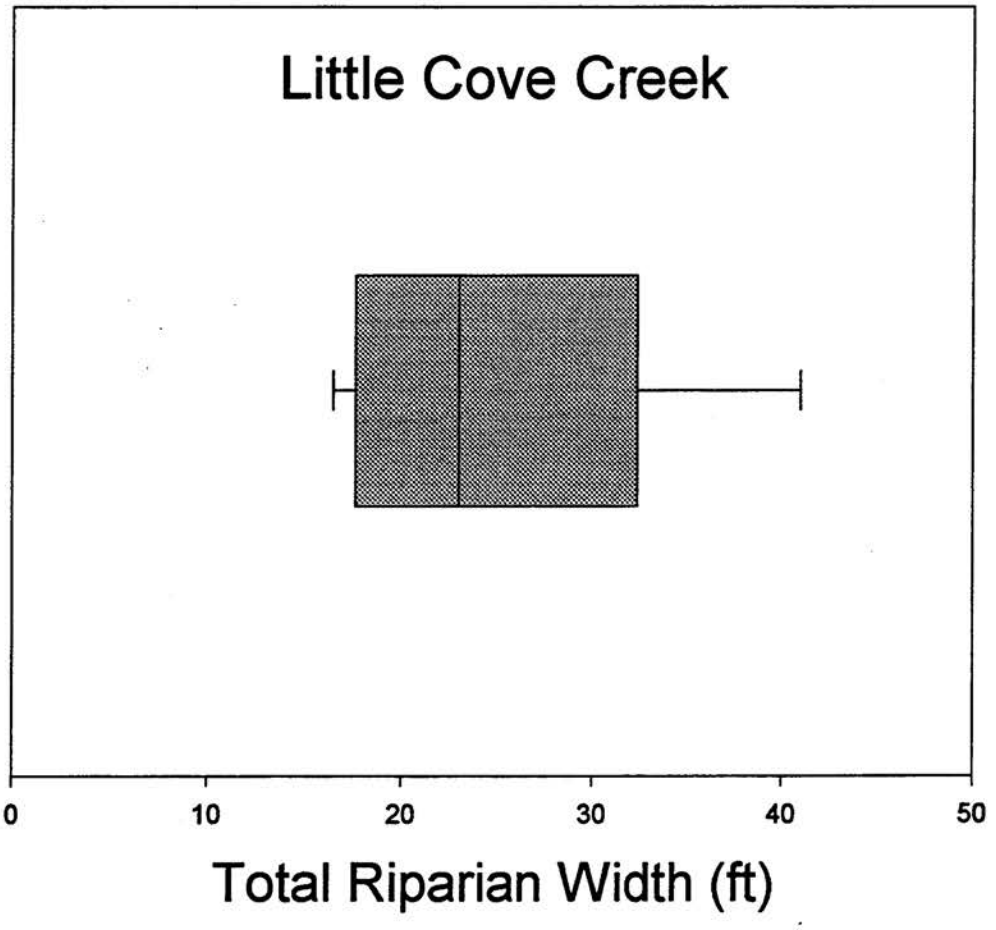


Large Woody Debris Distribution



Riparian Width

Stream: Little Cove Creek
Number of measurements: 5
Mean width: 25.6 Std Dev: 10.0
Max: 41.0 Min: 16.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Montvale Quadrangle

Stream: McCoglin Branch
Quadrangle: Montvale
Sample Date: 07/10/97
Downstream Starting Point: Confluence with McFalls Creek
Total Distance Surveyed: 0.68 miles

Percent of Total Area - Pools: 36.9%

Number of Pools: 102
Number of Pools per Mile: 150
Total Pool Area: 7,769.6 sq. ft. ± 786.7
Mean Pool Area: 76.2 sq. ft.
Correction Factor: 1.10
Mean Maximum Depth: 0.9'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.1'

Percent of Total Area - Riffles: 63.1%

Number of Riffles: 74
Number of Riffles per Mile: 109
Total Riffle Area: 13,283.3 sq. ft. ± 843.5
Mean Riffle Area: 179.5 sq. ft.
Correction Factor: 1.13
Mean Maximum Depth: 0.4'
Mean Average Depth: 0.2'

Number of Large Woody Debris Pieces per Mile: 211.8

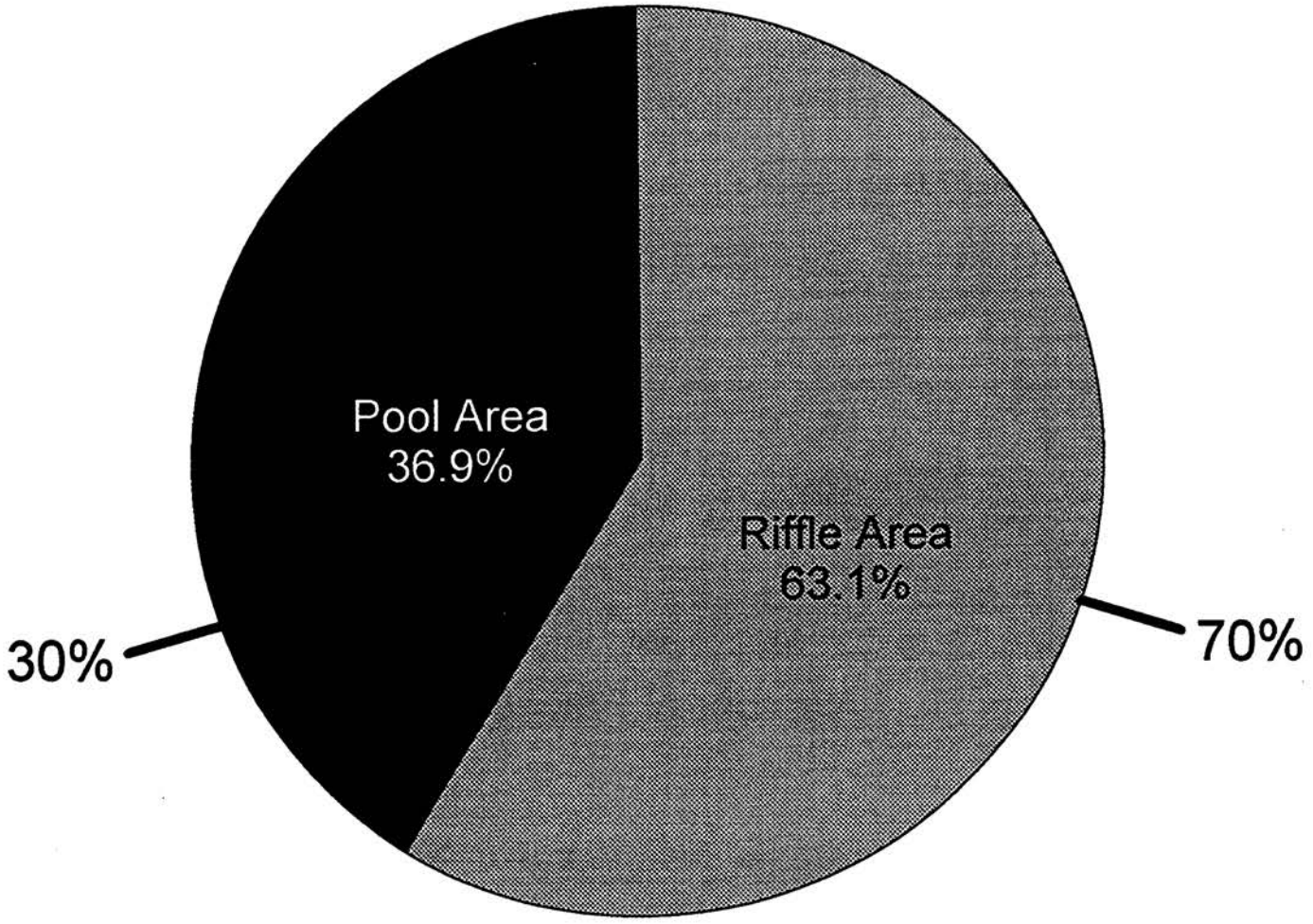
Wood < 15' and < 14": 126.5
Wood < 15' and > 14": 11.8
Wood > 15' and < 14": 55.9
Wood > 15' and > 14": 17.6

Mean Channel Width: 18.2'
Mean Riparian Width: 31.1'

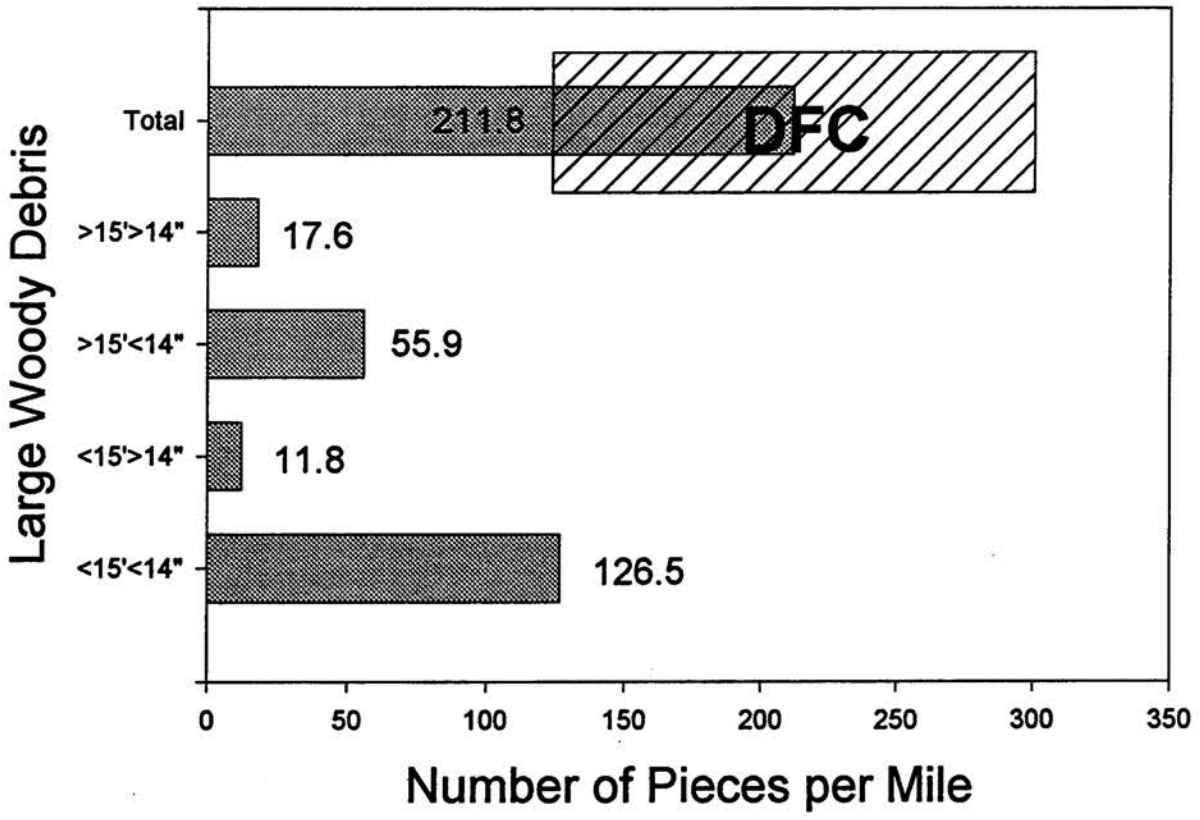
Mean Maximum Riparian Distance (either side): 8.5'
Mean Minimum Riparian Distance (either side): 4.5'
Maximum Riparian Width (Total): 48.4'
Minimum Riparian Width (Total): 22.1'

McCoglin Branch Pool:Riffle Ratio

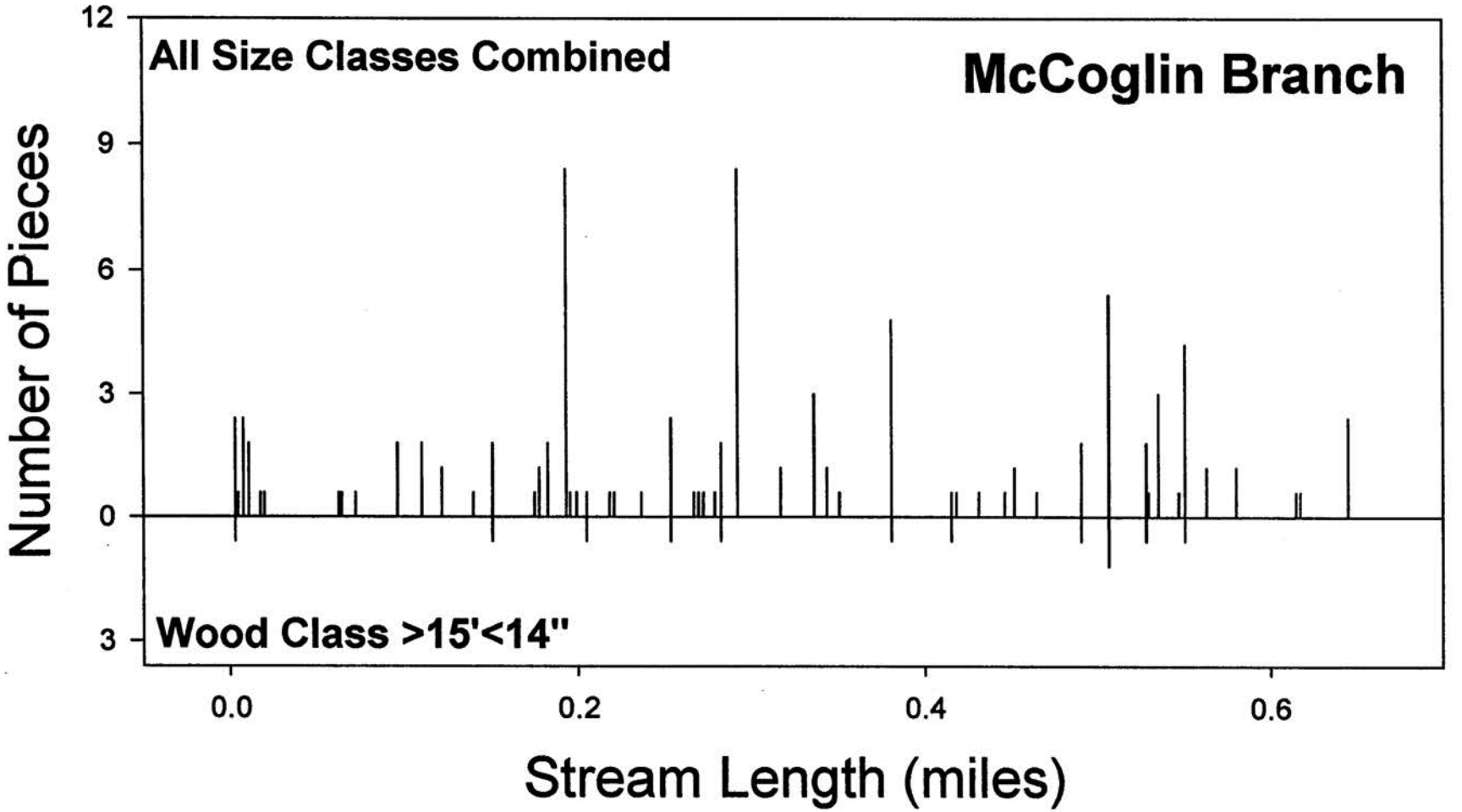
DFC: 30 - 70% of the Stream Area in Pool Habitat



McCoglin Branch

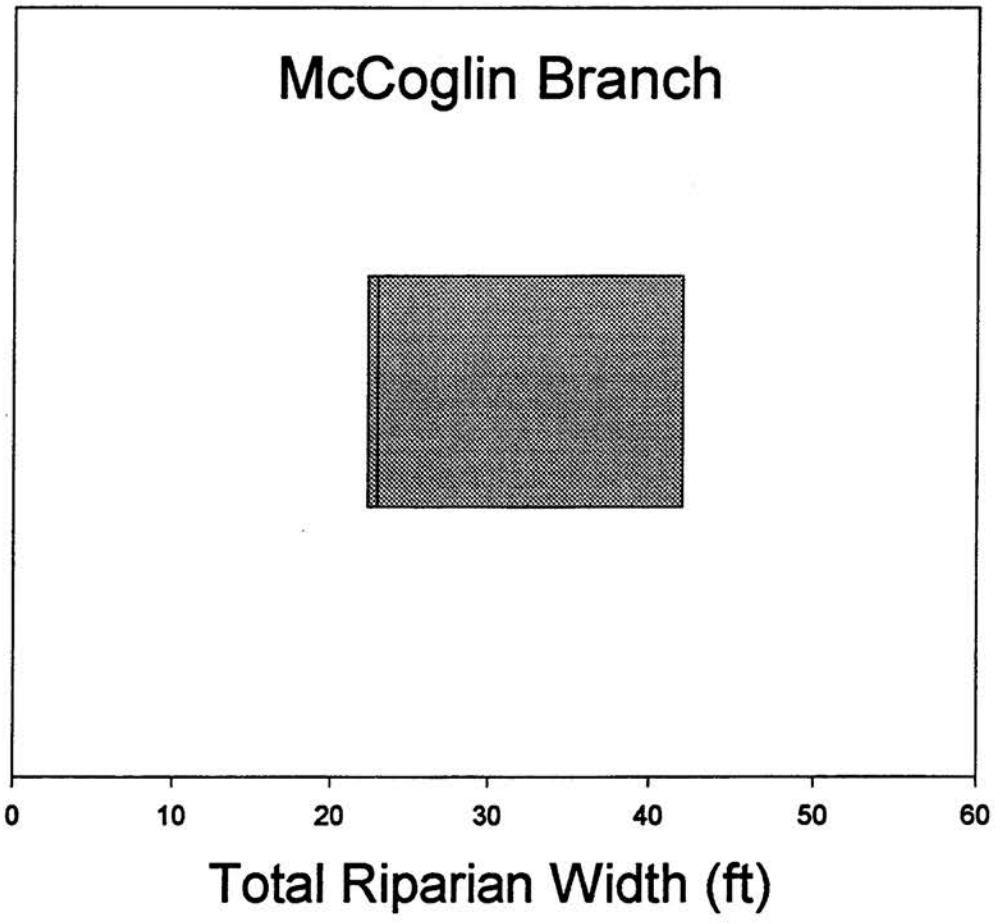


Large Woody Debris Distribution



Riparian Width

Stream: McCoglin Branch
Number of measurements: 3
Mean width: 31.1 Std Dev: 15.0
Max: 48.4 Min: 22.1



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Peaks of Otter Quadrangle

Stream: Falling Water Creek
Quadrangle: Peaks of Otter
Sample Date: 07/16/97
Downstream Starting Point: Confl. with Jennings Creek
Total Distance Surveyed: 1.14 miles

Percent of Total Area - Pools: 27.5%

Number of Pools: 117
Number of Pools per Mile: 103
Total Pool Area: 16,755.8 sq. ft. ± 772.0
Mean Pool Area: 143.2 sq. ft.
Correction Factor: 1.04
Mean Maximum Depth: 1.5'
Mean Average Depth: 1.1'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 72.5%

Number of Riffles: 104
Number of Riffles per Mile: 91
Total Riffle Area: 44,207.9 sq. ft. ± 3,723.2
Mean Riffle Area: 425.1 sq. ft.
Correction Factor: 0.97
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 473.7

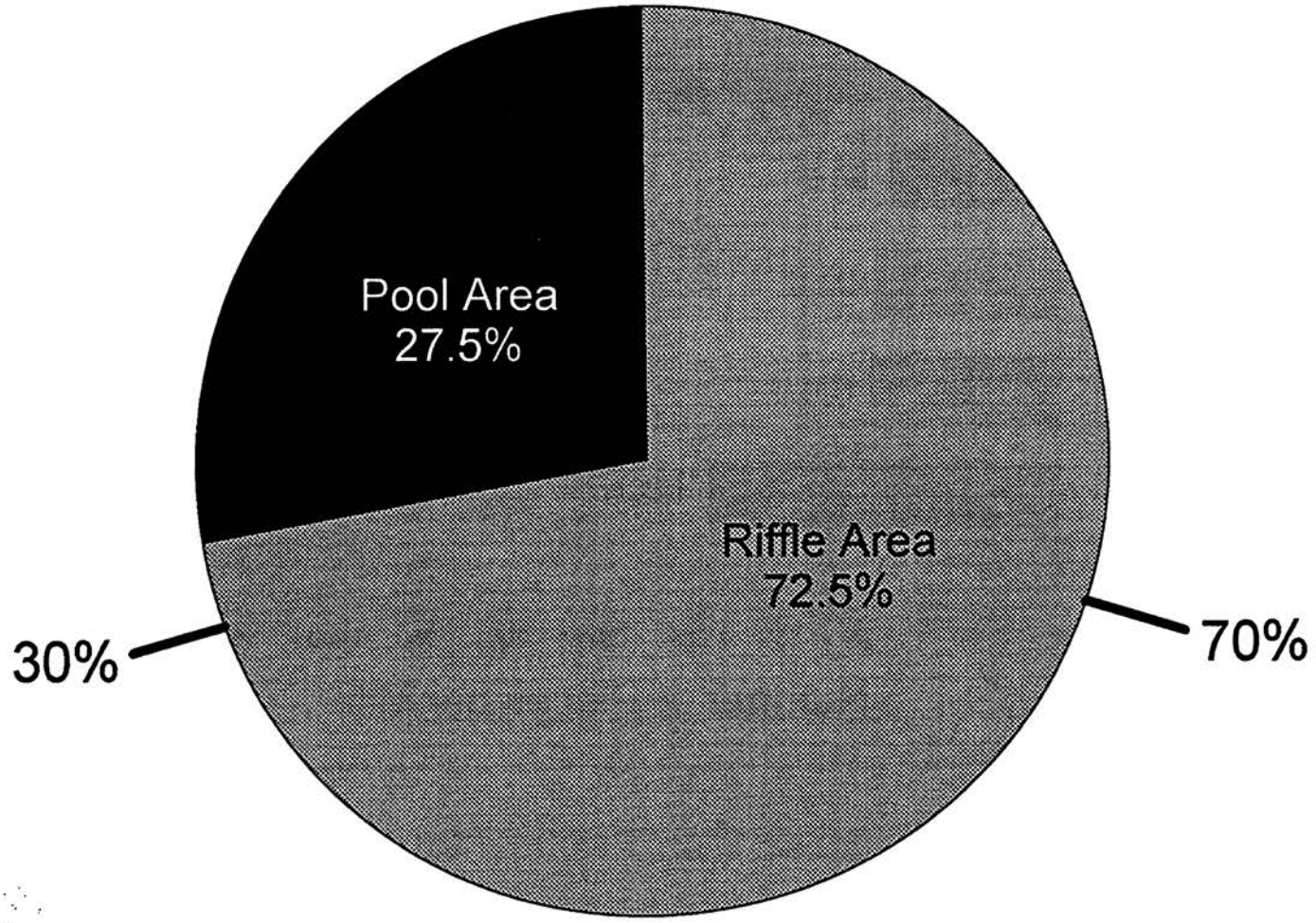
Wood < 15' and < 14": 188.6
Wood < 15' and > 14": 100.0
Wood > 15' and < 14": 96.5
Wood > 15' and > 14": 88.6

Mean Channel Width: 23.3'
Mean Riparian Width: 63.3'

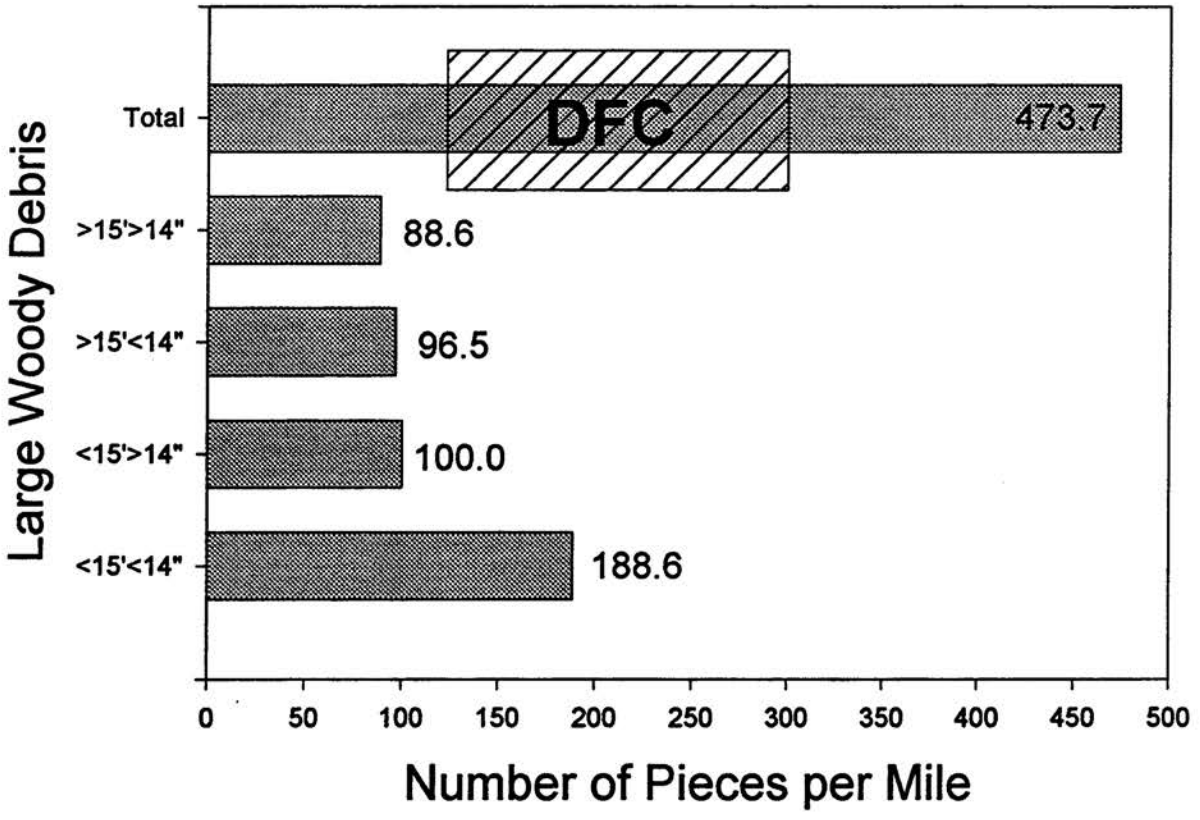
Mean Maximum Riparian Distance (either side): 29.7'
Mean Minimum Riparian Distance (either side): 10.3'
Maximum Riparian Width (Total): 89.0'
Minimum Riparian Width (Total): 34.3'

Falling Water Creek
Pool:Riffle Ratio

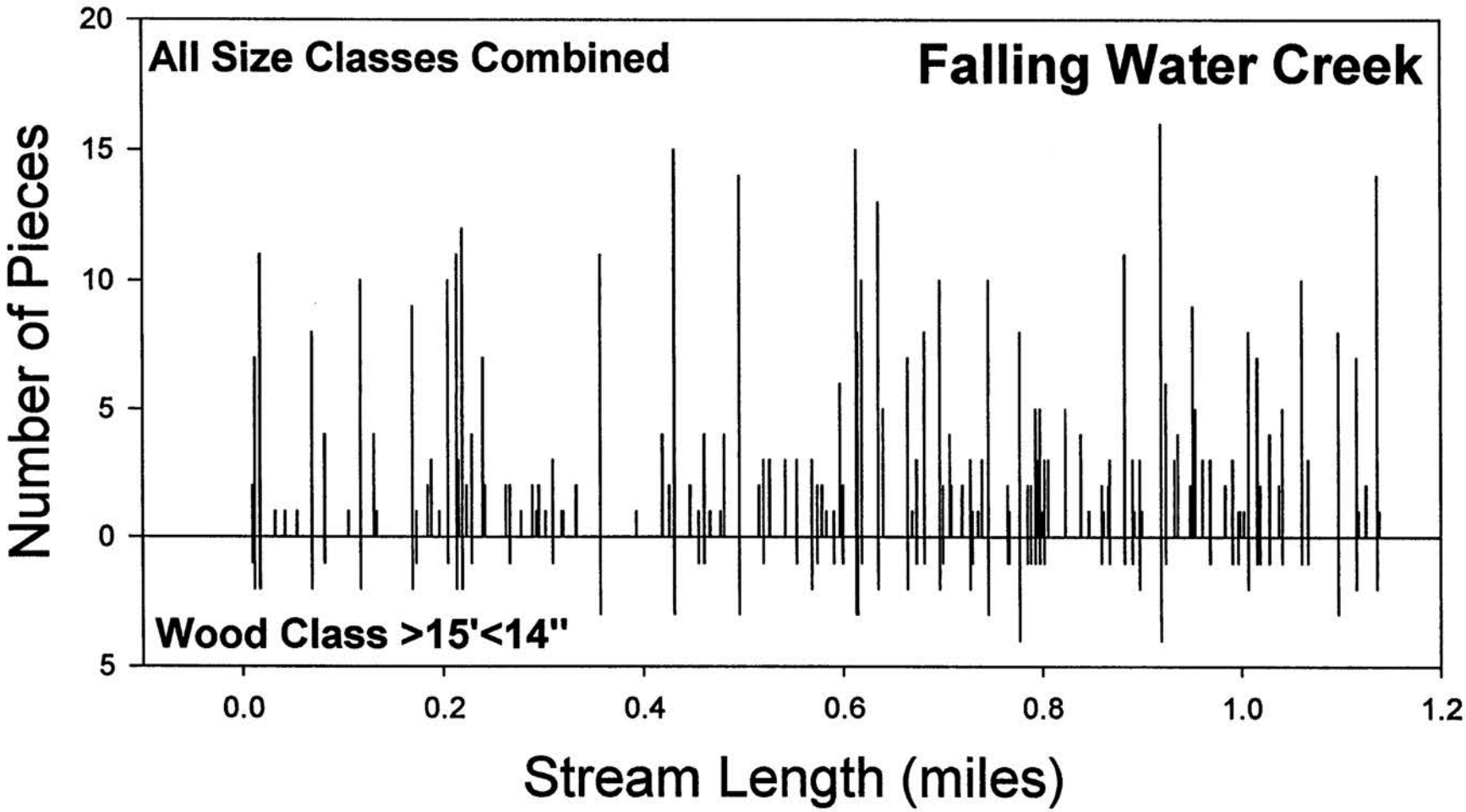
DFC:30 - 70% of the Total Stream Area in Pool Habitat



Falling Water Creek

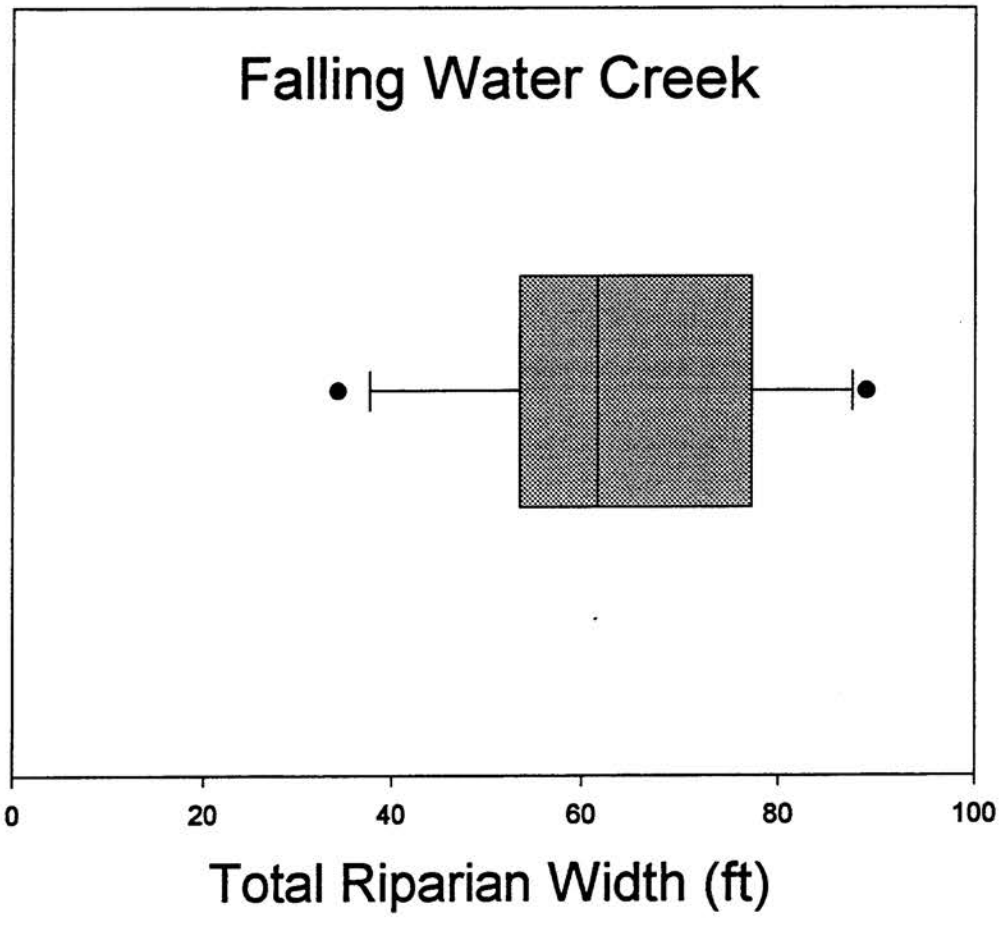


Large Woody Debris Distribution



Riparian Width

Stream: Falling Water Creek
Number of measurements: 7
Mean width: 63.3 Std Dev: 18.2
Max: 89.0 Min: 34.3



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Overstreet Creek
Quadrangle: Peaks of Otter
Sample Date: 07/21/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 2.02 miles

Percent of Total Area - Pools: 35.9%

Number of Pools: 252
Number of Pools per Mile: 125
Total Pool Area: 30,481.0 sq. ft. ± 2,573.0
Mean Pool Area: 121.0 sq. ft.
Correction Factor: 1.02
Mean Maximum Depth: 1.4'
Mean Average Depth: 1.0'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 64.1%

Number of Riffles: 220
Number of Riffles per Mile: 109
Total Riffle Area: 54,432.0 sq. ft. ± 7,042.4
Mean Riffle Area: 247.4 sq. ft.
Correction Factor: 1.12
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 579.4

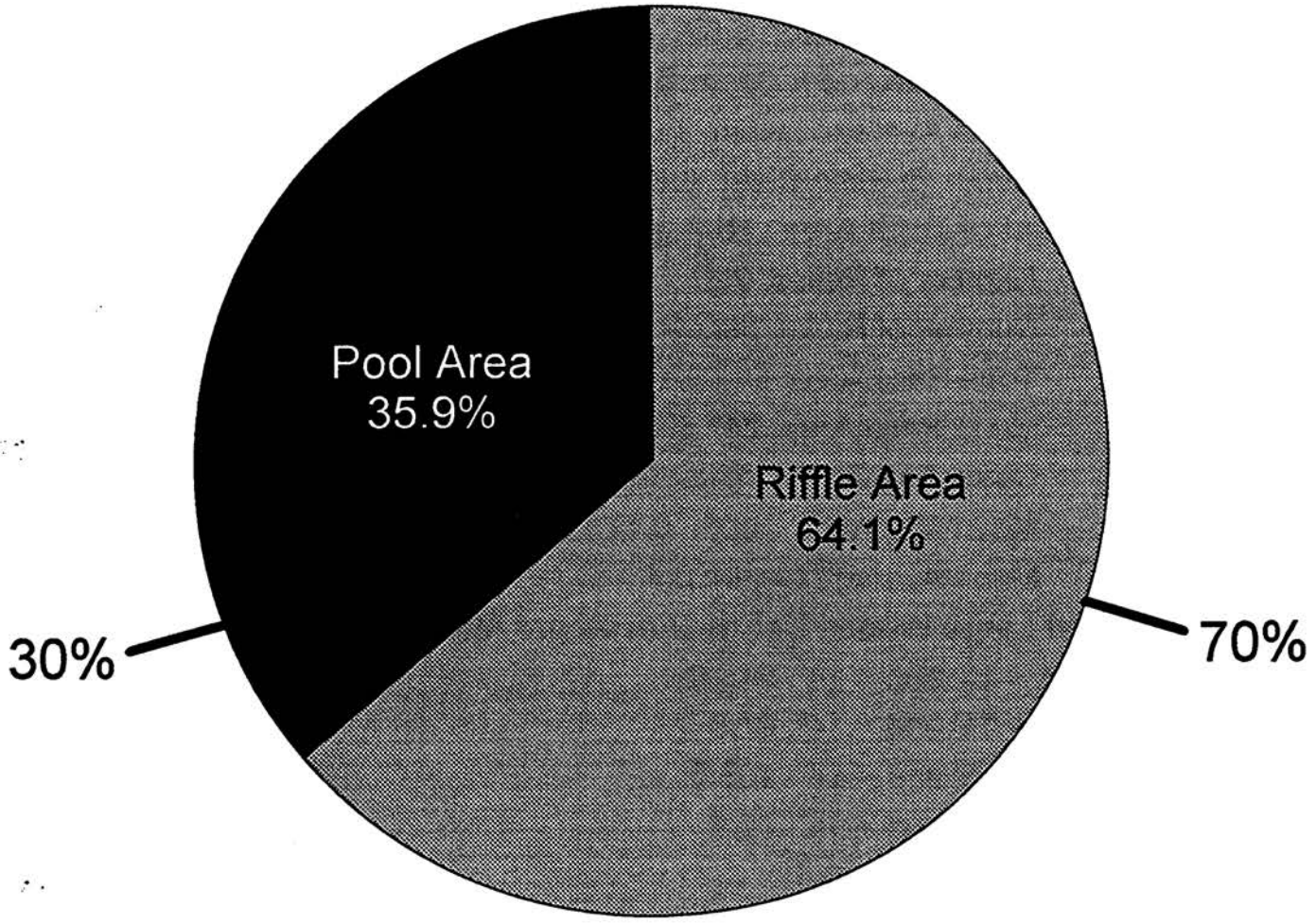
Wood < 15' and < 14": 246.0
Wood < 15' and > 14": 97.8
Wood > 15' and < 14": 163.5
Wood > 15' and > 14": 72.1

Mean Channel Width: 20.4'
Mean Riparian Width: 51.9'

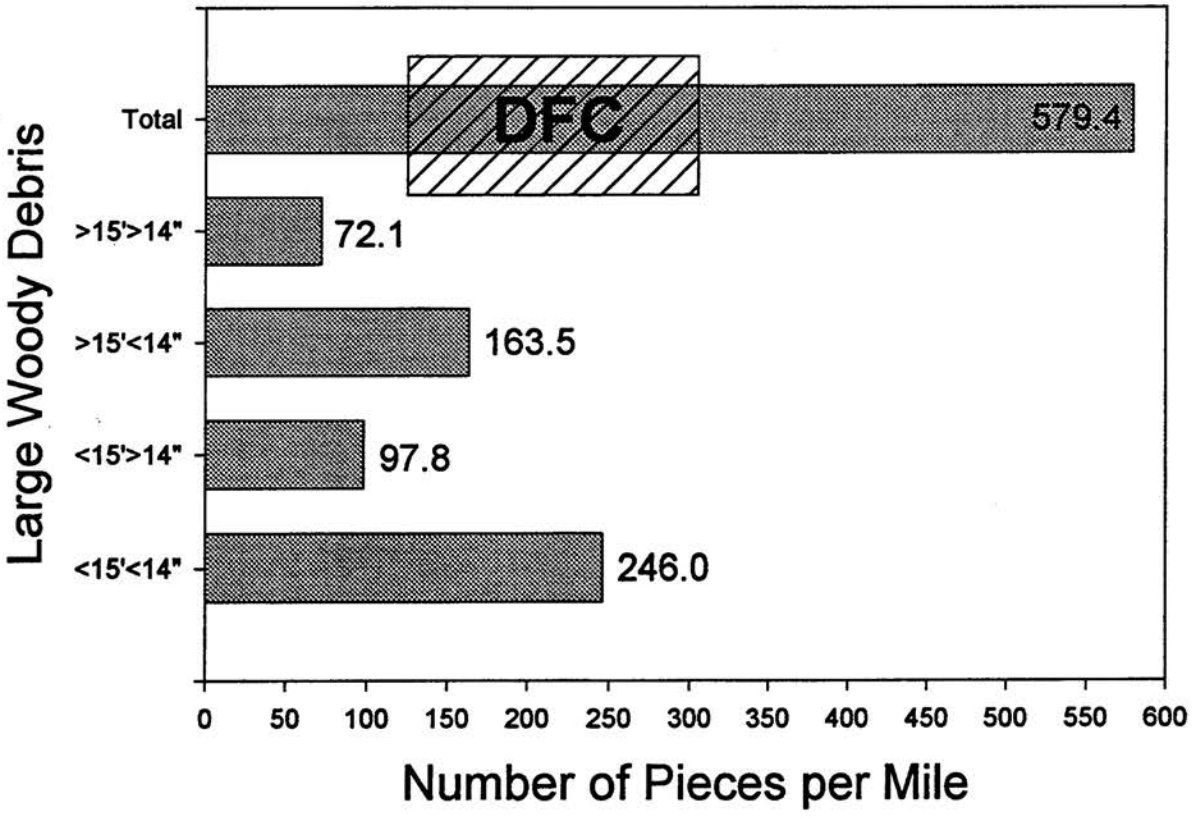
Mean Maximum Riparian Distance (either side): 23.6'
Mean Minimum Riparian Distance (either side): 7.9'
Maximum Riparian Width (Total): 81.8'
Minimum Riparian Width (Total): 30.3'

Overstreet Creek Pool:Riffle Ratio

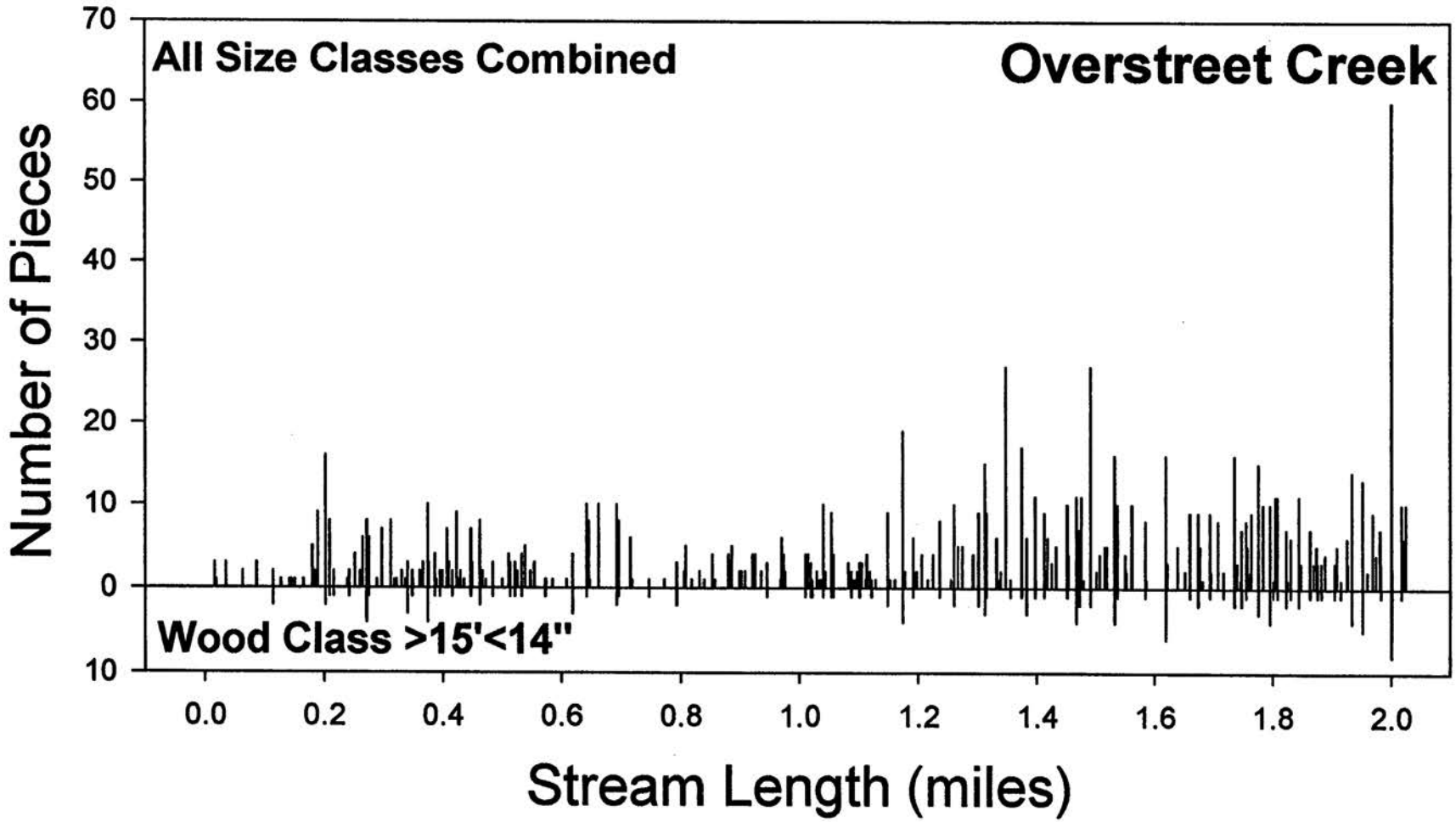
DFC: 30 - 70% of the Stream Area in Pool Habitat



Overstreet Creek

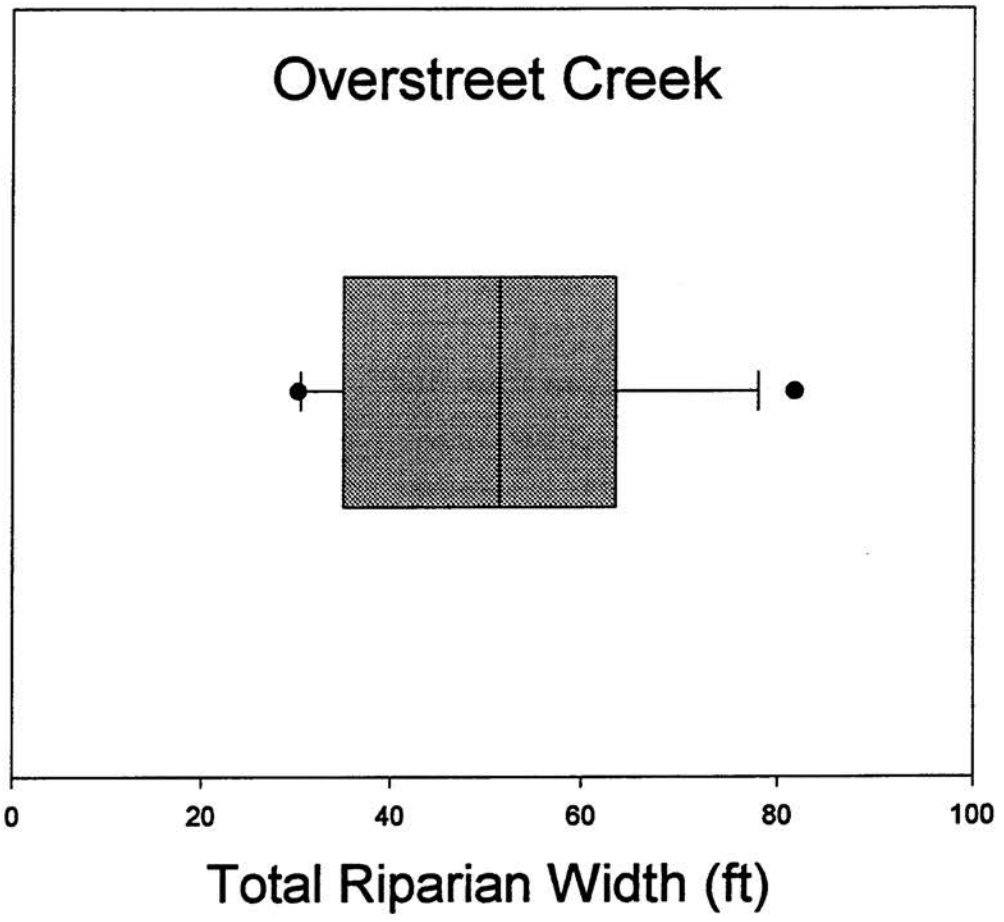


Large Woody Debris Distribution



Riparian Width

Stream: Overstreet Creek
Number of measurements: 11
Mean width: 51.9 Std Dev: 17.5
Max: 81.8 Min: 30.3



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Stony Creek
Quadrangle: Peaks of Otter
Sample Date: 07/28/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.99 miles

Percent of Total Area - Pools: 35.8%

Number of Pools: 221
Number of Pools per Mile: 111
Total Pool Area: 35.050.9 sq. ft. ± 1,114.9
Mean Pool Area: 158.6 sq. ft.
Correction Factor: 1.14
Mean Maximum Depth: 1.3'
Mean Average Depth: 0.7'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 64.2%

Number of Riffles: 201
Number of Riffles per Mile: 101
Total Riffle Area: 62,942.6 sq. ft. ± 7,299.1
Mean Riffle Area: 313.1 sq. ft.
Correction Factor: 1.05
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 662.3

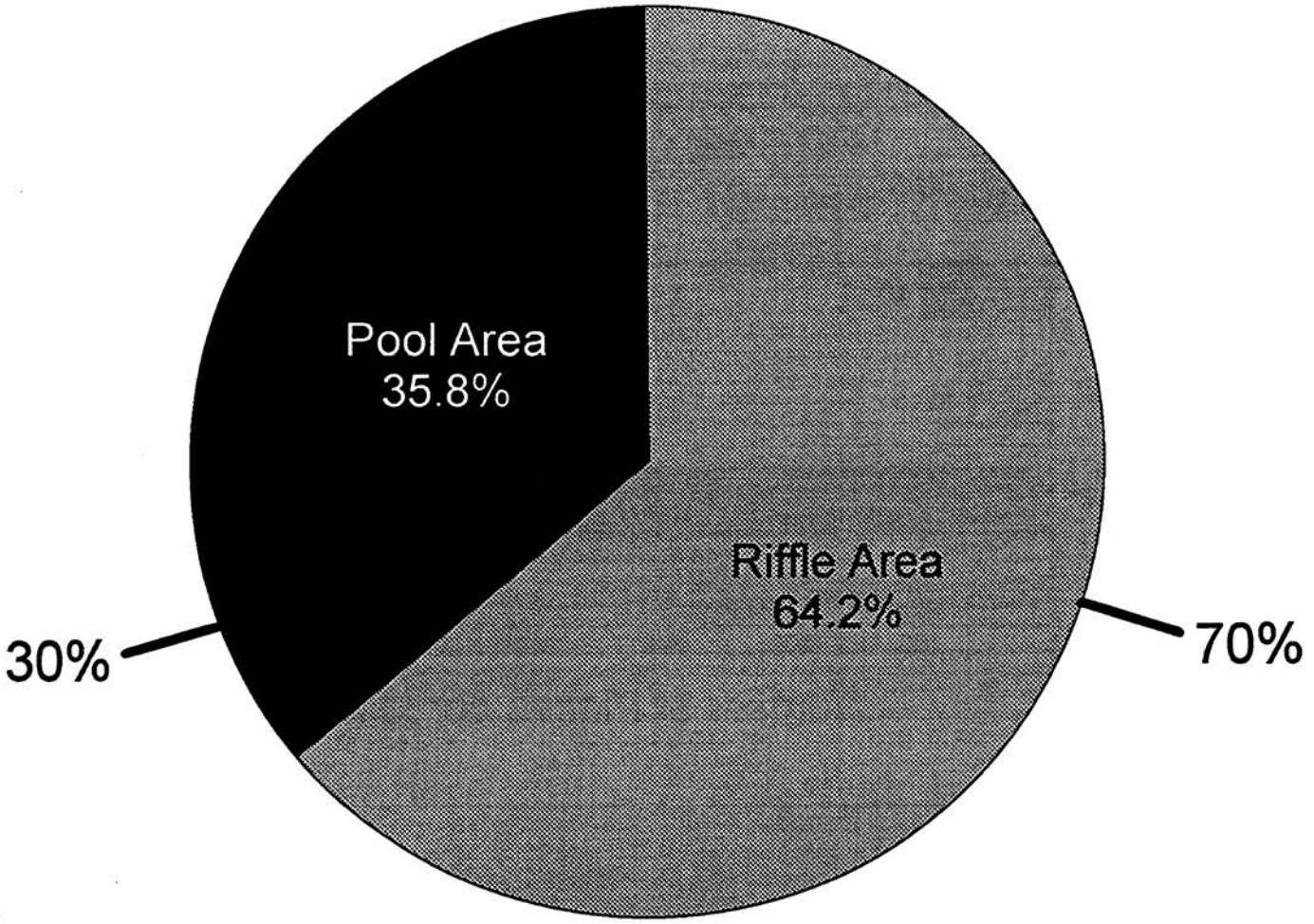
Wood < 15' and < 14": 448.7
Wood < 15' and > 14": 59.8
Wood > 15' and < 14": 97.0
Wood > 15' and > 14": 56.8

Mean Channel Width: 18.5'
Mean Riparian Width: 104.6'

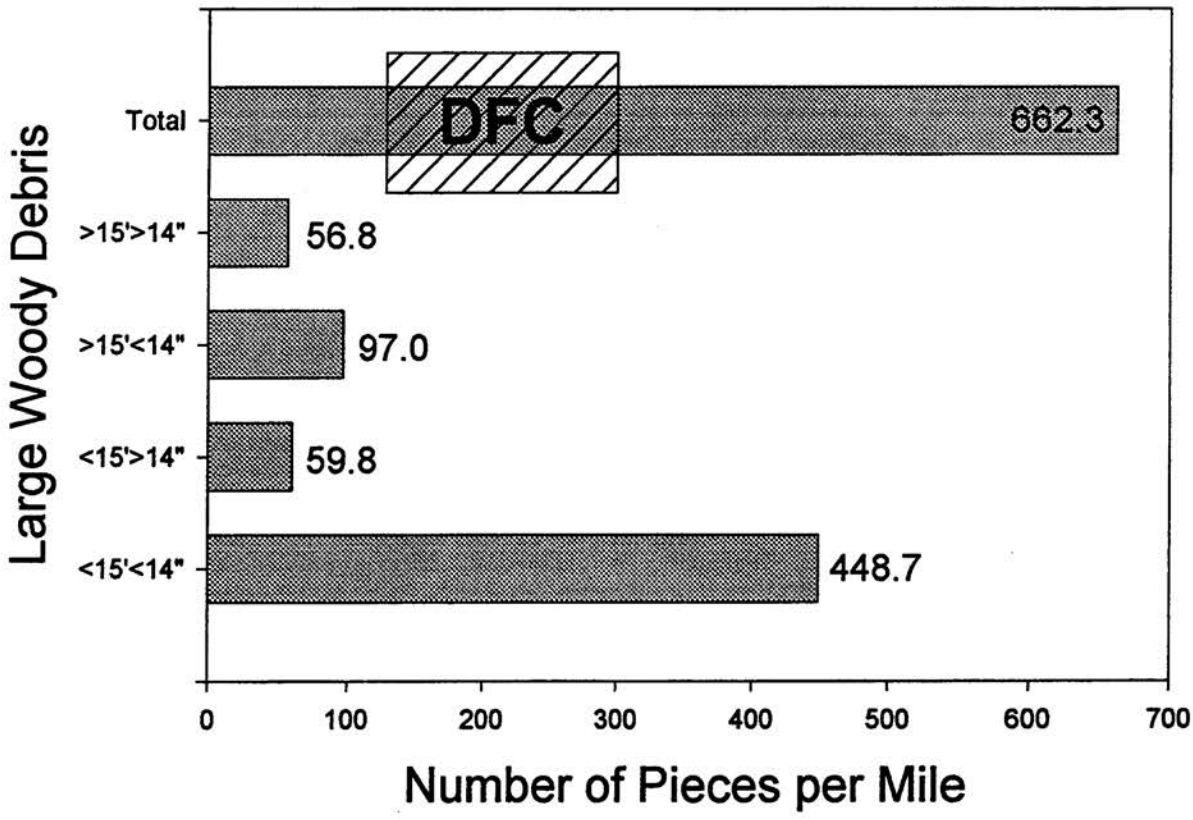
Mean Maximum Riparian Distance (either side): 62.0'
Mean Minimum Riparian Distance (either side): 24.1'
Maximum Riparian Width (Total): 206.0'
Minimum Riparian Width (Total): 42.5'

Stony Creek
Pool:Riffle Ratio

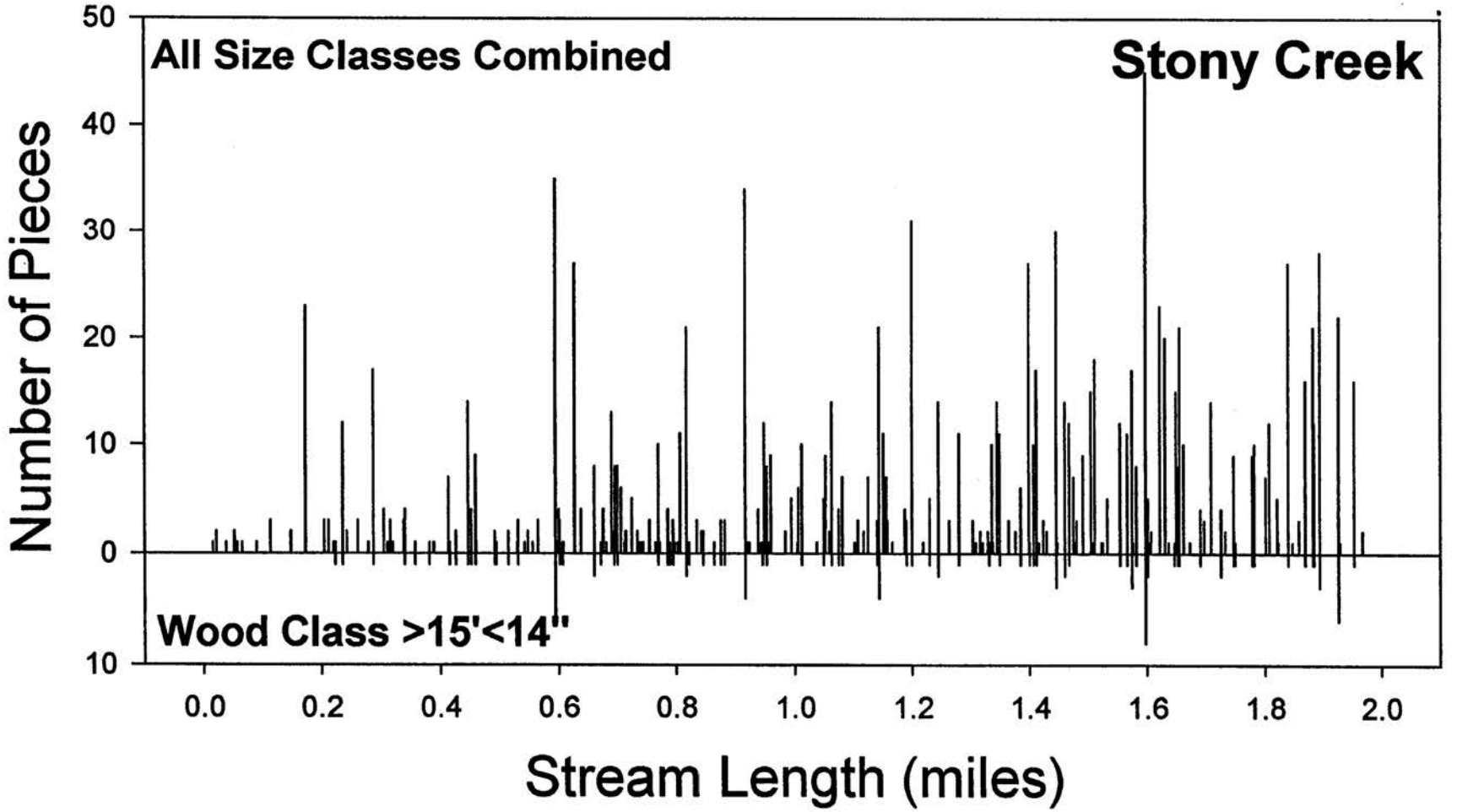
DFC: 30 - 70% of the Stream Area in Pool Habitat



Stony Creek

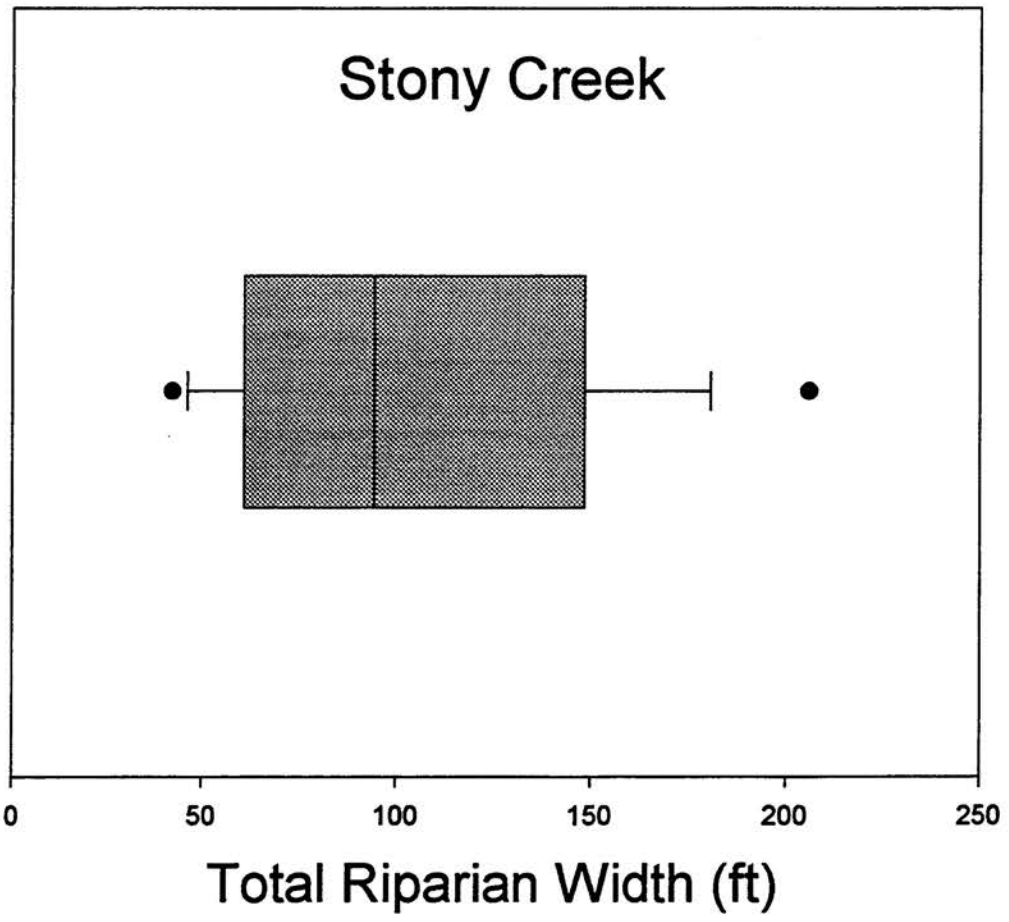

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
DFC
662.3
56.8
97.0
59.8
448.7
0
100
200
300
400
500
600
700
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Stony Creek
Number of measurements: 10
Mean width: 104.6 Std Dev: 52.1
Max: 206.0 Min: 42.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Snowden Quadrangle

Stream: Battery Creek
Quadrangle: Snowden
Sample Date: 06/09/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.41 miles

Percent of Total Area - Pools: 12.1%

Number of Pools: 12
Number of Pools per Mile: 29
Total Pool Area: 3,429.5 sq. ft. ± 278.2
Mean Pool Area: 285.8 sq. ft.
Correction Factor: 1.28
Mean Maximum Depth: 1.6'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 87.9%

Number of Riffles: 13
Number of Riffles per Mile: 32
Total Riffle Area: 24,722.1 sq. ft. ± 1,831.3
Mean Riffle Area: 1,901.7 sq. ft.
Correction Factor: 1.12
Mean Maximum Depth: 1.1'
Mean Average Depth: 0.6'

Number of Large Woody Debris Pieces per Mile: 46.3

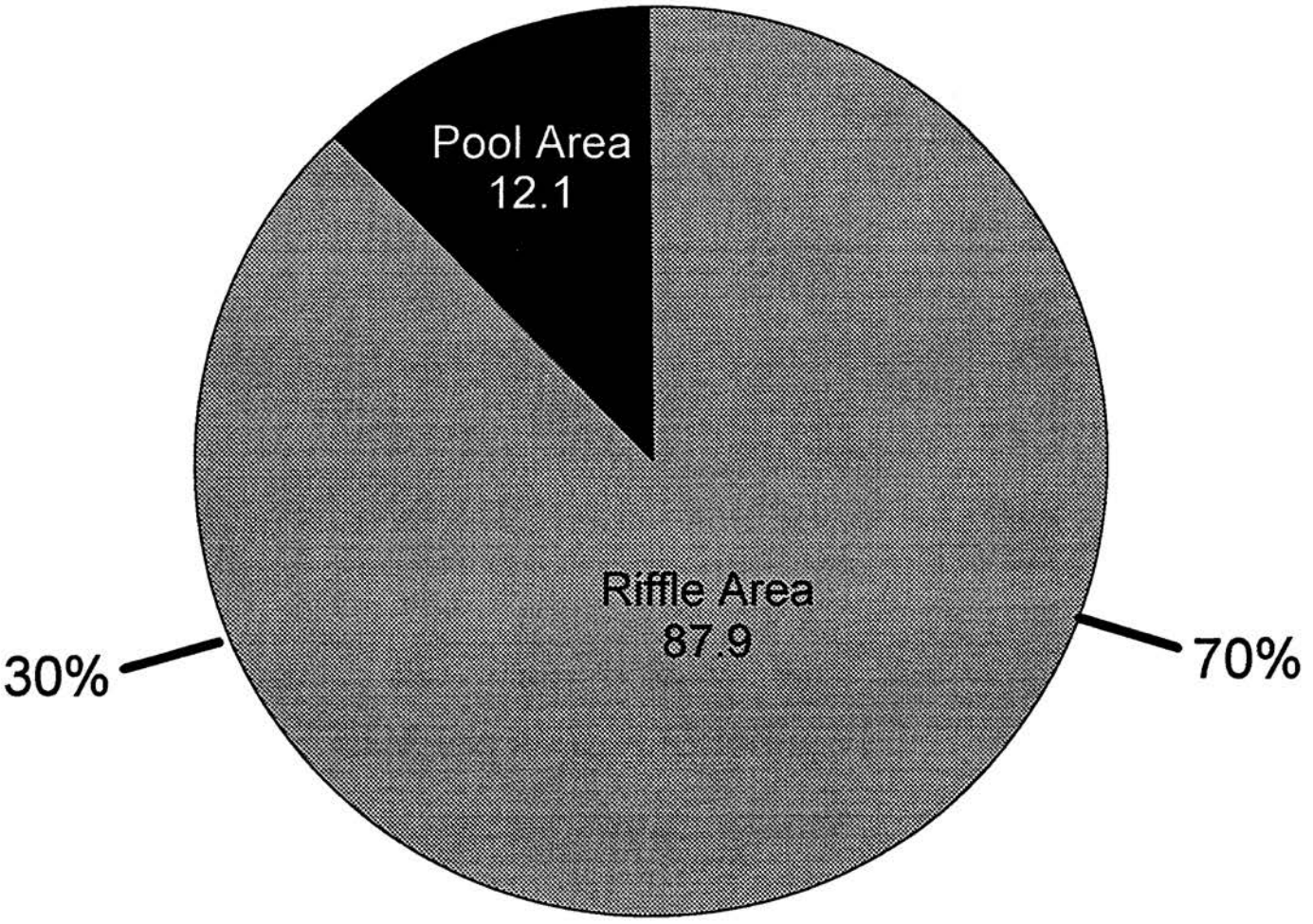
Wood < 15' and < 14": 19.5
Wood < 15' and > 14": 2.4
Wood > 15' and < 14": 14.6
Wood > 15' and > 14": 9.8

Mean Channel Width: 6.0'
Mean Riparian Width: 7.3'

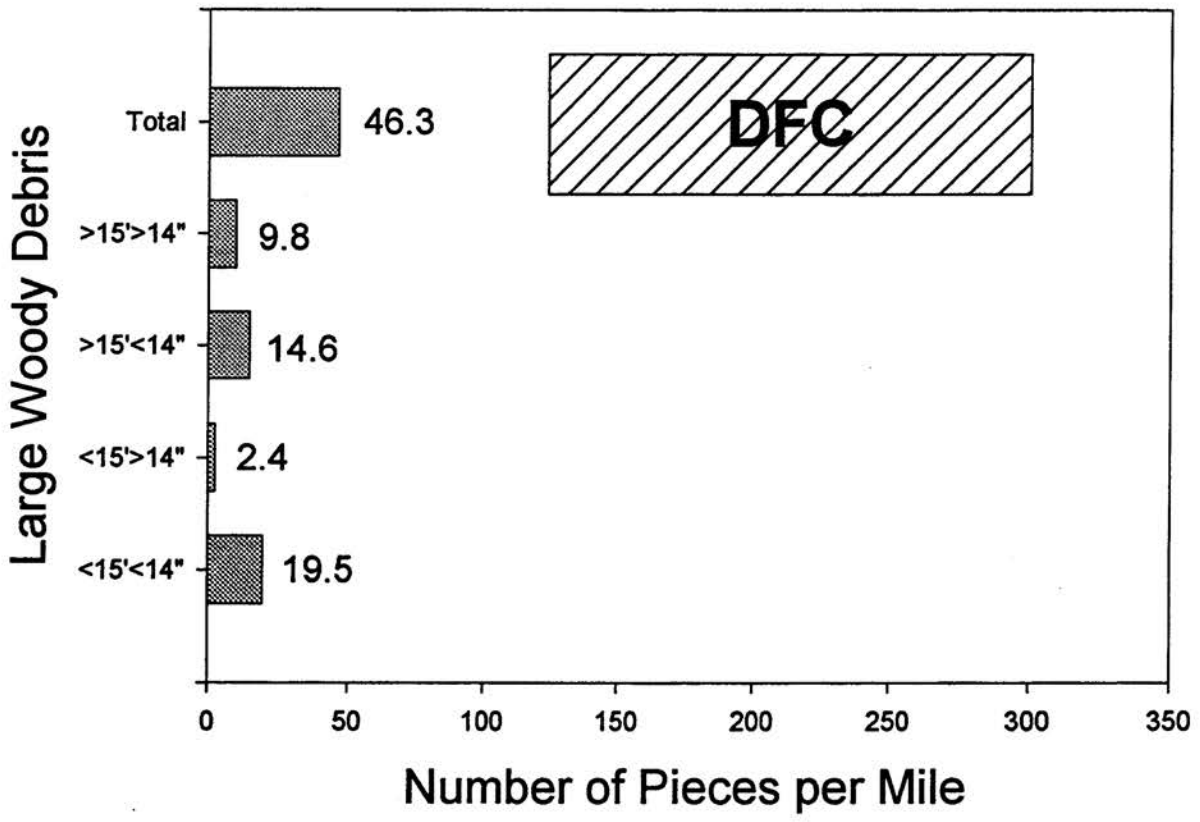
Mean Maximum Riparian Distance (either side): N/A
Mean Minimum Riparian Distance (either side): N/A
Maximum Riparian Width (Total): N/A
Minimum Riparian Width (Total): N/A

Battery Creek
Pool:Riffle Ratio

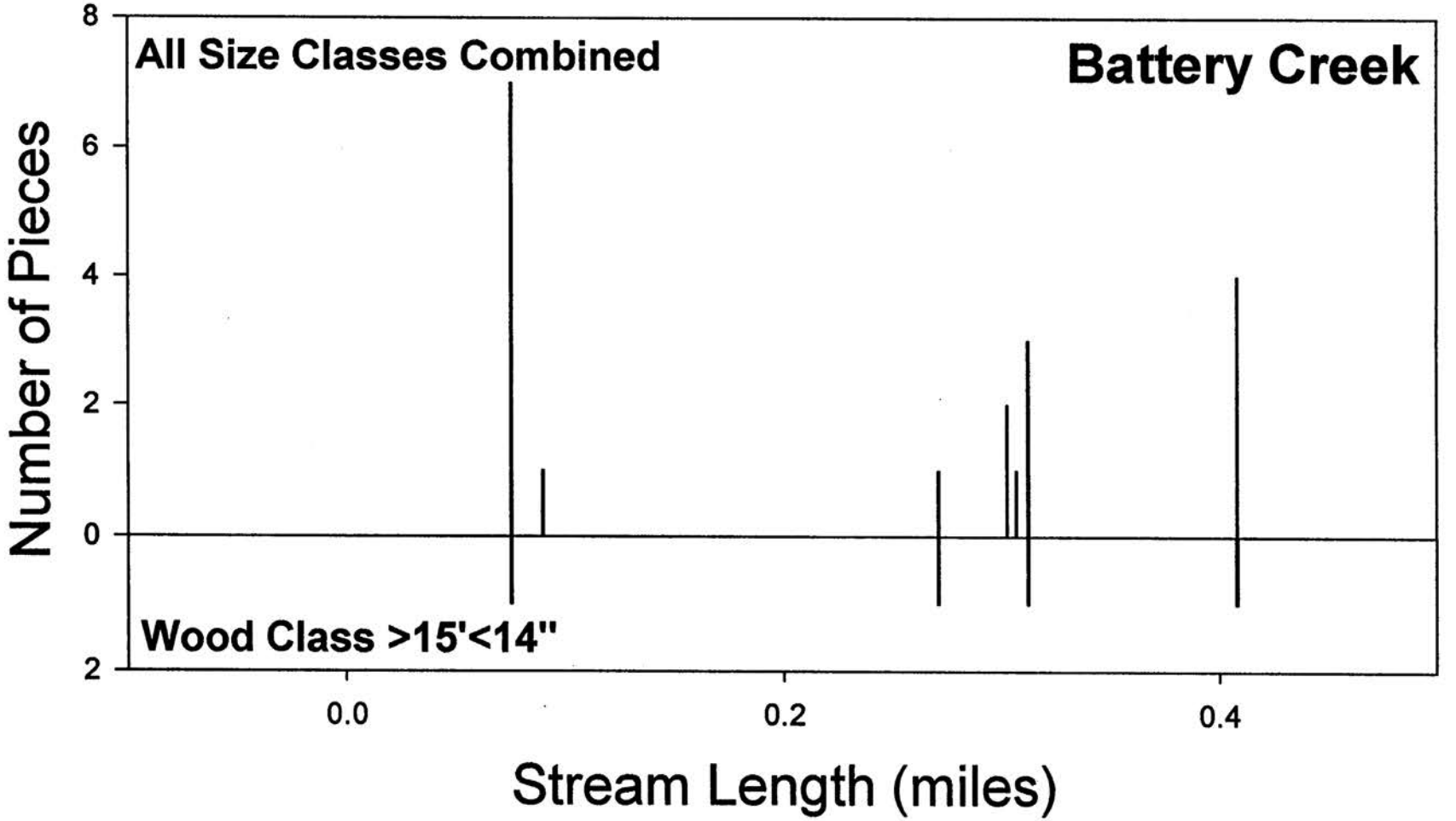
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Battery Creek



Large Woody Debris Distribution



Stream: Belfast Creek
Quadrangle: Snowden
Sample Date: 06/09/97
Downstream Starting Point: Confl. with East Fork Elk Creek
Total Distance Surveyed: 1.40 miles

Percent of Total Area - Pools: 31.3%

Number of Pools: 166
Number of Pools per Mile: 119
Total Pool Area: 24,456.7 sq. ft. ± 3,378.5
Mean Pool Area: 147.3 sq. ft.
Correction Factor: 1.06
Mean Maximum Depth: 1.3'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.5'

Percent of Total Area - Riffles: 68.7%

Number of Riffles: 116
Number of Riffles per Mile: 83
Total Riffle Area: 53,742.6 sq. ft. ± 13,347.1
Mean Riffle Area: 463.3 sq. ft.
Correction Factor: 1.16
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.6'

Number of Large Woody Debris Pieces per Mile: 117.9

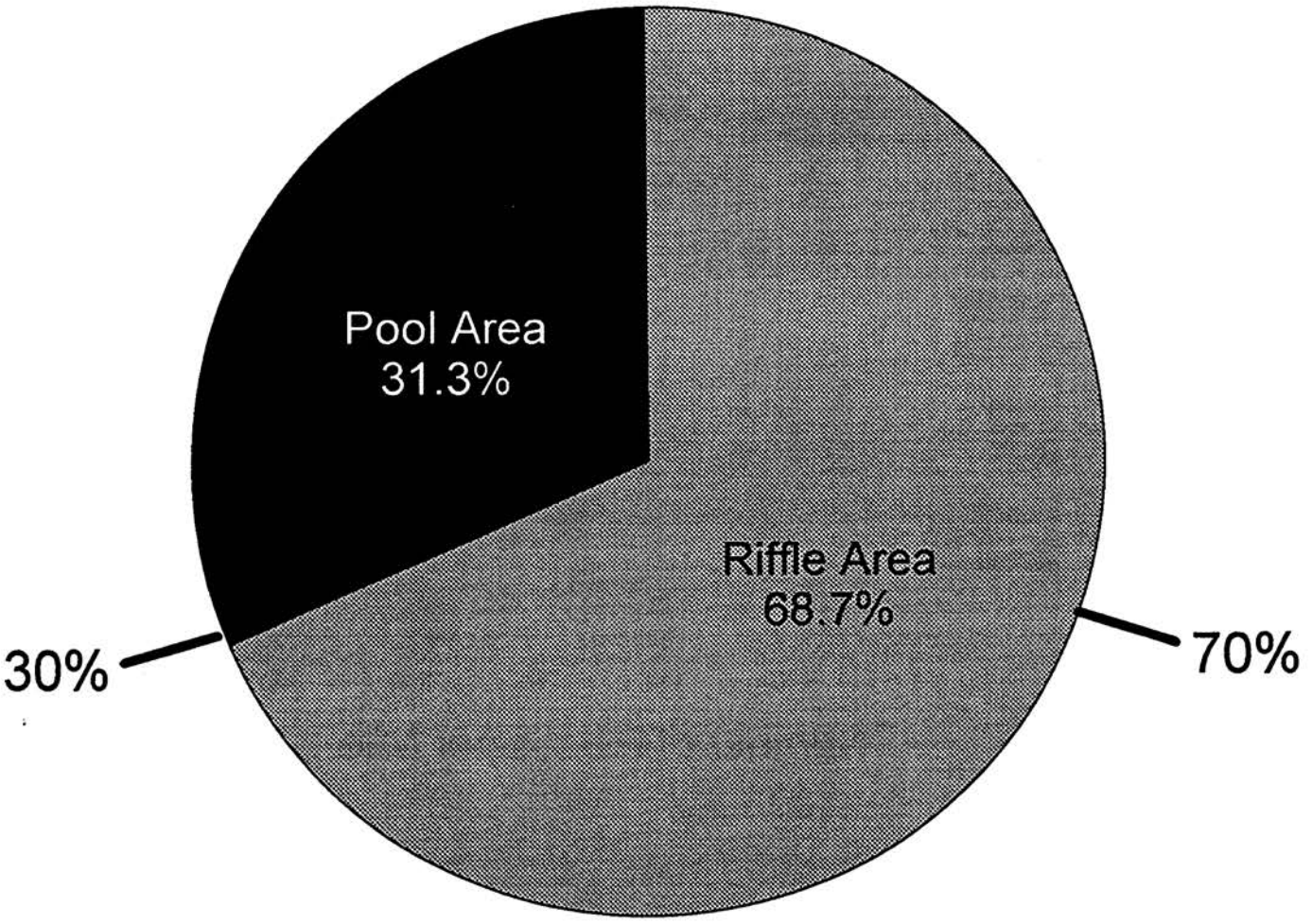
Wood < 15' and < 14": 29.3
Wood < 15' and > 14": 24.3
Wood > 15' and < 14": 37.9
Wood > 15' and > 14": 26.4

Mean Channel Width: 16.6'
Mean Riparian Width: 52.1'

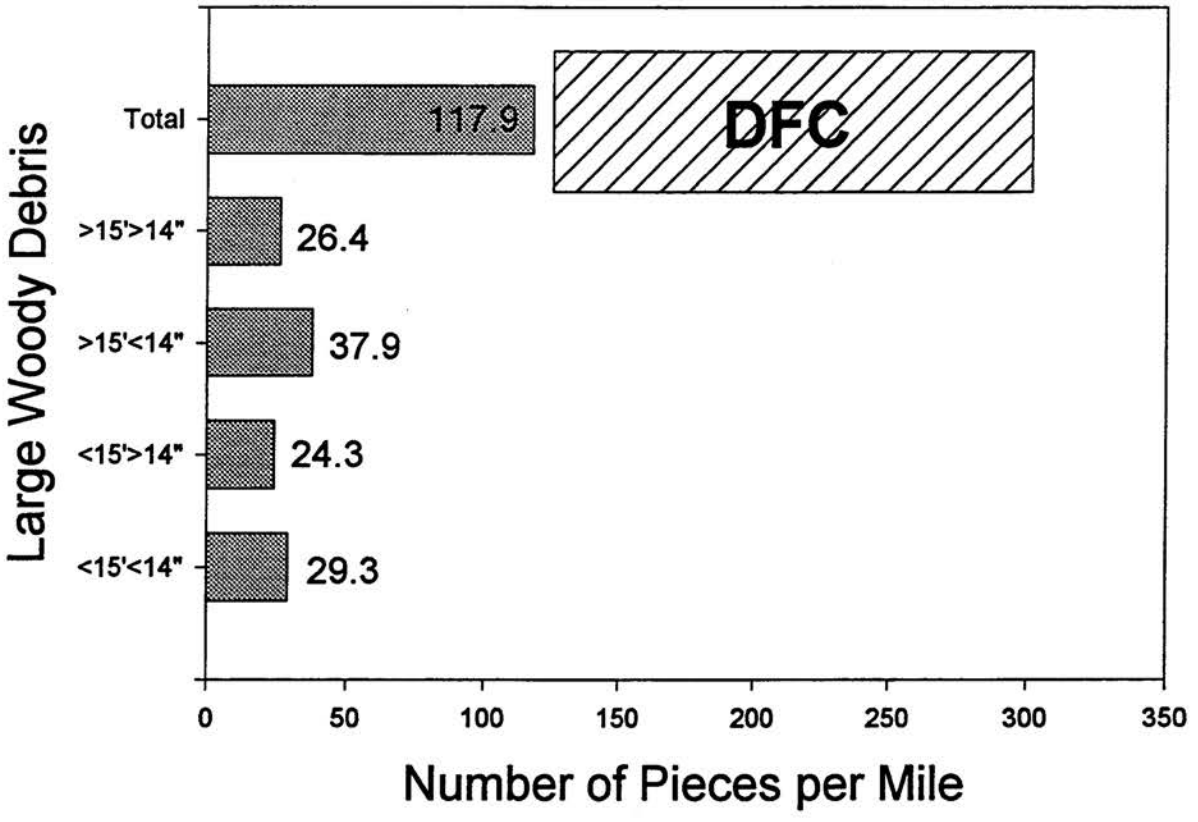
Mean Maximum Riparian Distance (either side): 30.1'
Mean Minimum Riparian Distance (either side): 5.4'
Maximum Riparian Width (Total): 109.9'
Minimum Riparian Width (Total): 23.7'

Bellfast Creek
Pool:Riffle Ratio

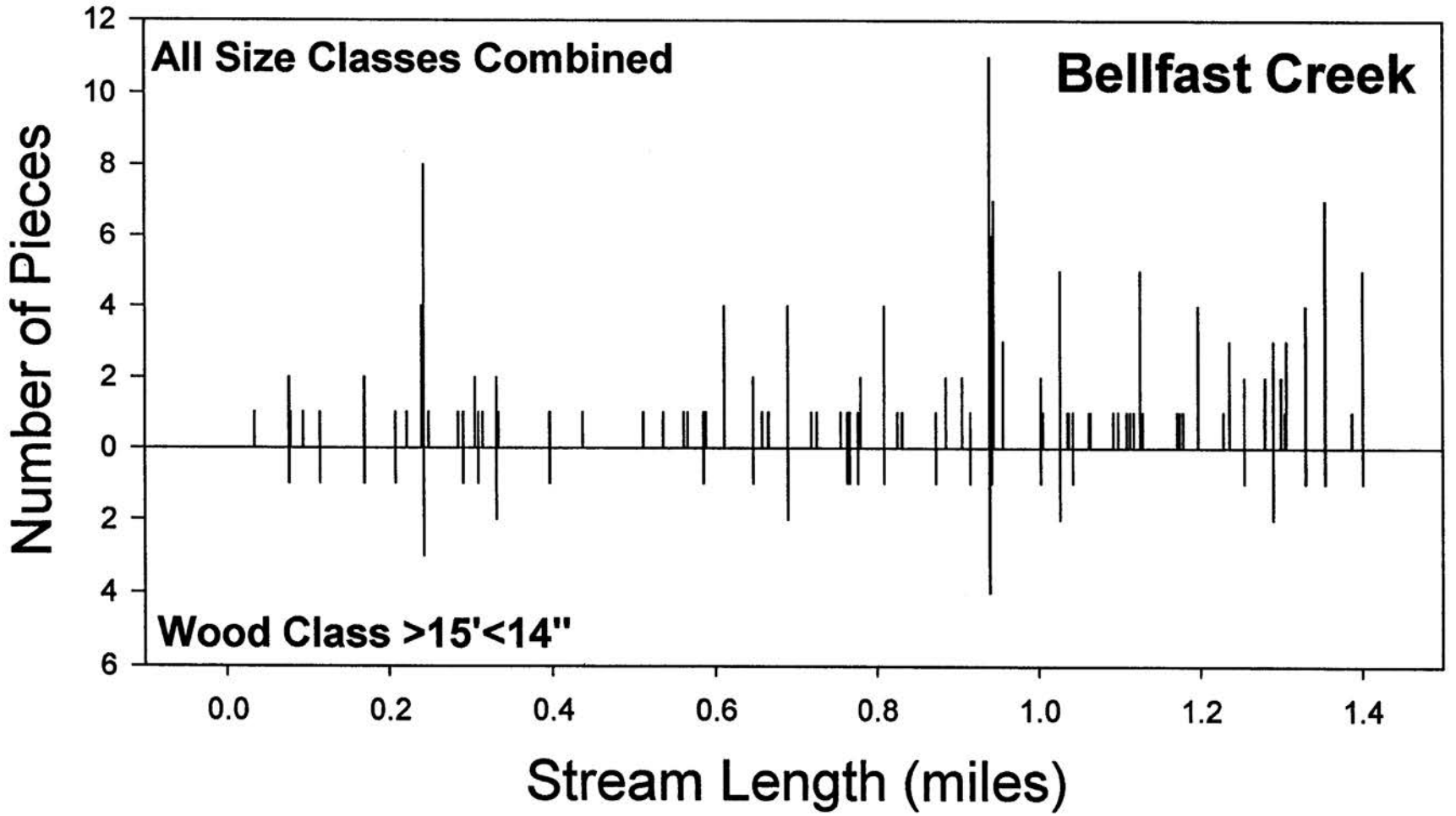
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Bellfast Creek

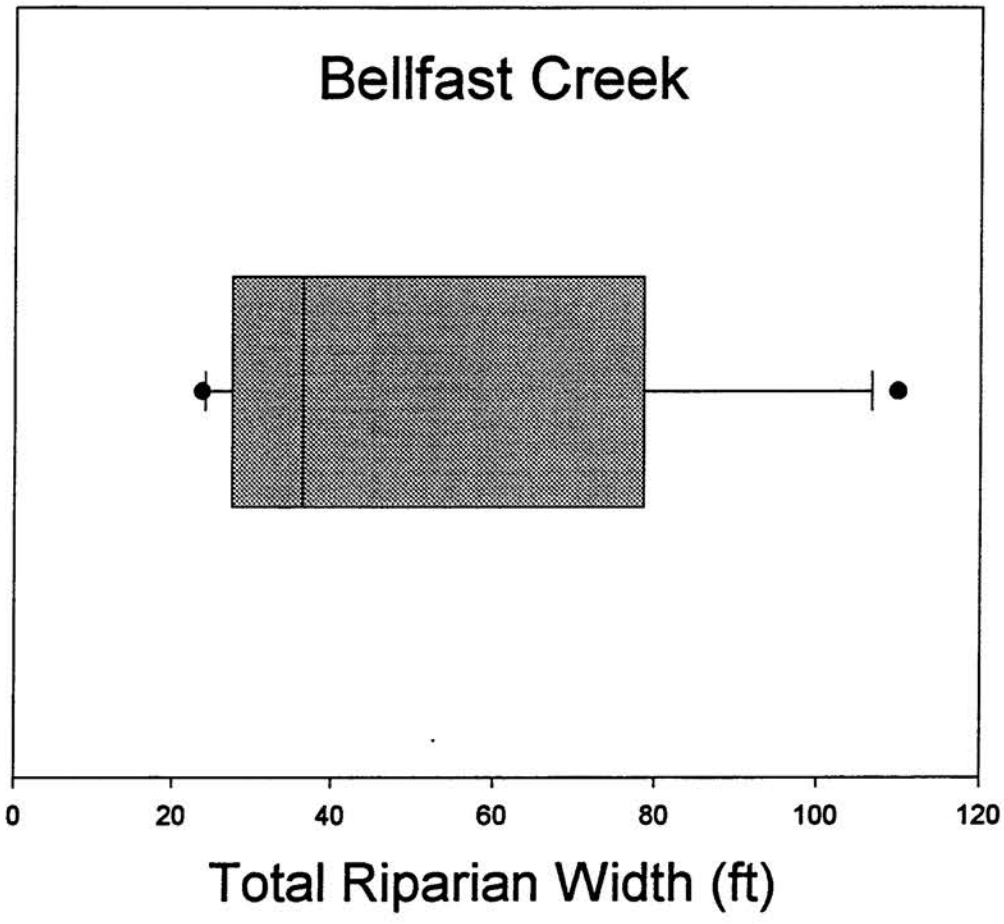


Large Woody Debris Distribution



Riparian Width

Stream: Bellfast Creek
Number of measurements: 6
Mean width: 52.1 Std Dev: 34.8
Max: 109.9 Min: 23.7



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Bellamy Creek
Quadrangle: Peaks of Otter
Sample Date: 05/29/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.78 miles

Percent of Total Area - Pools: 12.5%

Number of Pools: 25
Number of Pools per Mile: 32
Total Pool Area: 2,099.9 sq. ft. ± 815.7
Mean Pool Area: 84.0 sq. ft.
Correction Factor: 0.82
Mean Maximum Depth: 1.2'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.5'

Percent of Total Area - Riffles: 87.5%

Number of Riffles: 27
Number of Riffles per Mile: 35
Total Riffle Area: 24,229.9 sq. ft. ± 1,735.7
Mean Riffle Area: 897.4 sq. ft.
Correction Factor: 1.08
Mean Maximum Depth: 0.7'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 588.3

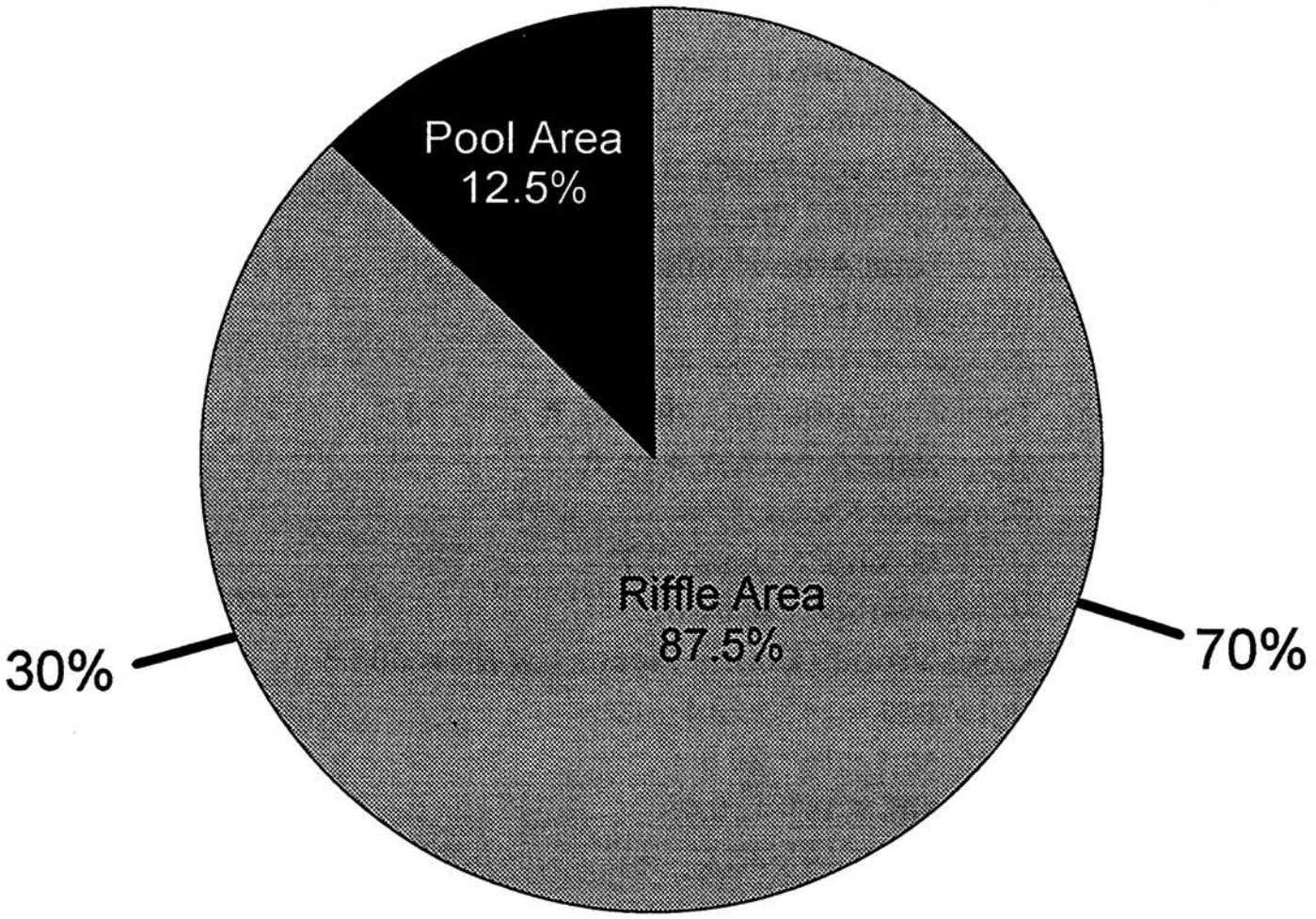
Wood < 15' and < 14": 229.5
Wood < 15' and > 14": 20.5
Wood > 15' and < 14": 175.6
Wood > 15' and > 14": 33.3

Mean Channel Width: 20.2'
Mean Riparian Width: 48.8'

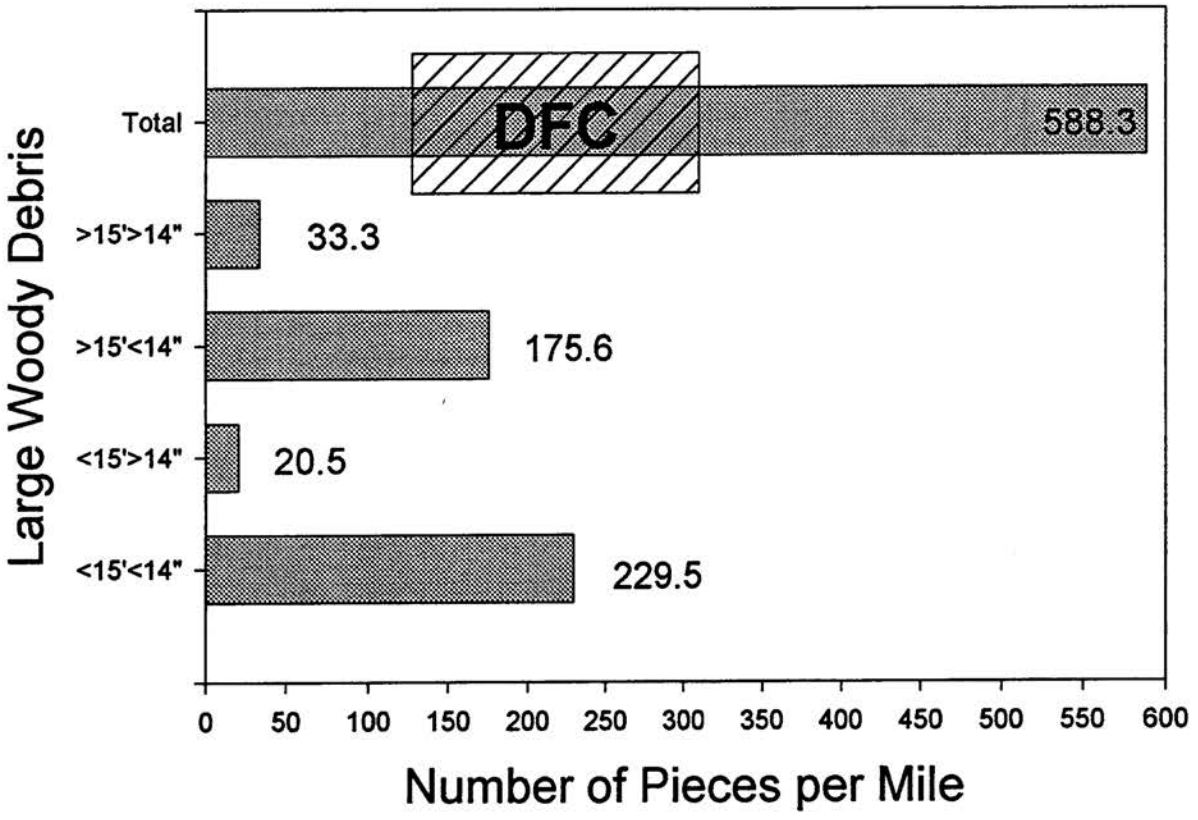
Mean Maximum Riparian Distance (either side): 20.3'
Mean Minimum Riparian Distance (either side): 10.2'
Maximum Riparian Width (Total): 50.0'
Minimum Riparian Width (Total): 48.0'

Bellamy Creek
Pool:Riffle Ratio

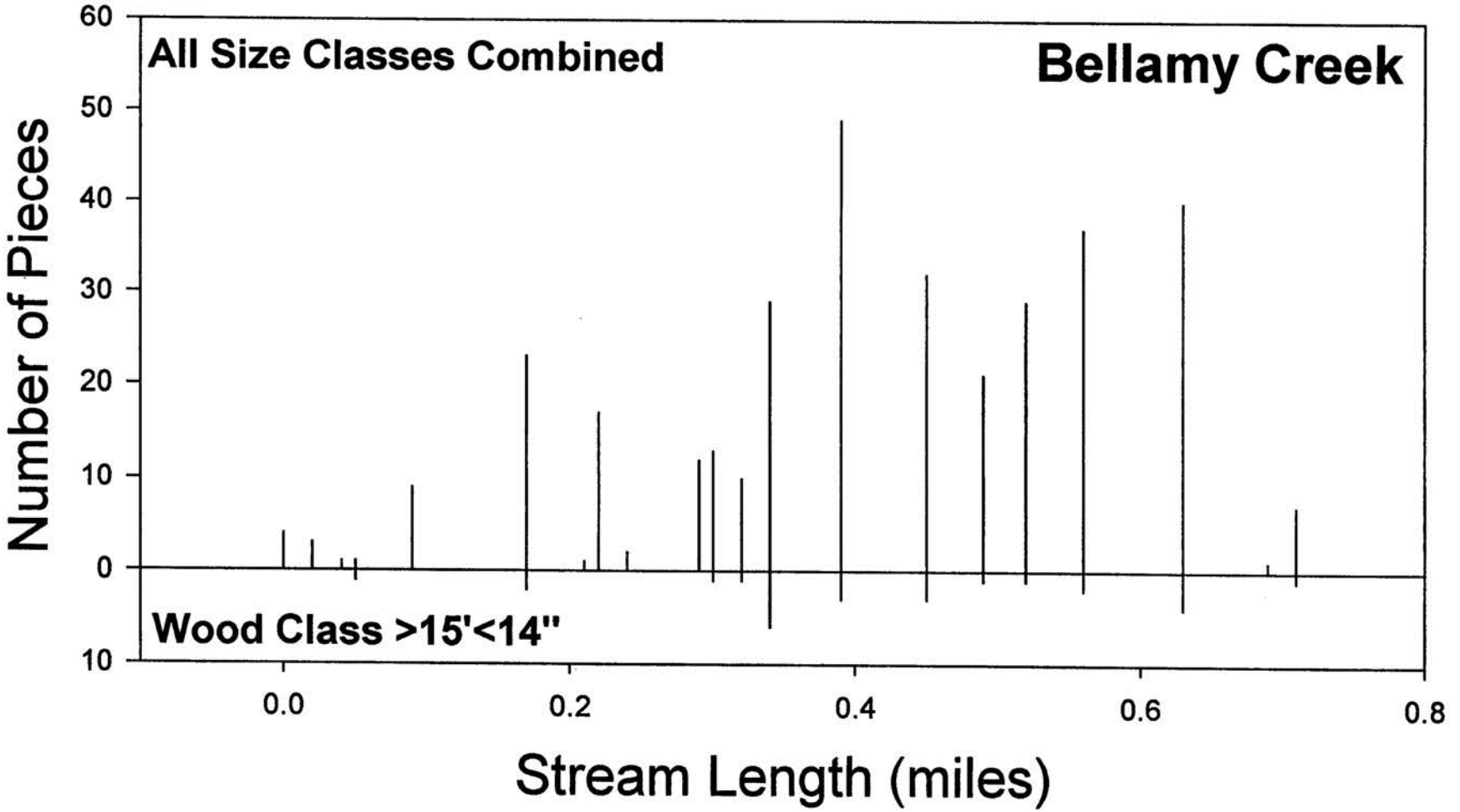
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Bellamy Creek

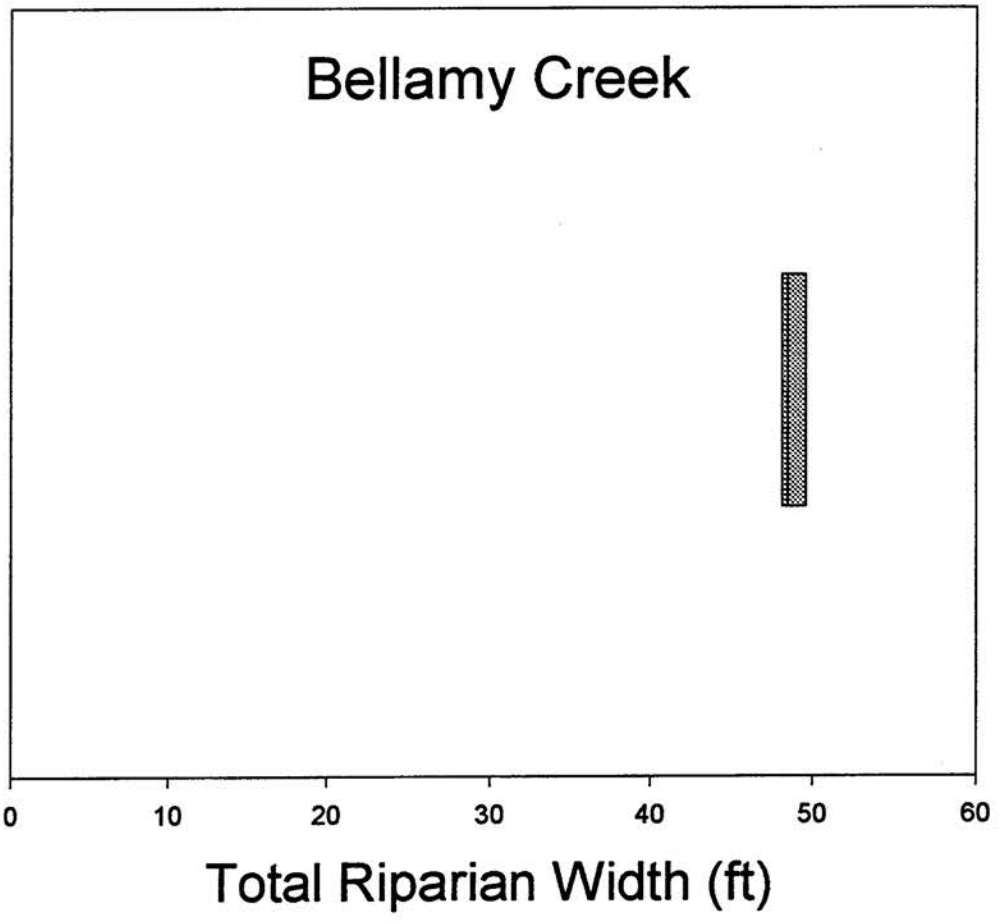


Large Woody Debris Distribution



Riparian Width

Stream: Bellamy Creek
Number of measurements: 3
Mean width: 48.8 Std Dev: 1.04
Max: 50.0 Min: 48.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Big Hellgate Creek
Quadrangle: Peaks of Otter
Sample Date: 05/28/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.94 miles

Percent of Total Area - Pools: 45.2%

Number of Pools: 44
Number of Pools per Mile: 47
Total Pool Area: 10,647.4 sq. ft. ± 625.4
Mean Pool Area: 242.0 sq. ft.
Correction Factor: 0.96
Mean Maximum Depth: 1.9'
Mean Average Depth: 1.2'
Depth @ Riffle Crest: 0.7'

Percent of Total Area - Riffles: 54.8%

Number of Riffles: 37
Number of Riffles per Mile: 39
Total Riffle Area: 12,884.5 sq. ft. ± 1,454.8
Mean Riffle Area: 348.2 sq. ft.
Correction Factor: 1.11
Mean Maximum Depth: 1.1'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 175.6

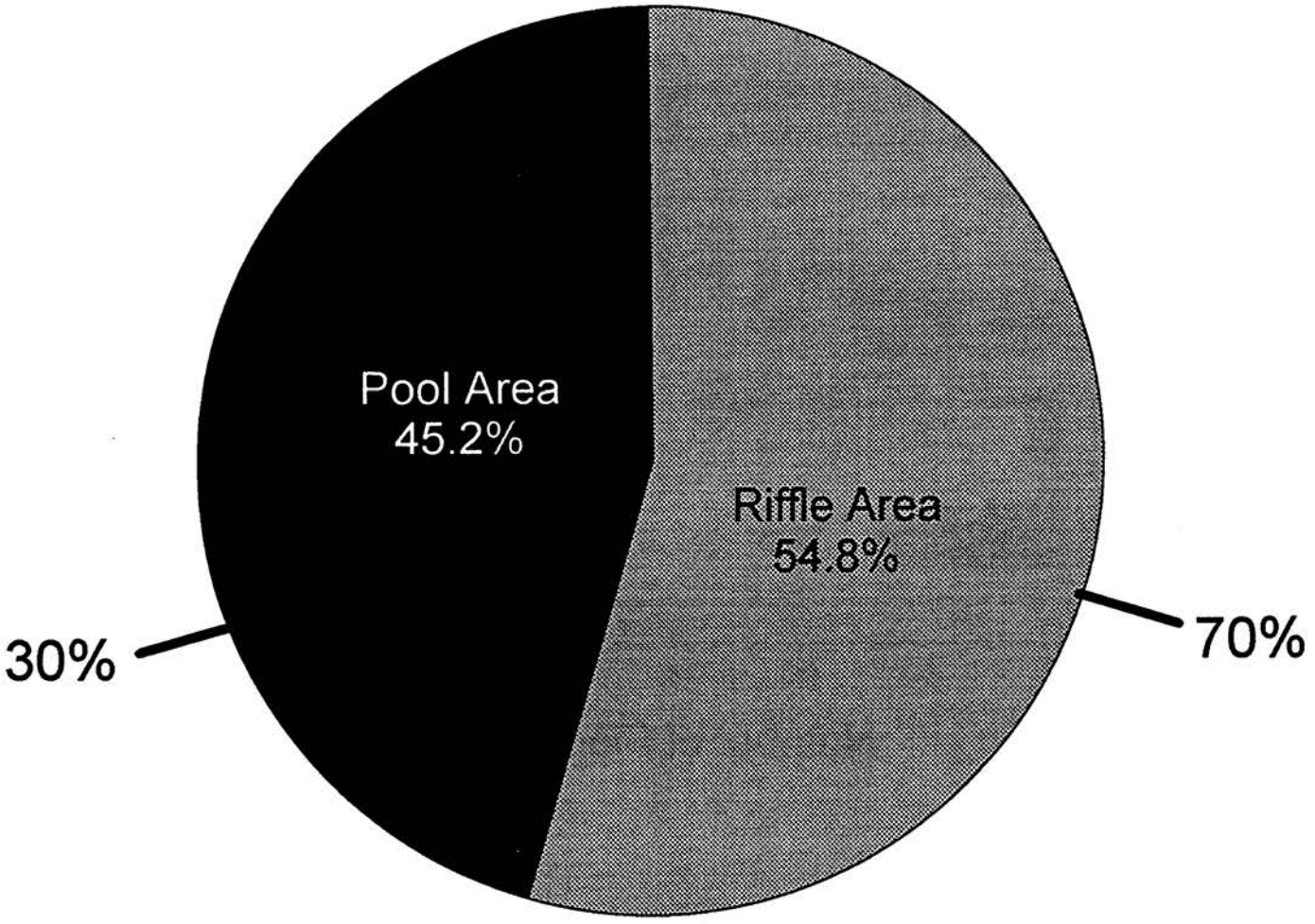
Wood < 15' and < 14": 74.5
Wood < 15' and > 14": 12.8
Wood > 15' and < 14": 78.7
Wood > 15' and > 14": 9.6

Mean Channel Width: 18.4'
Mean Riparian Width: 30.6'

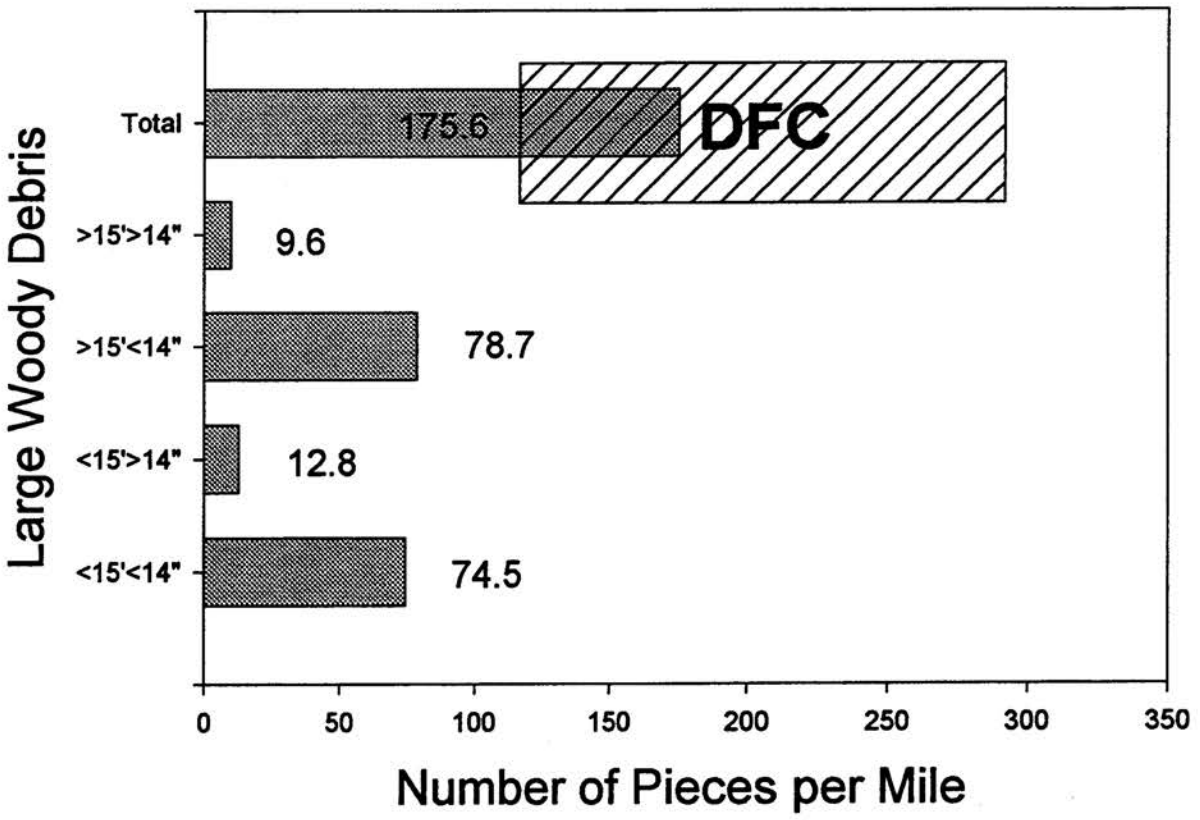
Mean Maximum Riparian Distance (either side): 9.1'
Mean Minimum Riparian Distance (either side): 2.7'
Maximum Riparian Width (Total): 43.0'
Minimum Riparian Width (Total): 19.7'

Big Hellgate Creek Pool:Riffle Ratio

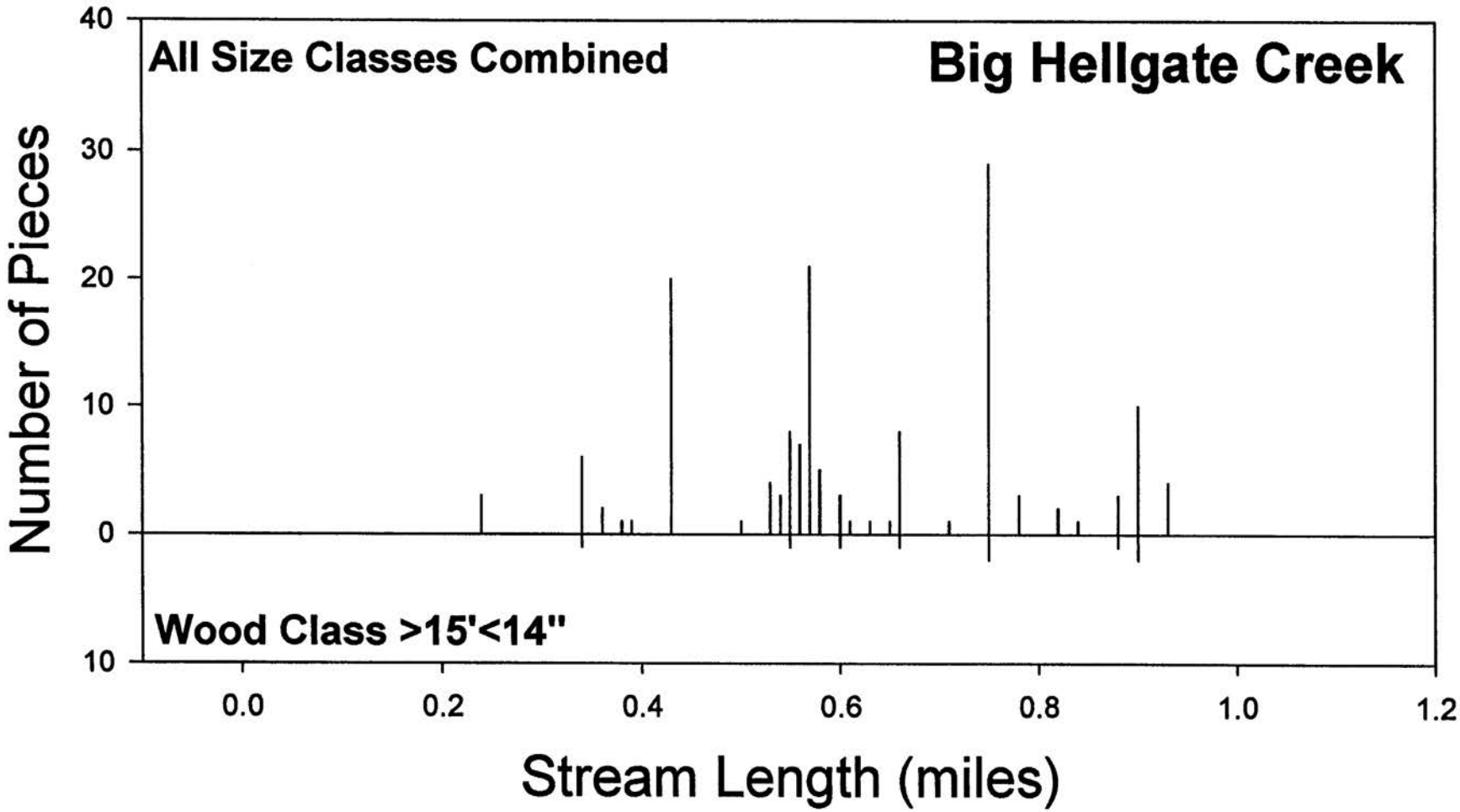
DFC: 30 - 70% of the Stream Area in Pool Habitat



Big Hellgate Creek

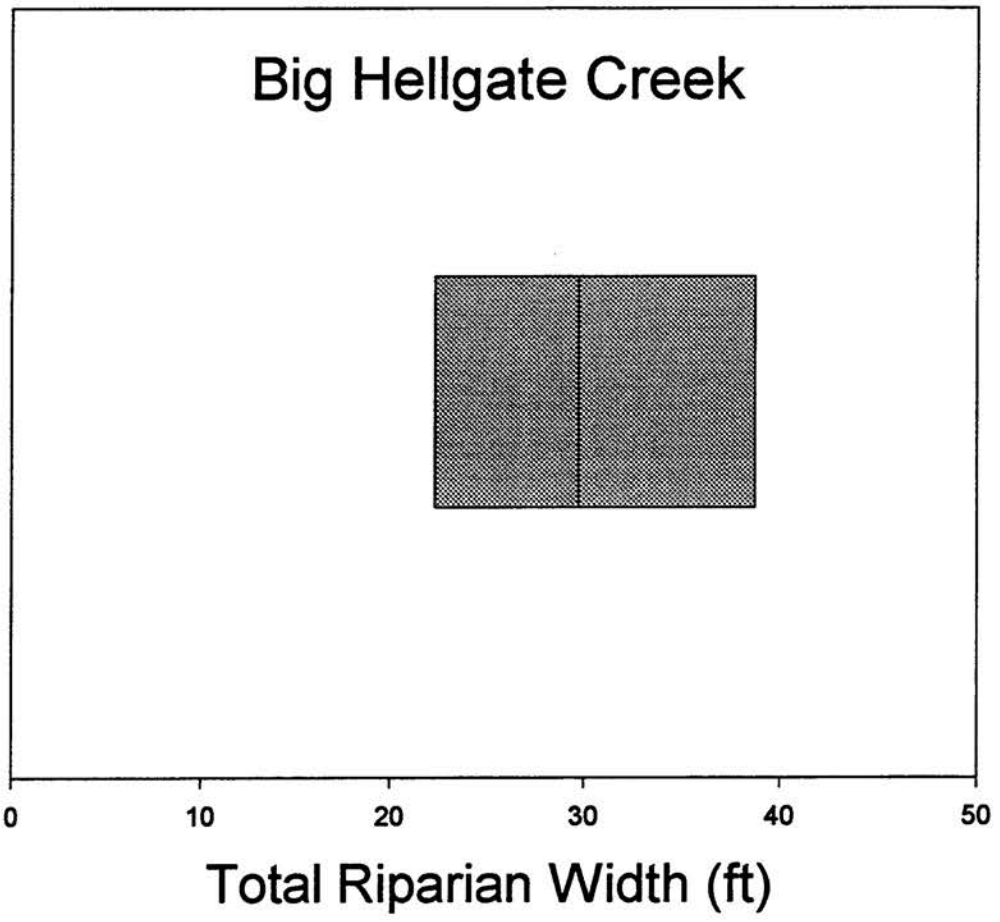


Large Woody Debris Distribution



Riparian Width

Stream: Big Hellgate Creek
Number of measurements: 4
Mean width: 30.6 Std Dev: 10.31
Max: 43.0 Min: 19.7



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Billy's Branch
Quadrangle: Snowden
Sample Date: 06/02/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.68 miles

Percent of Total Area - Pools: 2.5%

Number of Pools: 7
Number of Pools per Mile: 10
Total Pool Area: 775.5 sq. ft. ± 105.9
Mean Pool Area: 110.8 sq. ft.
Correction Factor: 1.27
Mean Maximum Depth: 1.5'
Mean Average Depth: 1.0'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 97.5%

Number of Riffles: 8
Number of Riffles per Mile: 12
Total Riffle Area: 30,047.3 sq. ft.
Mean Riffle Area: 3,852.9 sq. ft.
Correction Factor: 1.05
Mean Maximum Depth: 1.1'
Mean Average Depth: 0.7'

Number of Large Woody Debris Pieces per Mile: 158.7

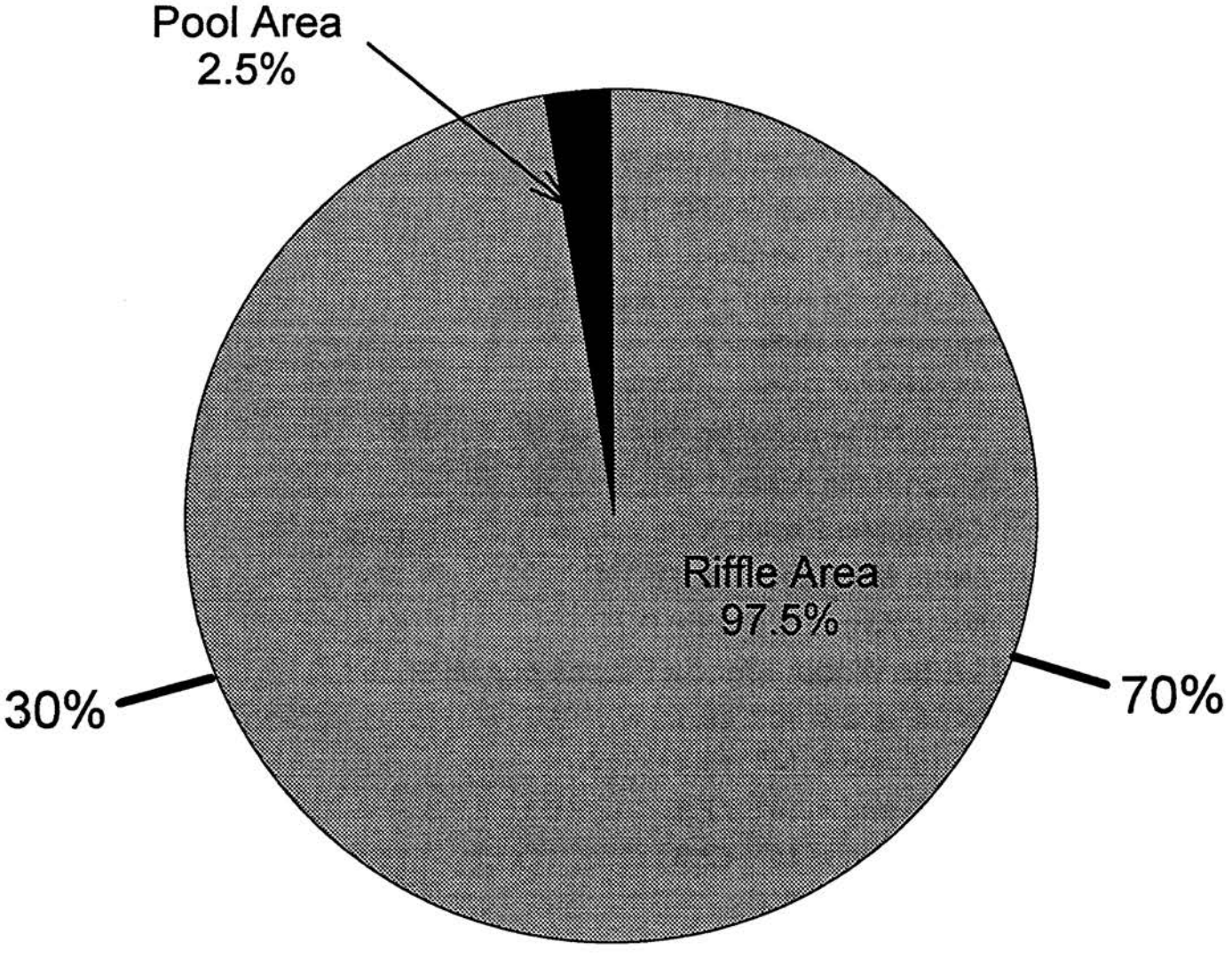
Wood < 15' and < 14": 19.1
Wood < 15' and > 14": 19.1
Wood > 15' and < 14": 77.9
Wood > 15' and > 14": 42.6

Mean Channel Width: 10.1'
Mean Riparian Width: 63.7'

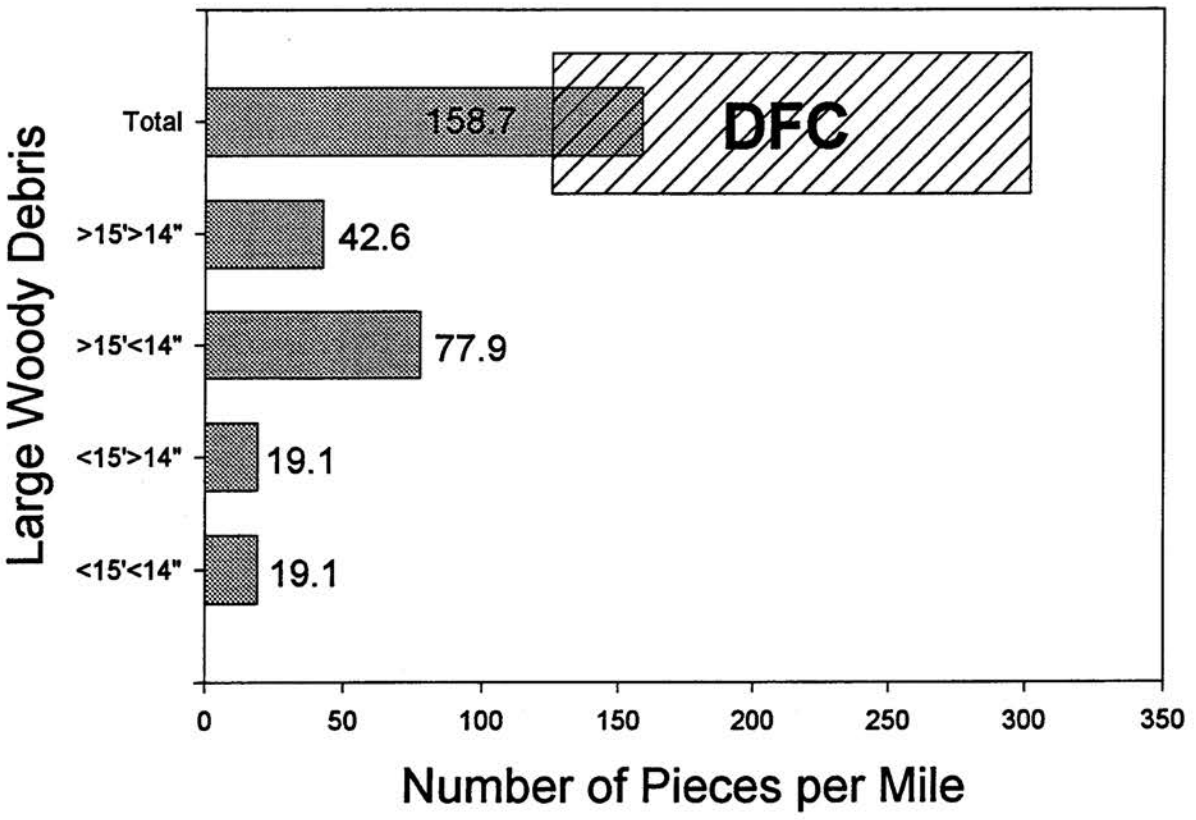
Mean Maximum Riparian Distance (either side): 43.9'
Mean Minimum Riparian Distance (either side): 9.8'
Maximum Riparian Width (Total): 72.9'
Minimum Riparian Width (Total): 54.5'

Billy's Branch
Pool:Riffle Ratio

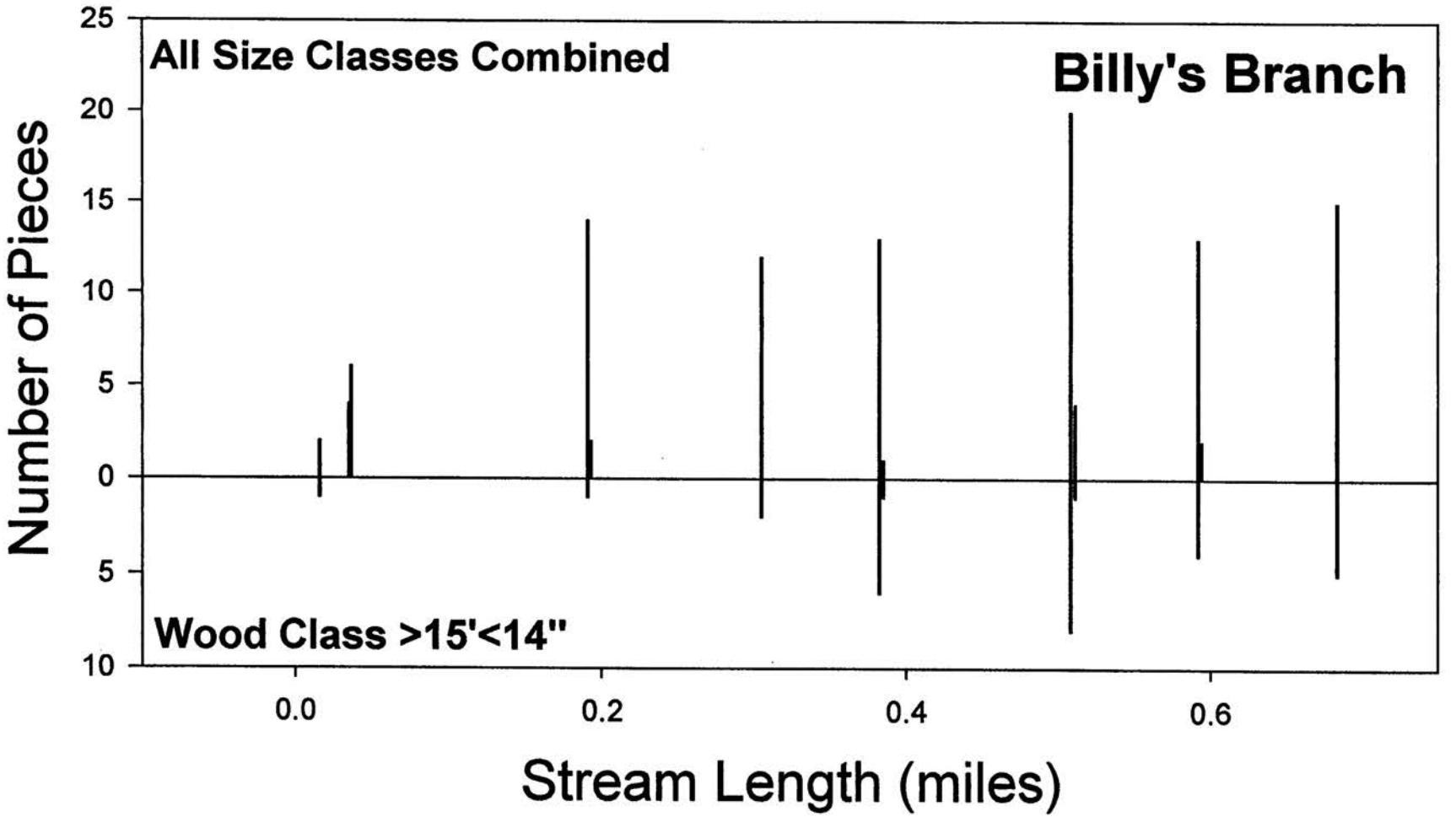
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Billy's Branch

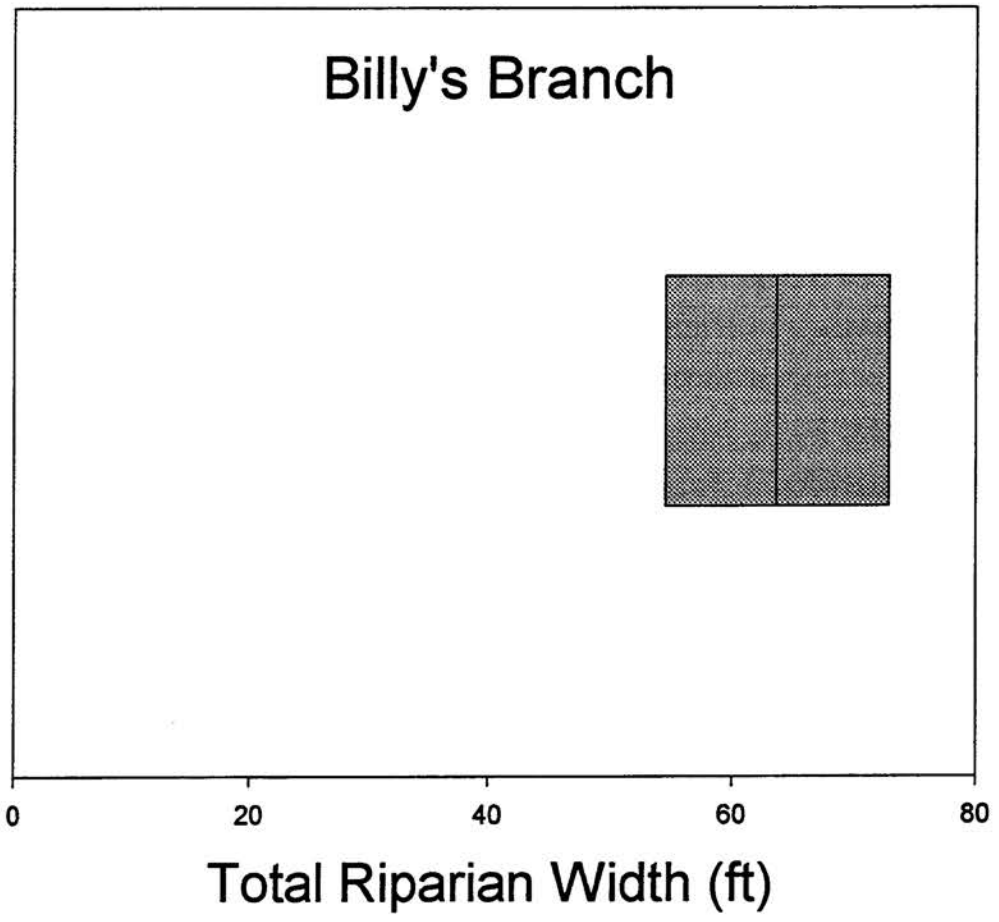


Large Woody Debris Distribution



Riparian Width

Stream: Billy's Branch
Number of measurements: 2
Mean width: 63.7 Std Dev: 13.0
Max: 72.9 Min: 54.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: East Fork Elk Creek Trib. (Petites Gap)
Quadrangle: Snowden
Sample Date: 06/10/97
Downstream Starting Point: Confl. with East Fork Elk Creek
Total Distance Surveyed: 1.21 miles

Percent of Total Area - Pools: 20.1%

Number of Pools: 82
Number of Pools per Mile: 68
Total Pool Area: 12,505.8 sq. ft. ± 1,497.3
Mean Pool Area: 152.5 sq. ft.
Correction Factor: 0.97
Mean Maximum Depth: 2.4'
Mean Average Depth: 1.3'
Depth @ Riffle Crest: 0.9'

Percent of Total Area - Riffles: 79.9%

Number of Riffles: 88
Number of Riffles per Mile: 73
Total Riffle Area: 49,645.8 sq. ft. ± 8,103.0
Mean Riffle Area: 564.2 sq. ft.
Correction Factor: 1.02
Mean Maximum Depth: 1.6'
Mean Average Depth: 0.8'

Number of Large Woody Debris Pieces per Mile: 852.9

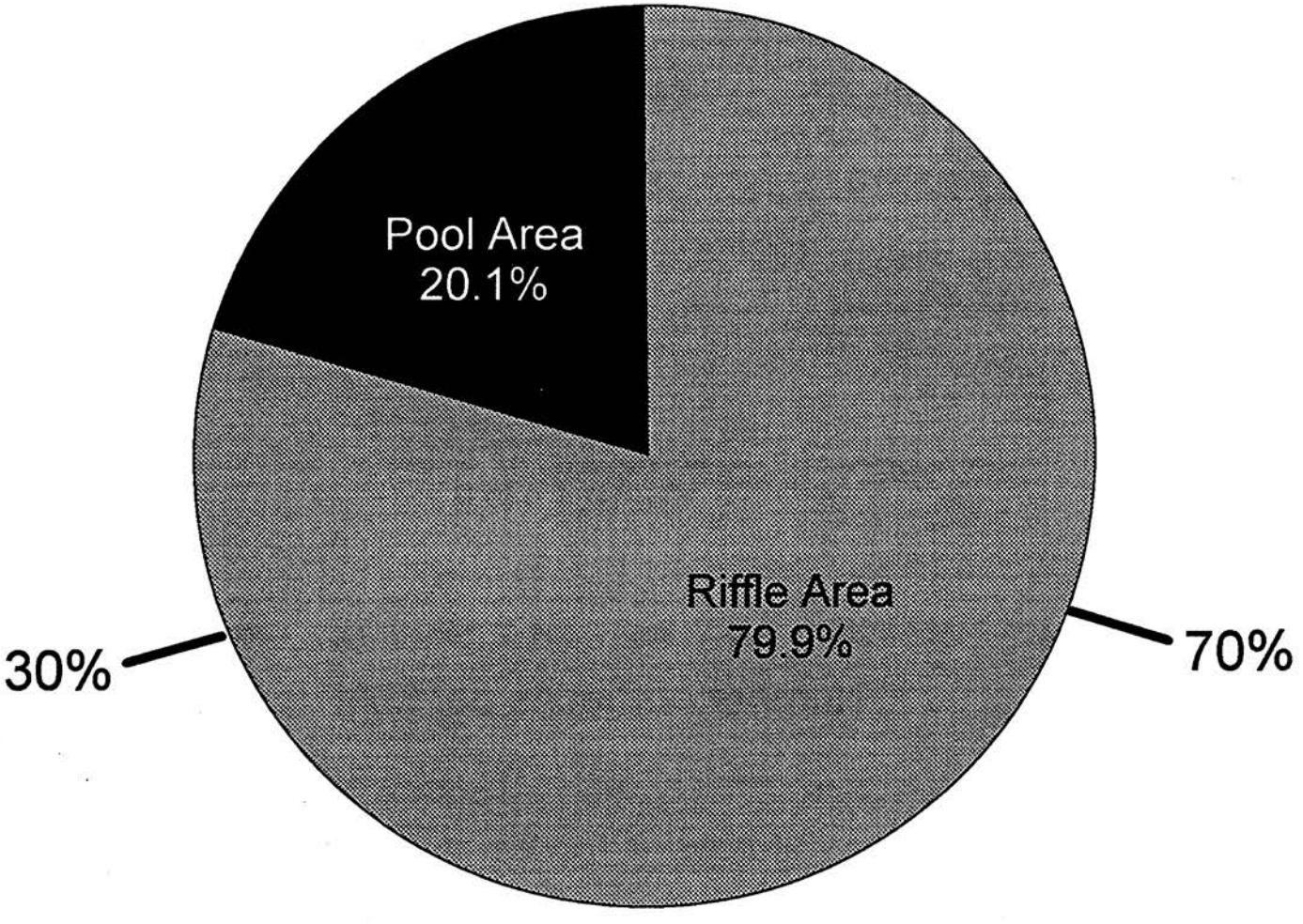
Wood < 15' and < 14": 495.0
Wood < 15' and > 14": 43.8
Wood > 15' and < 14": 214.1
Wood > 15' and > 14": 100.0

Mean Channel Width: 17.9'
Mean Riparian Width: 35.9'

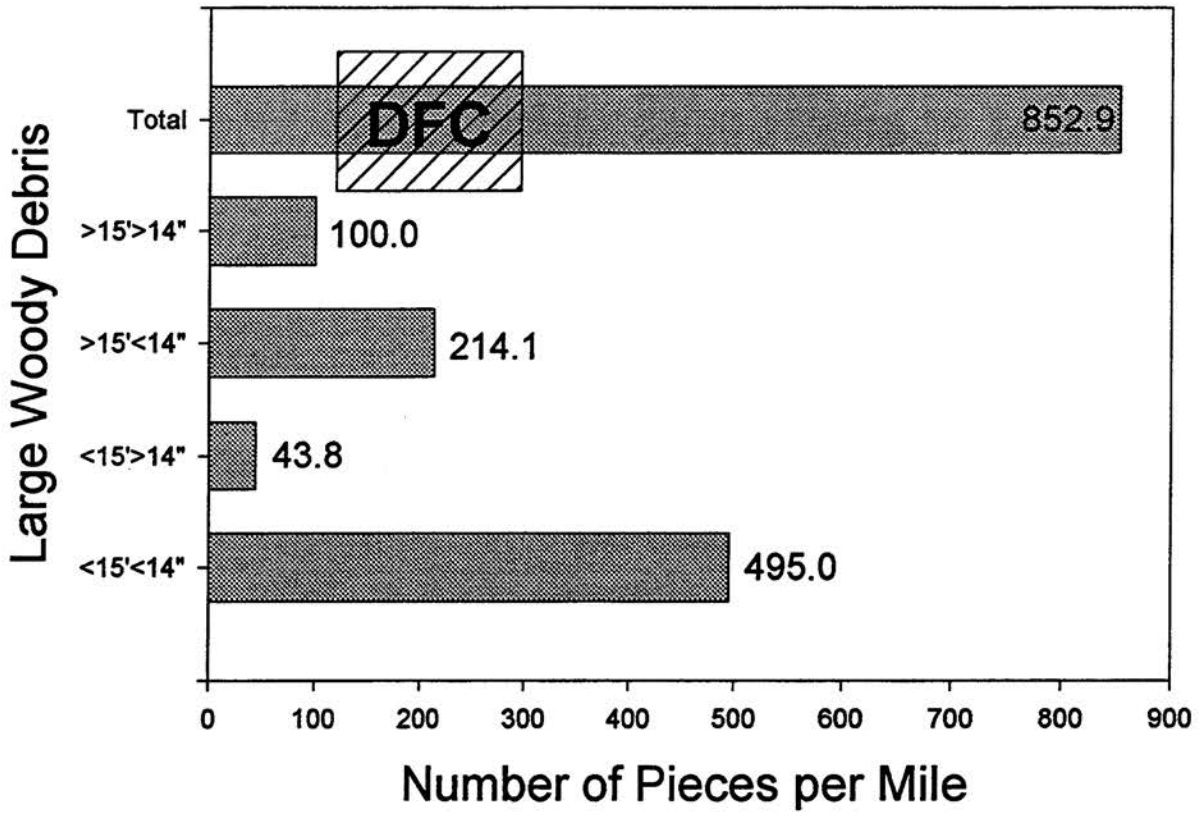
Mean Maximum Riparian Distance (either side): 11.8'
Mean Minimum Riparian Distance (either side): 6.2'
Maximum Riparian Width (Total): 70.8'
Minimum Riparian Width (Total): 20.0'

East Fork Elk Creek Trib. Pool:Riffle Ratio

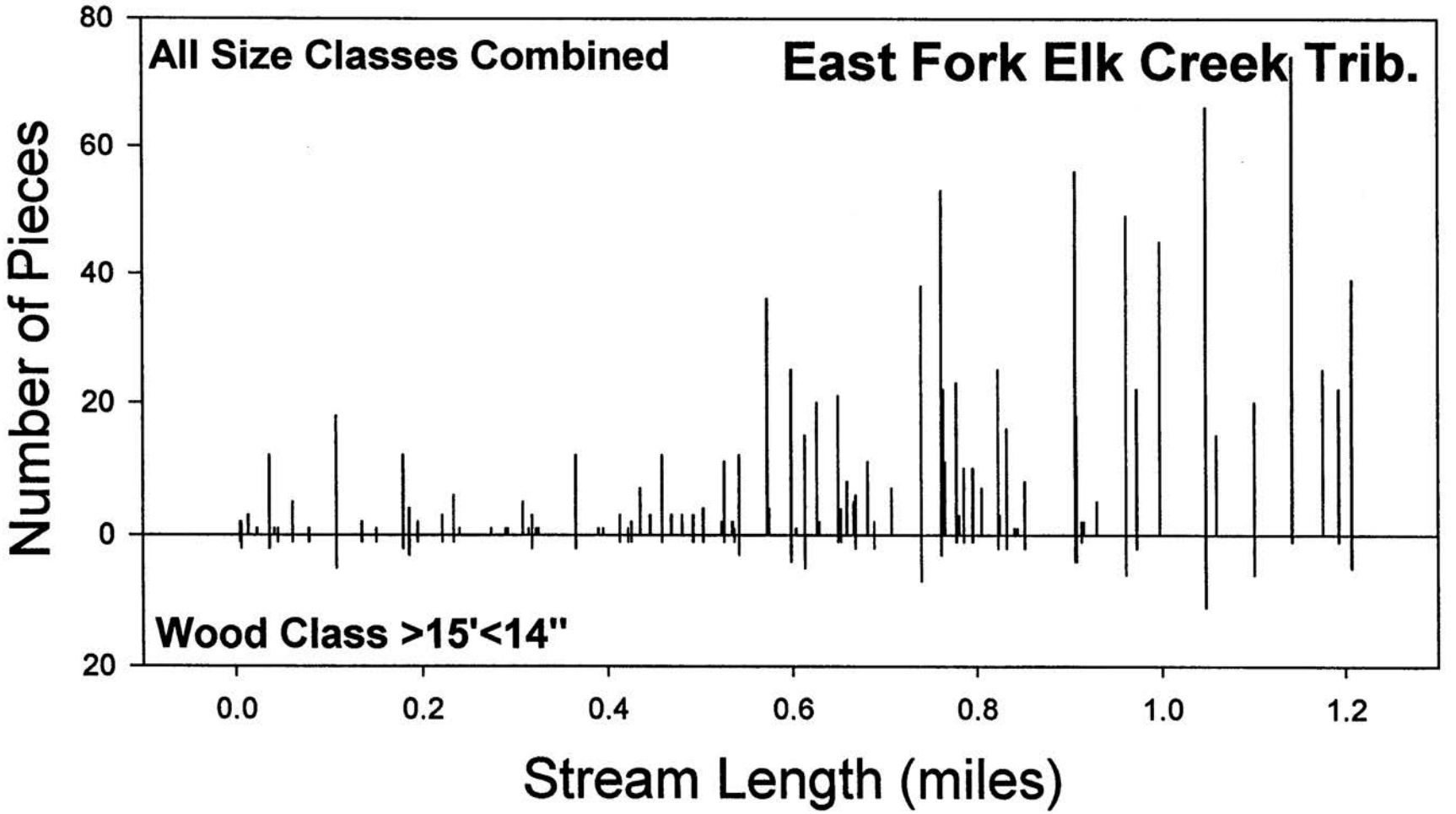
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



East Fork Elk Creek Trib.

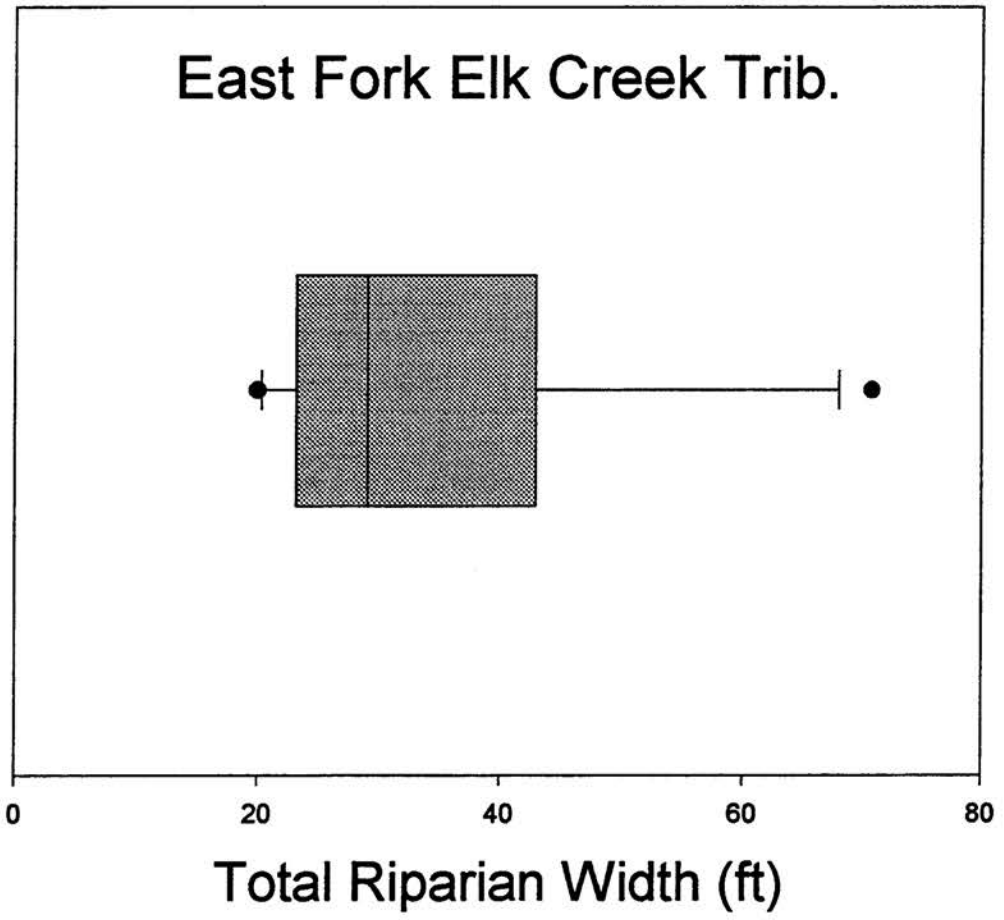


Large Woody Debris Distribution



Riparian Width

Stream: East Fork Elk Creek Trib.
Number of measurements: 6
Mean width: 35.9 Std Dev: 19.0
Max: 70.8 Min: 20.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Falling Rock Creek
Quadrangle: Snowden
Sample Date: 06/10/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 0.77 miles

Percent of Total Area - Pools: 26.3%

Number of Pools: 64
Number of Pools per Mile: 83
Total Pool Area: 8,993.3 sq. ft. ± 3,119.6
Mean Pool Area: 140.5 sq. ft.
Correction Factor: 0.84
Mean Maximum Depth: 1.3'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 73.7%

Number of Riffles: 53
Number of Riffles per Mile: 69
Total Riffle Area: 25,170.7 sq. ft. ± 12,036.1
Mean Riffle Area: 474.9 sq. ft.
Correction Factor: 0.79
Mean Maximum Depth: 0.8'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 157.1

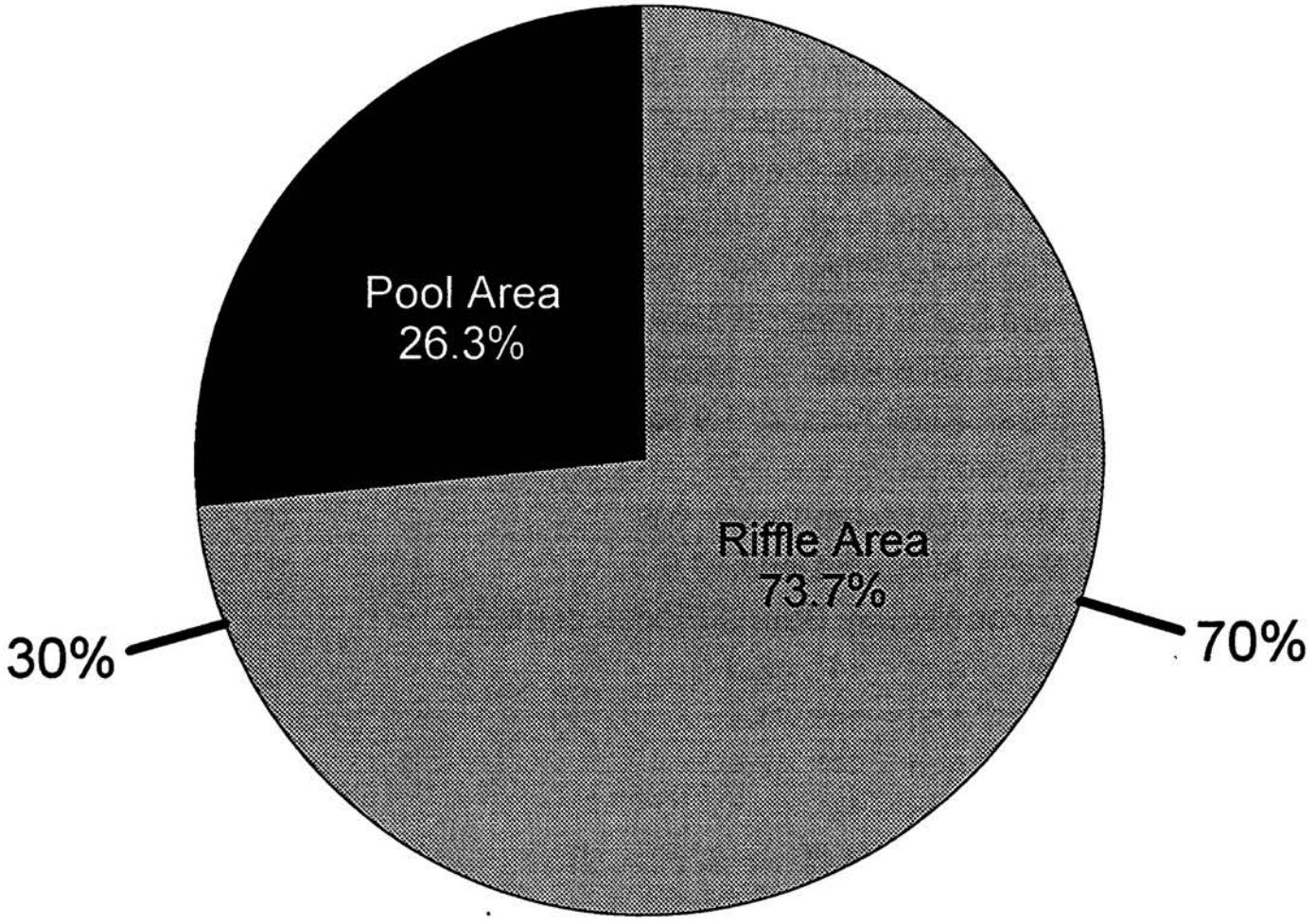
Wood < 15' and < 14": 62.3
Wood < 15' and > 14": 23.4
Wood > 15' and < 14": 49.4
Wood > 15' and > 14": 22.1

Mean Channel Width: 14.7'
Mean Riparian Width: 28.3'

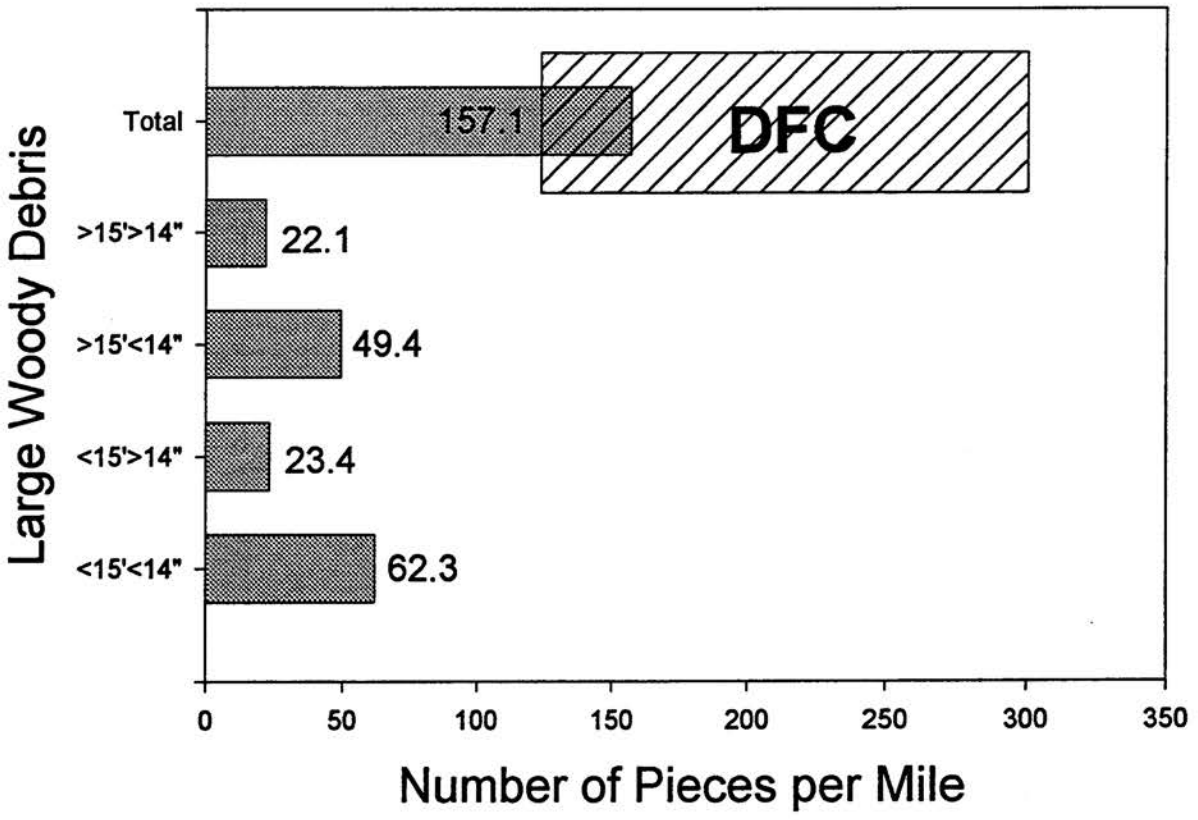
Mean Maximum Riparian Distance (either side): 9.9'
Mean Minimum Riparian Distance (either side): 3.7'
Maximum Riparian Width (Total): 30.5'
Minimum Riparian Width (Total): 26.5'

Falling Rock Creek Pool:Riffle Ratio

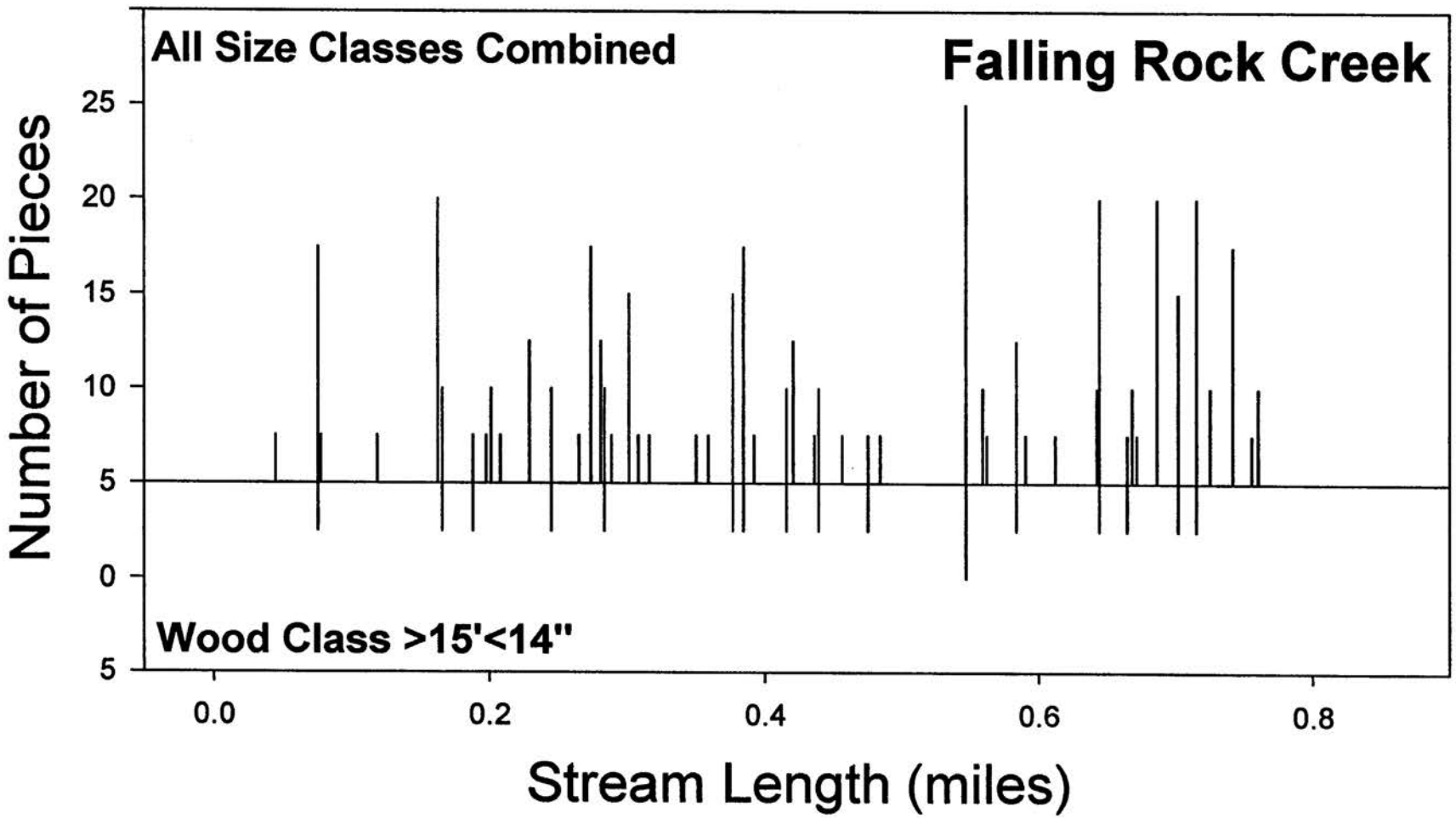
DFC: 30 - 70% of the Total Stream Area in Pool Habitat



Falling Rock Creek

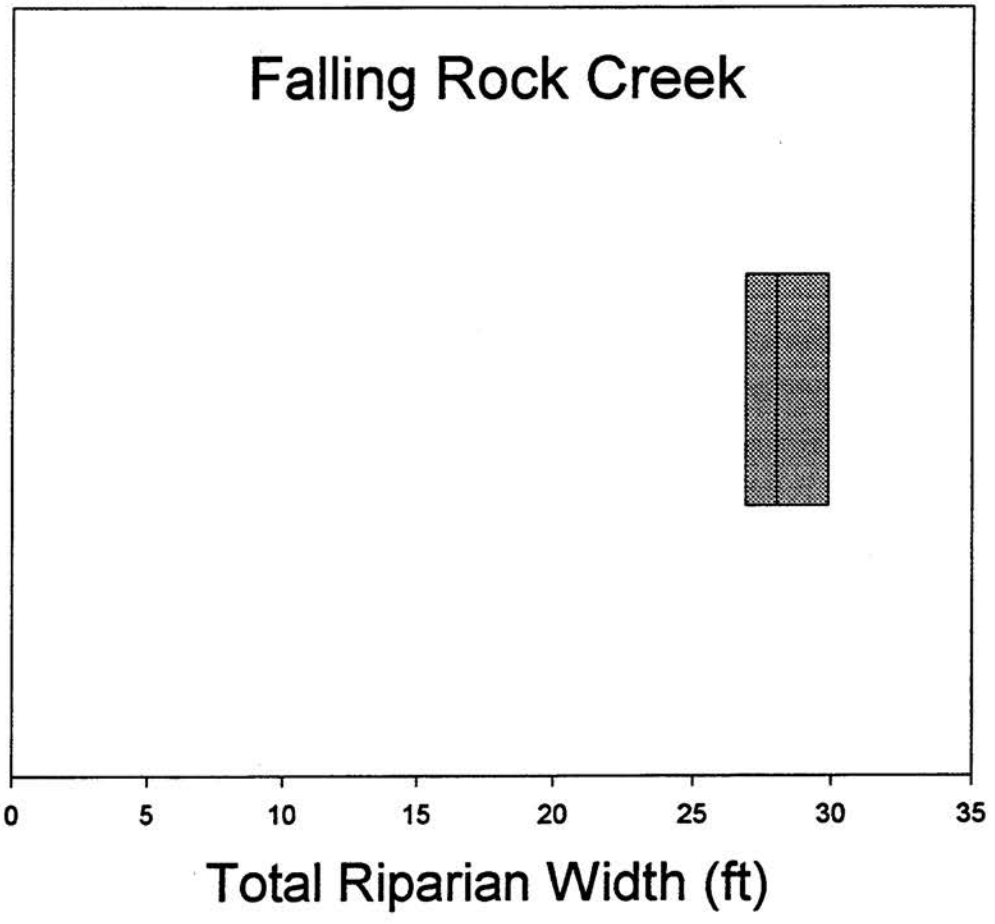


Large Woody Debris Distribution



Riparian Width

Stream: Falling Rock Creek
Number of measurements: 3
Mean width: 28.3 Std Dev: 2.0
Max: 30.5 Min: 26.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Hunting Creek
Quadrangle: Snowden
Sample Date: 05/28/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 2.68 miles

Percent of Total Area - Pools: 33.1%

Number of Pools: 252
Number of Pools per Mile: 94
Total Pool Area: 67,353.8 sq. ft. ± 7,510.5
Mean Pool Area: 267.3 sq. ft.
Correction Factor: 0.94
Mean Maximum Depth: 2.3'
Mean Average Depth: 1.3'
Depth @ Riffle Crest: 0.9'

Percent of Total Area - Riffles: 66.9%

Number of Riffles: 201
Number of Riffles per Mile: 75
Total Riffle Area: 136,112.5 sq. ft. ± 25,741.7
Mean Riffle Area: 677.2 sq. ft.
Correction Factor: 0.97
Mean Maximum Depth: 1.5'
Mean Average Depth: 0.7'

Number of Large Woody Debris Pieces per Mile: 531.3

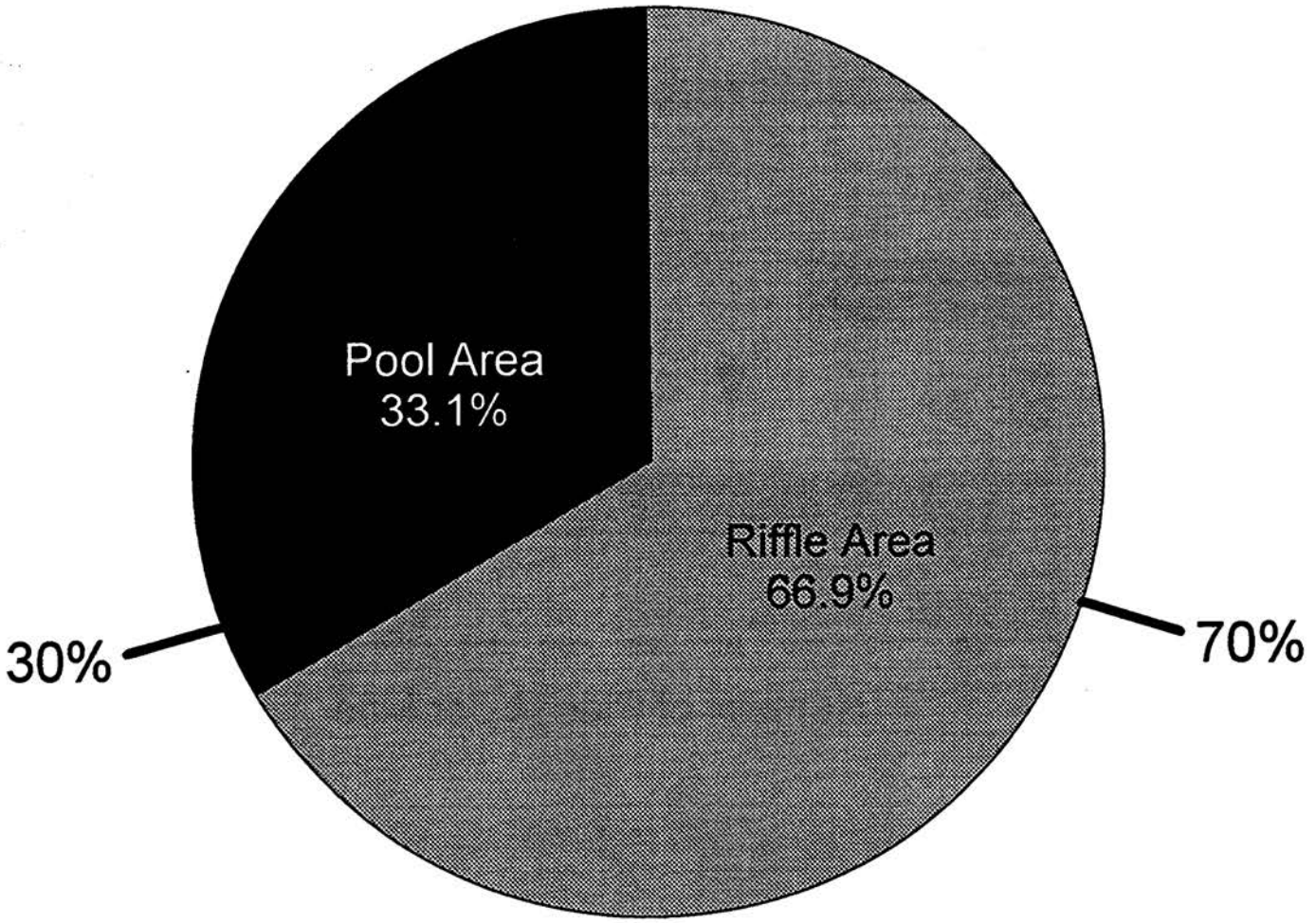
Wood < 15' and < 14": 308.2
Wood < 15' and > 14": 28.4
Wood > 15' and < 14": 152.2
Wood > 15' and > 14": 42.5

Mean Channel Width: 26.3'
Mean Riparian Width: 78.1'

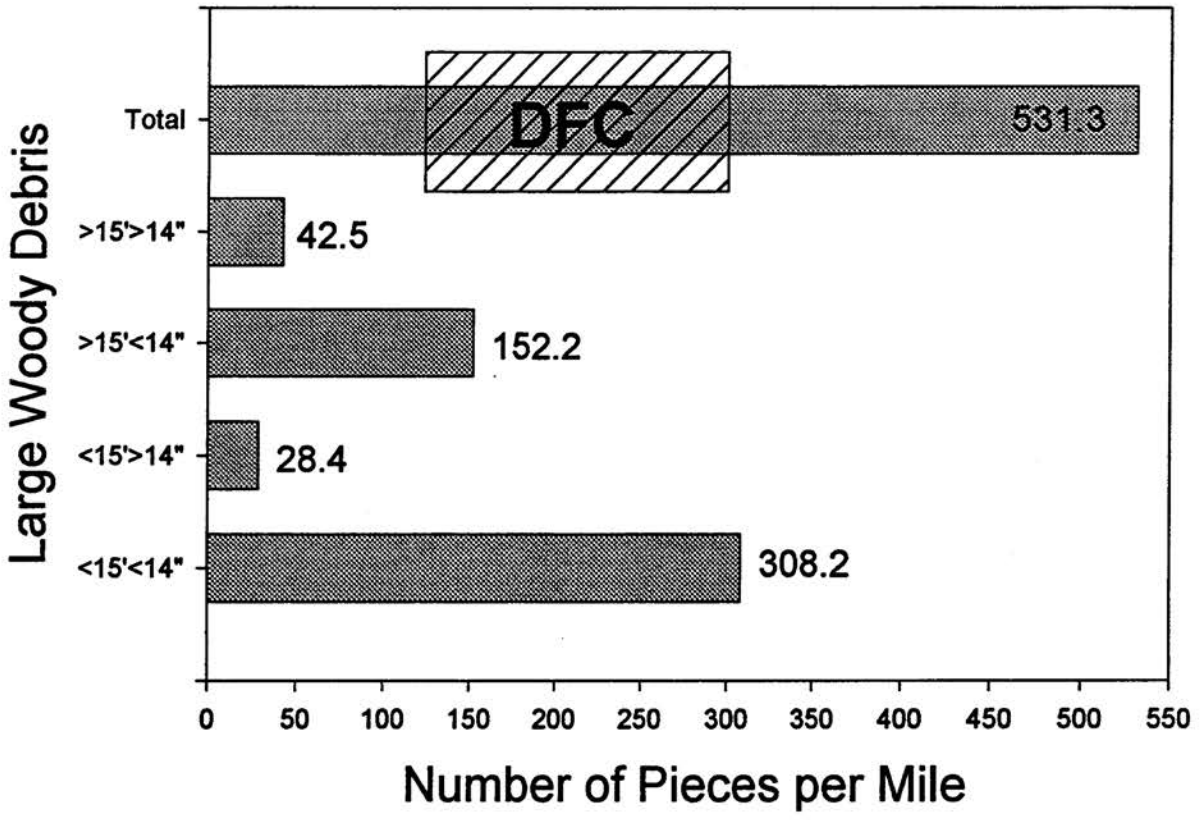
Mean Maximum Riparian Distance (either side): 37.5'
Mean Minimum Riparian Distance (either side): 14.3'
Maximum Riparian Width (Total): 278.8'
Minimum Riparian Width (Total): 31.6'

Hunting Creek
Pool:Riffle Ratio

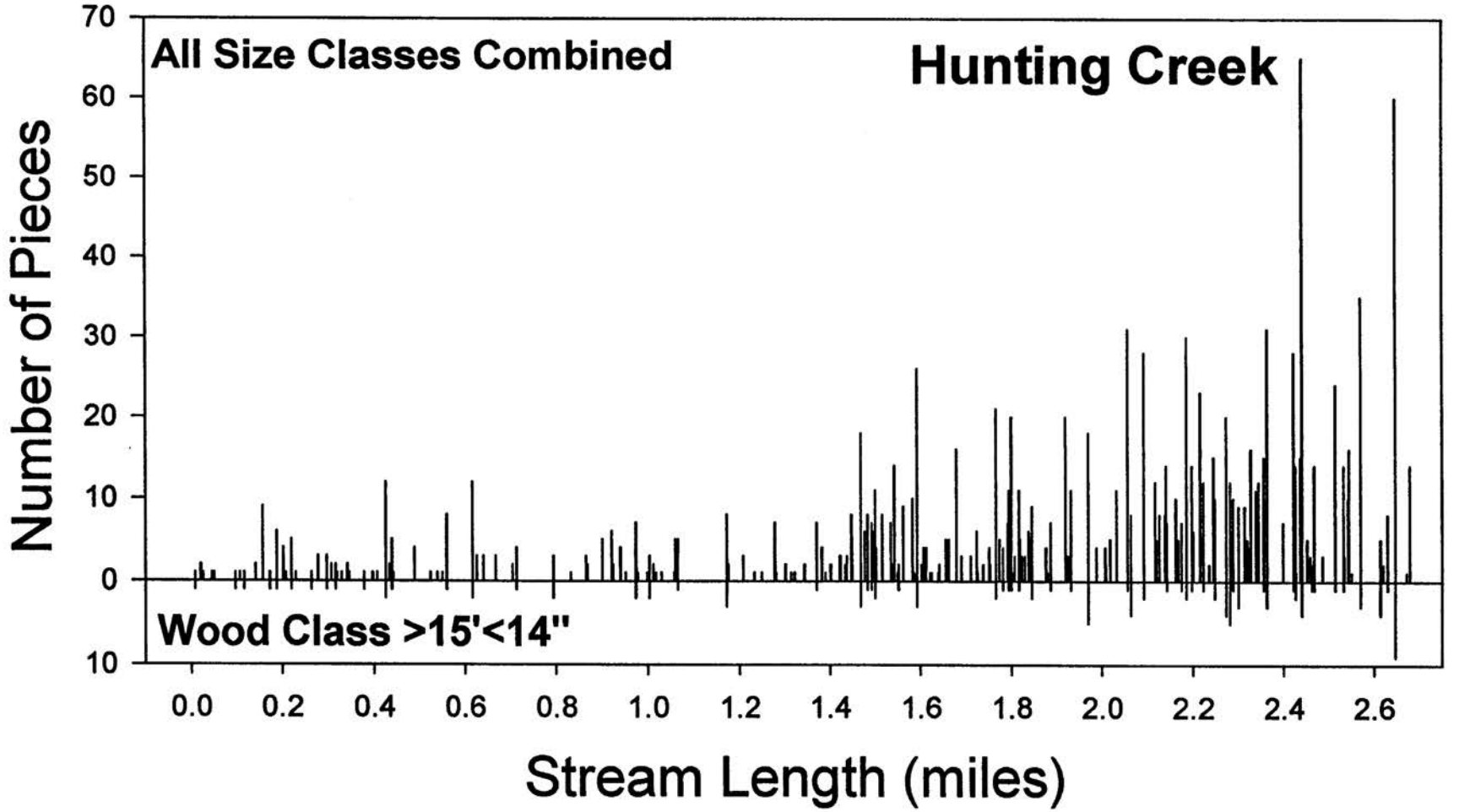
DFC:30 - 70% of the Total Stream Area in Pool Habitat



Hunting Creek

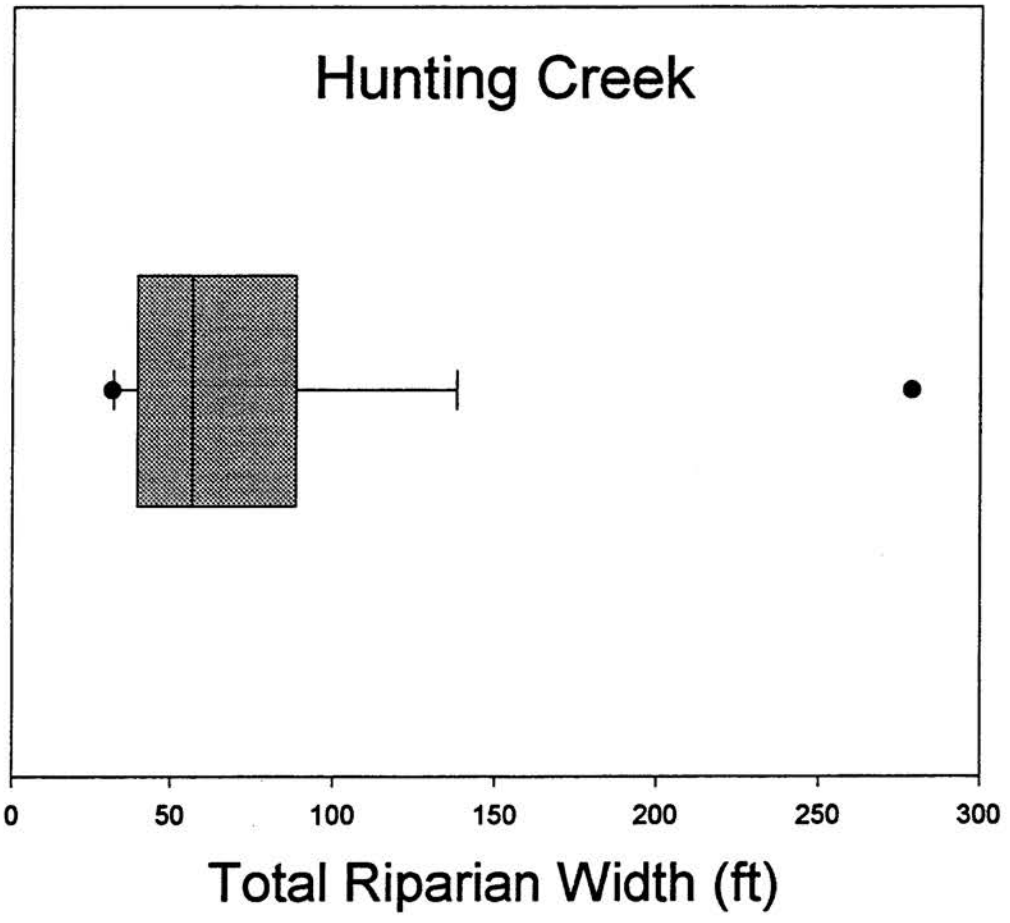


Large Woody Debris Distribution



Riparian Width

Stream: Hunting Creek
Number of measurements: 15
Mean width: 78.1 Std Dev: 63.8
Max: 278.8 Min: 31.6



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Little Hellgate Creek
Quadrangle: Snowden
Sample Date: 06/19/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.14 miles

Percent of Total Area - Pools: 20.6%

Number of Pools: 92
Number of Pools per Mile: 81
Total Pool Area: 9,685.9 sq. ft. ± 1,694.4
Mean Pool Area: 105.3 sq. ft.
Correction Factor: 0.93
Mean Maximum Depth: 1.5'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.4'

Percent of Total Area - Riffles: 79.4%

Number of Riffles: 85
Number of Riffles per Mile: 75
Total Riffle Area: 37,344.2 sq. ft. ± 3,150.2
Mean Riffle Area: 439.3 sq. ft.
Correction Factor: 1.16
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.6'

Number of Large Woody Debris Pieces per Mile: 207.0

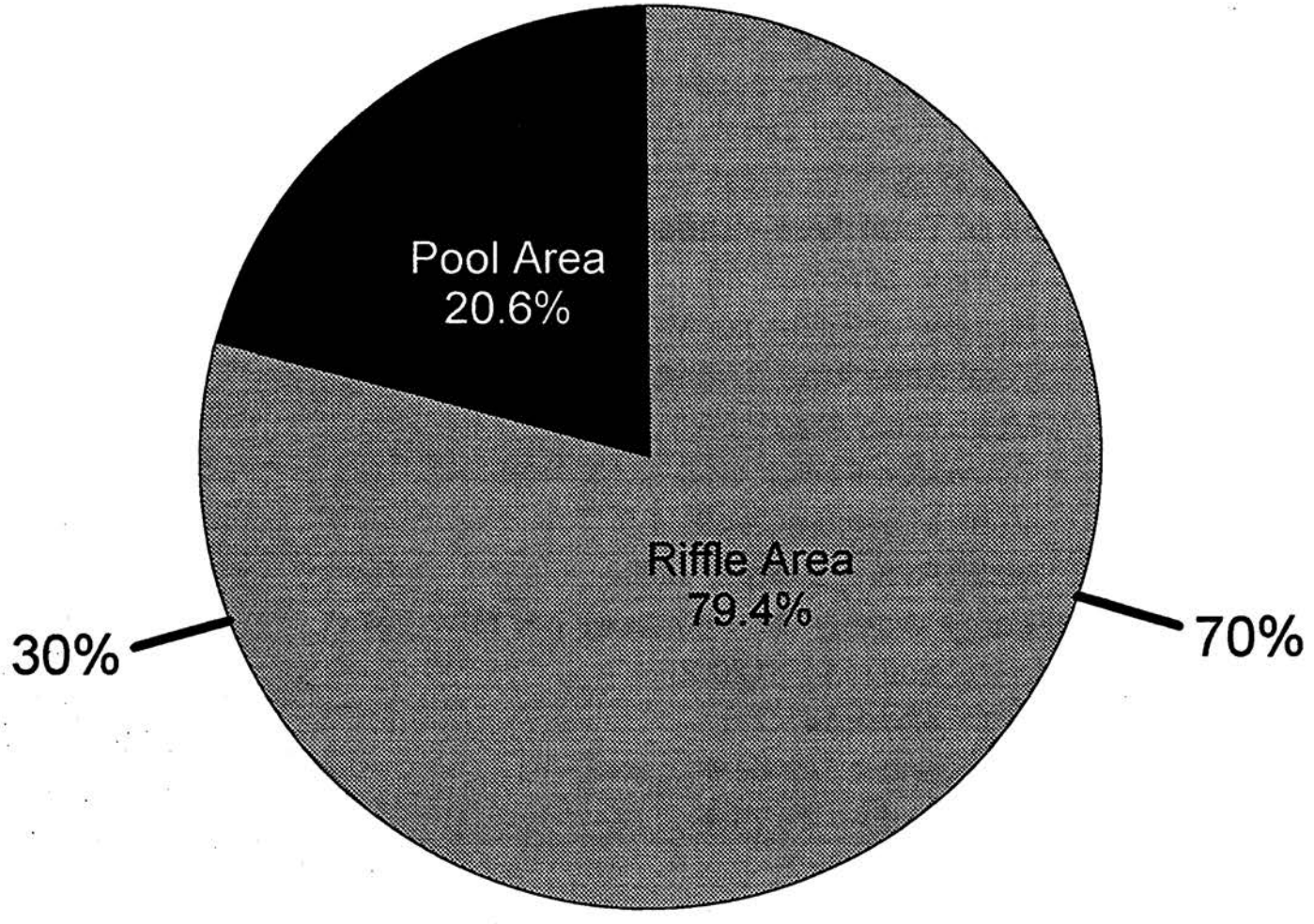
Wood < 15' and < 14": 120.2
Wood < 15' and > 14": 7.0
Wood > 15' and < 14": 54.4
Wood > 15' and > 14": 25.4

Mean Channel Width: 17.7'
Mean Riparian Width: 72.5'

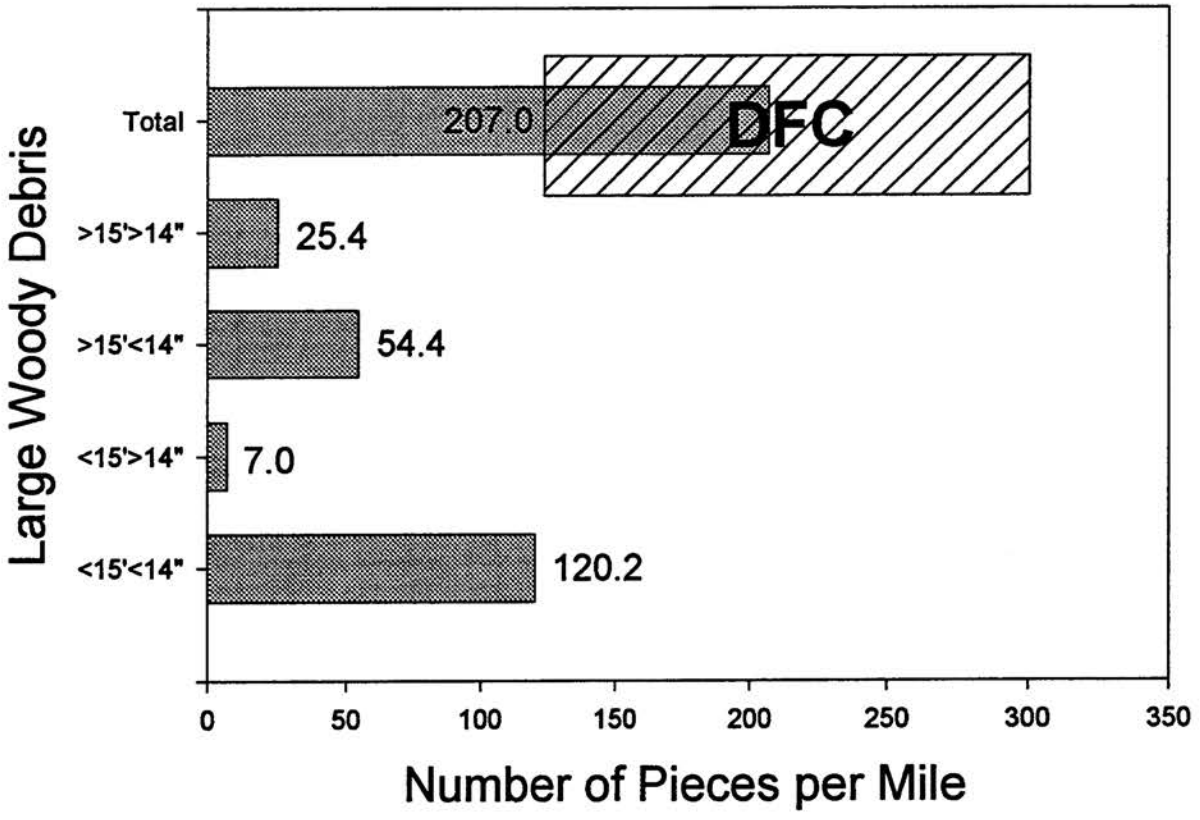
Mean Maximum Riparian Distance (either side): 47.1'
Mean Minimum Riparian Distance (either side): 7.8'
Maximum Riparian Width (Total): 125.5'
Minimum Riparian Width (Total): 27.0'

Little Hellgate Creek Pool:Riffle Ratio

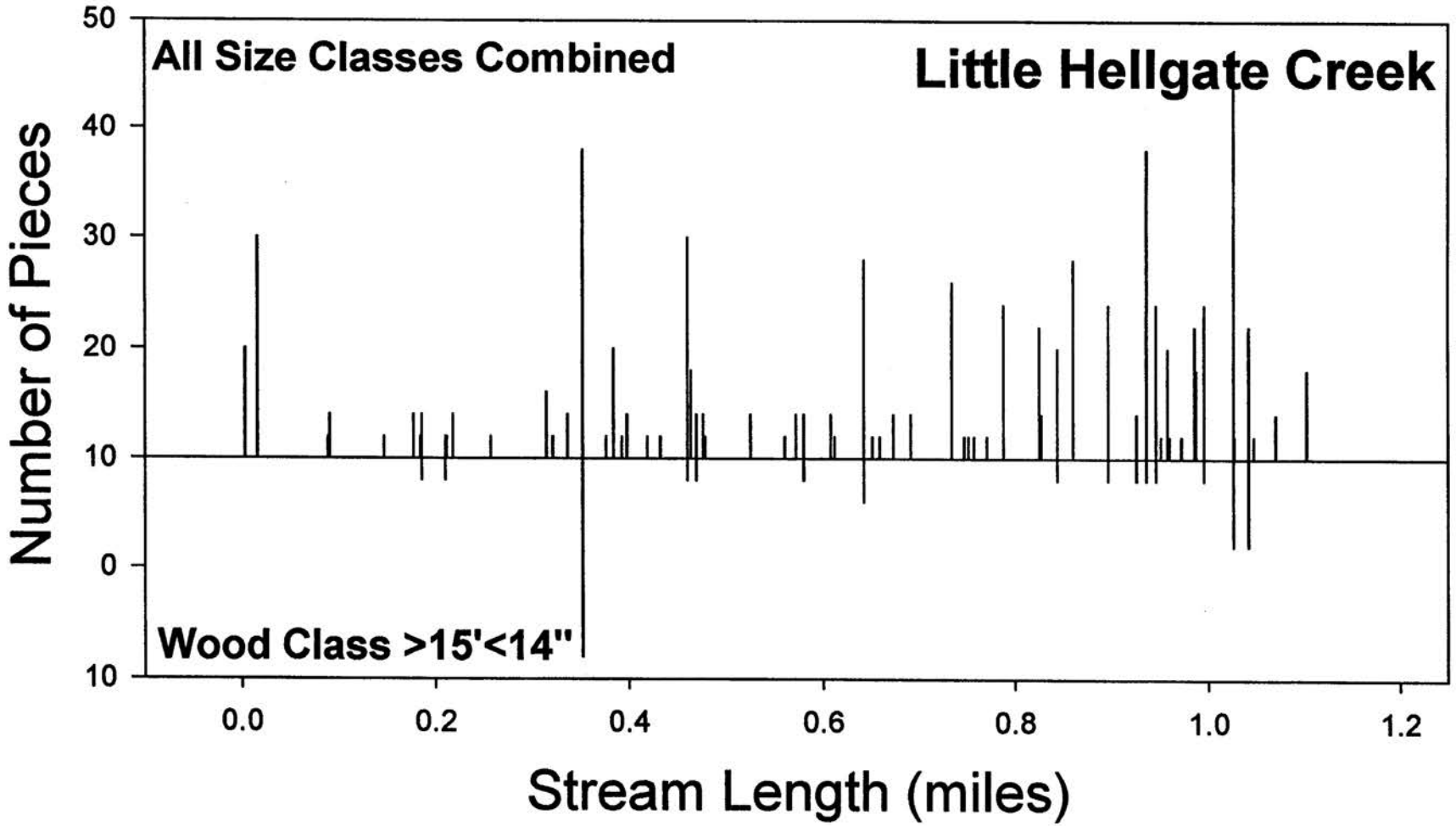
DFC:30 - 70% of the Total Stream Area in Pool Habitat



Little Hellgate Creek

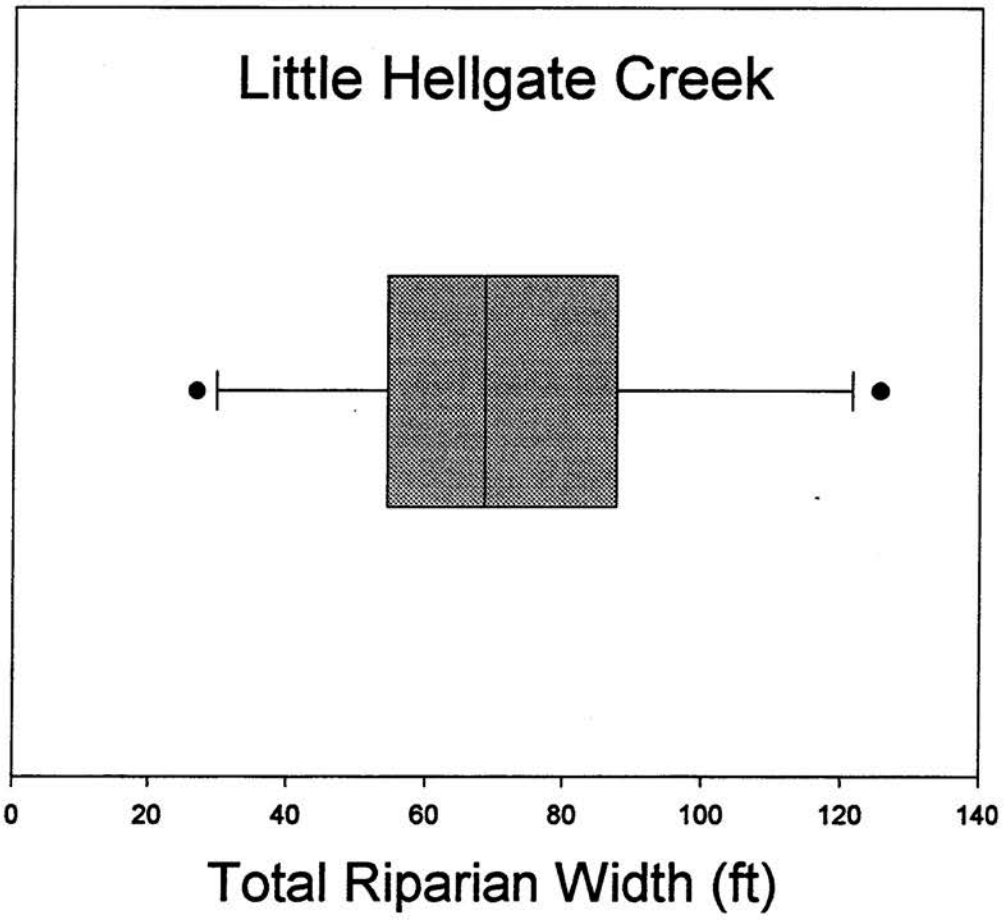


Large Woody Debris Distribution



Riparian Width

Stream: Little Hellgate Creek
Number of measurements: 9
Mean width: 72.5 Std Dev: 32.4
Max: 125.5 Min: 27.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Matts Creek
Quadrangle: Snowden
Sample Date: 07/23/97
Downstream Starting Point: Confluence with James River
Total Distance Surveyed: 2.10 miles

Percent of Total Area - Pools: 49.6%

Number of Pools: 271
Number of Pools per Mile: 129
Total Pool Area: 46,732.1 sq. ft. ± 2,943.9
Mean Pool Area: 172.4 sq. ft.
Correction Factor: 1.09
Mean Maximum Depth: 1.3'
Mean Average Depth: 0.9'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 50.4%

Number of Riffles: 216
Number of Riffles per Mile: 103
Total Riffle Area: 47,448.2 sq. ft. ± 5,630.3
Mean Riffle Area: 219.7 sq. ft.
Correction Factor: 1.00
Mean Maximum Depth: 0.5'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 148.1

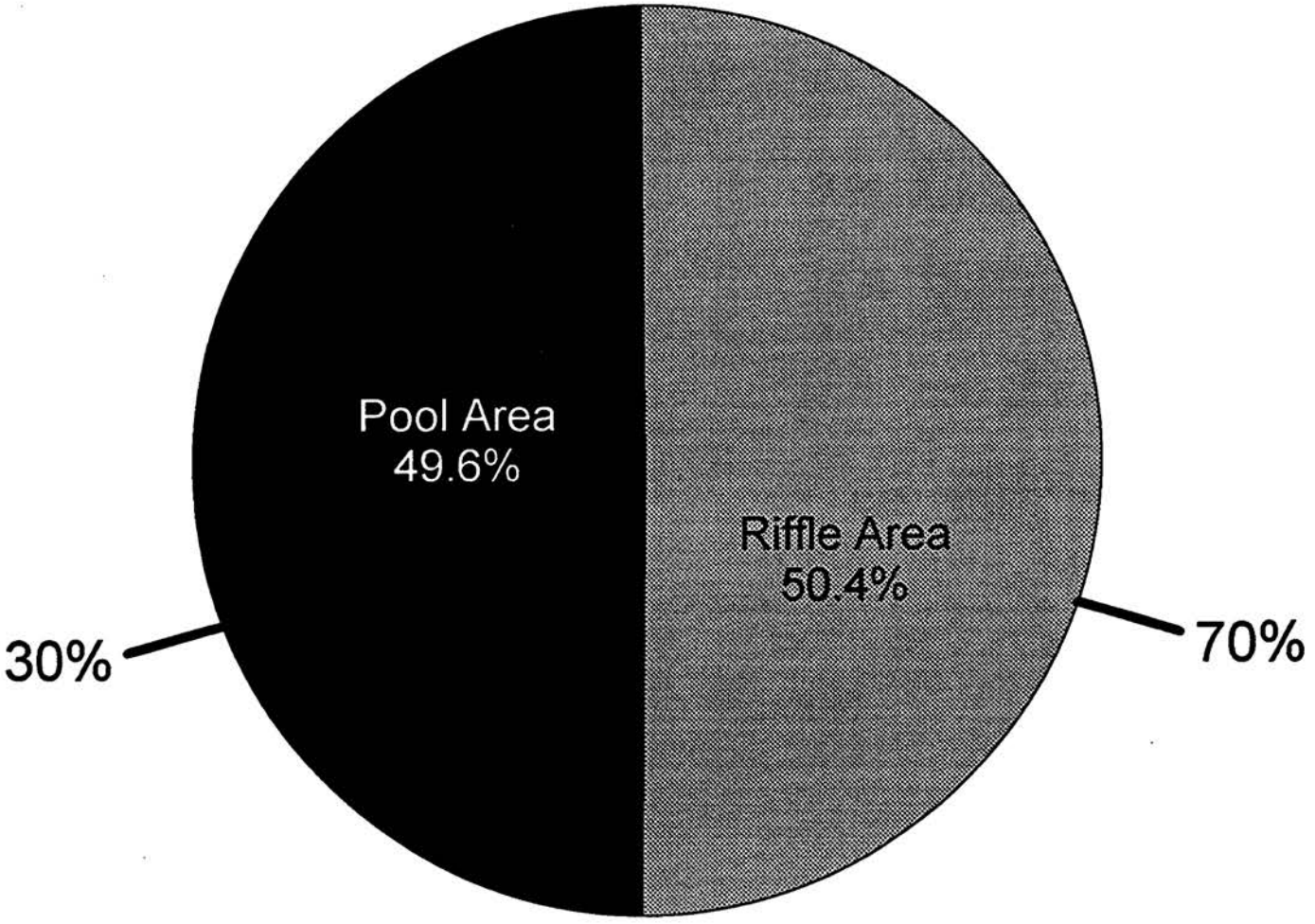
Wood < 15' and < 14": 36.2
Wood < 15' and > 14": 15.7
Wood > 15' and < 14": 45.7
Wood > 15' and > 14": 50.5

Mean Channel Width: 19.6'
Mean Riparian Width: 49.0'

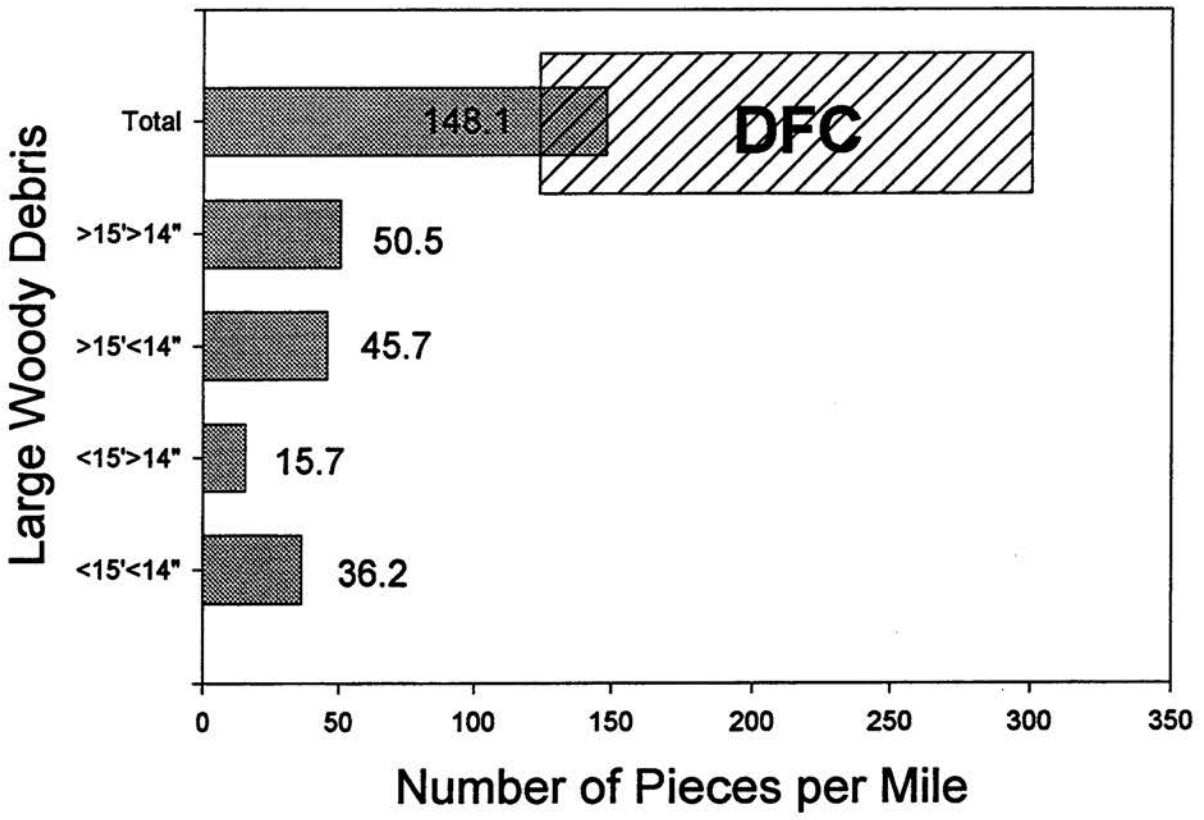
Mean Maximum Riparian Distance (either side): 21.9'
Mean Minimum Riparian Distance (either side): 7.4'
Maximum Riparian Width (Total): 106.9'
Minimum Riparian Width (Total): 30.8'

Matts Creek
Pool:Riffle Ratio

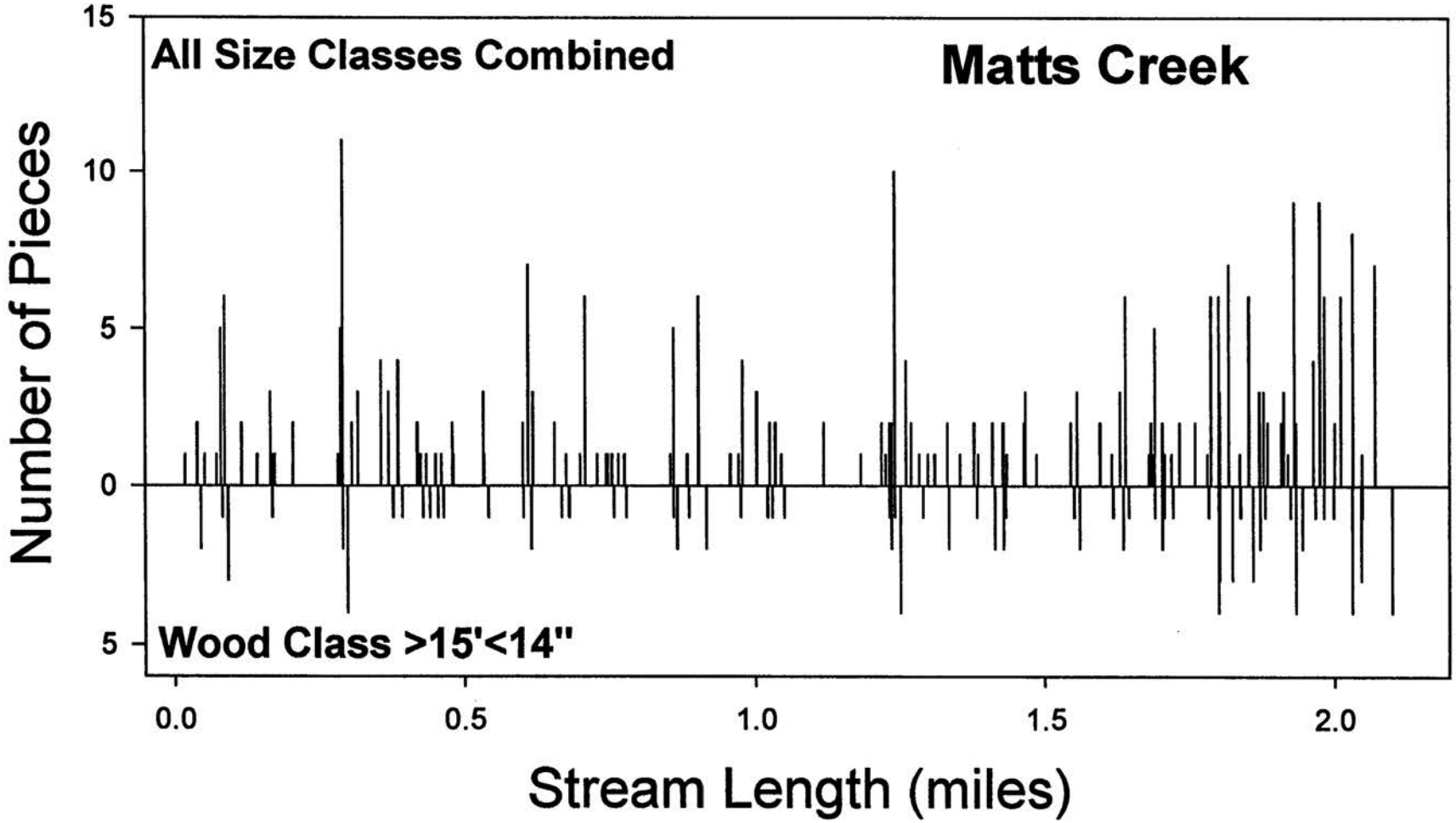
DFC: 30 - 70% of the Stream Area in Pool Habitat



Matts Creek

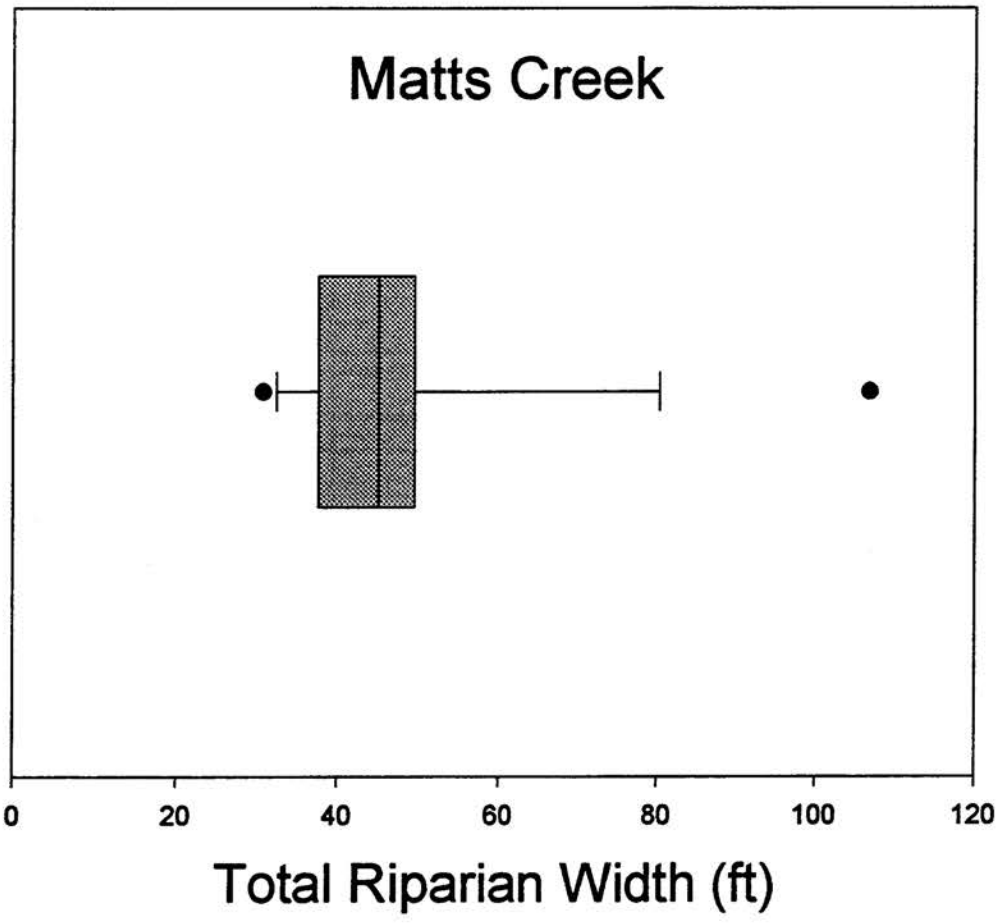

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
148.1
DFC
50.5
45.7
15.7
36.2
0
50
100
150
200
250
300
350
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Matts Creek
Number of measurements: 11
Mean width: 49.0 Std Dev: 21.1
Max: 106.9 Min: 30.8



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Peters Creek
Quadrangle: Snowden
Sample Date: 05/29/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.87 miles

Percent of Total Area - Pools: 21.8%

Number of Pools: 113
Number of Pools per Mile: 60
Total Pool Area: 22,165.2 sq. ft. ± 5,390.8
Mean Pool Area: 196.2 sq. ft.
Correction Factor: 1.14
Mean Maximum Depth: 1.2'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 78.2%

Number of Riffles: 96
Number of Riffles per Mile: 51
Total Riffle Area: 79,486.7 sq. ft. ± 6,562.9
Mean Riffle Area: 828.0 sq. ft.
Correction Factor: 1.20
Mean Maximum Depth: 0.8'
Mean Average Depth: 0.4'

Number of Large Woody Debris Pieces per Mile: 181.8

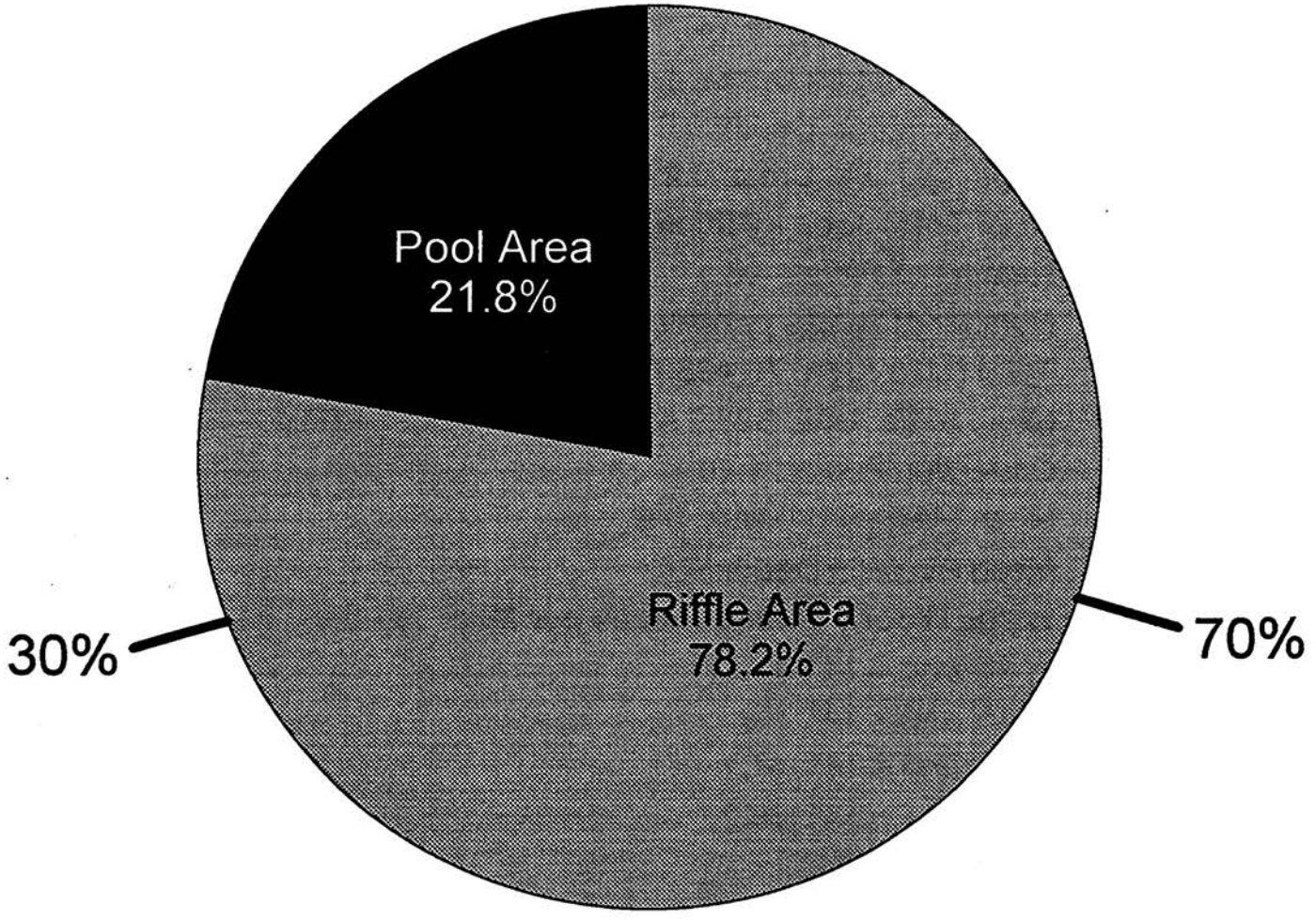
Wood < 15' and < 14": 102.7
Wood < 15' and > 14": 5.9
Wood > 15' and < 14": 47.1
Wood > 15' and > 14": 26.2

Mean Channel Width: 16.2'
Mean Riparian Width: 39.6'

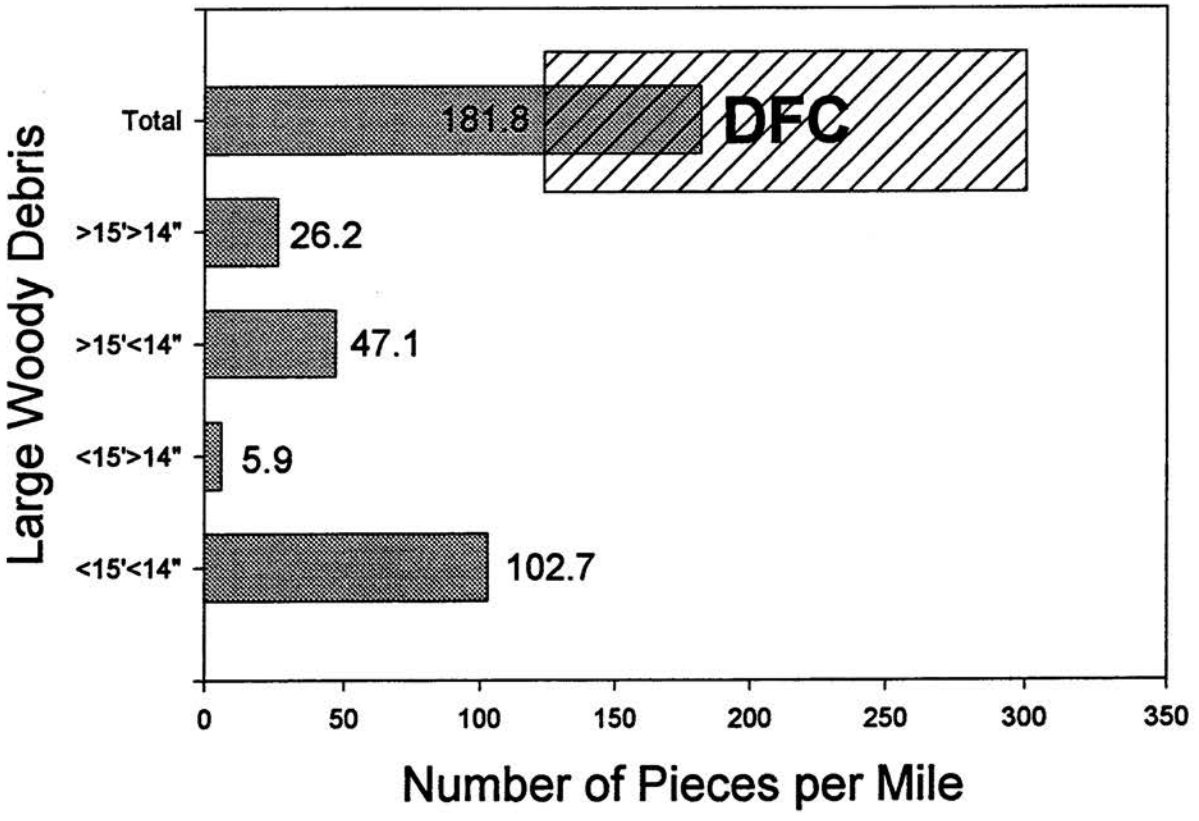
Mean Maximum Riparian Distance (either side): 17.4'
Mean Minimum Riparian Distance (either side): 5.9'
Maximum Riparian Width (Total): 54.7'
Minimum Riparian Width (Total): 29.8'

Peters Creek
Pool:Riffle Ratio

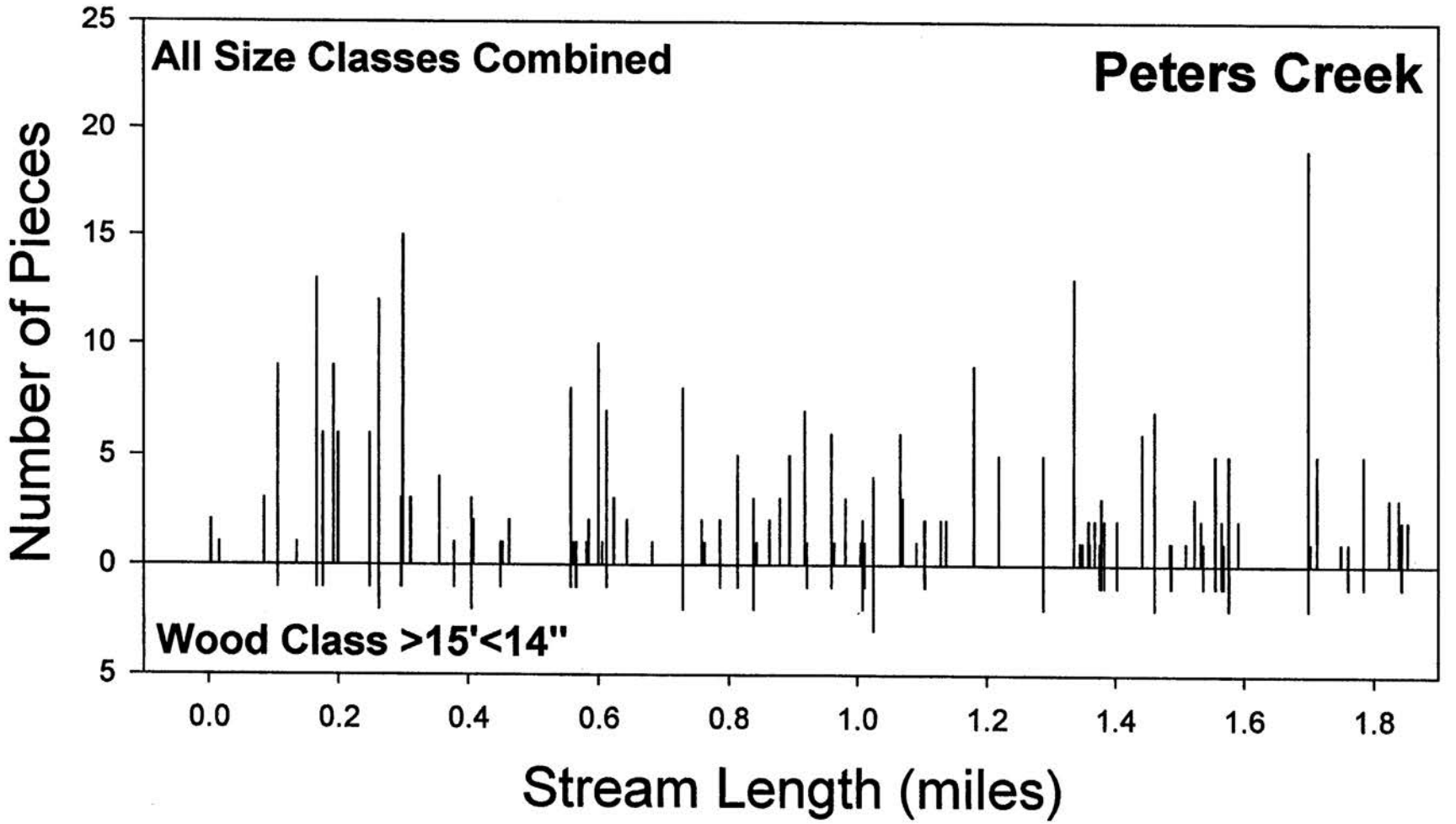
DFC: 30 - 70% of the Stream Area in Pool Habitat



Peters Creek

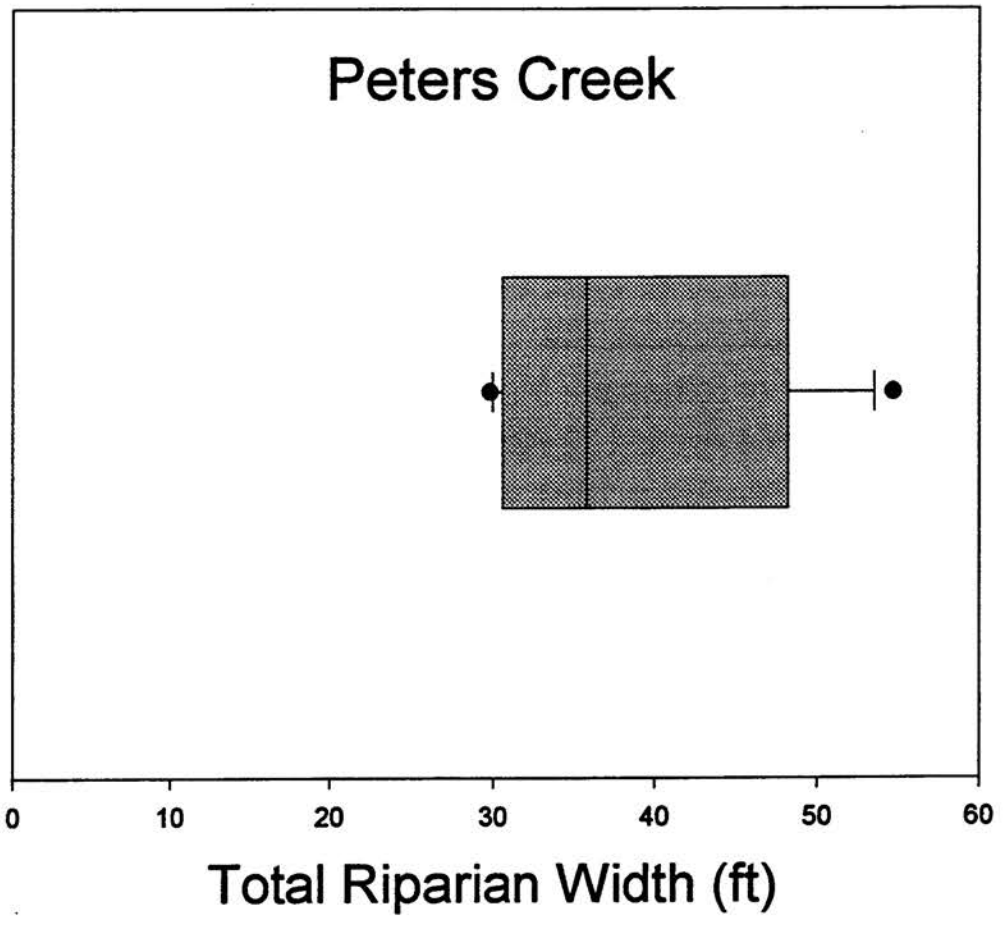


Large Woody Debris Distribution



Riparian Width

Stream: Peters Creek
Number of measurements: 7
Mean width: 39.6 Std Dev: 10.3
Max: 54.7 Min: 29.8



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Reed Creek
Quadrangle: Snowden
Sample Date: 06/10/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 2.25 miles

Percent of Total Area - Pools: 16.6%

Number of Pools: 112
Number of Pools per Mile: 50
Total Pool Area: 38,438.4 sq. ft. ± 7,750.7
Mean Pool Area: 343.2 sq. ft.
Correction Factor: 0.92
Mean Maximum Depth: 2.6'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.5'

Percent of Total Area - Riffles: 83.4%

Number of Riffles: 102
Number of Riffles per Mile: 45
Total Riffle Area: 192,926.8 sq. ft. ± 32,872.1
Mean Riffle Area: 1891.4 sq. ft.
Correction Factor: 1.01
Mean Maximum Depth: 2.0'
Mean Average Depth: 0.7'

Number of Large Woody Debris Pieces per Mile: 352.0

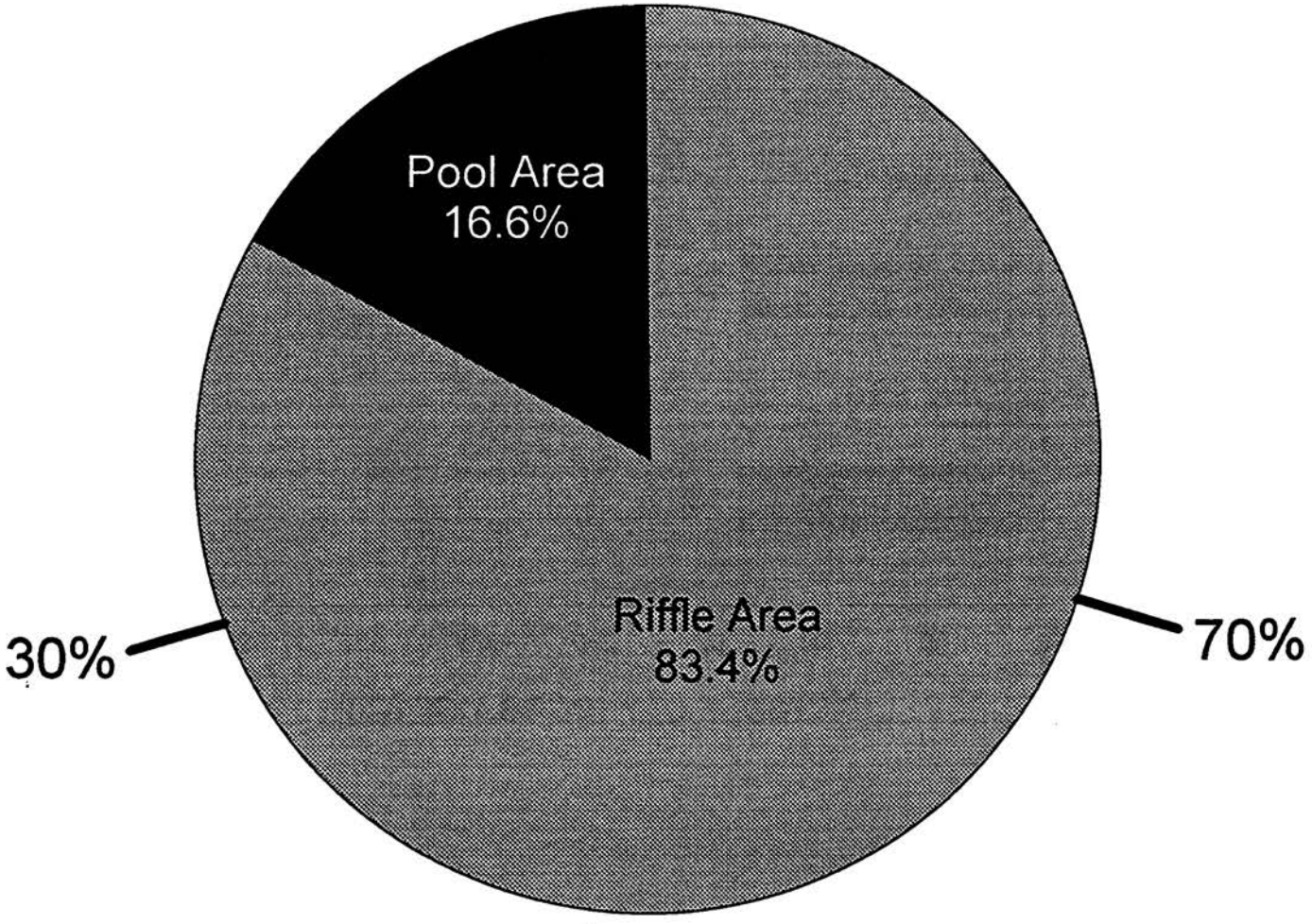
Wood < 15' and < 14": 135.6
Wood < 15' and > 14": 52.0
Wood > 15' and < 14": 133.3
Wood > 15' and > 14": 31.1

Mean Channel Width: 27.3'
Mean Riparian Width: 90.3'

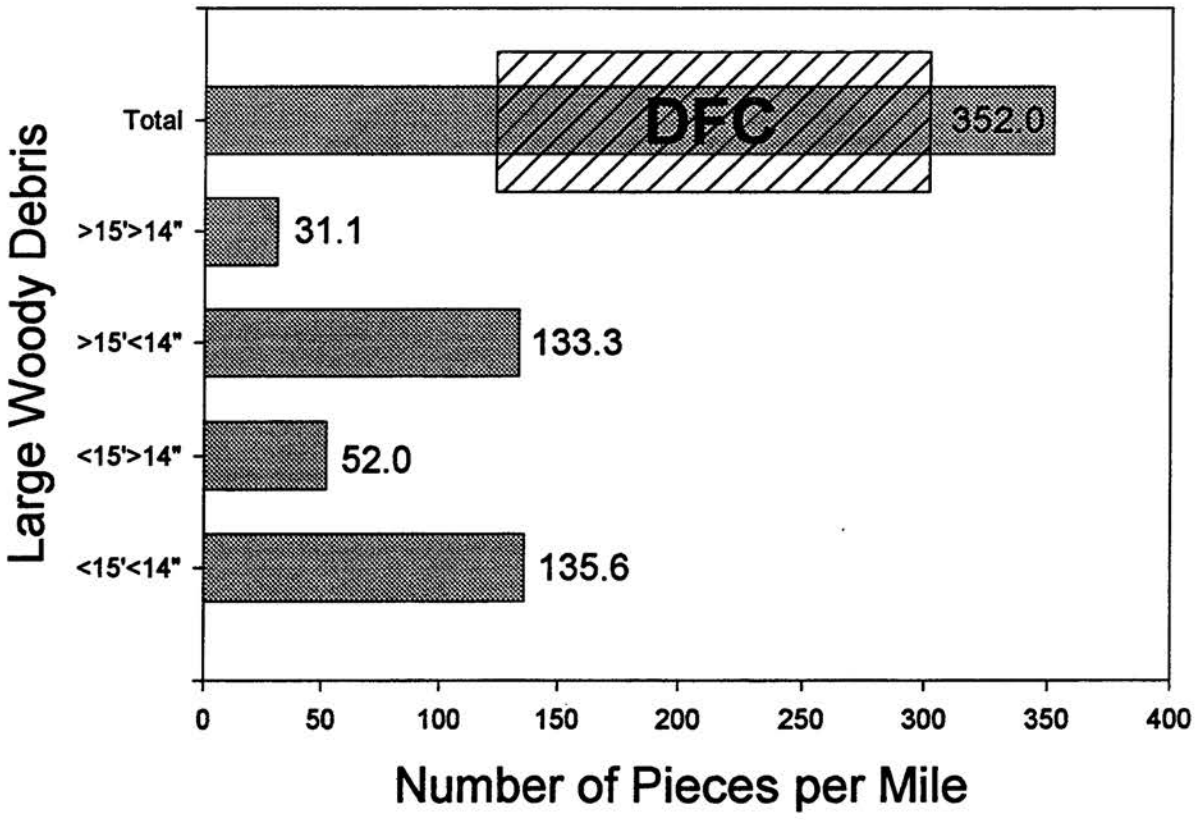
Mean Maximum Riparian Distance (either side): 50.4'
Mean Minimum Riparian Distance (either side): 12.6'
Maximum Riparian Width (Total): 134.5'
Minimum Riparian Width (Total): 55.0'

Reed Creek
Pool:Riffle Ratio

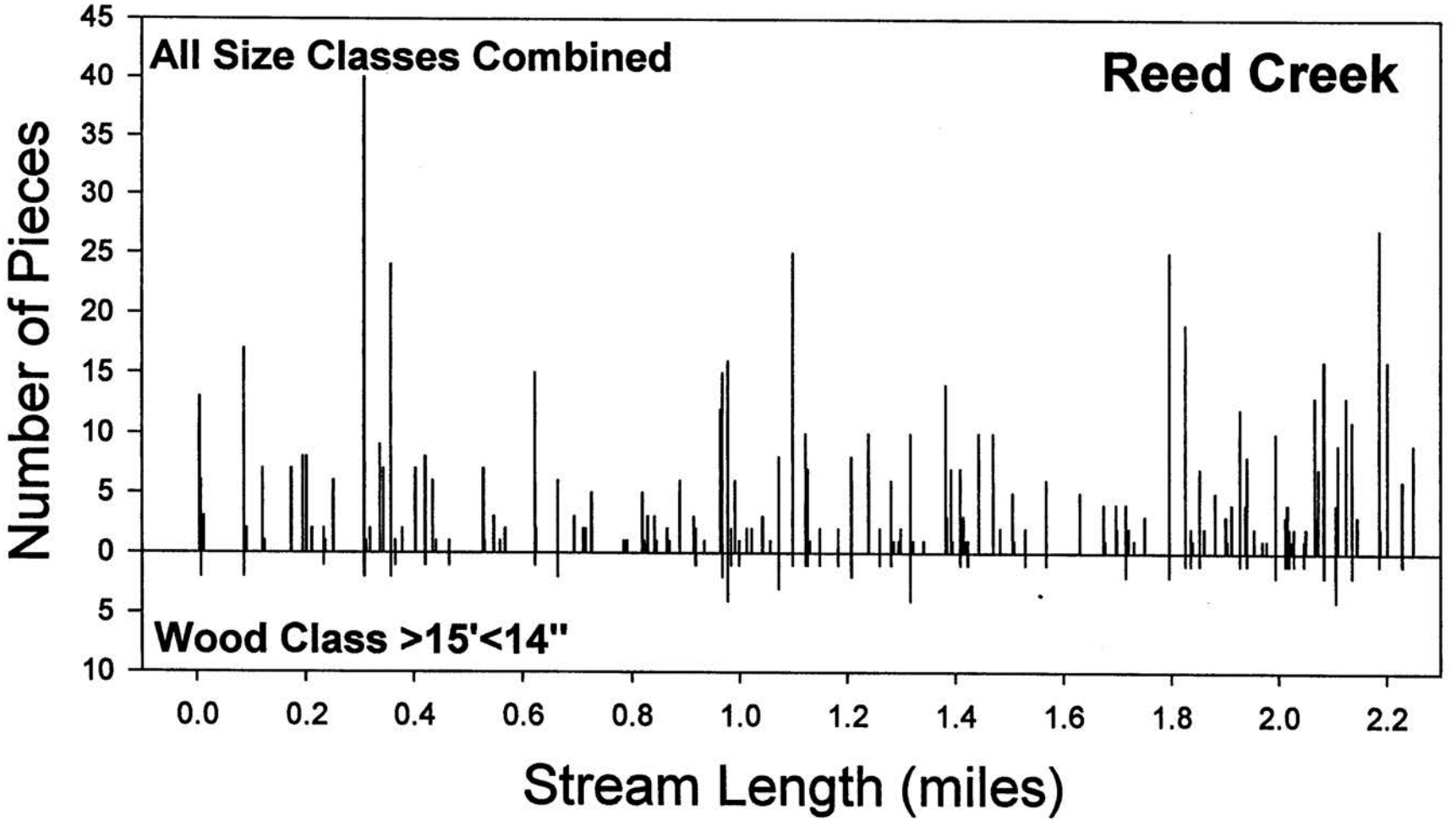
DFC: 30 - 70% of the Stream Area in Pool Habitat



Reed Creek

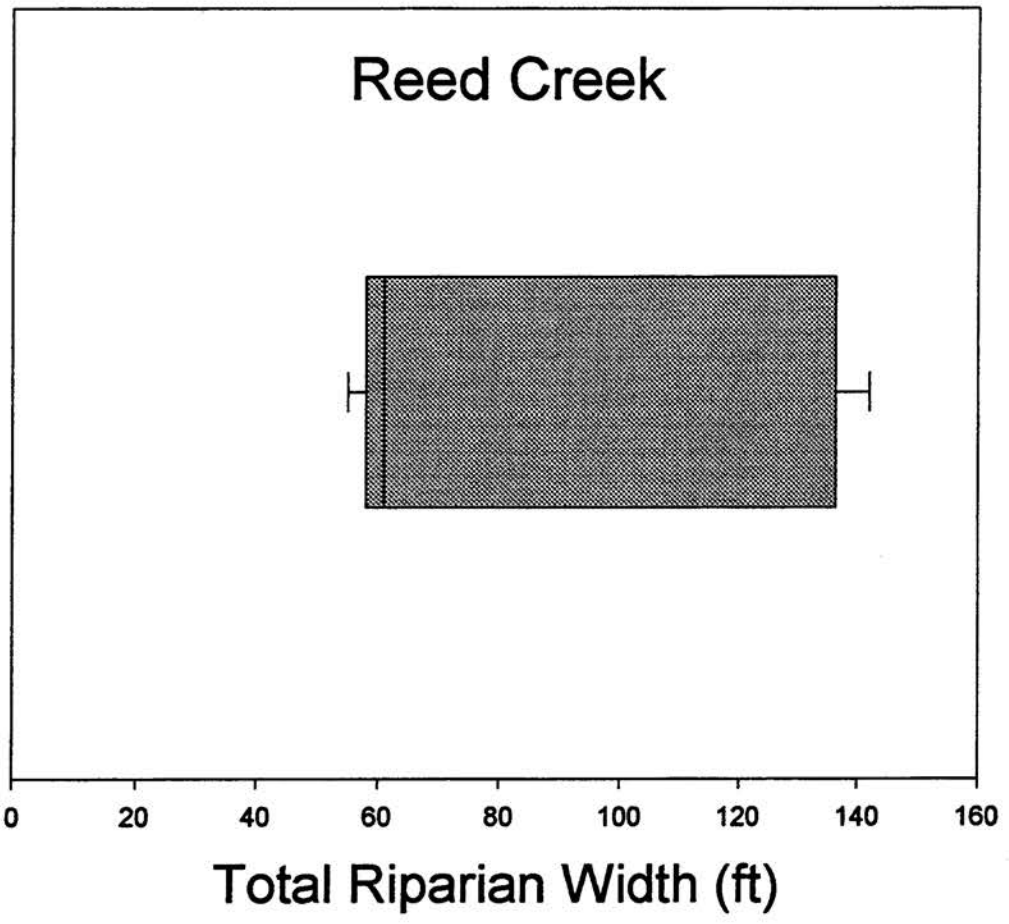

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
DFC
352.0
31.1
133.3
52.0
135.6
0
50
100
150
200
250
300
350
400
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Reed Creek
Number of measurements: 5
Mean width: 90.3 Std Dev: 43.9
Max: 134.5 Min: 55.0



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Snow Creek
Quadrangle: Snowden
Sample Date: 05/28/97
Downstream Starting Point: Rt. 501 culvert
Total Distance Surveyed: 1.68 miles

Percent of Total Area - Pools: 28.5%

Number of Pools: 91
Number of Pools per Mile: 54
Total Pool Area: 25,232.3 sq. ft. ± 3,301.2
Mean Pool Area: 277.3 sq. ft.
Correction Factor: 1.43
Mean Maximum Depth: 1.5'
Mean Average Depth: 0.8'
Depth @ Riffle Crest: 0.3'

Percent of Total Area - Riffles: 71.5%

Number of Riffles: 87
Number of Riffles per Mile: 52
Total Riffle Area: 63,156.5 sq. ft. ± 19,266.7
Mean Riffle Area: 725.9 sq. ft.
Correction Factor: 1.17
Mean Maximum Depth: 0.9'
Mean Average Depth: 0.5'

Number of Large Woody Debris Pieces per Mile: 178.0

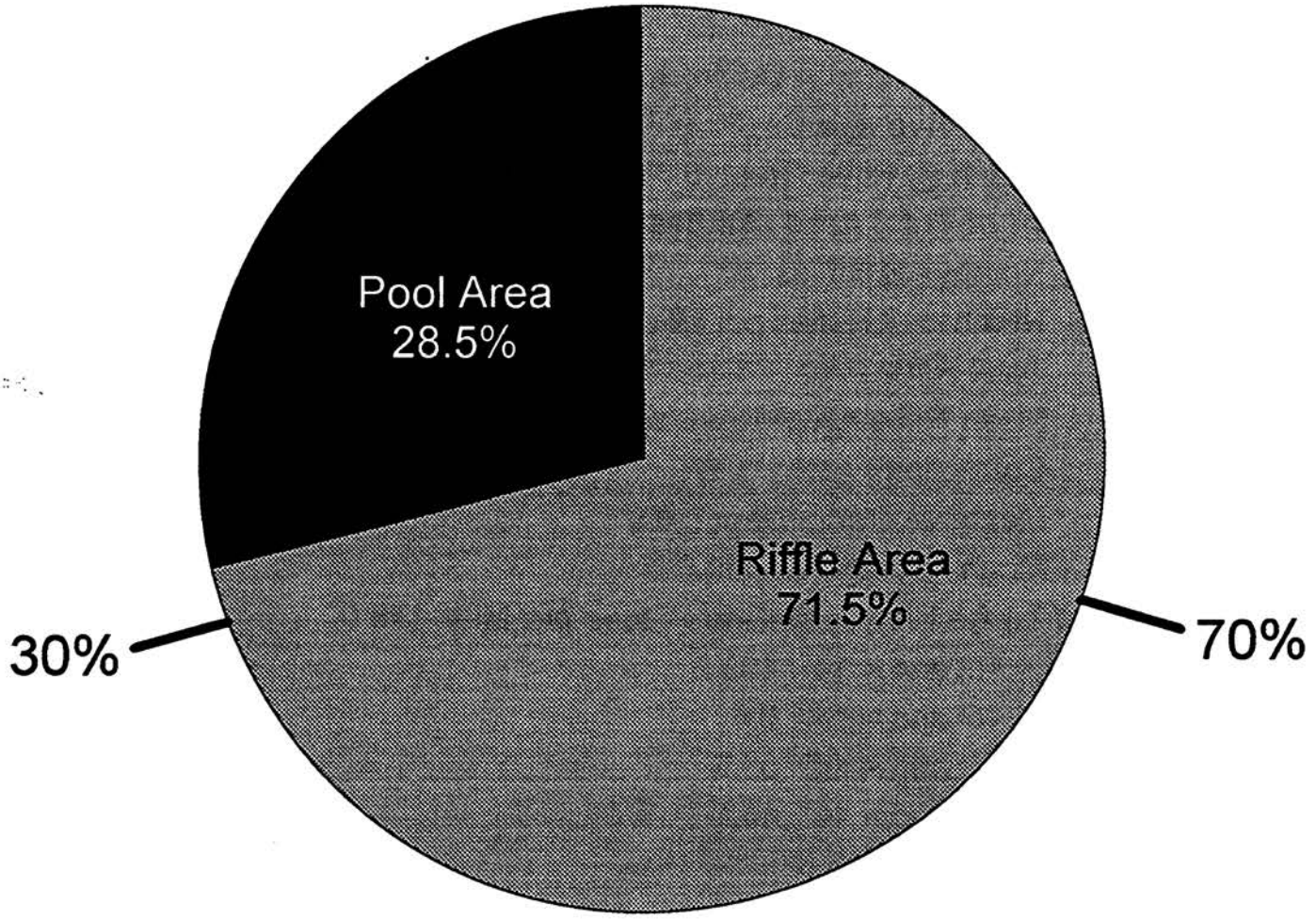
Wood < 15' and < 14": 108.3
Wood < 15' and > 14": 2.4
Wood > 15' and < 14": 51.2
Wood > 15' and > 14": 16.1

Mean Channel Width: 15.8'
Mean Riparian Width: 39.1'

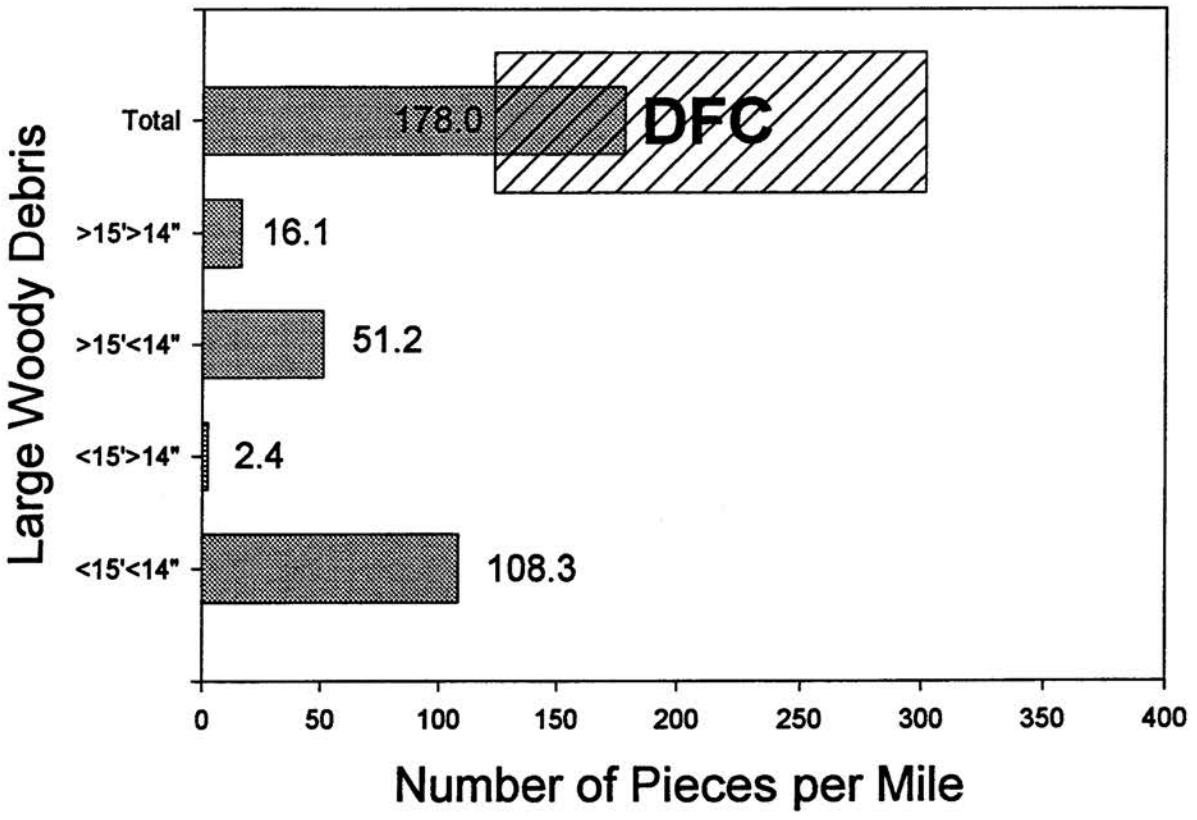
Mean Maximum Riparian Distance (either side): 15.6'
Mean Minimum Riparian Distance (either side): 7.8'
Maximum Riparian Width (Total): 54.9'
Minimum Riparian Width (Total): 27.5'

Snow Creek
Pool:Riffle Ratio

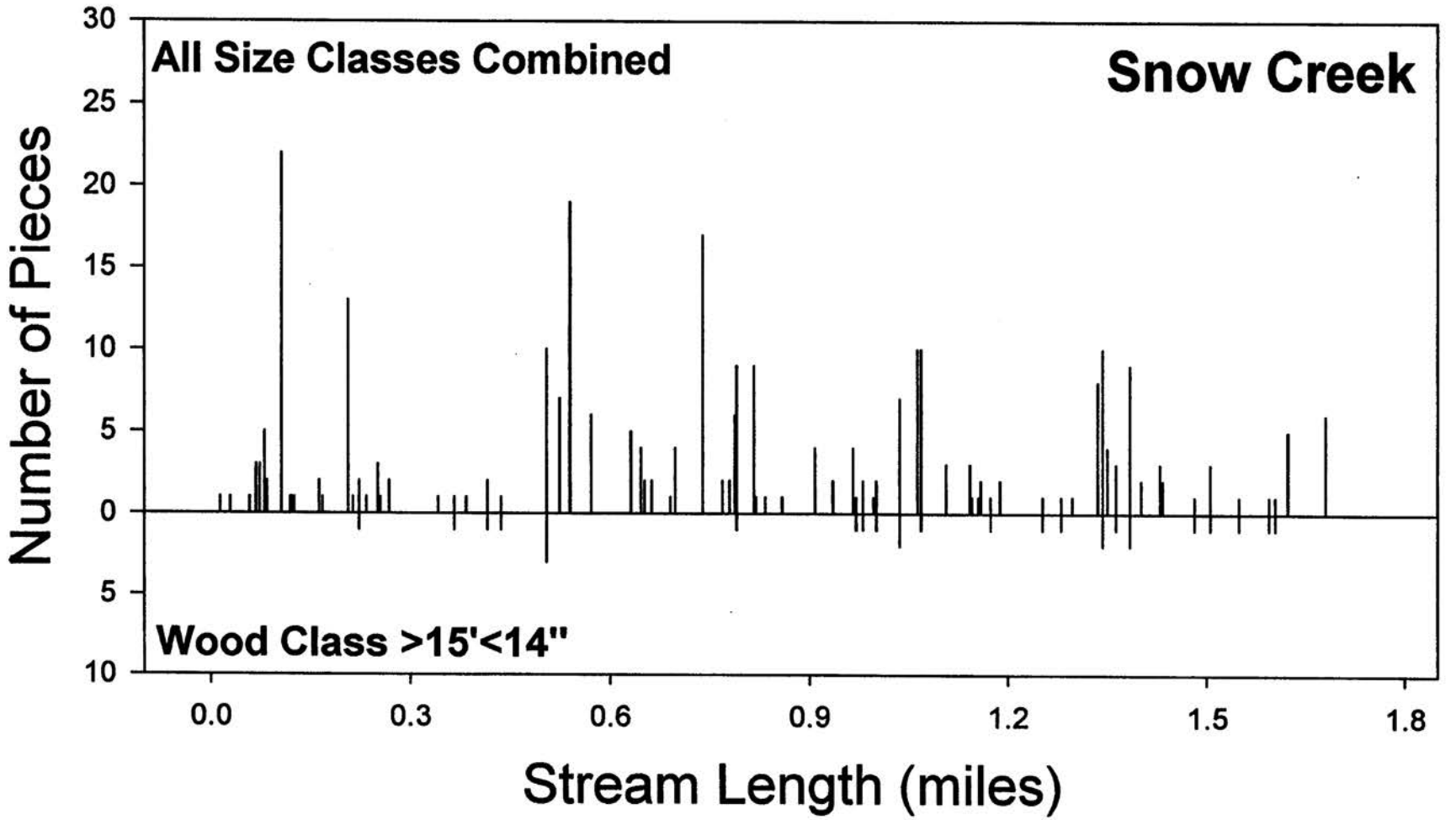
DFC: 30 - 70% of the Stream Area in Pool Habitat



Snow Creek

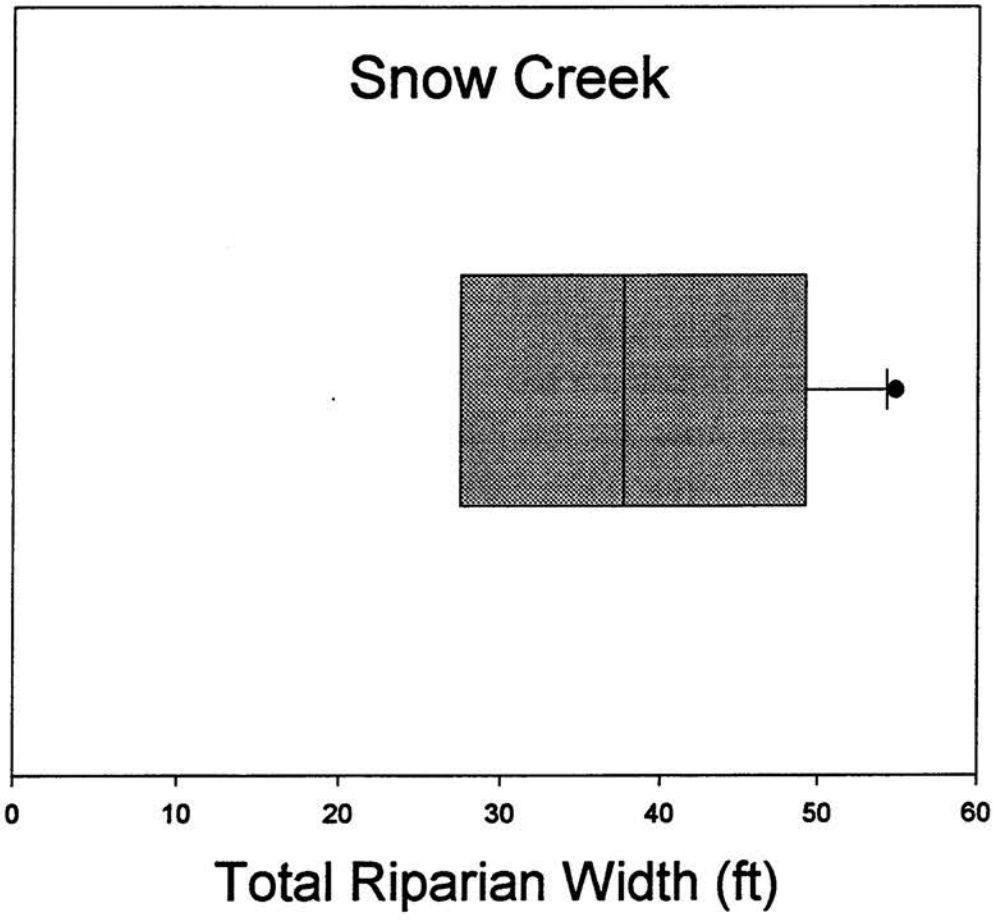

Large Woody Debris
Total
>15'>14"
>15'<14"
<15'>14"
<15'<14"
178.0
DFC
16.1
51.2
2.4
108.3
0
50
100
150
200
250
300
350
400
Number of Pieces per Mile

Large Woody Debris Distribution



Riparian Width

Stream: Snow Creek
Number of measurements: 6
Mean width: 39.1 Std Dev: 11.2
Max: 54.9 Min: 27.5



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Sulpher Spring Hollow
Quadrangle: Snowden
Sample Date: 06/02/97
Downstream Starting Point: Confl. with Elk Creek
Total Distance Surveyed: 0.81 miles

Percent of Total Area - Pools: 17.3%

Number of Pools: 28
Number of Pools per Mile: 35
Total Pool Area: 10,104.9 sq. ft. ± 2,544.9
Mean Pool Area: 360.9 sq. ft.
Correction Factor: 0.98
Mean Maximum Depth: 2.1'
Mean Average Depth: 1.3'
Depth @ Riffle Crest: 1.2'

Percent of Total Area - Riffles: 82.7%

Number of Riffles: 25
Number of Riffles per Mile: 31
Total Riffle Area: 48,388.7 sq. ft. ± 21,000.3
Mean Riffle Area: 1935.5 sq. ft.
Correction Factor: 0.81
Mean Maximum Depth: 1.9'
Mean Average Depth: 1.0'

Number of Large Woody Debris Pieces per Mile: 213.6

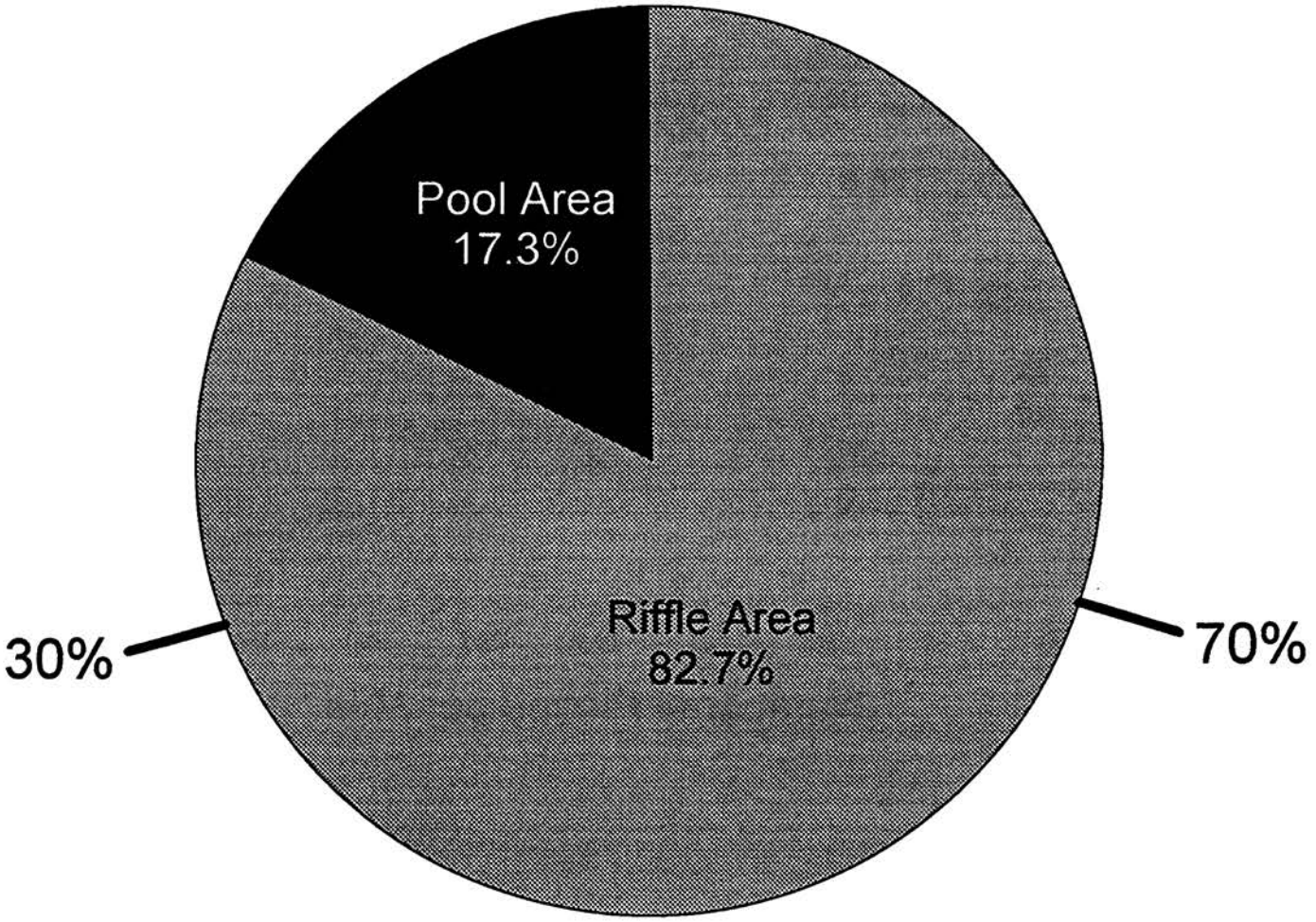
Wood < 15' and < 14": 58.0
Wood < 15' and > 14": 12.3
Wood > 15' and < 14": 30.5
Wood > 15' and > 14": 56.8

Mean Channel Width: 23.2'
Mean Riparian Width: 67.8'

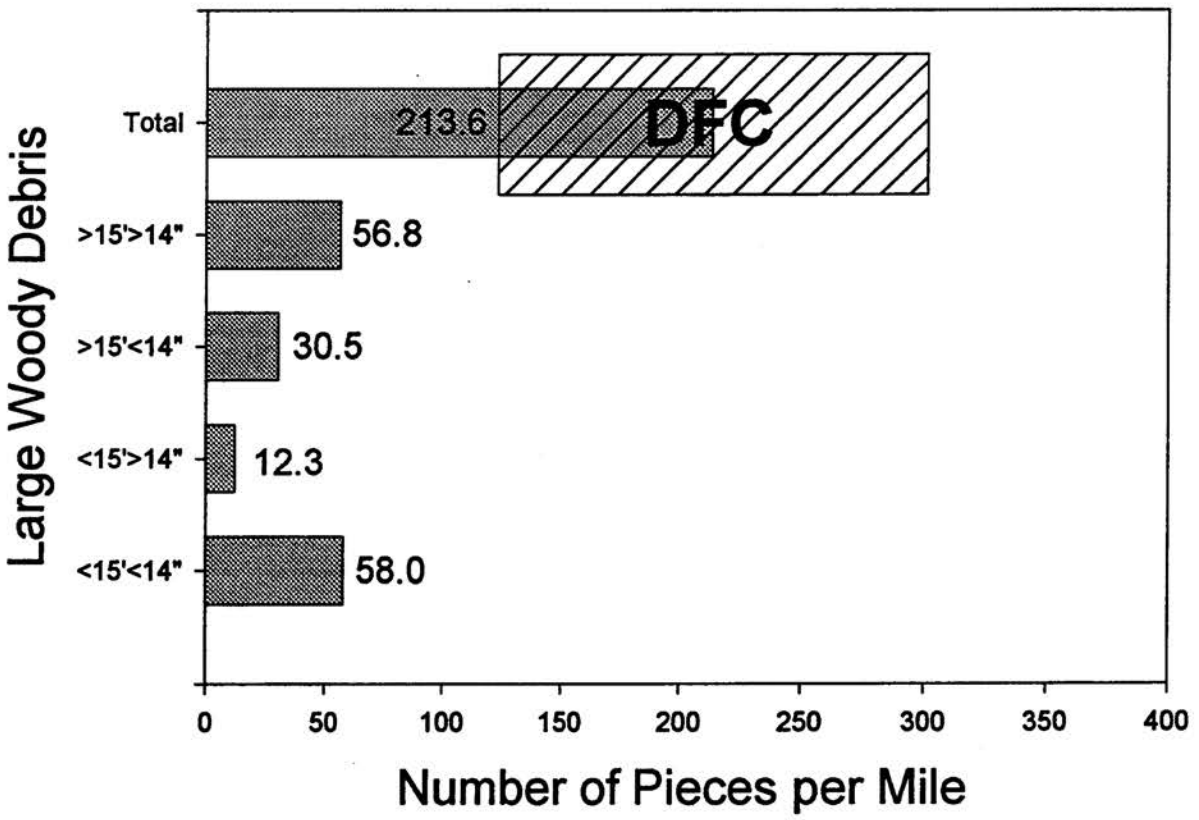
Mean Maximum Riparian Distance (either side): 40.5'
Mean Minimum Riparian Distance (either side): 4.1'
Maximum Riparian Width (Total): 96.6'
Minimum Riparian Width (Total): 38.6'

Sulpher Springs Hollow Pool:Riffle Ratio

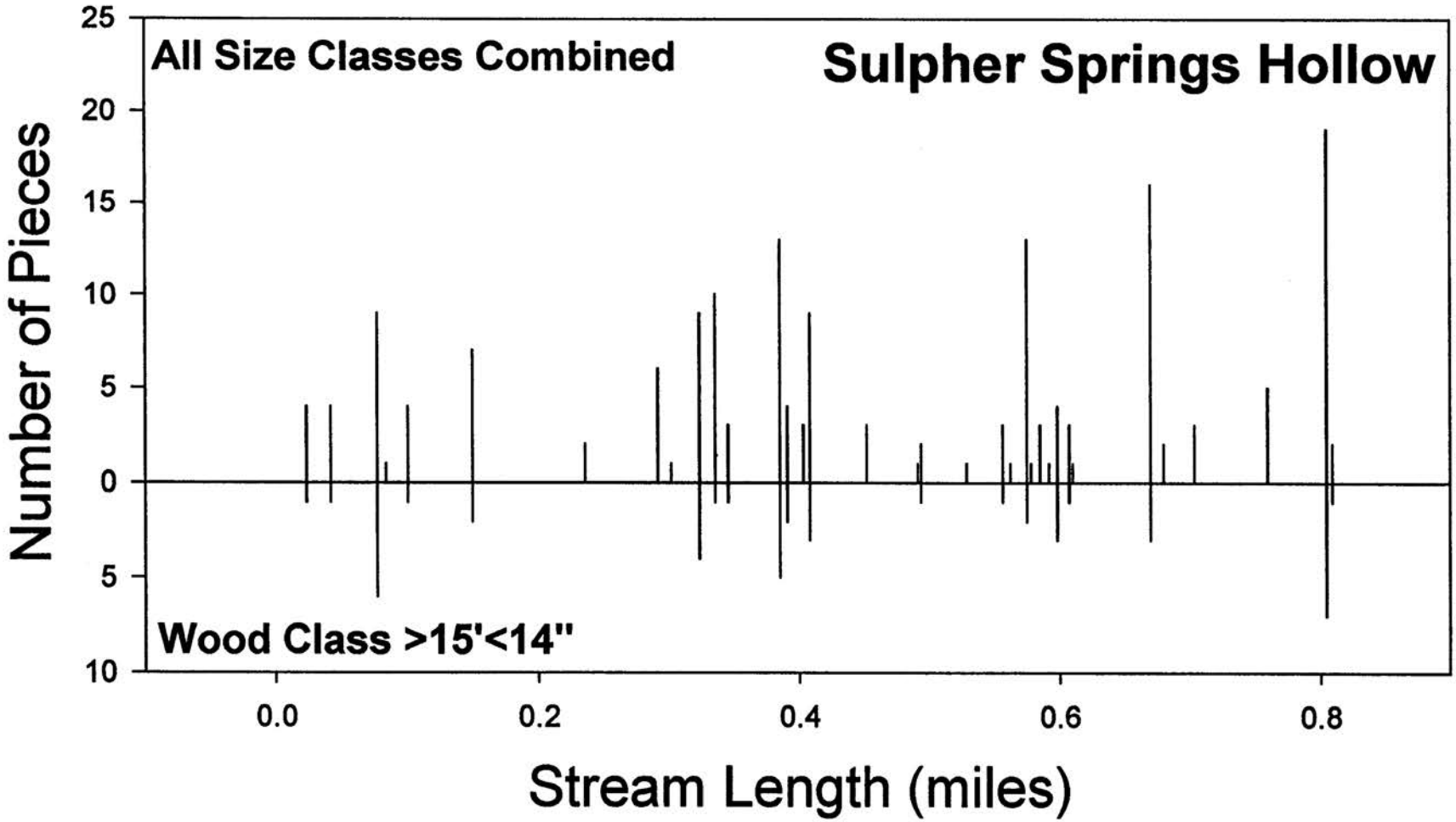
DFC: 30 - 70% of the Stream Area in Pool Habitat



Sulpher Springs Hollow

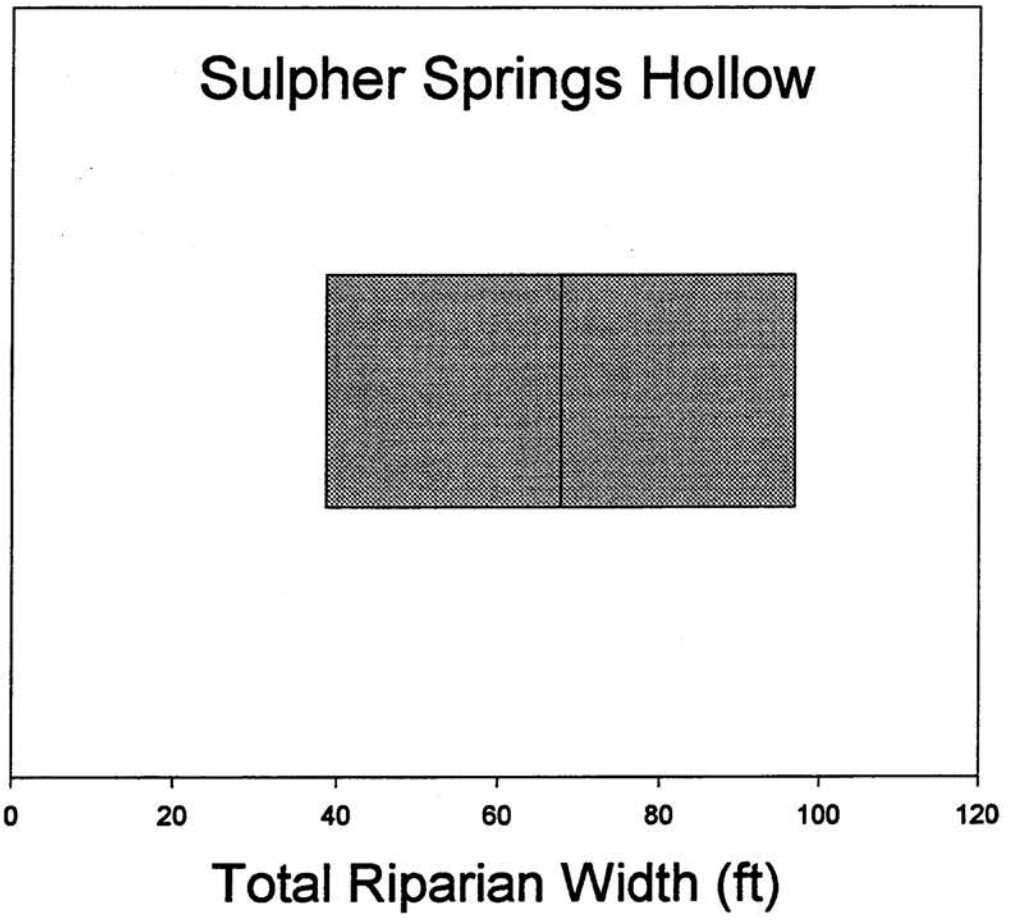


Large Woody Debris Distribution



Riparian Width

Stream: Sulpher Springs Hollow
Number of measurements: 2
Mean width: 67.8 Std Dev: 41.2
Max: 96.8 Min: 38.6



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Sugar Loaf Mountain Quadrangle

Stream: North Buffalo Creek
Quadrangle: Sugar Loaf Mountain
Sample Date: 07/23/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.10 miles

Percent of Total Area - Pools: 28.3%

Number of Pools: 114
Number of Pools per Mile: 104
Total Pool Area: 12,684.6 sq. ft. ± 1,098.4
Mean Pool Area: 111.3 sq. ft.
Correction Factor: 1.08
Mean Maximum Depth: 1.0'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 71.7%

Number of Riffles: 88
Number of Riffles per Mile: 80
Total Riffle Area: 32,136.9 sq. ft. ± 2,630.9
Mean Riffle Area: 365.2 sq. ft.
Correction Factor: 1.27
Mean Maximum Depth: 0.5'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 222.7

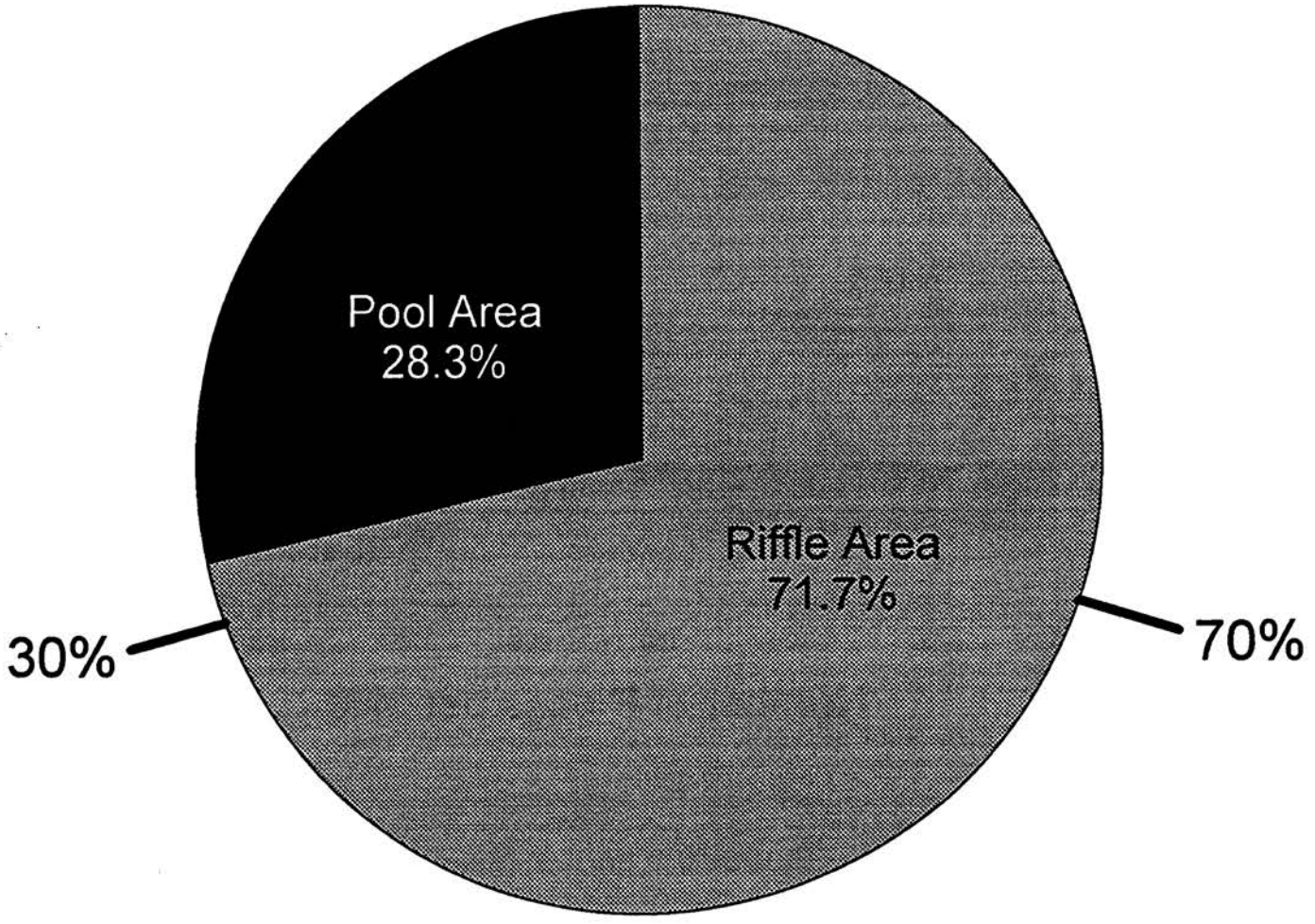
Wood < 15' and < 14": 160.0
Wood < 15' and > 14": 8.2
Wood > 15' and < 14": 48.2
Wood > 15' and > 14": 6.3

Mean Channel Width: 14.9'
Mean Riparian Width: 43.3'

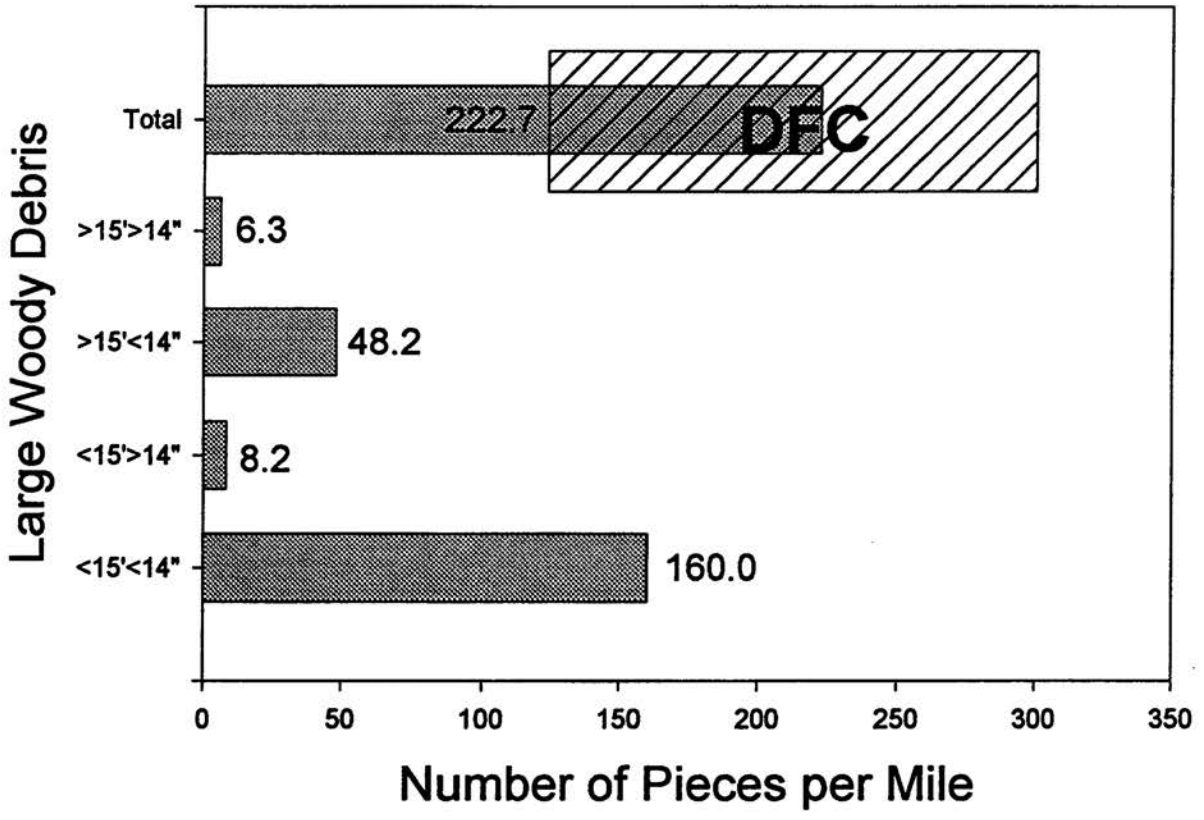
Mean Maximum Riparian Distance (either side): 19.9'
Mean Minimum Riparian Distance (either side): 8.5'
Maximum Riparian Width (Total): 53.5'
Minimum Riparian Width (Total): 26.9'

North Buffalo Creek Pool:Riffle Ratio

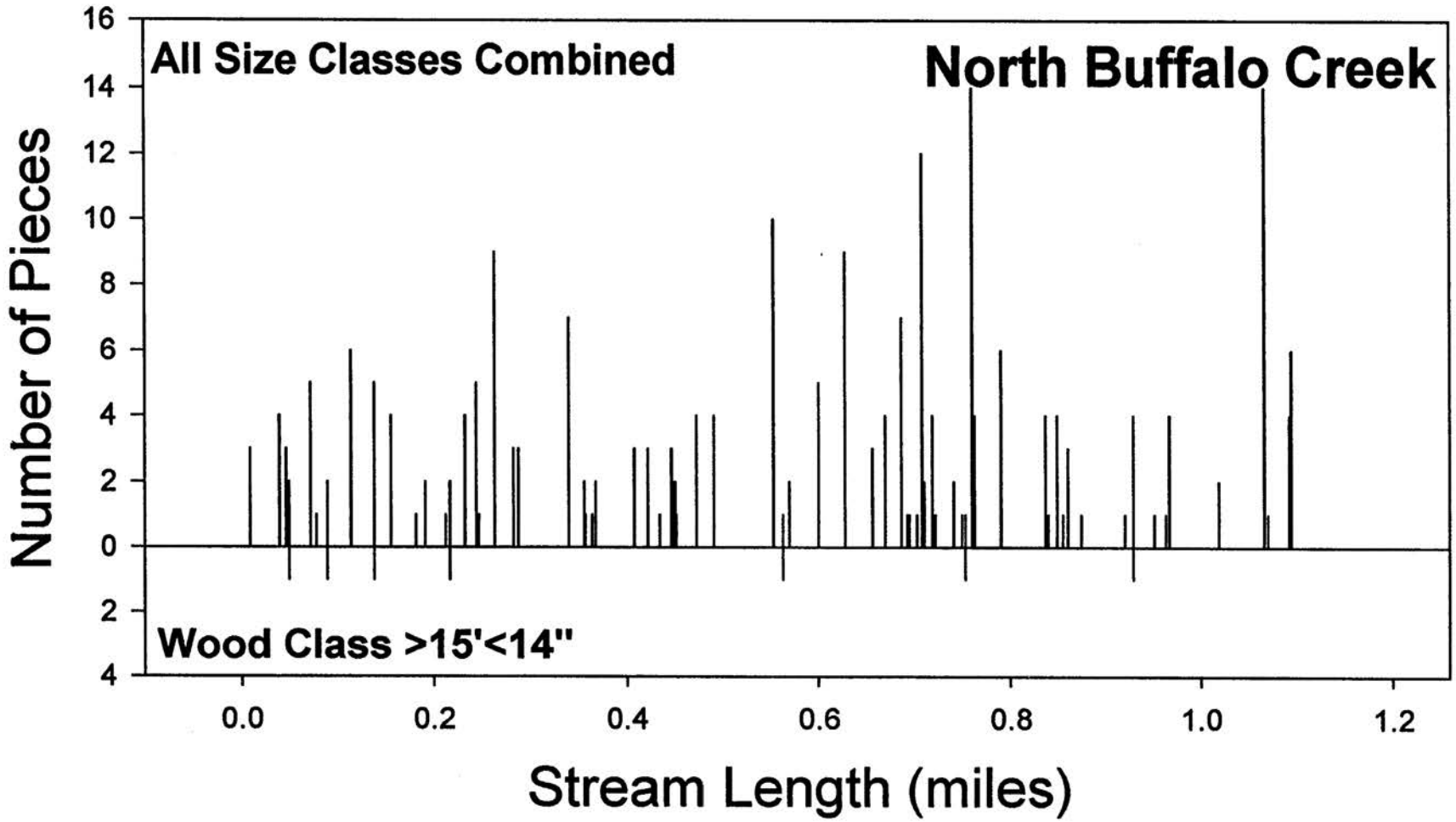
DFC: 30 - 70% of the Stream Area in Pool Habitat



North Buffalo Creek

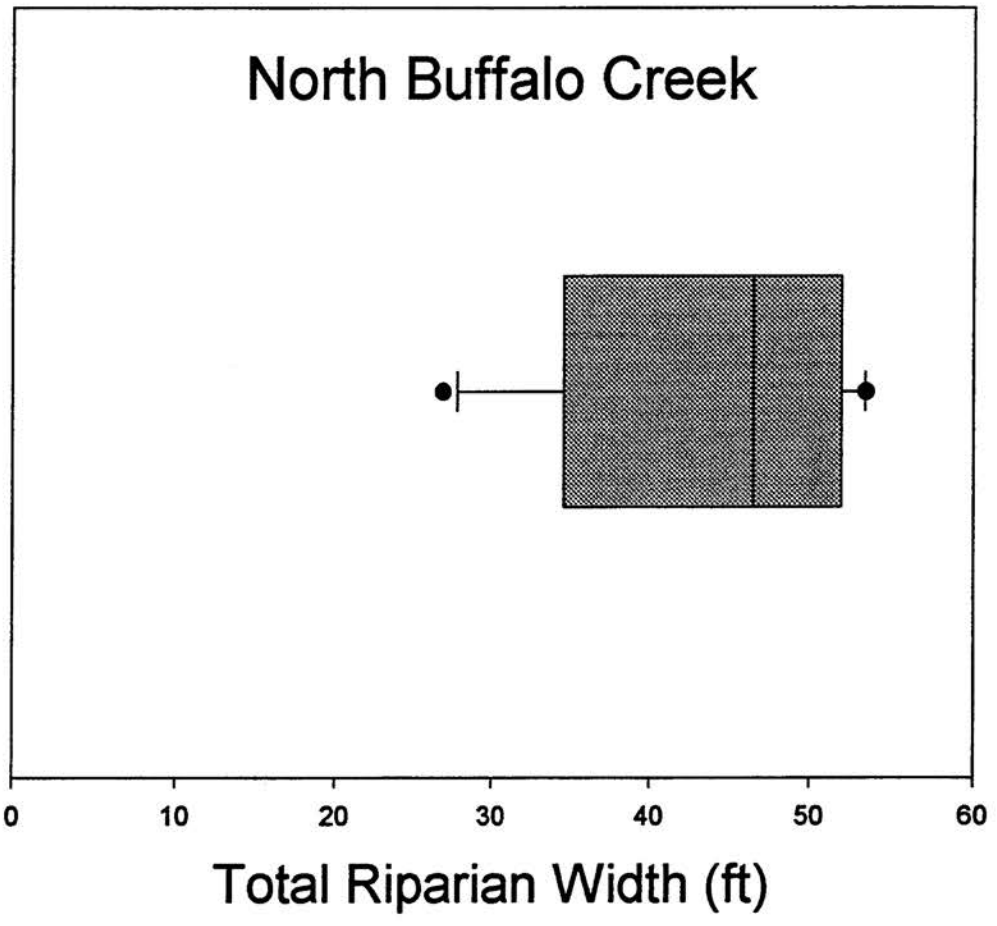


Large Woody Debris Distribution



Riparian Width

Stream: North Buffalo Creek
Number of measurements: 8
Mean width: 43.3 Std Dev: 10.3
Max: 53.5 Min: 26.9



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

Stream: Smith Branch
Quadrangle: Sugar Loaf Mountain
Sample Date: 07/29/97
Downstream Starting Point: USFS Boundary
Total Distance Surveyed: 1.07 miles

Percent of Total Area - Pools: 45.8%

Number of Pools: 102
Number of Pools per Mile: 95
Total Pool Area: 16,313.1 sq. ft. ± 1,305.0
Mean Pool Area: 159.9 sq. ft.
Correction Factor: 1.07
Mean Maximum Depth: 0.9'
Mean Average Depth: 0.6'
Depth @ Riffle Crest: 0.2'

Percent of Total Area - Riffles: 54.2%

Number of Riffles: 69
Number of Riffles per Mile: 64
Total Riffle Area: 19,300.0 sq. ft. ± 1,661.3
Mean Riffle Area: 279.7 sq. ft.
Correction Factor: 1.03
Mean Maximum Depth: 0.5'
Mean Average Depth: 0.3'

Number of Large Woody Debris Pieces per Mile: 200.0

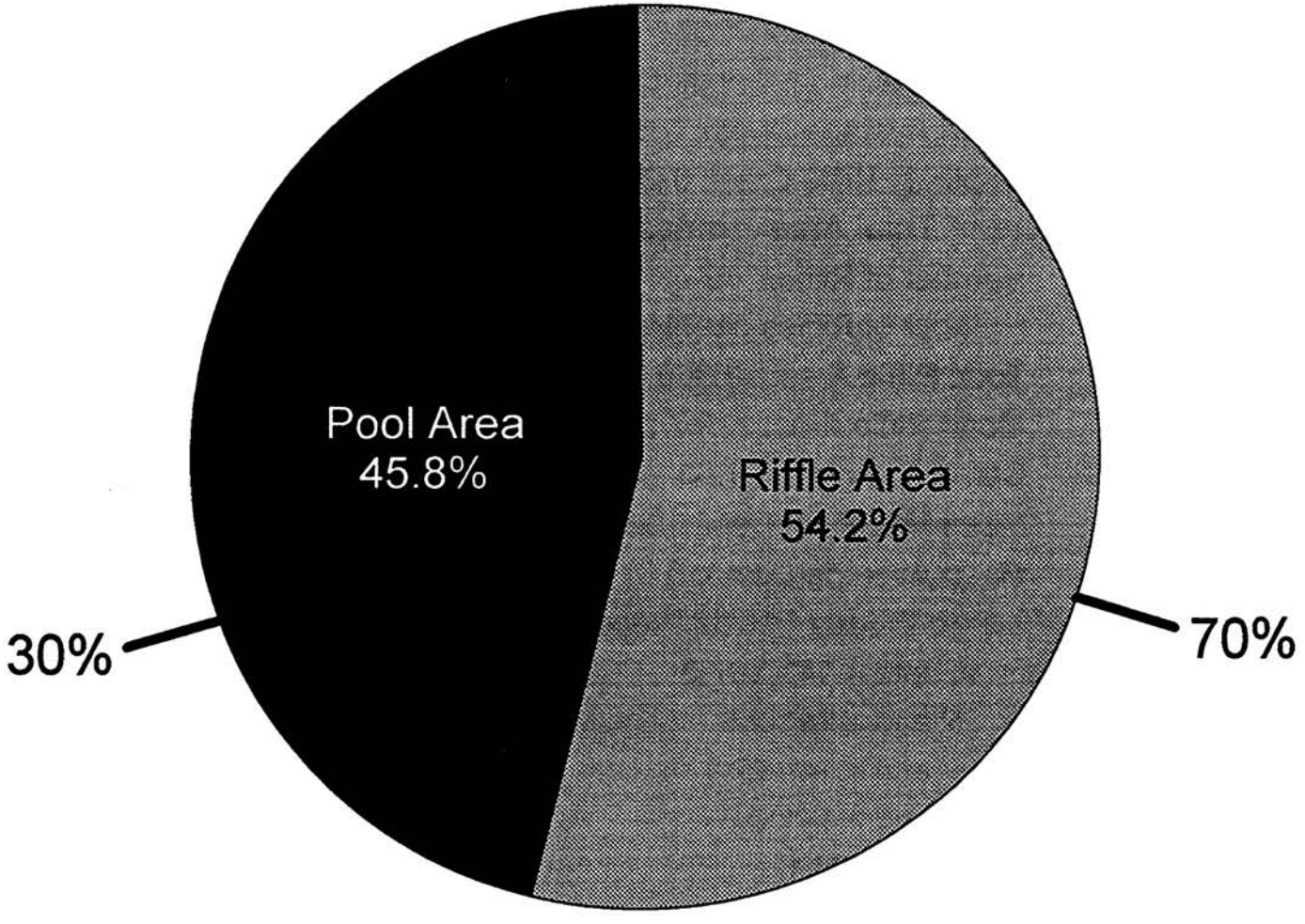
Wood < 15' and < 14": 167.3
Wood < 15' and > 14": 2.8
Wood > 15' and < 14": 27.1
Wood > 15' and > 14": 2.8

Mean Channel Width: 23.1'
Mean Riparian Width: 95.2'

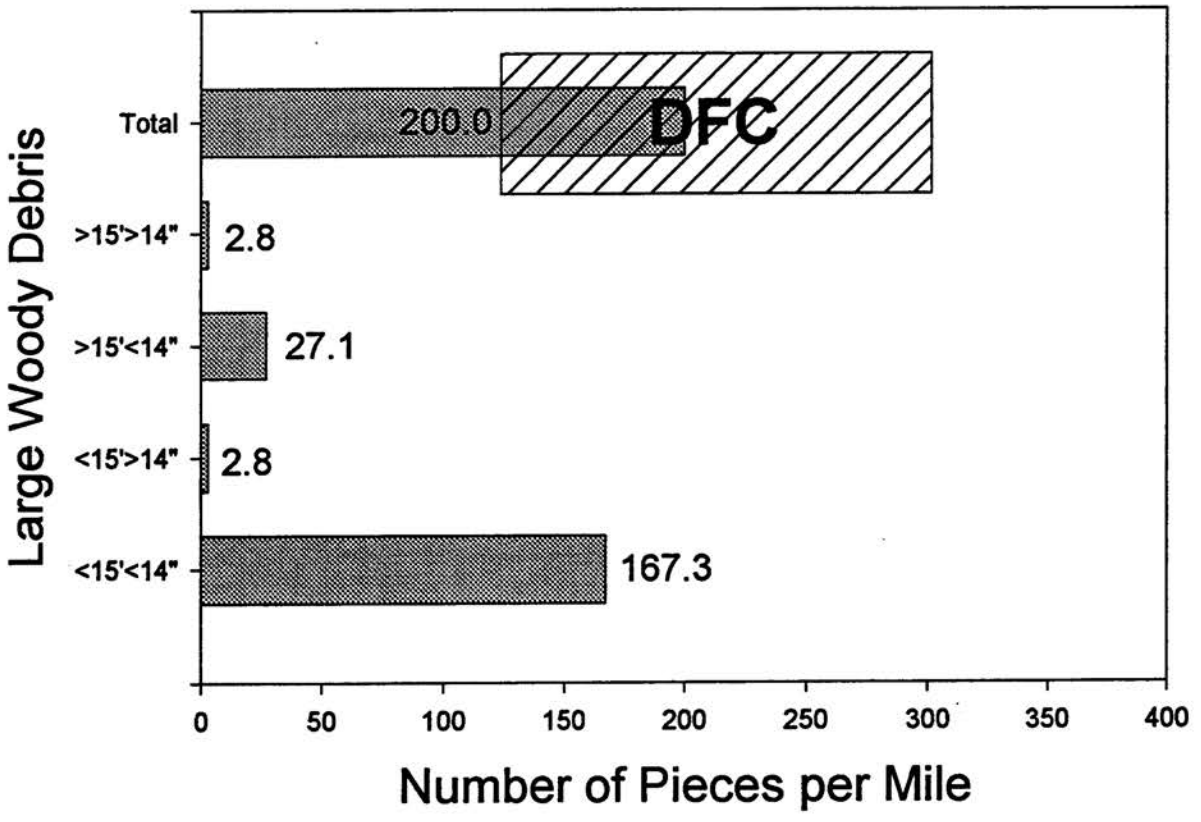
Mean Maximum Riparian Distance (either side): 49.3'
Mean Minimum Riparian Distance (either side): 22.8'
Maximum Riparian Width (Total): 214.9'
Minimum Riparian Width (Total): 39.1'

Smith Branch
Pool:Riffle Ratio

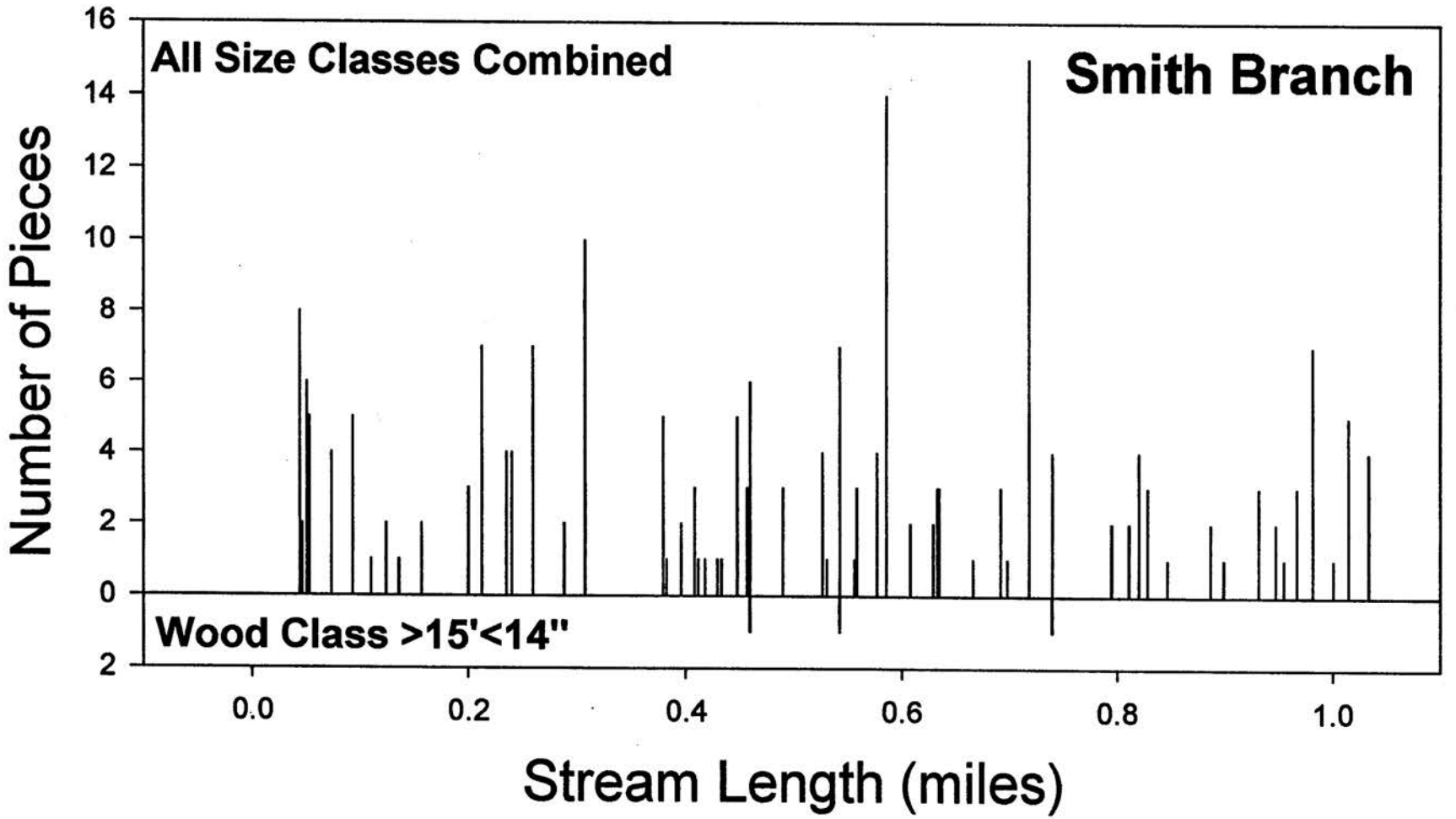
DFC: 30 - 70% of the Stream Area in Pool Habitat



Smith Branch

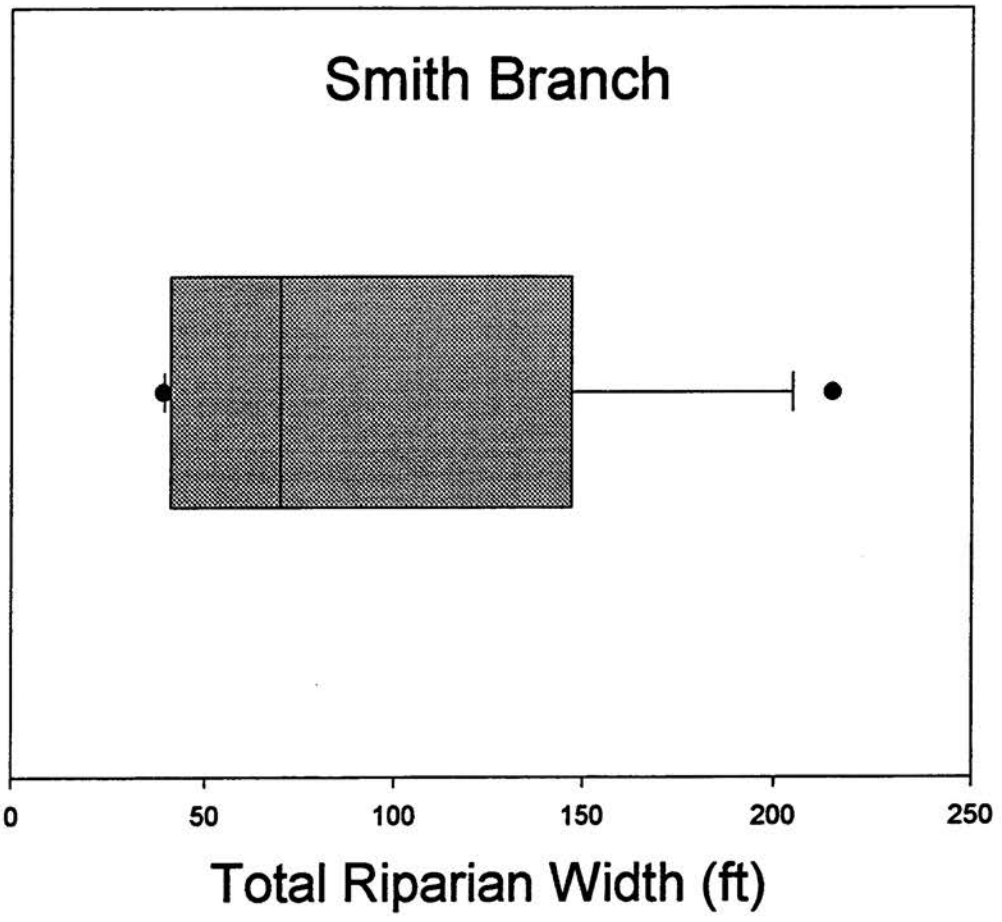


Large Woody Debris Distribution



Riparian Width

Stream: Smith Branch
Number of measurements: 7
Mean width: 95.2 Std Dev: 69.1
Max: 214.9 Min: 39.1



Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.