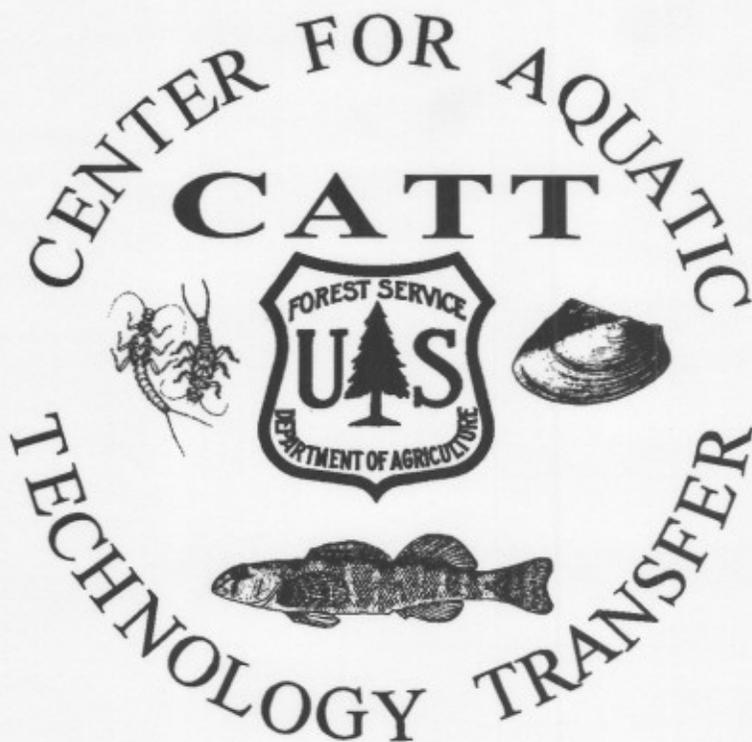


**Current Condition of Streams on the Clinch Ranger District,  
George Washington - Jefferson National Forest, Virginia**



**Center for Aquatic Technology Transfer  
134 Cheatham Hall  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061-0321**

**User's Guide** - Stream Summaries are organized alphabetically by U. S. Geological Survey Topographic Quadrangle. Data for each stream section were collected, analyzed, and presented separately. Each stream or stream section summary contains: 1) synopsis of stream characteristics, 2) percent pools and riffles graph, 3) LWD size graph, 4) boxplot of riparian measurements, 5) LWD distribution graph, and 6) Substrate Frequency for streams pulled by CATT team. Streams without riparian boxplots were streams with less than two riparian measurements. GW-JNF DFCs are indicated on all pertinent graphs.

Stream: Dark Hollow

District: Clinch

Quadrangle: Appalachia

Sample Date: 8/7/96

Downstream Starting Point:

**Total Distance Surveyed:** 1.46 miles

**Percent of Total Pool Area:** 3.3% (Glides make up 57%)

Number of Pools: 7

Number of Pools per mile: 5

Total Pool Area: 1,117 sq. ft.

Mean Pool Area: 159.6 sq. ft.

Correction Factor: N/A

Mean Maximum Depth: 1.2'

Mean Average Depth: 0.7'

**Percent of Total Riffle Area:** 96.7%

Number of Riffles: 8

Number of Riffles per mile: 6

Total Riffle Area: 32,612 sq. ft.

Mean Riffle Area: 4,076.5 sq. ft.

Correction Factor: N/A

Mean Maximum Depth: 0.5'

Mean Average Depth: 0.2'

**Number of Large Woody Debris Pieces per Mile:** 91.8

Wood < 15' and < 14": 29.5

Wood < 15' and > 14": 15.8

Wood > 15' and < 14": 25.3

Wood > 15' and > 14": 21.2

**Mean Channel Width:** 18.0'

**Mean Riparian Width:** 66.5'

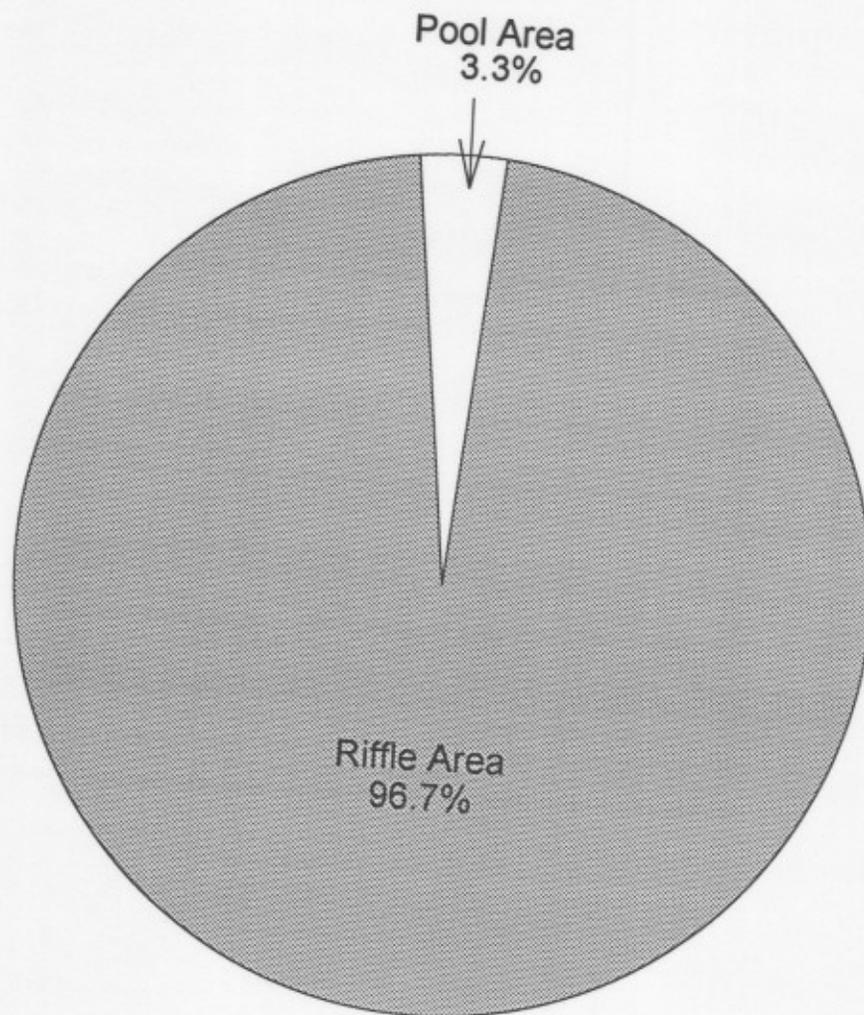
Mean Maximum Riparian Distance (either side): 28.4'

Mean Minimum Riparian Distance (either side): 20.1'

Maximum Riparian Width (Total): 66.5'

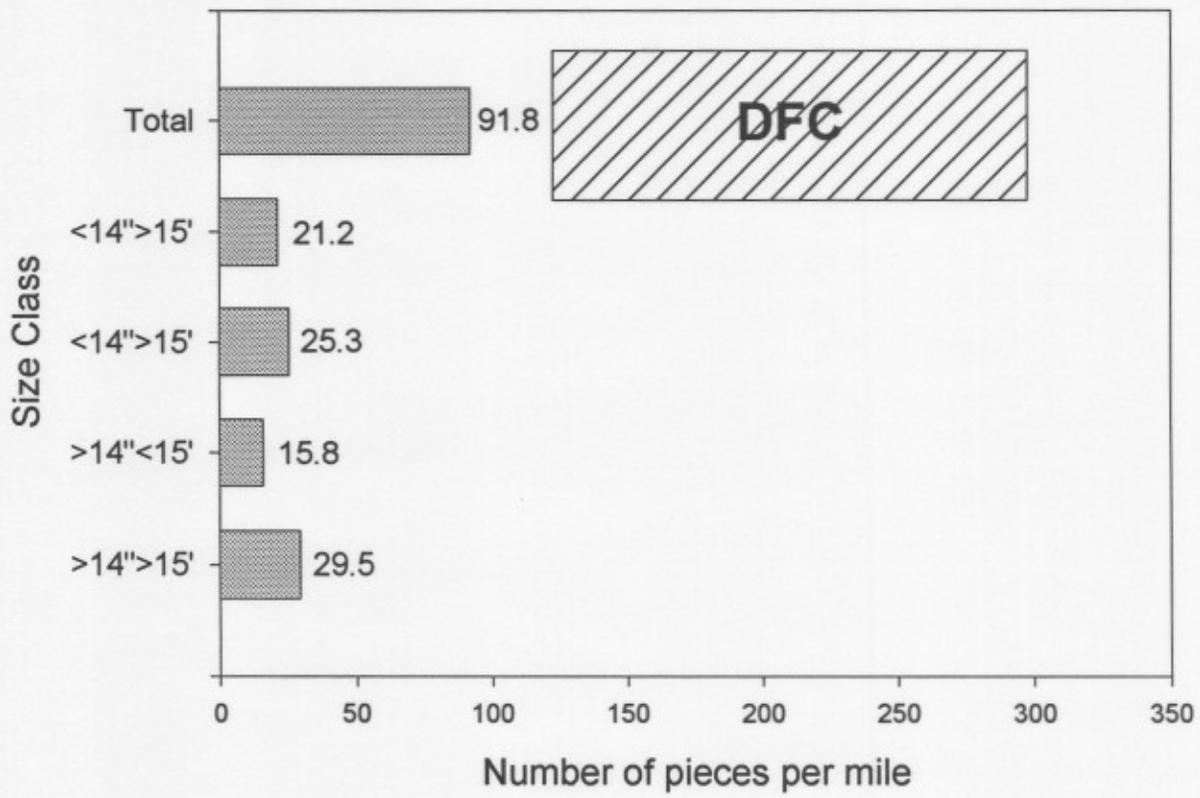
Minimum Riparian Width (Total): 66.5'

# Dark Hollow Pool : Riffle Ratio

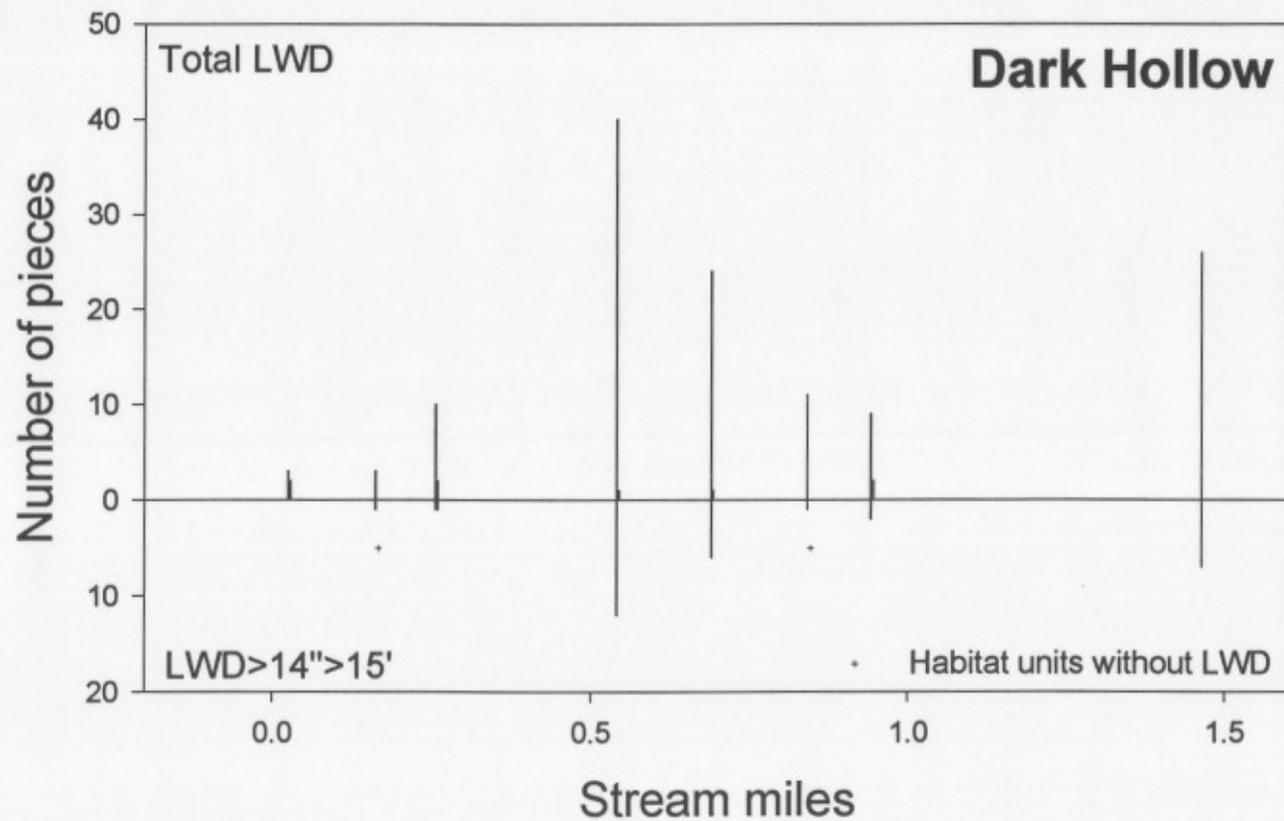


DFC: Pool Area = 30% - 70%

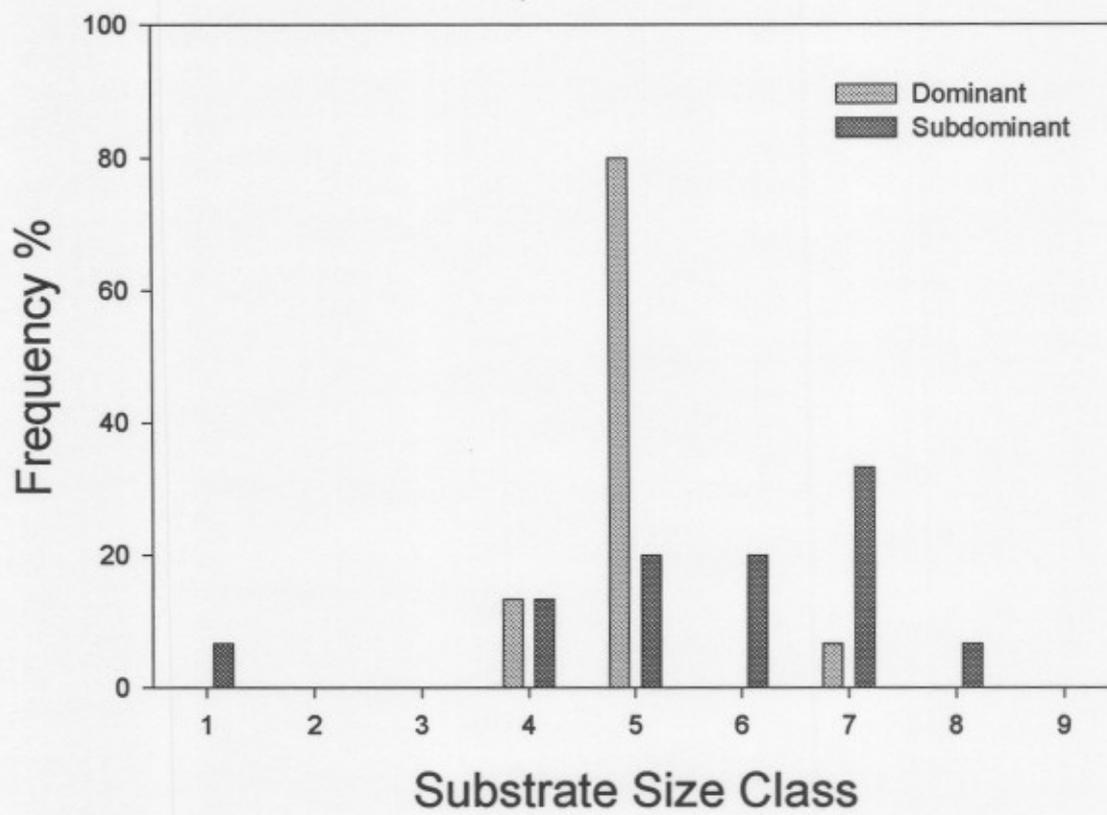
# Dark Hollow Large Woody Debris



# Large Woody Debris Distribution



## Dark Hollow Substrate Frequency



Stream: Roaring Branch

District: Clinch

Quadrangle: Appalachia

Sample Date: 8/6/96

Downstream Starting Point: USFS bound. near Powell R. Conf.

**Total Distance Surveyed:** 2.6 miles

**Percent of Total Pool Area:** 22.7%(Glides make up 34.5%)

Number of Pools: 29

Number of Pools per mile: 11

Total Pool Area: 26,546.5 sq. ft.  $\pm$  8,839.1

Mean Pool Area: 915.4 sq. ft.

Correction Factor: 1.24

Mean Maximum Depth: 2.2'

Mean Average Depth: 1.1'

**Percent of Total Riffle Area:** 77.3%

Number of Riffles: 29

Number of Riffles per mile: 11

Total Riffle Area: 90,559.7 sq. ft.  $\pm$  10,746.3

Mean Riffle Area: 3,122.7 sq. ft.

Correction Factor: 1.31

Mean Maximum Depth: 0.9'

Mean Average Depth: 0.5'

**Number of Large Woody Debris Pieces per Mile:** 133.5

Wood < 15' and < 14": 36.9

Wood < 15' and > 14": 15.0

Wood > 15' and < 14": 36.2

Wood > 15' and > 14": 45.4

**Mean Channel Width:** 21.8'

**Mean Riparian Width:** 56.5'

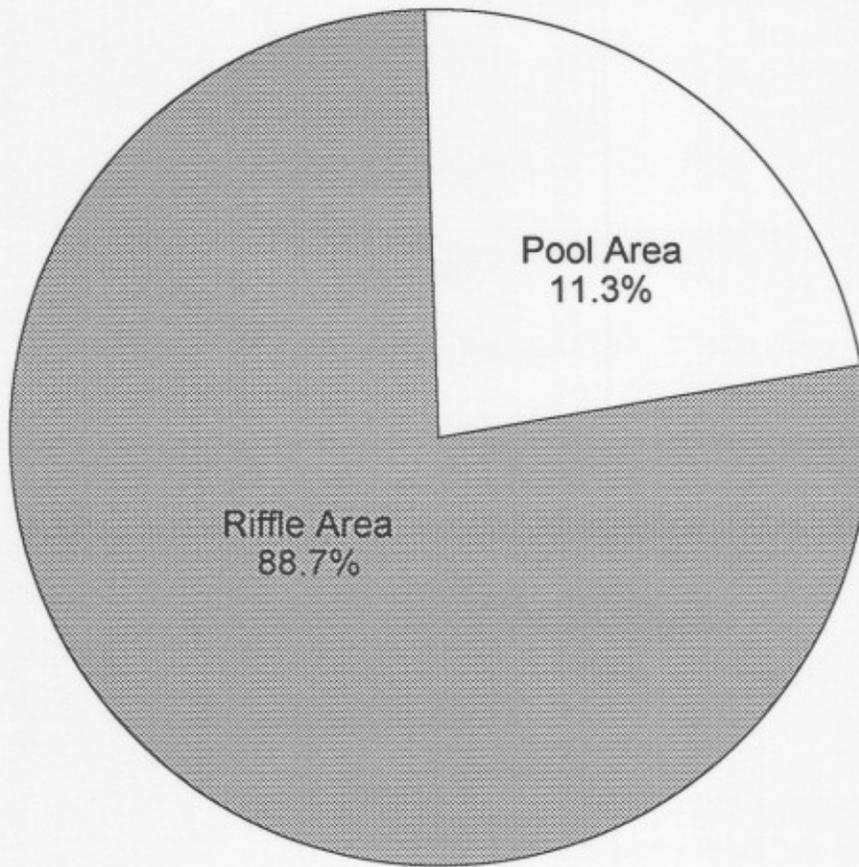
Mean Maximum Riparian Distance (either side): 23.5'

Mean Minimum Riparian Distance (either side): 11.2'

Maximum Riparian Width (Total): 107.9'

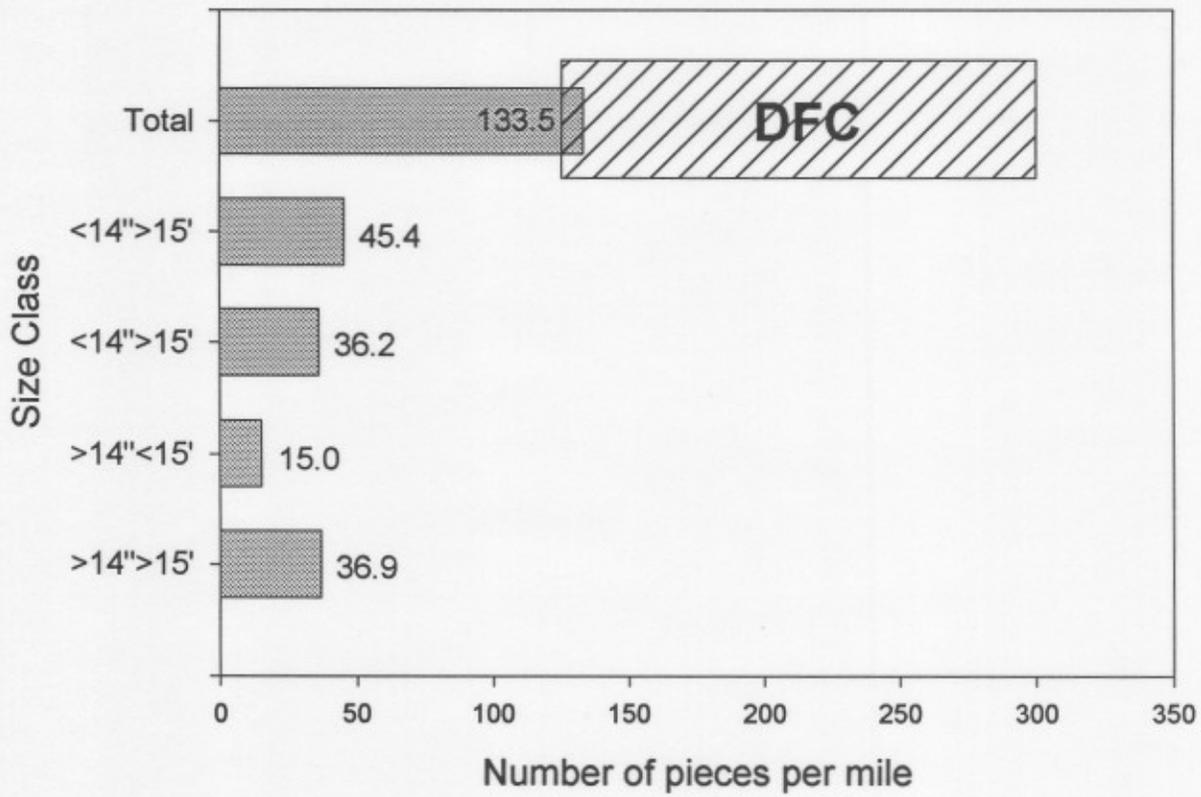
Minimum Riparian Width (Total): 26.3'

## Roaring Branch Pool : Riffle Ratio



**DFC: Pool Area = 30% - 70%**

## Roaring Branch Large Woody Debris



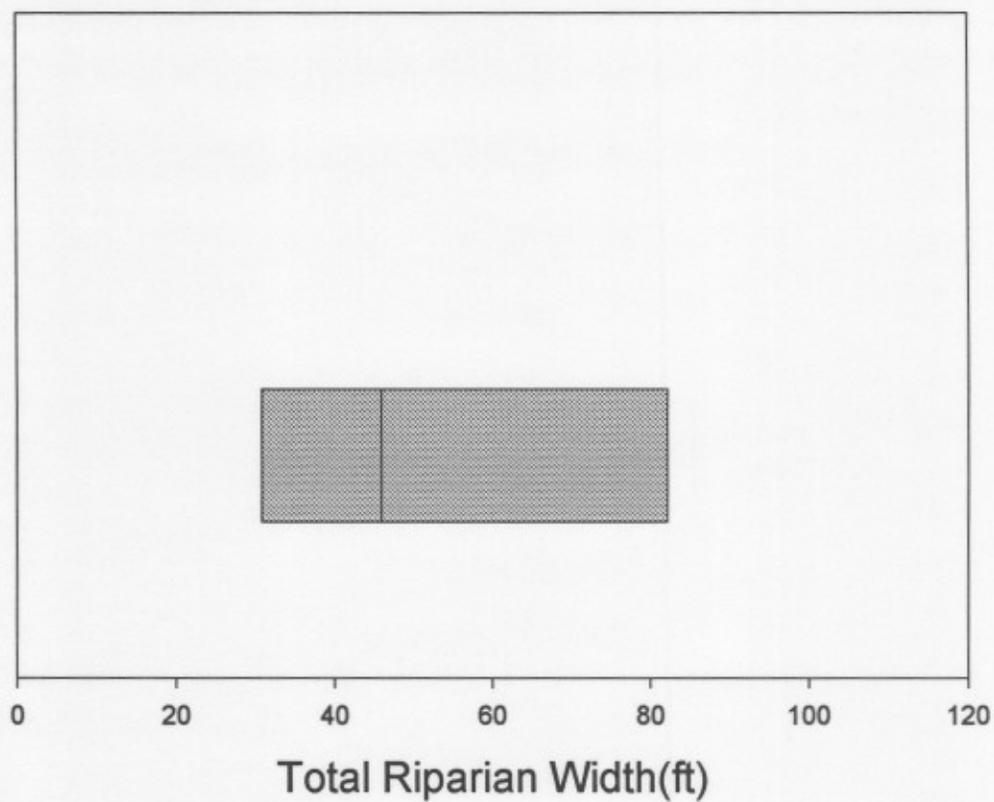
## Riparian Width

Stream: Roaring Branch

Number of measurements: 4

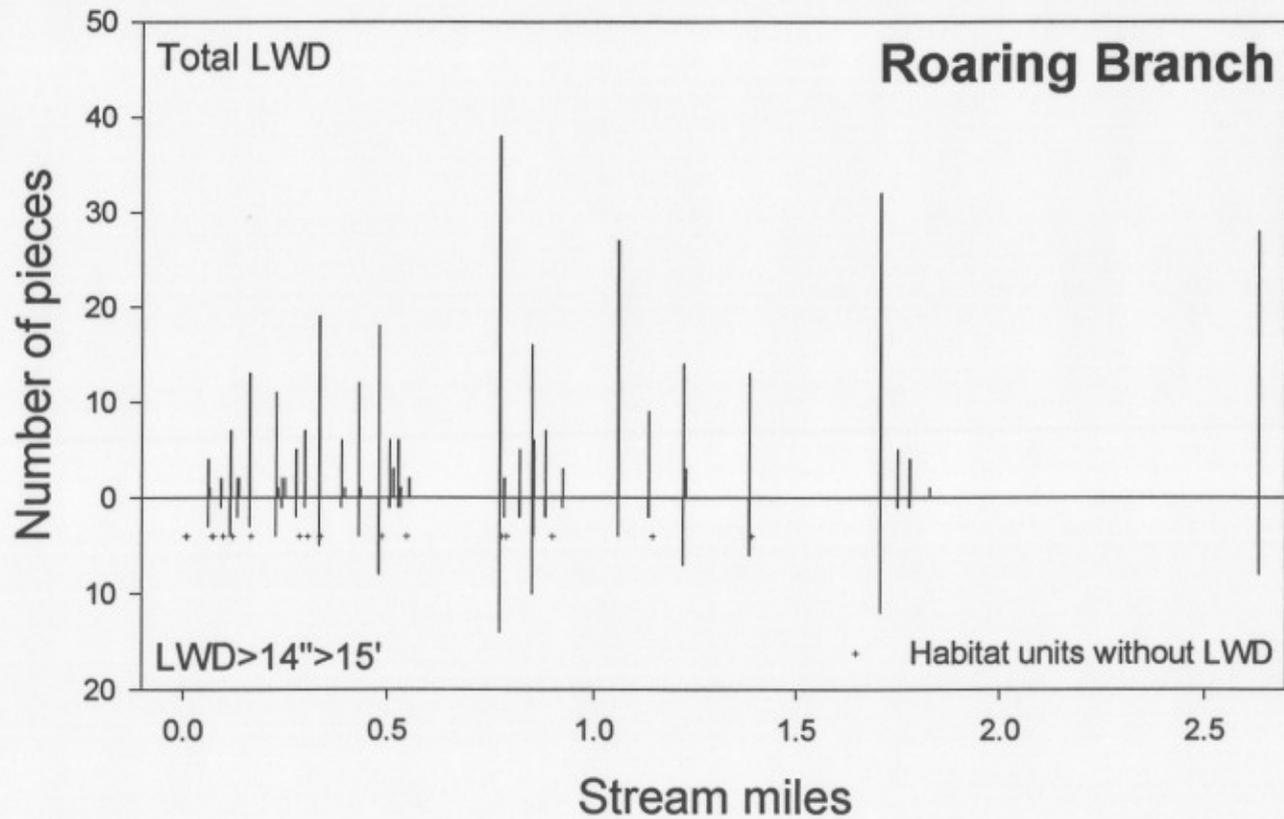
Mean width: 56.5 Std Dev: 36.5

Max: 107.9 Min: 26.3

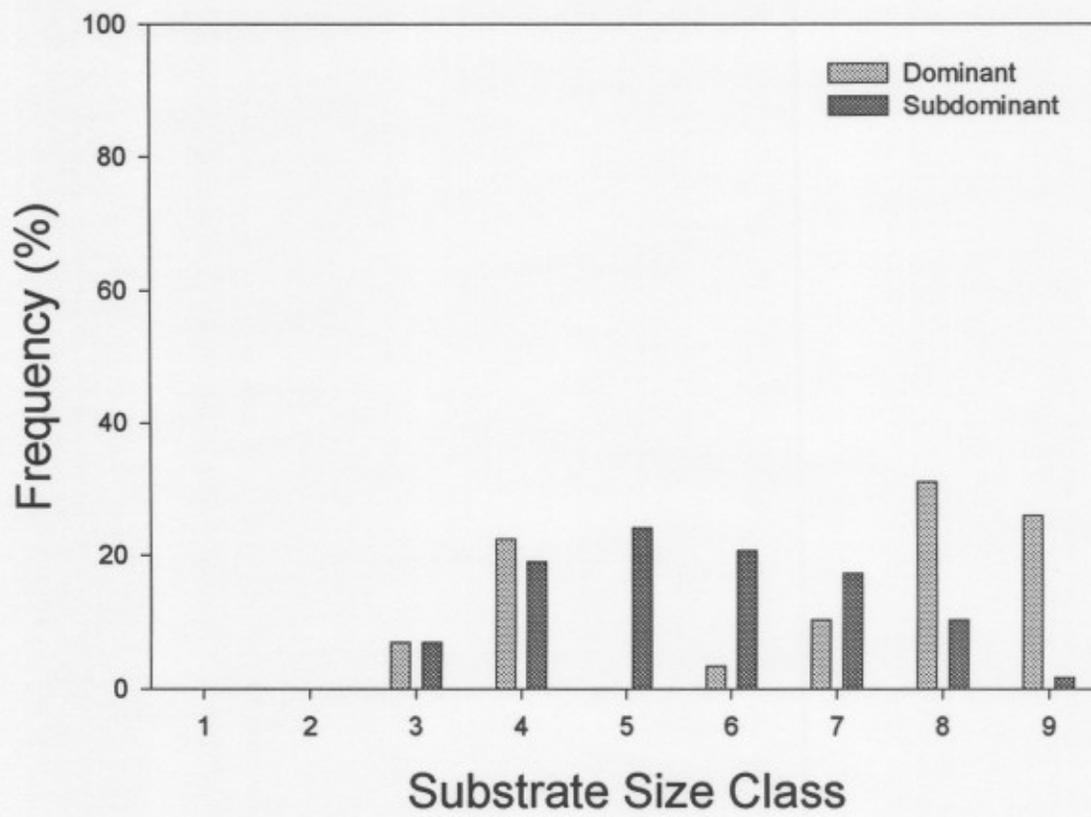


Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

# Large Woody Debris Distribution



## Roaring Branch Substrate Frequency



Stream: Reach #3

District: Clinch

Quadrangle: Norton

Sample Date: 8/6/96

Downstream Starting Point: USFS Boundary

**Total Distance Surveyed:** 0.96 miles

**Percent of Total Pool Area:** 21.1%(Glides make up 4.8%)

Number of Pools: 63

Number of Pools per mile: 61

Total Pool Area: 11,736.8 sq. ft.  $\pm$  314.5

Mean Pool Area: 186.3 sq. ft.

Correction Factor: 1.09

Mean Maximum Depth: 1.5'

Mean Average Depth: 0.9'

**Percent of Total Riffle Area:** 78.9%

Number of Riffles: 57

Number of Riffles per mile: 55

Total Riffle Area: 43,810.2 sq. ft.  $\pm$  5,961.1

Mean Riffle Area: 768.6 sq. ft.

Correction Factor: 1.15

Mean Maximum Depth: 0.7'

Mean Average Depth: 0.4'

**Number of Large Woody Debris Pieces per Mile:** 665.7

Wood < 15' and < 14": 393.8

Wood < 15' and > 14": 18.8

Wood > 15' and < 14": 217.7

Wood > 15' and > 14": 35.4

**Mean Channel Width:** 22.4'

**Mean Riparian Width:** 39.4'

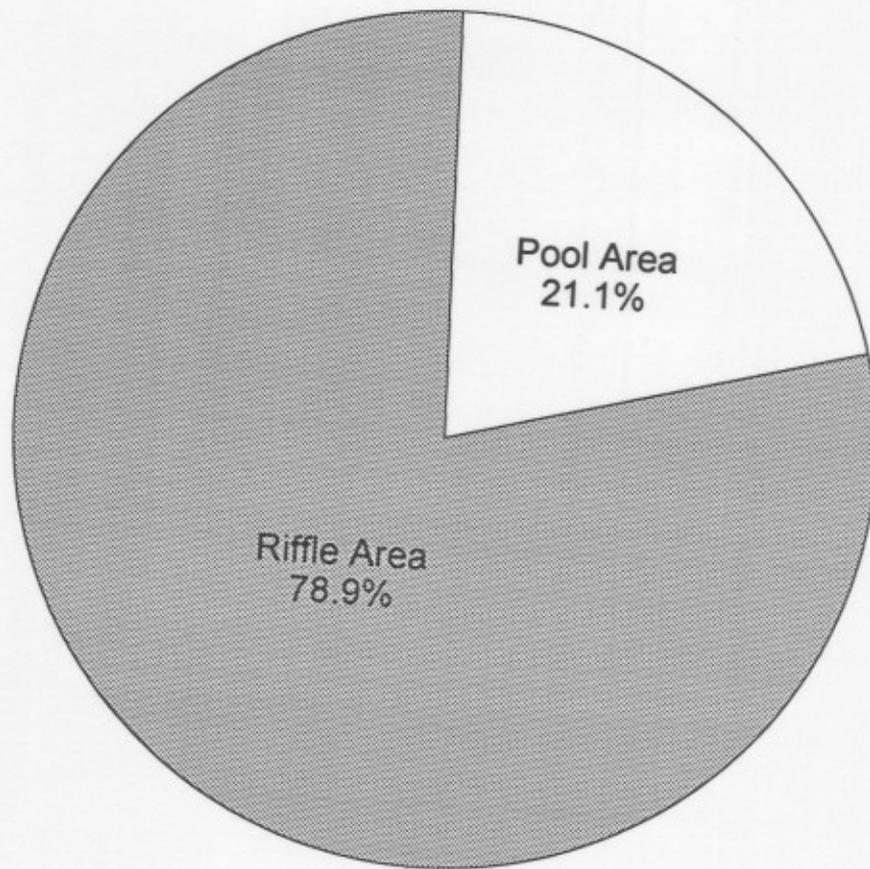
Mean Maximum Riparian Distance (either side): 11.6'

Mean Minimum Riparian Distance (either side): 5.3'

Maximum Riparian Width (Total): 56.5'

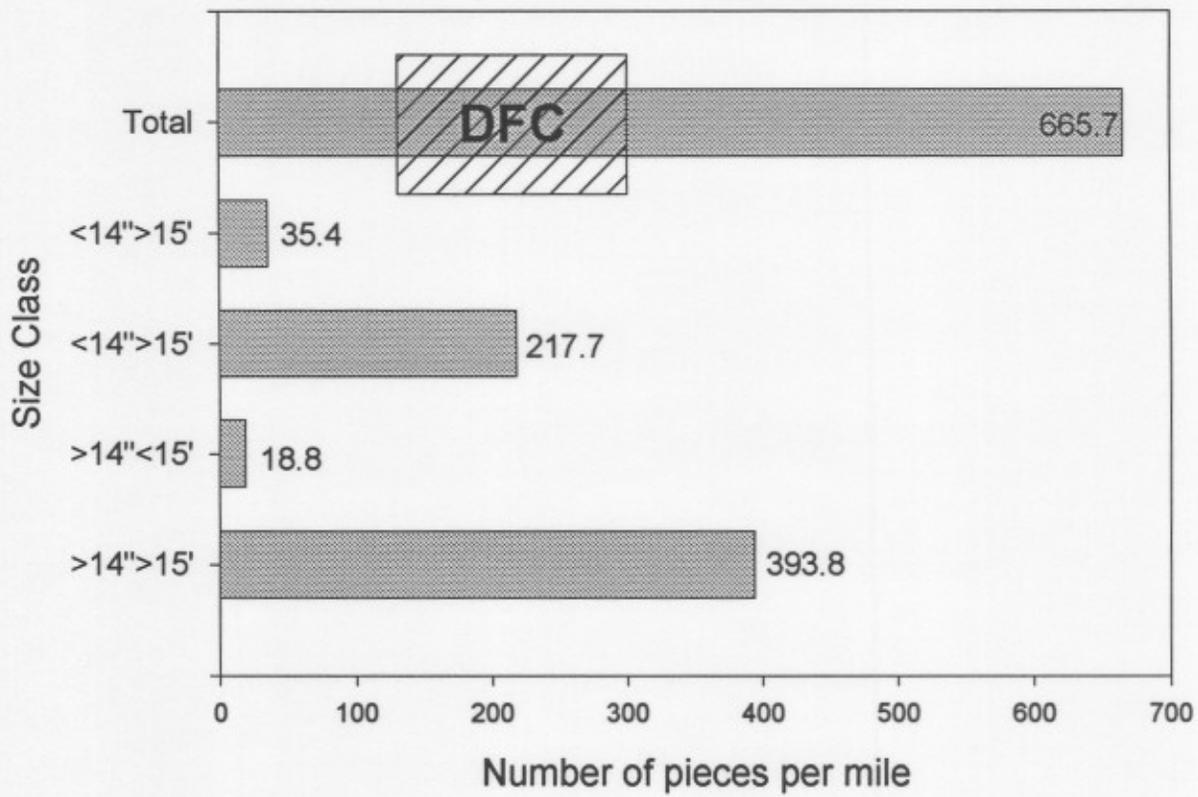
Minimum Riparian Width (Total): 28.2'

# Reach # 3 Pool : Riffle Ratio



DFC: Pool Area = 30% - 70%

## Reach # 3 Large Woody Debris



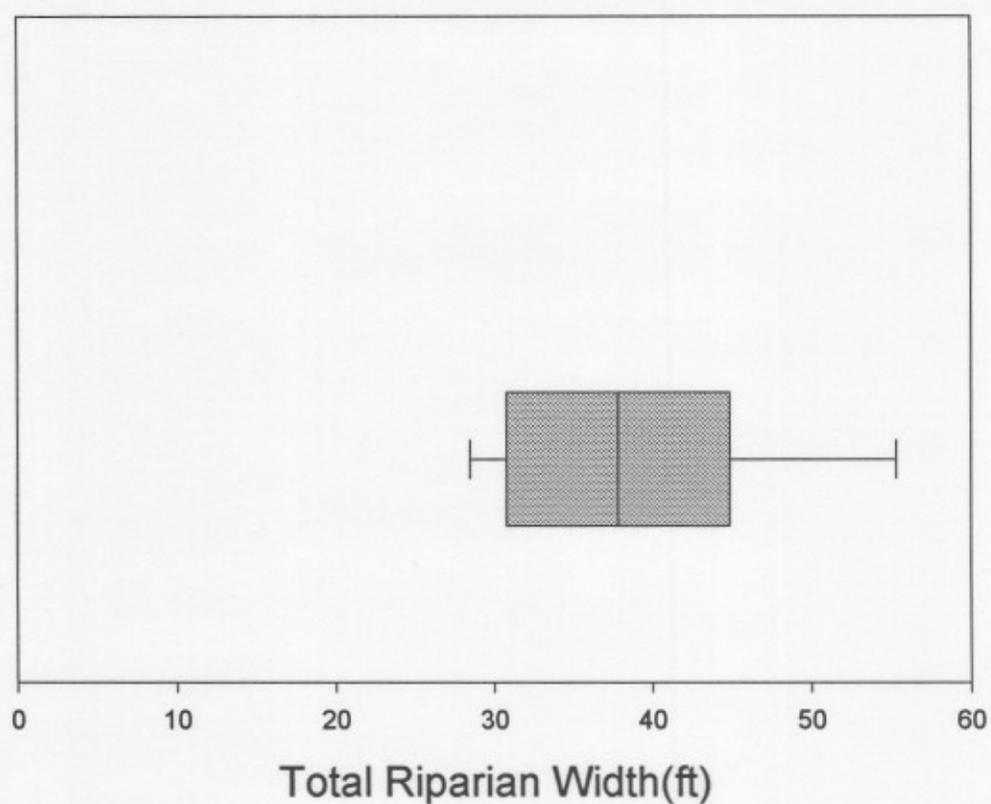
## Riparian Width

Stream: Reach # 3

Number of measurements: 6

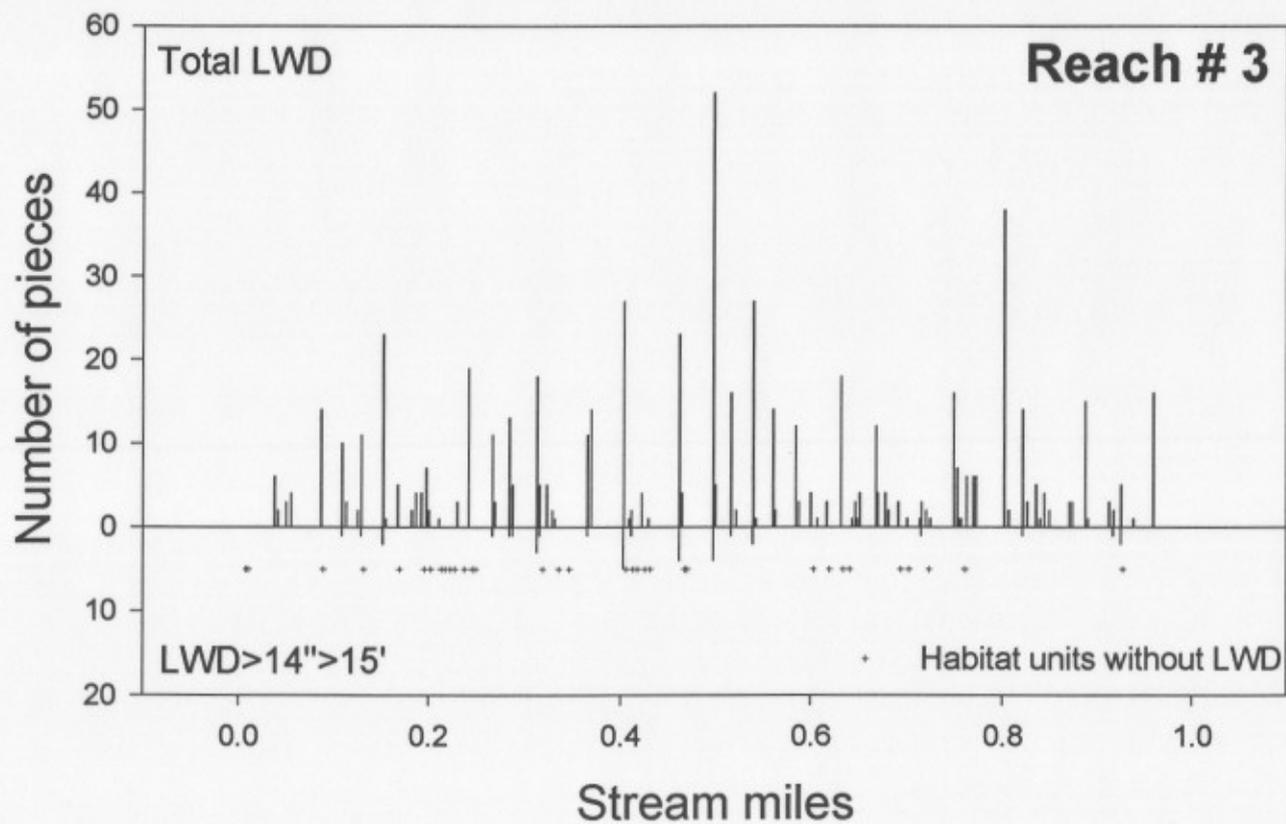
Mean width: 39.4 Std Dev: 10.4

Max: 56.5 Min: 28.2

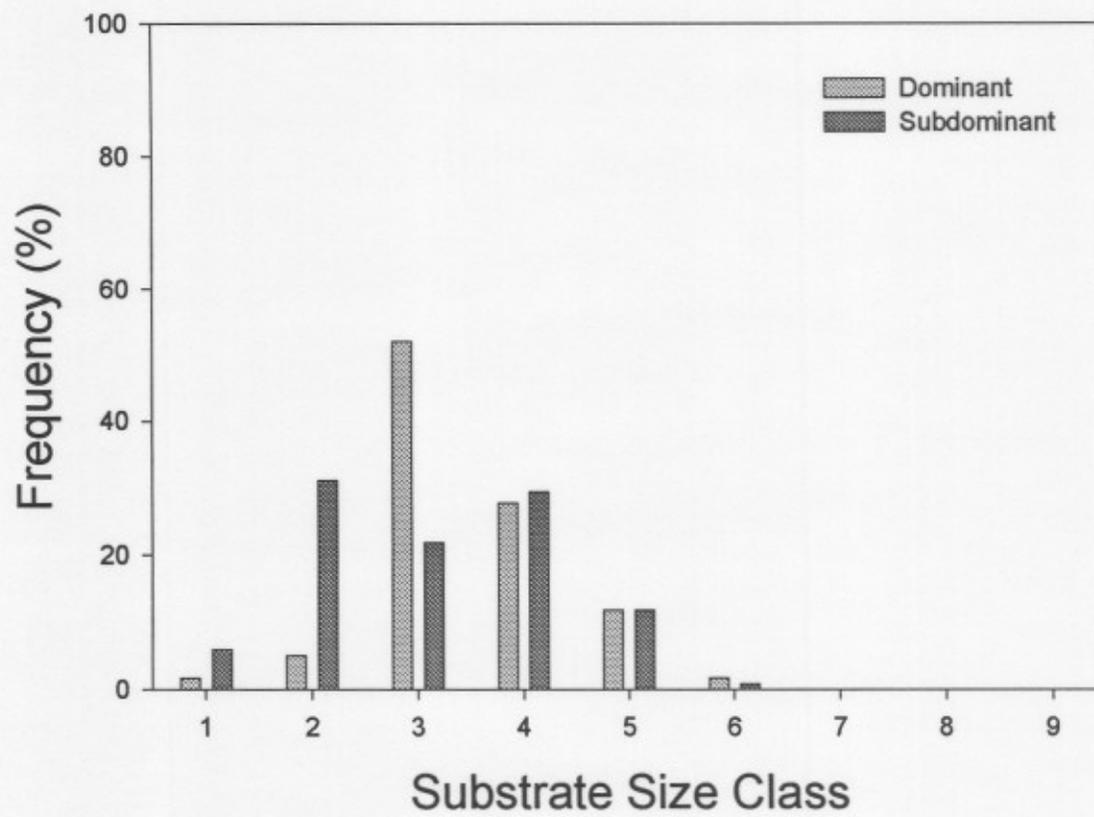


Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

# Large Woody Debris Distribution



### Reach #3 Substrate Frequency



Stream: Tributary of #3

District: Clinch

Quadrangle: Norton

Sample Date: 8/7/96

Downstream Starting Point: Confluence with #3

**Total Distance Surveyed: 0.3 miles**

**Percent of Total Pool Area: 2.8%** (Glides make up 0%)

Number of Pools: 5

Number of Pools per mile: 17

Total Pool Area: 361.7 sq. ft.

Mean Pool Area: 72.3 sq. ft.

Correction Factor: N/A

Mean Maximum Depth: 1.3'

Mean Average Depth: 1.0'

**Percent of Total Riffle Area: 97.2%**

Number of Riffles: 6

Number of Riffles per mile: 17

Total Riffle Area: 12,584.5 sq. ft.  $\pm$  10,124.8

Mean Riffle Area: 2,097.4 sq. ft.

Correction Factor: 1.45

Mean Maximum Depth: 0.5'

Mean Average Depth: 0.3'

**Number of Large Woody Debris Pieces per Mile: 450.1**

Wood < 15' and < 14": 226.7

Wood < 15' and > 14": 46.7

Wood > 15' and < 14": 120.0

Wood > 15' and > 14": 56.7

**Mean Channel Width: 15.5'**

**Mean Riparian Width: 27.3'**

Mean Maximum Riparian Distance (either side): 7.5'

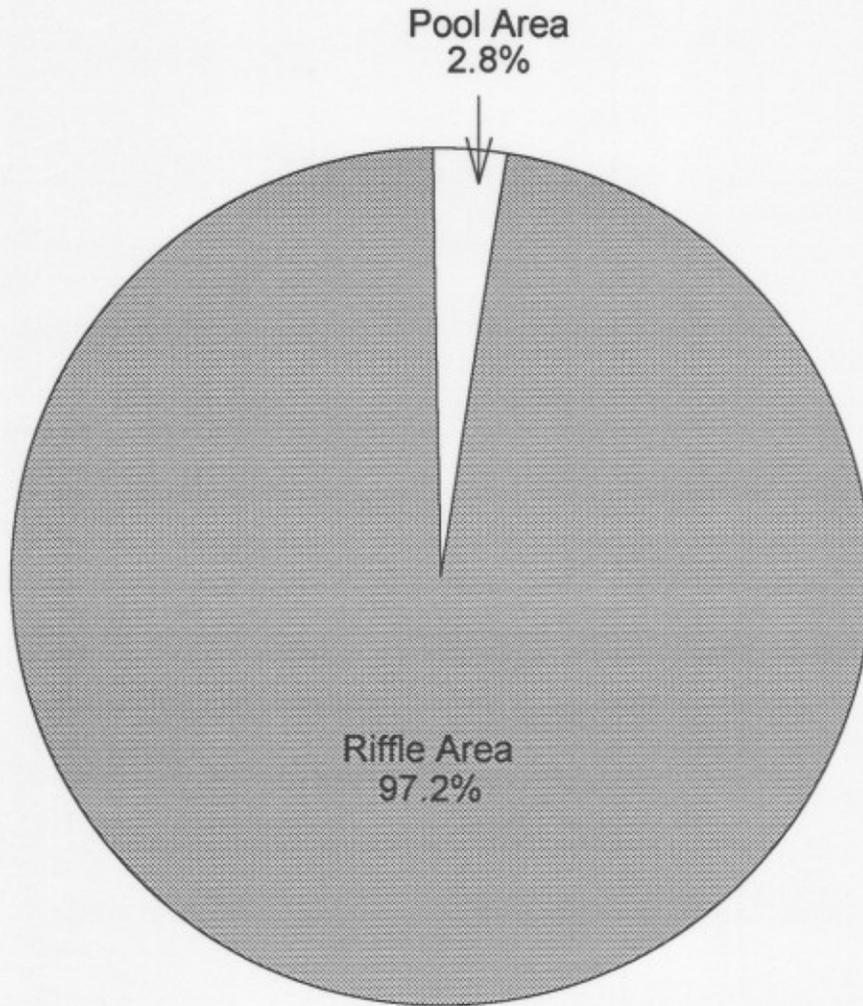
Mean Minimum Riparian Distance (either side): 4.4'

Maximum Riparian Width (Total): 32.2'

Minimum Riparian Width (Total): 22.4'

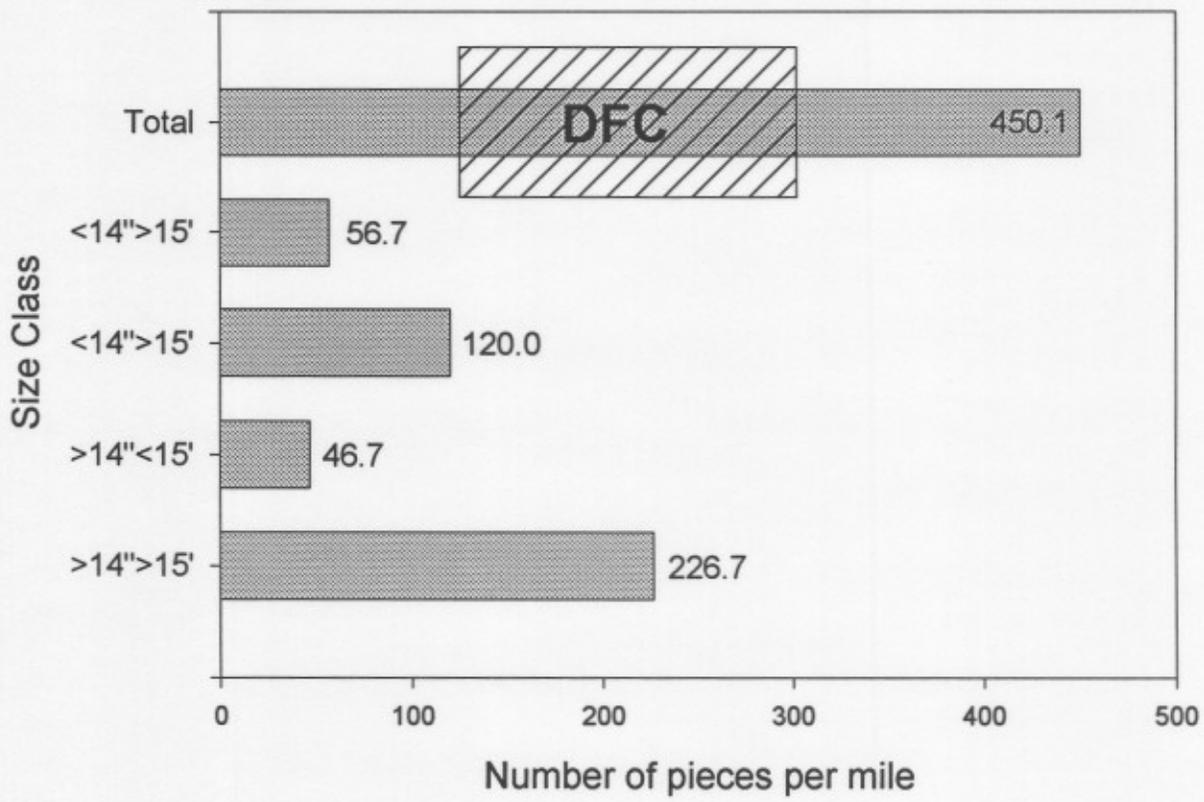
# Tributary of Reach # 3

## Pool : Riffle Ratio



DFC: Pool Area = 30% - 70%

## Tributary of Reach # 3 Large Woody Debris



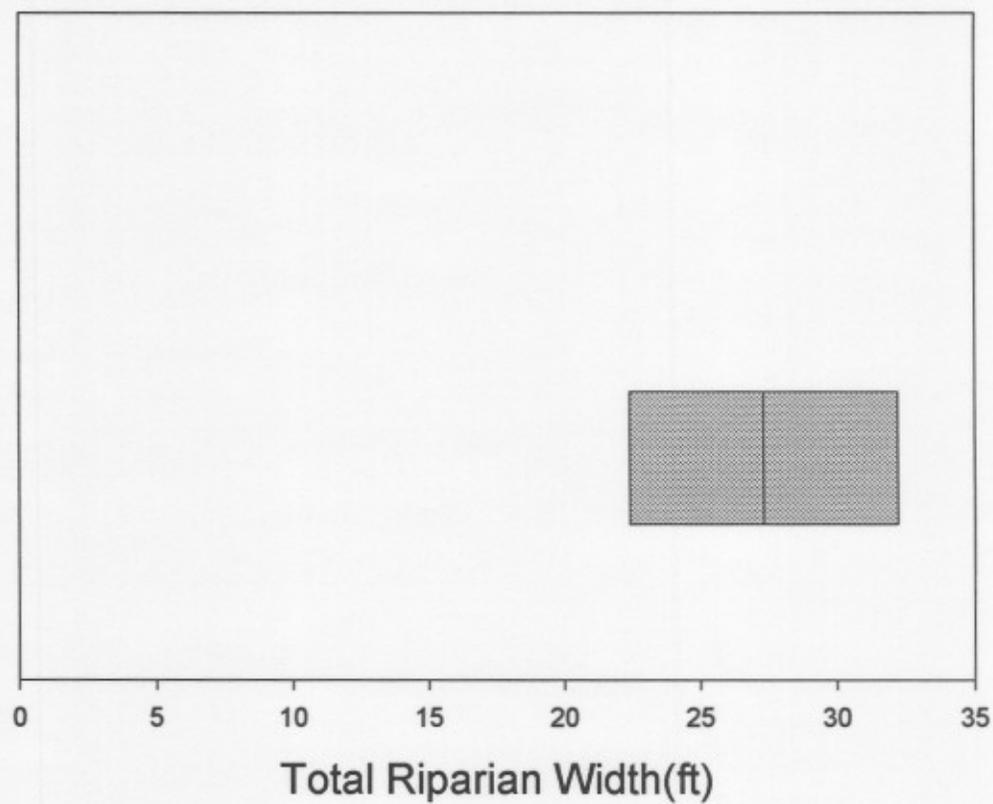
## Riparian Width

Stream: Trib. of Reach # 3

Number of measurements: 2

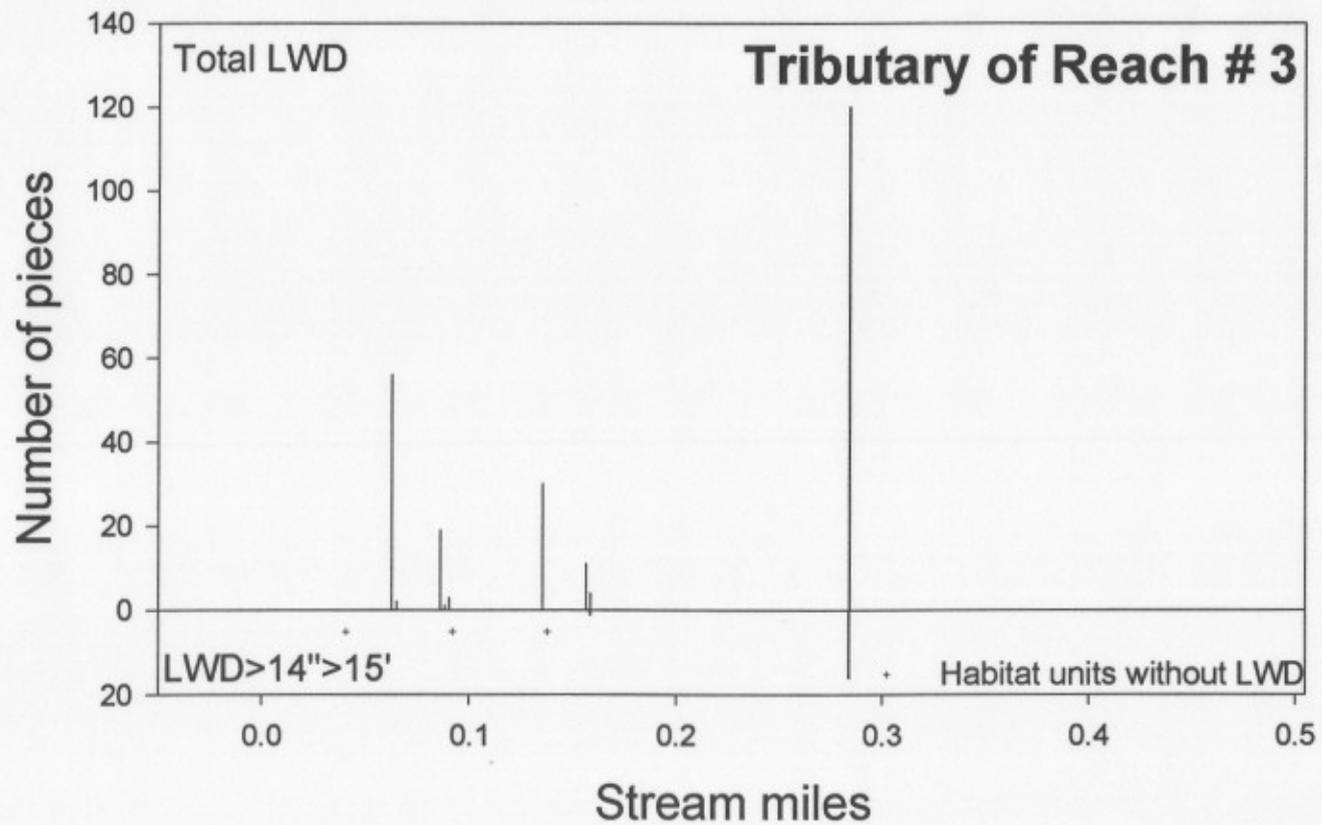
Mean width: 27.3 Std Dev: 6.9

Max: 32.2 Min: 22.4

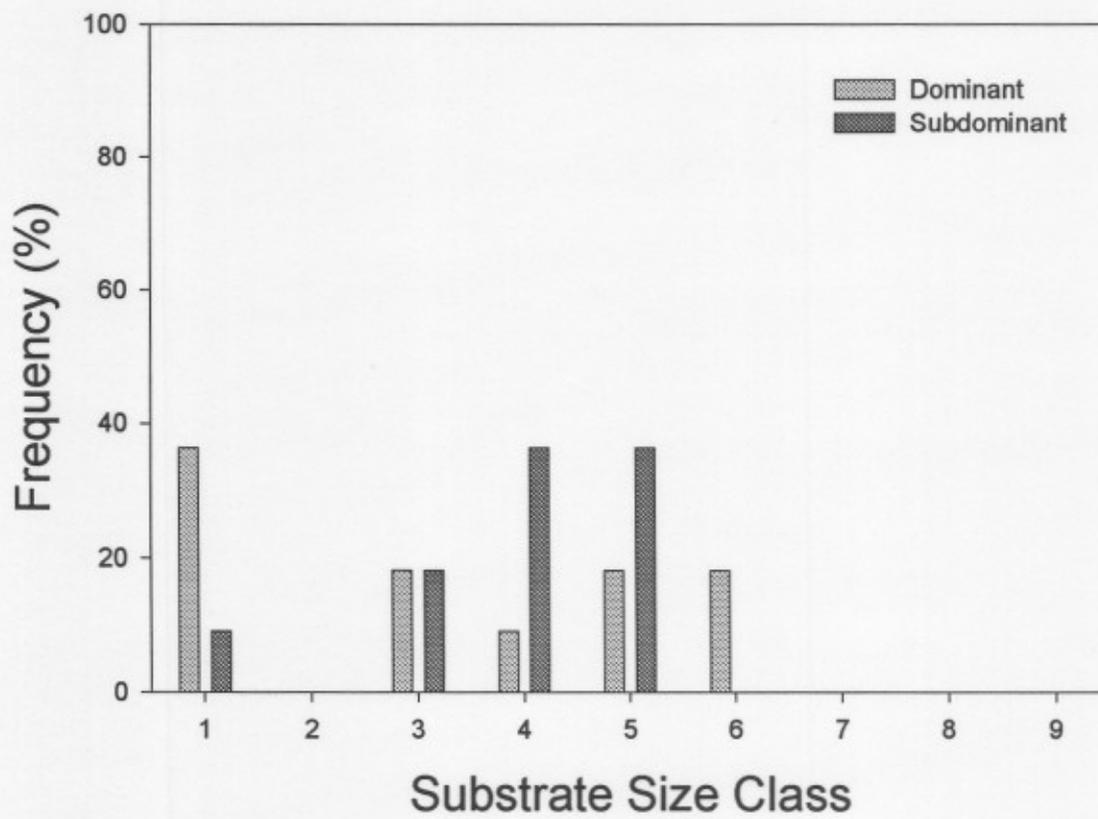


Box plot of total riparian width. The box encloses the middle 50% of the observations, the bar in the center of the box represents the median, and the capped lines extending above and below the box represent the 90% and 10% quantiles.

# Large Woody Debris Distribution



### Tributary of Reach #3 Substrate Frequency



Stream: Burns Creek

District: Clinch

Quadrangle: Wise

Sample Date: 6/3/96

Downstream Starting Point: Concrete ford

**Total Distance Surveyed: 3.1 miles**

**Percent of Total Pool Area: 13.8%**(Glides make up 40.5%)

Number of Pools: 116

Number of Pools per mile: 37

Total Pool Area: 36,411.2 sq. ft.  $\pm$  4,397.3

Mean Pool Area: 313.9 sq. ft.

Correction Factor: 0.81

Mean Maximum Depth: 1.8'

Mean Average Depth: 1.0'

**Percent of Total Riffle Area: 86.2%**

Number of Riffles: 104

Number of Riffles per mile: 33

Total Riffle Area: 227,152.8 sq. ft.  $\pm$  51,700.9

Mean Riffle Area: 2,184.2 sq. ft.

Correction Factor: 0.93

Mean Maximum Depth: 1.3'

Mean Average Depth: 0.6'

**Number of Large Woody Debris Pieces per Mile: 252.5**

Wood < 15' and < 14": 100.3

Wood < 15' and > 14": 14.8

Wood > 15' and < 14": 118.4

Wood > 15' and > 14": 19.0

**Mean Channel Width: 29.9'**

**Mean Riparian Width: 57.2'**

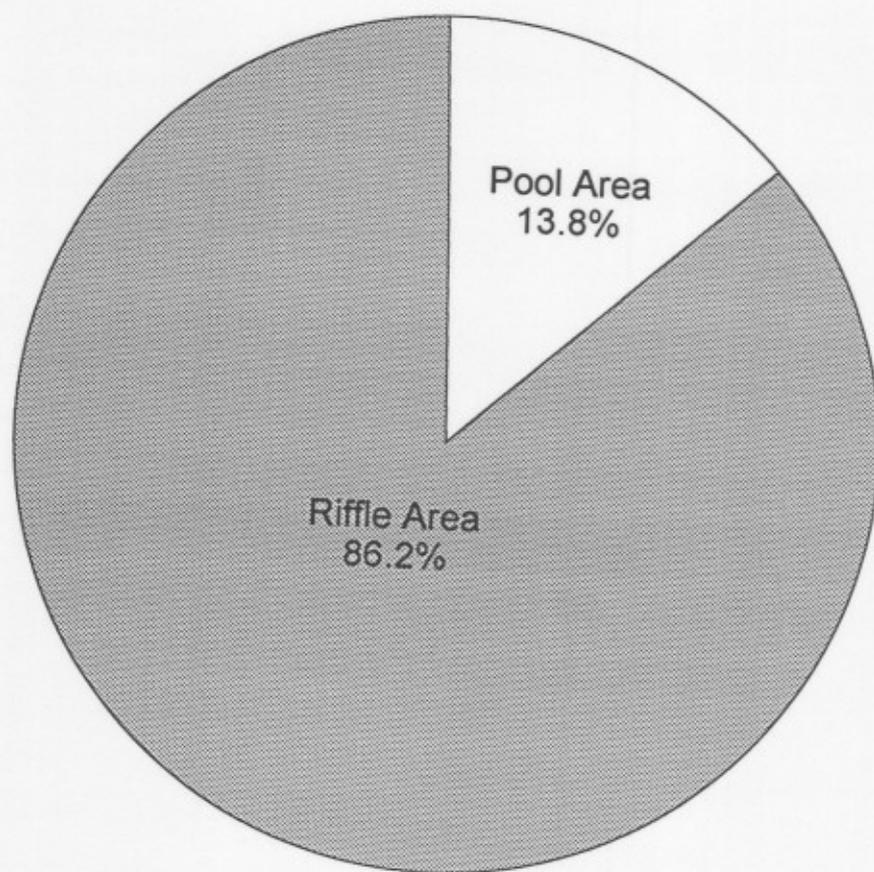
Mean Maximum Riparian Distance (either side): 21.4'

Mean Minimum Riparian Distance (either side): 5.9'

Maximum Riparian Width (Total): 129.0'

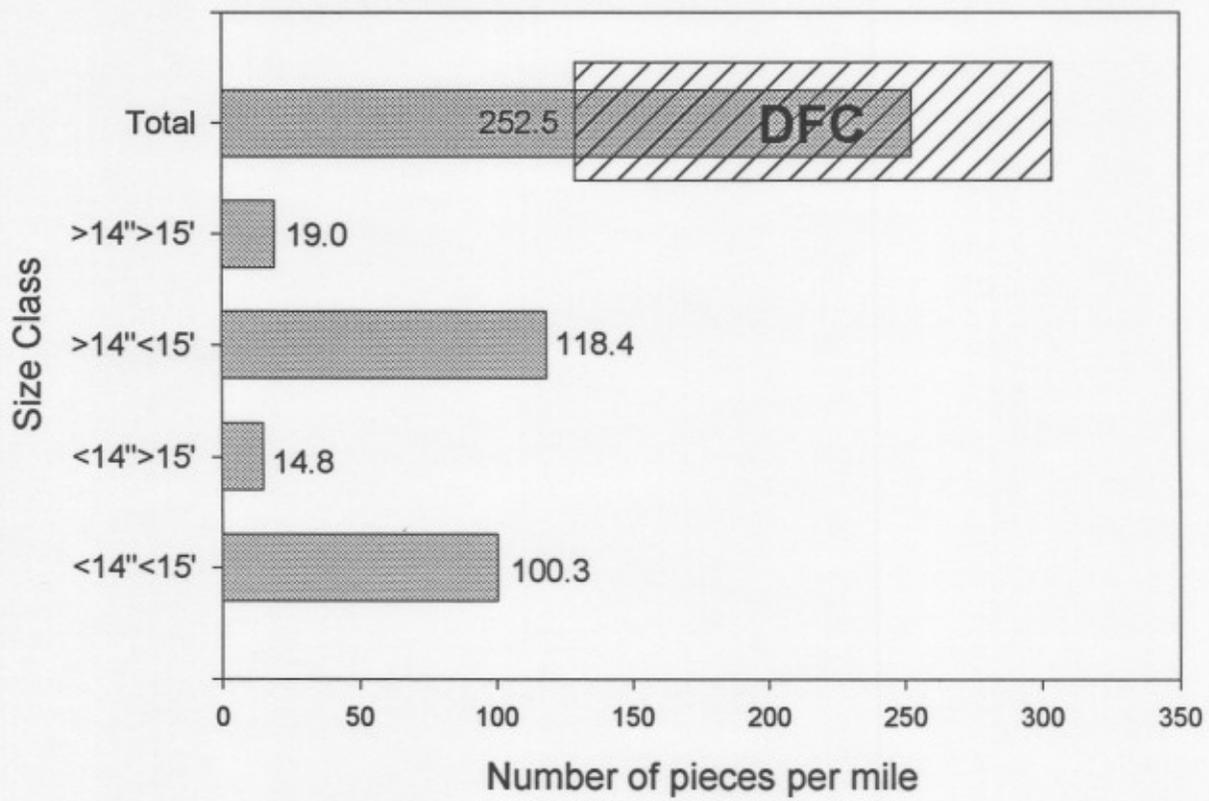
Minimum Riparian Width (Total): 29.3'

# Burns Creek Pool : Riffle Ratio



DFC: Pool Area = 30% - 70%

## Burns Creek Large Woody Debris



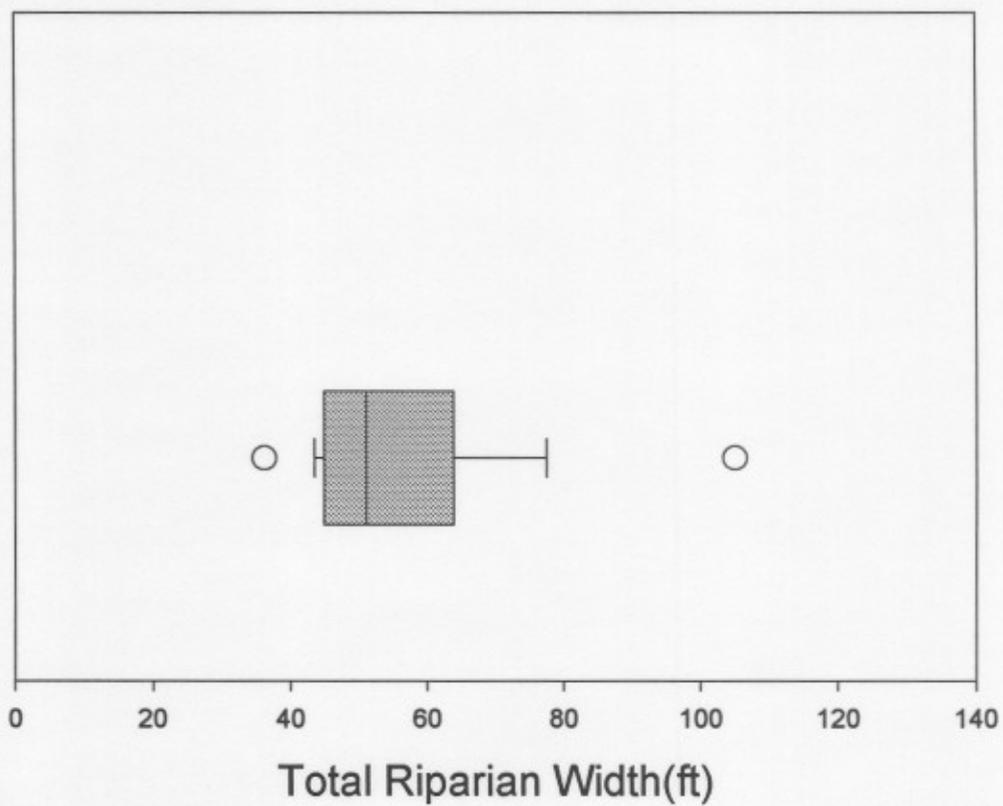
## Riparian Width

Stream: Burns Creek

Number of measurements: 21

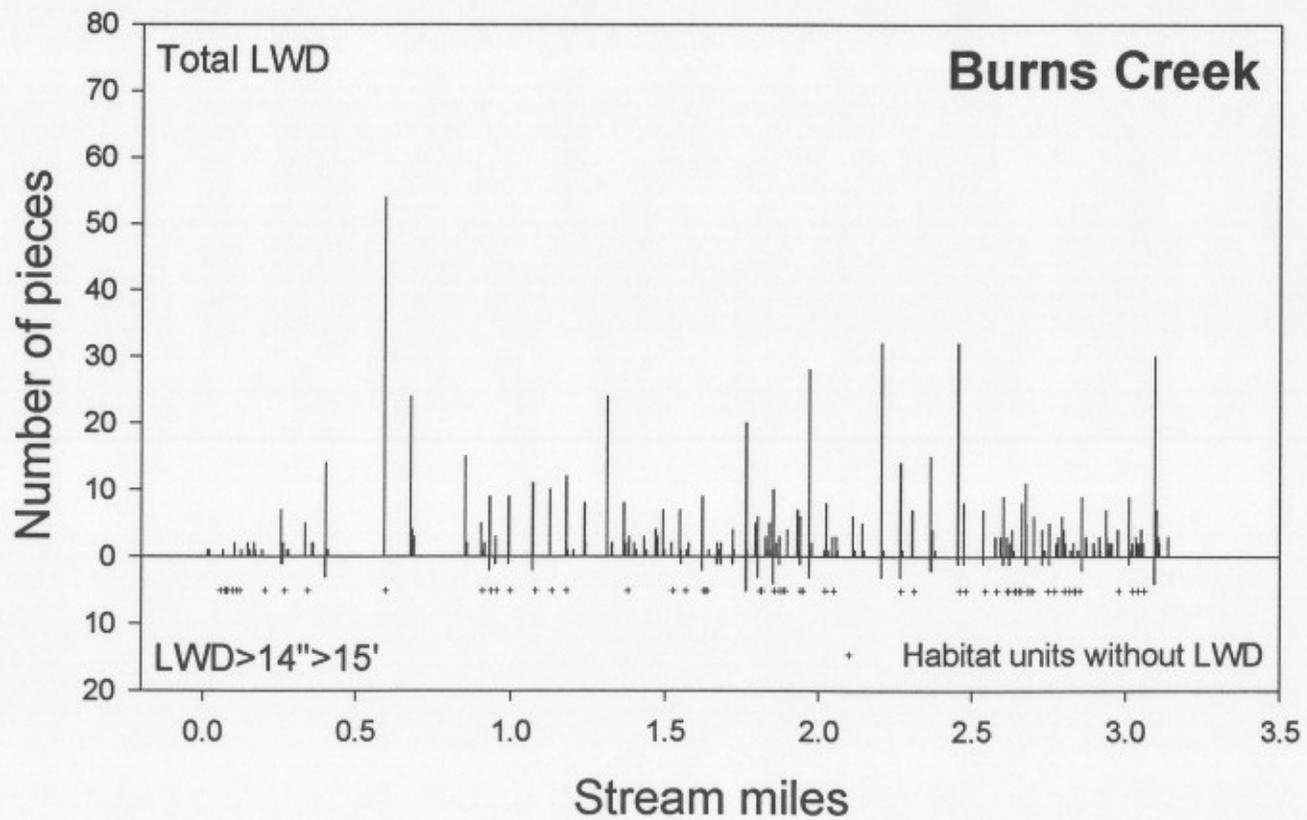
Mean width: 57.2 Std Dev: 20.8

Max: 129.0 Min: 29.3



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.

# Large Woody Debris Distribution



Stream: Clear Creek

District: Clinch

Quadrangle: Wise

Sample Date: 6/25/96

Downstream Starting Point:

**Total Distance Surveyed: 7.1 miles**

**Percent of Total Pool Area: 15.3%**(Glides make up 60.3%)

Number of Pools: 116

Number of Pools per mile: 16

Total Pool Area: 73,488.0 sq. ft.  $\pm$  10,921.5

Mean Pool Area: 633.5 sq. ft.

Correction Factor: 1.03

Mean Maximum Depth: 1.7'

Mean Average Depth: 0.9'

**Percent of Total Riffle Area: 84.7%**

Number of Riffles: 121

Number of Riffles per mile: 17

Total Riffle Area: 406,410.0 sq. ft.  $\pm$  120,994.1

Mean Riffle Area: 3,358.8 sq. ft.

Correction Factor: 1.19

Mean Maximum Depth: 1.1'

Mean Average Depth: 0.5'

**Number of Large Woody Debris Pieces per Mile: 162.2**

Wood < 15' and < 14": 72.5

Wood < 15' and > 14": 12.8

Wood > 15' and < 14": 60.6

Wood > 15' and > 14": 16.3

**Mean Channel Width: 34.4'**

**Mean Riparian Width: 92.8'**

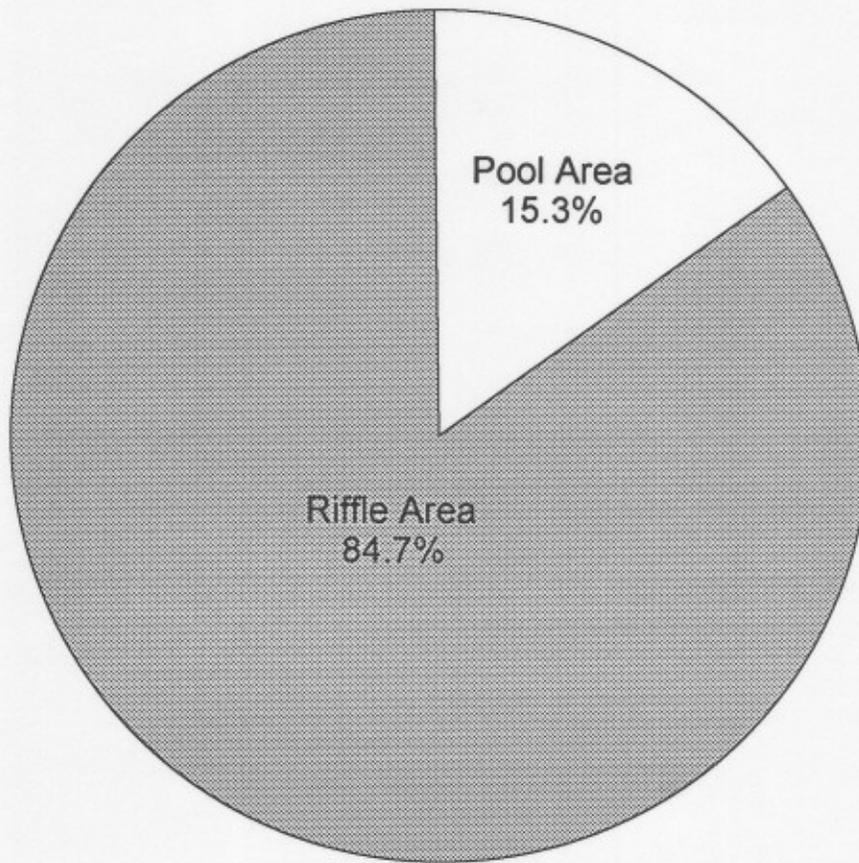
Mean Maximum Riparian Distance (either side): 42.6'

Mean Minimum Riparian Distance (either side): 15.8'

Maximum Riparian Width (Total): 286.8'

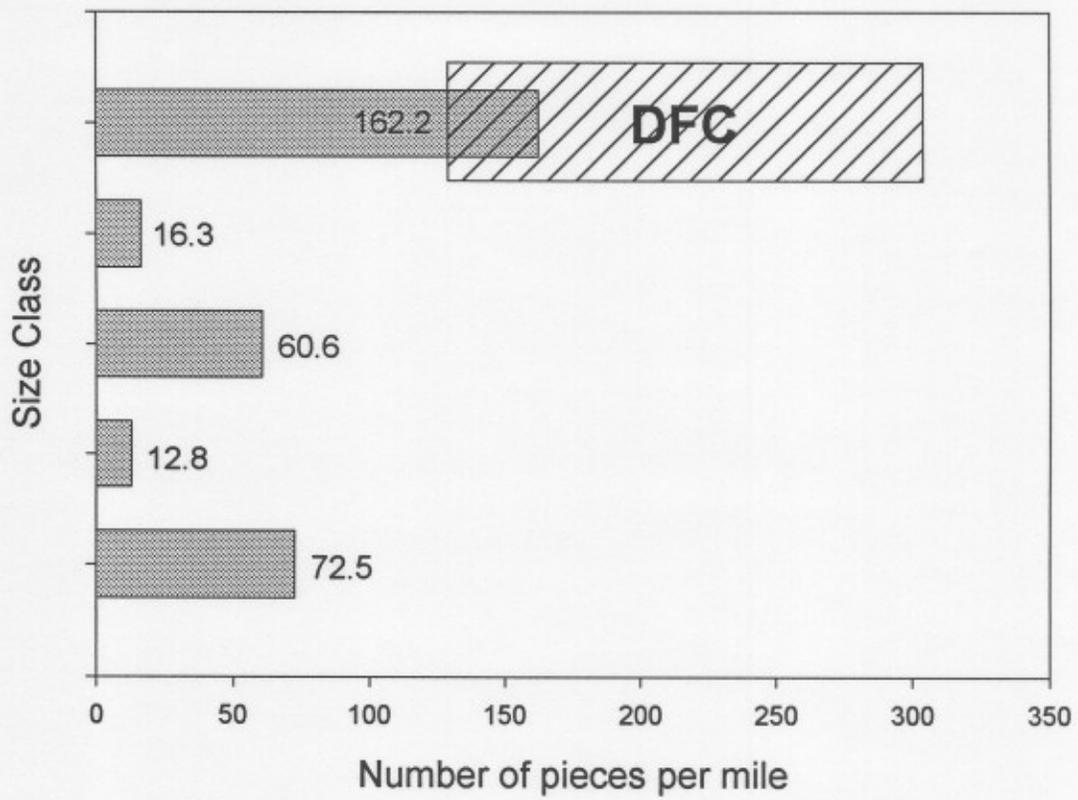
Minimum Riparian Width (Total): 37.0'

# Clear Creek Pool : Riffle Ratio



**DFC: Pool Area = 30% - 70%**

## Clear Creek Large Woody Debris



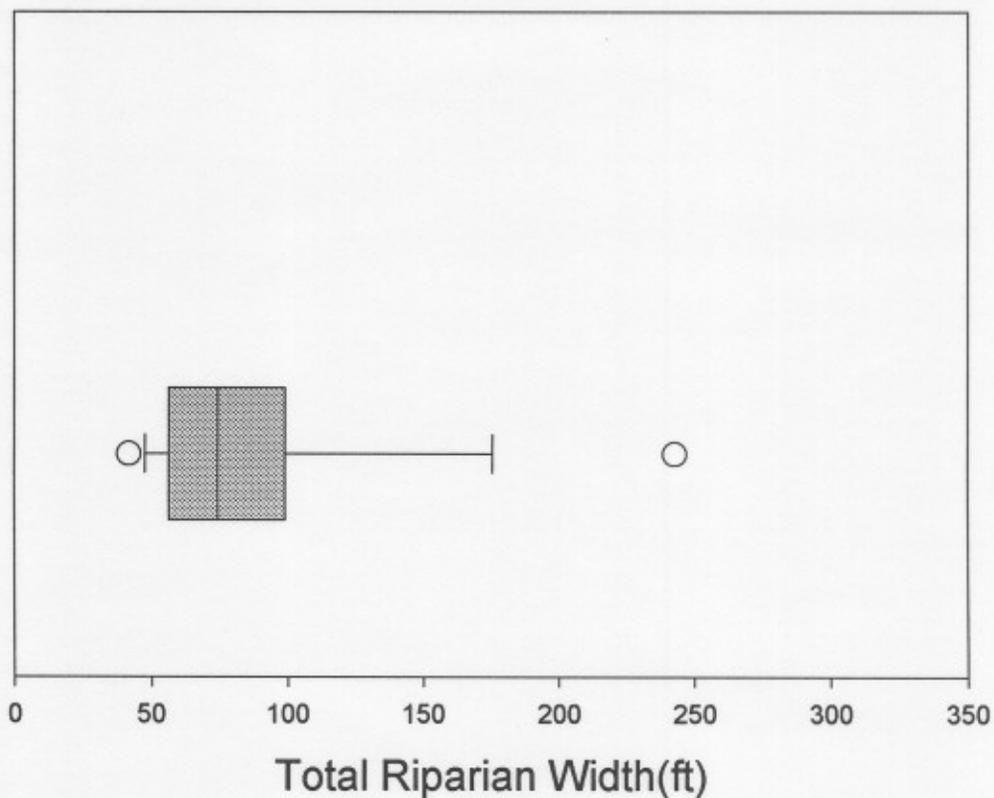
## Riparian Width

Stream: Clear Creek

Number of measurements: 21

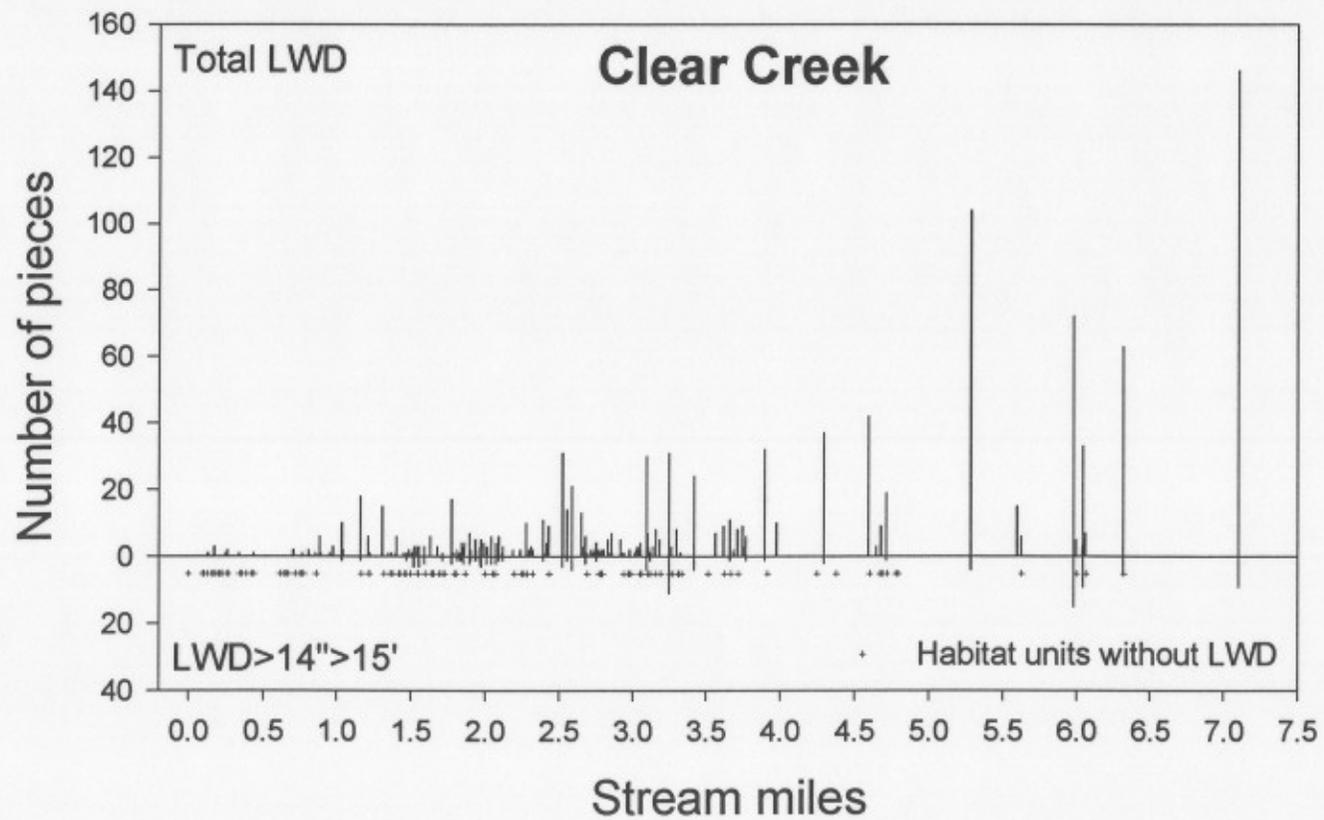
Mean width: 92.8 Std Dev: 61.3

Max: 286.8 Min: 37.0



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.

# Large Woody Debris Distribution



Stream: Lost Creek

District: Clinch

Quadrangle: Wise

Sample Date: 7/23/96

Downstream Starting Point: USFS Boundary

**Total Distance Surveyed: 1.4 miles**

**Percent of Total Pool Area: 11.3%**(Glides make up 71.4%)

Number of Pools: 14

Number of Pools per mile: 10

Total Pool Area: 6,654.0 sq. ft.

Mean Pool Area: 475.3 sq. ft.

Correction Factor: N/A

Mean Maximum Depth: 1.6'

Mean Average Depth: 0.8'

**Percent of Total Riffle Area: 88.7%**

Number of Riffles: 15

Number of Riffles per mile: 11

Total Riffle Area: 52,272.9 sq. ft. ± 332,675.4

Mean Riffle Area: 3,484.9 sq. ft.

Correction Factor: 0.64

Mean Maximum Depth: 1.3'

Mean Average Depth: 0.5'

**Number of Large Woody Debris Pieces per Mile: 127.7**

Wood < 15' and < 14": 62.1

Wood < 15' and > 14": 7.1

Wood > 15' and < 14": 42.1

Wood > 15' and > 14": 16.4

**Mean Channel Width: 22.4'**

**Mean Riparian Width: 47.4'**

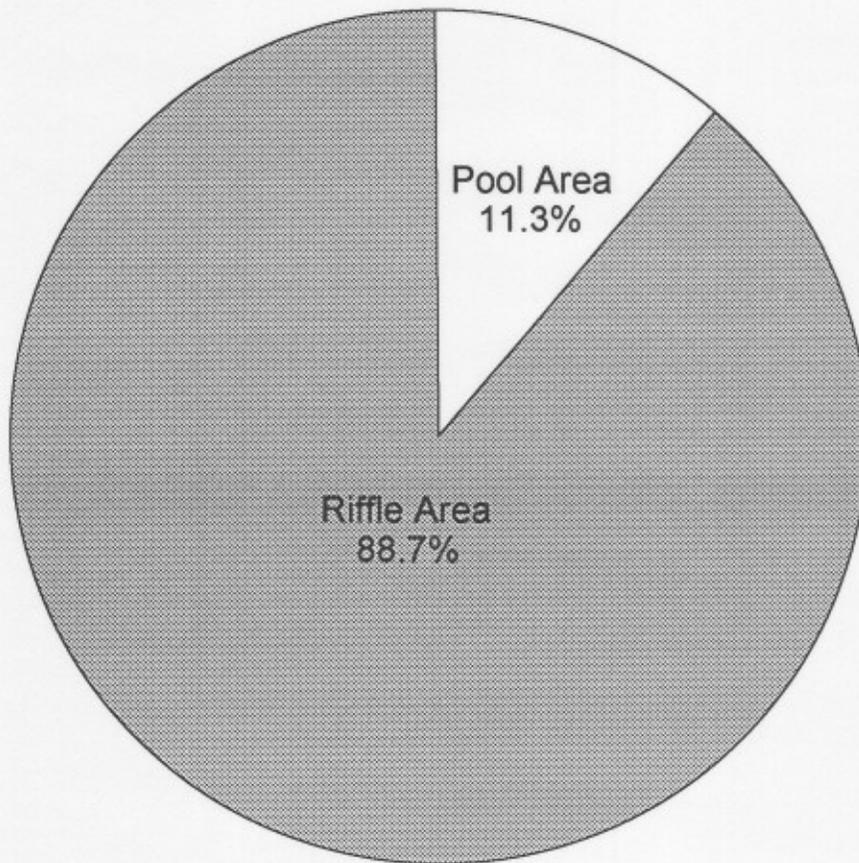
Mean Maximum Riparian Distance (either side): 19.2'

Mean Minimum Riparian Distance (either side): 5.8'

Maximum Riparian Width (Total): 50.7'

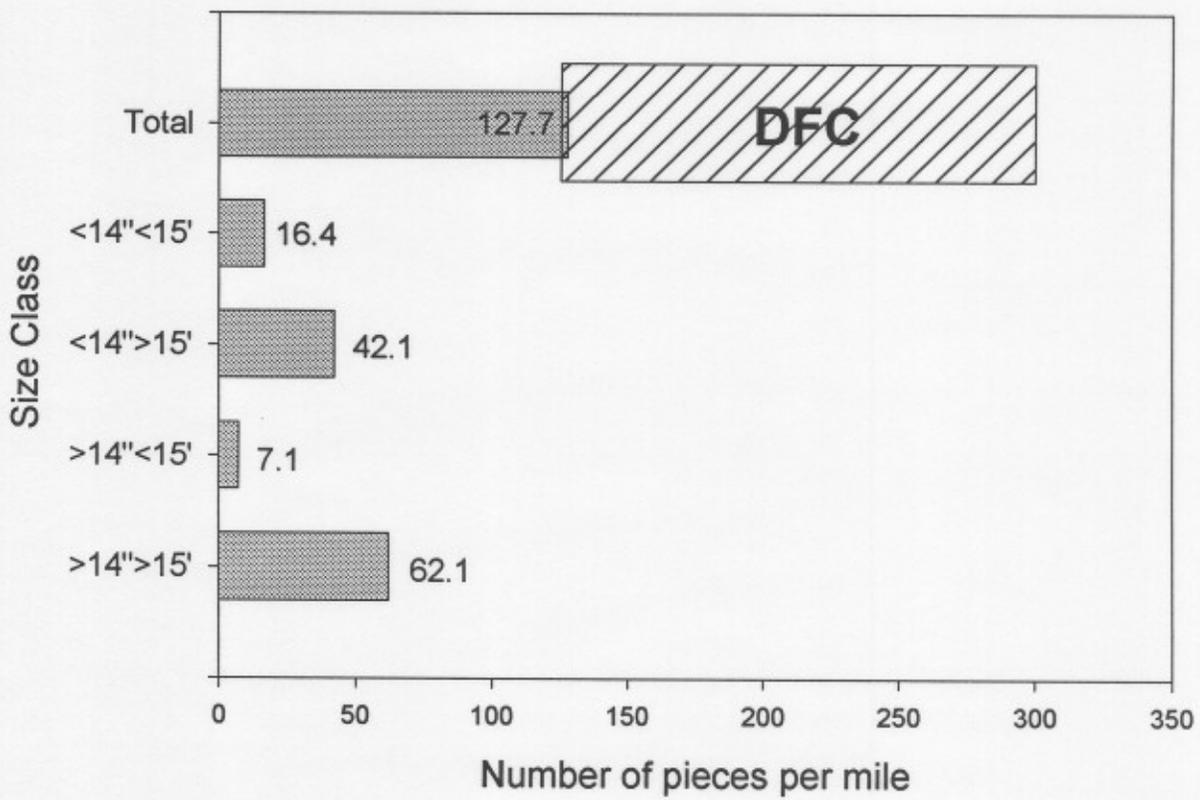
Minimum Riparian Width (Total): 44.0'

# Lost Creek Pool : Riffle Ratio



**DFC: Pool Area = 30% - 70%**

# Lost Creek Large Woody Debris



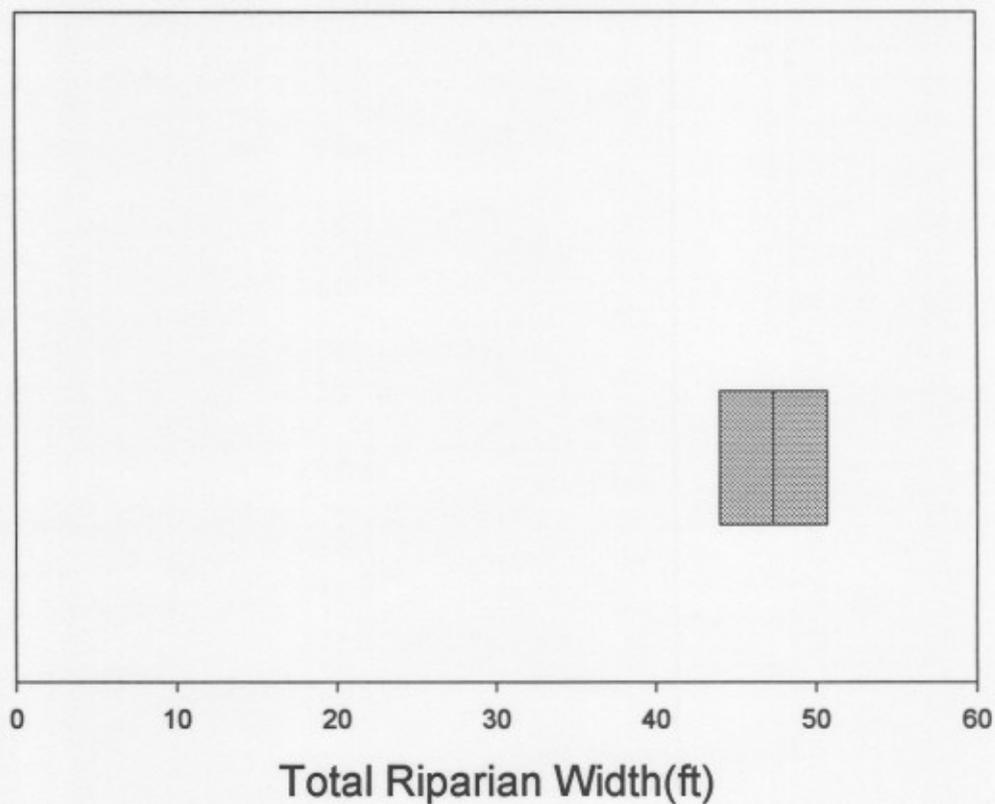
## Riparian Width

Stream: Lost Creek

Number of measurements: 2

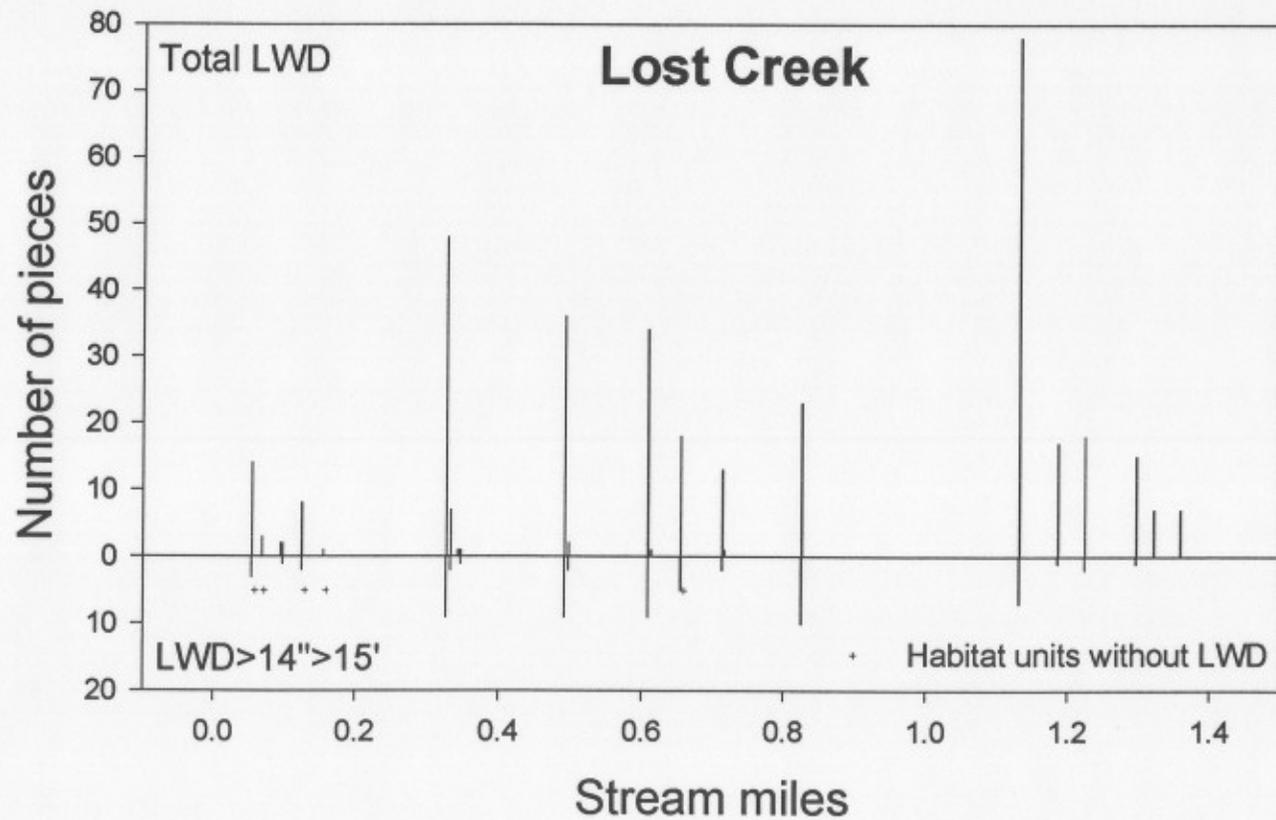
Mean width: 47.4 Std Dev: 4.7

Max: 50.7 Min: 44.0



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.

# Large Woody Debris Distribution



Stream: Machine Creek

District: Clinch

Quadrangle: Wise

Sample Date: 6/13/96

Downstream Starting Point: USFS Boundary

**Total Distance Surveyed: 2.0 miles**

**Percent of Total Pool Area: 34.3%**(Glides make up 53.8%)

Number of Pools: 39

Number of Pools per mile: 20

Total Pool Area: 33,643.7 sq. ft.  $\pm$  240,248.2

Mean Pool Area: 862.7 sq. ft.

Correction Factor: 1.10

Mean Maximum Depth: 1.3'

Mean Average Depth: 0.7'

**Percent of Total Riffle Area: 65.7%**

Number of Riffles: 38

Number of Riffles per mile: 19

Total Riffle Area: 64,306.7 sq. ft.  $\pm$  15,359.8

Mean Riffle Area: 1,692.3 sq. ft.

Correction Factor: 1.0

Mean Maximum Depth: 1.0'

Mean Average Depth: 0.4'

**Number of Large Woody Debris Pieces per Mile: 159.0**

Wood < 15' and < 14": 61.0

Wood < 15' and > 14": 14.0

Wood > 15' and < 14": 60.5

Wood > 15' and > 14": 23.5

**Mean Channel Width: 18.7'**

**Mean Riparian Width: 84.4'**

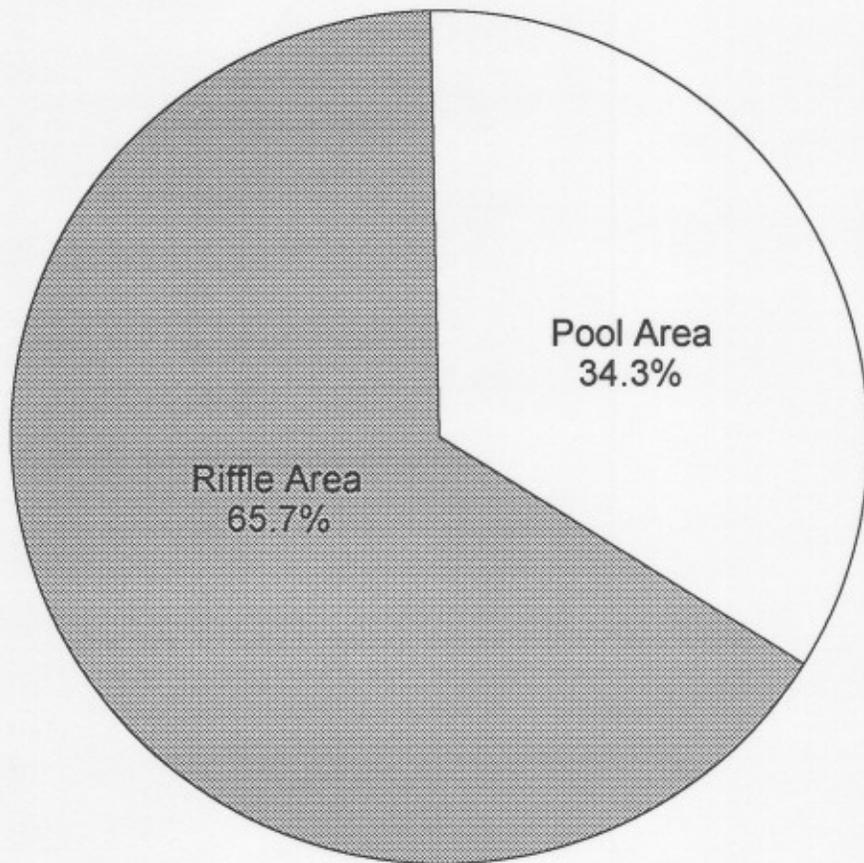
Mean Maximum Riparian Distance (either side): 54.2'

Mean Minimum Riparian Distance (either side): 11.5'

Maximum Riparian Width (Total): 149.0'

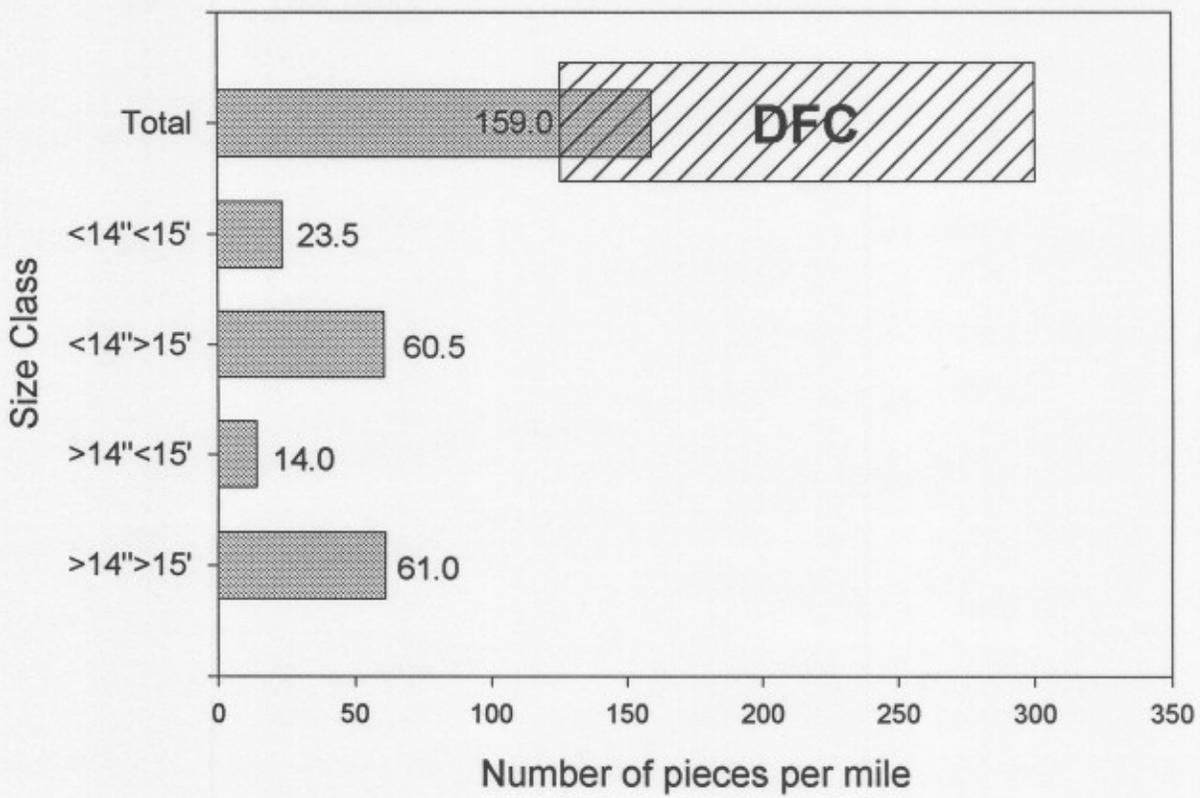
Minimum Riparian Width (Total): 41.0'

## Machine Creek Pool : Riffle Ratio



**DFC: Pool Area = 30% - 70%**

## Machine Creek Large Woody Debris



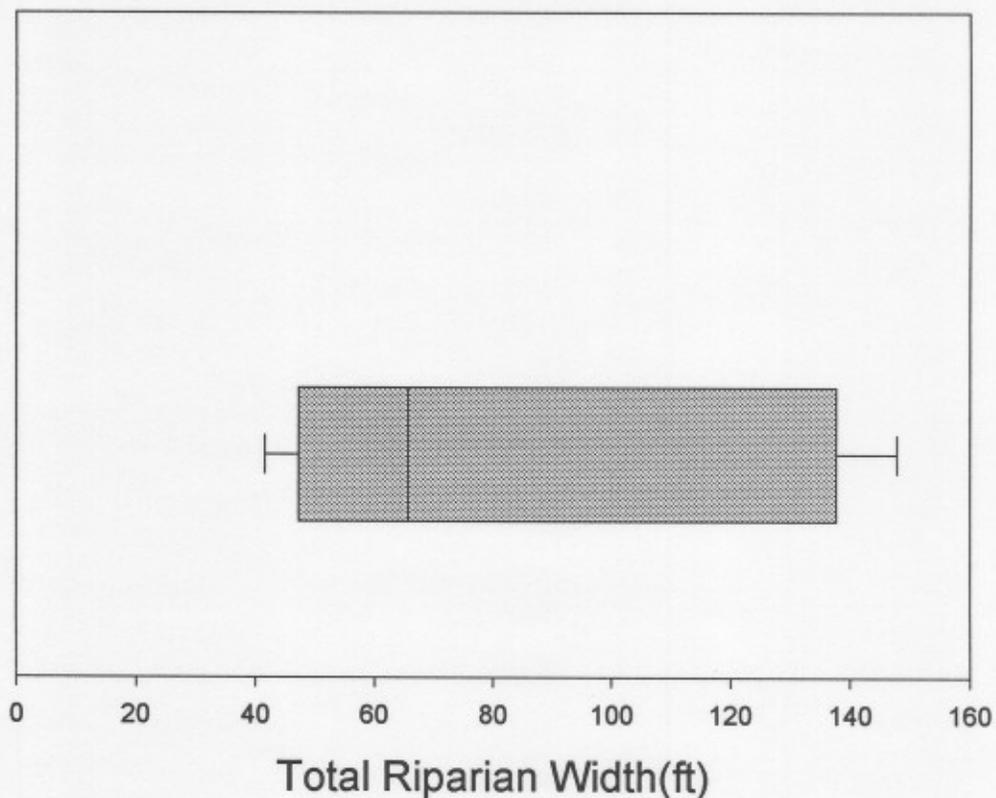
## Riparian Width

Stream: Machine Creek

Number of measurements: 6

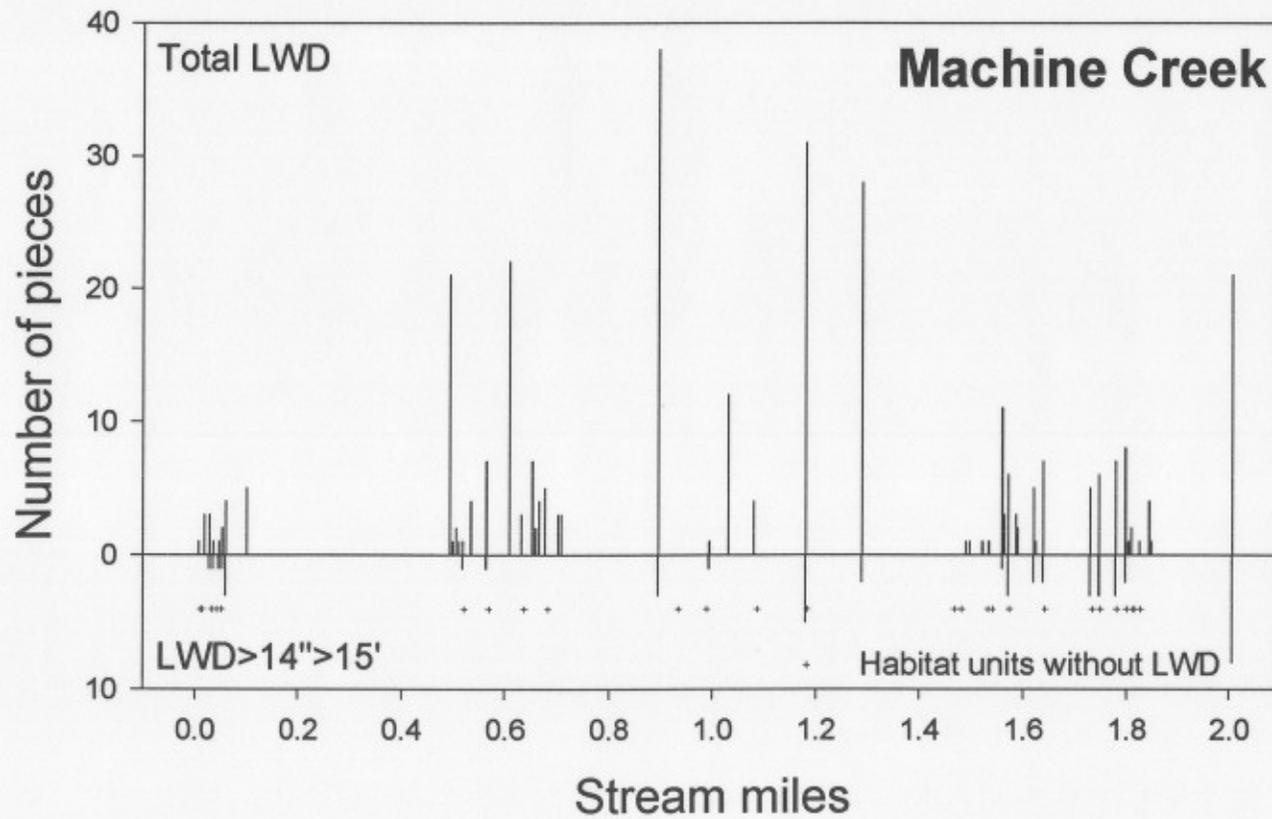
Mean width: 84.4 Std Dev: 47.9

Max: 149.0 Min: 41.0



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.

# Large Woody Debris Distribution



Stream: Mill Creek

District: Clinch

Quadrangle: Wise

Sample Date: 7/22/96

Downstream Starting Point: Reach 2

**Total Distance Surveyed:** 0.47 miles

**Percent of Total Pool Area:** 1.9% (Glides make up 50%)

Number of Pools: 2

Number of Pools per mile: 4

Total Pool Area: 424.0 sq. ft.

Mean Pool Area: 212.0 sq. ft.

Correction Factor: N/A

Mean Maximum Depth: 1.2'

Mean Average Depth: 0.7'

**Percent of Total Riffle Area:** 98.1%

Number of Riffles: 4

Number of Riffles per mile: 9

Total Riffle Area: 22,406.0 sq. ft.

Mean Riffle Area: 5,601.5 sq. ft.

Correction Factor: N/A

Mean Maximum Depth: 0.9'

Mean Average Depth: 0.2'

**Number of Large Woody Debris Pieces per Mile:** 108.5

Wood < 15' and < 14": 70.2

Wood < 15' and > 14": 10.6

Wood > 15' and < 14": 23.4

Wood > 15' and > 14": 4.3

**Mean Channel Width:** 19.2'

**Mean Riparian Width:** 34.0'

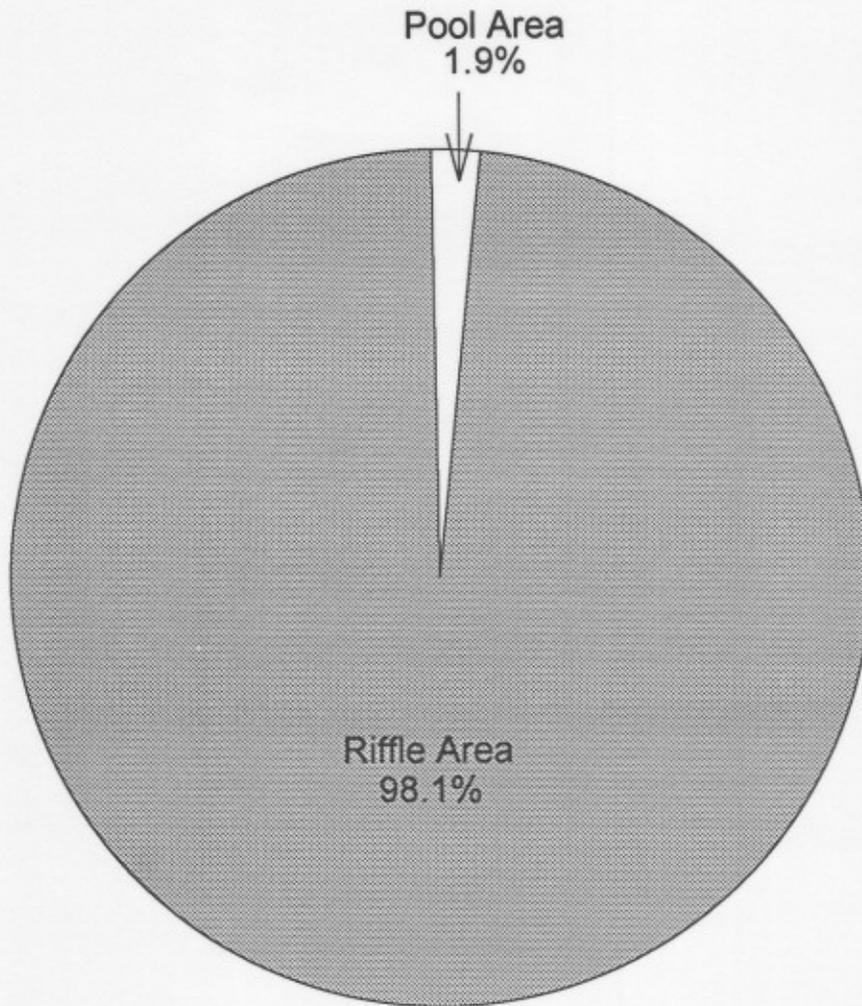
Mean Maximum Riparian Distance (either side): 9.8'

Mean Minimum Riparian Distance (either side): 5.0'

Maximum Riparian Width (Total): 34.7'

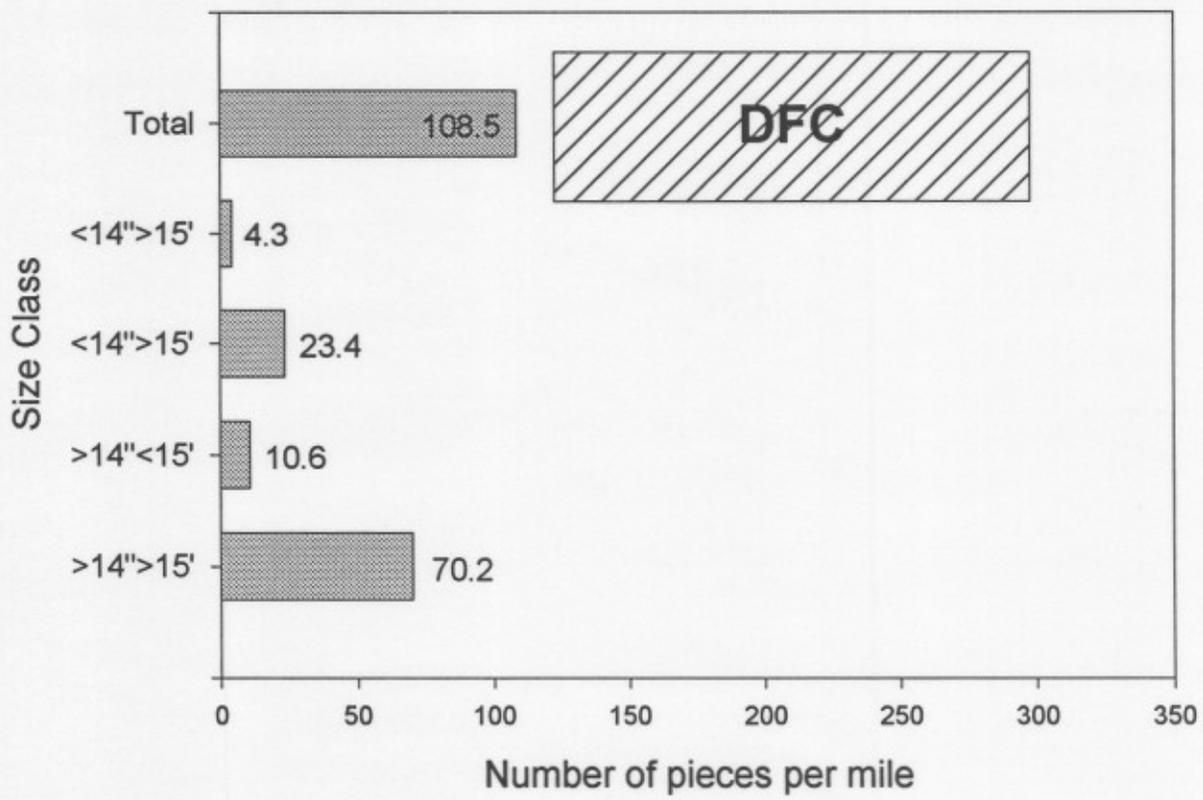
Minimum Riparian Width (Total): 33.2'

# Mill Creek Pool : Riffle Ratio



**DFC: Pool Area = 30% - 70%**

# Mill Creek Large Woody Debris



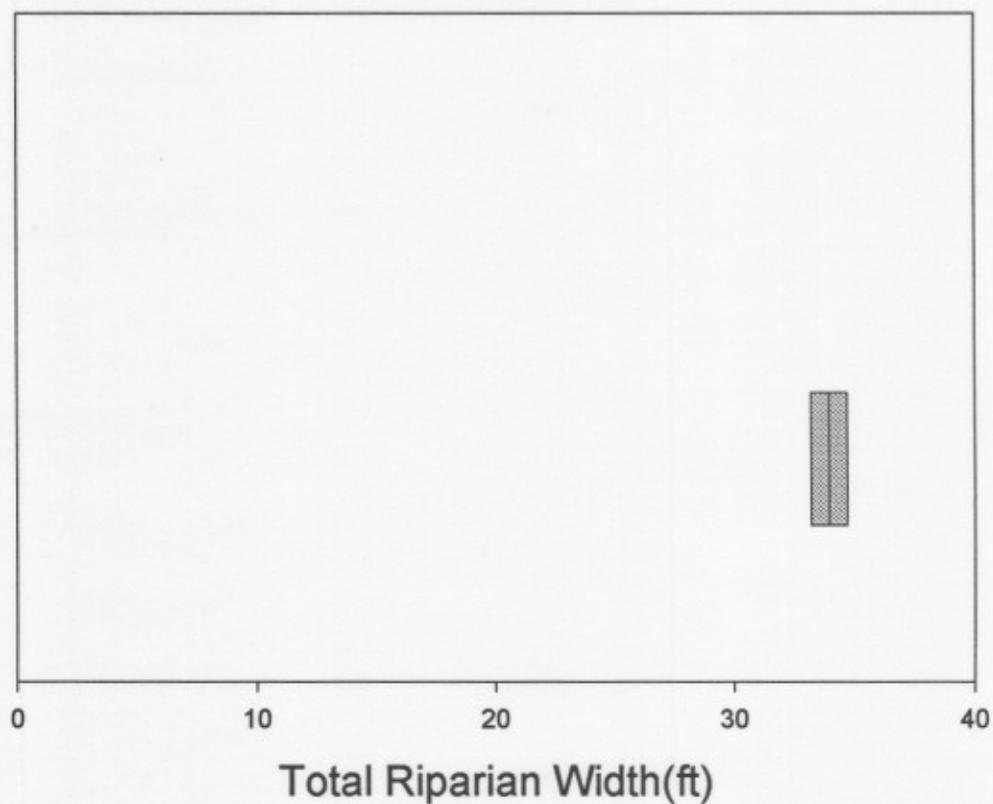
## Riparian Width

Stream: Mill Creek

Number of measurements: 2

Mean width: 34.0 Std Dev: 1.1

Max: 34.7 Min: 33.2



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.

# Large Woody Debris Distribution

