

Idaho Technical Bulletin

Photographic Guide to Median Stubble Heights

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BLM



Introduction: Riparian Monitoring and Median Stubble Height

Key areas have been established to monitor effects of grazing on riparian and aquatic habitats. The locations for potential key sites were inspected by interdisciplinary teams comprised of BLM staff representing various expertise to determine if the a site was representative of the entire habitat. Key areas are advantageous because they provide a good indication of grazing use without having to monitor the entire area being grazed.

Stubble height measurements are a simple and effective tool to monitor rangeland use in these key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes, while excluding forbs. Generally stubble heights of 4 to 6 inches are an acceptable standard. Plants with this much height remaining usually provide effective streambank protection, prevent sedimentation, and maintain or improve plant communities.

Within the key area, measurements are taken on both sides of the stream, along the greenline, usually within 3 feet of the waterline. Fifty measurements (using a pace point method) on each side of the stream for a total of 100 samples. At each pace, the plant or cluster of plants located at the tip of the observers toe is measured to the nearest one-half inch.

Once all samples have been collected, the median stubble height value is determined. The samples are ranked in descending order from the smallest to the highest value. The median value is the single mid-point for an odd number of samples and the average of the two mid-point values. For example, in an even numbered data set, 100 samples, the 50th and 51st values would be averaged giving the median value ([see Figure 1](#)).

A median value provides a better representation of the overall community than the average. Usually there is not a normal distribution of data points. That is the number of short stubble heights or tall stubble height are not evenly distributed. In some cases, extra tall plants may over influence the average number.

For instance, fifteen stubble height measurements provided the following data: .5", 1", 1", 4", 4", 4", 5", 6", 6", 6", 7", 7", 7", 7". The average for the sample would be 4.8 inches. However, the median is 6.0 inches. The average is more sensitive to extremes making the median more accurate without complicated statistical analysis.

References:

- a. Challis Resource Area Monitoring Procedures, April 1996
- b. Statistical Evaluation of Stubble Height Data, David E. Blackstun

Figure 1: Form used for data collection and determining median stubble heights.

Figure 2: MEDIAN STUBBLE HEIGHT FORM

Allotment:										
Pasture										
Key Area:						Key Riparian Species:				
Observer(s):								Date:		
Stubble Measurement (inches)	Transect		Transect		Transect		Transect		Transect	
	RB	LB	RB	LB	RB	LB	RB	LB	RB	LB
0.5										
1										
1.5										
2										
2.5										
3										
3.5										
4										
4.5										
5										
5.5										
6										
6.5										
7										
7.5										
8										
8.5										
9										
9.5										
10										
10.5										
11										
11.5										
12										
>12										
Total Points										
Bank Median Ht.										
Transect Median Ht.										
Comments:										

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[Download Form \(WPD Format\)](#)

Median Stubble Height -- 1 inch



CBC-KA1, Upper Marker, Near View, 6/27/96
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Median Stubble Height -- 1 inch



CBC-KA1, Upper Marker, Wide View, 8/26/94
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Median Stubble Height -- 2 inches



LHC-KA3, Lower Marker, Near View, 9/26/95
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Median Stubble Height -- 2 inches



LHC-KA3, Lower Marker, Wide View, 9/26/95
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Median Stubble Height -- 3 inches



TC-KA2, Photo Point 1, Near View, 10/3/96

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Median Stubble Height -- 3 inches



TC-KA2, Photo Point 1, Wide View, 10/3/96

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Median Stubble Height -- 4 inches, Sedge



CBC-KA1, Lower Marker, Near View, 6/12/95

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Median Stubble Height -- 4 inches, Sedge



CBC-KA1, Upper Marker, Wide View, 6/12/95

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Median Stubble Height -- 4 inches, Grass/Forb



LGC-KA1, Upper Marker, Near View, 6/27/96
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Median Stubble Height -- 4 inches, Grass/Forb



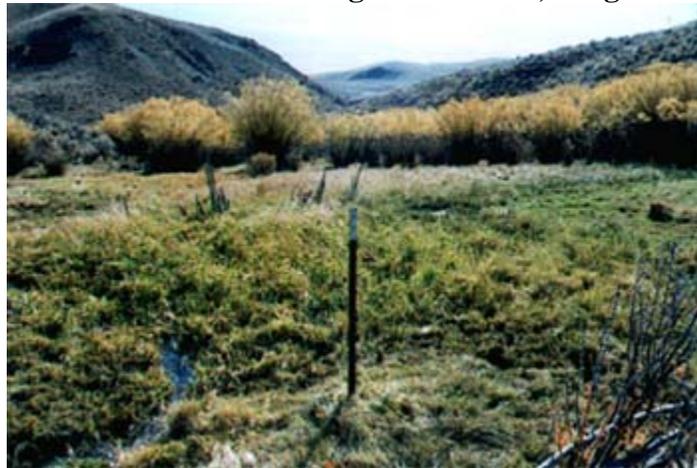
LGC-KA1, Upper Marker, Wide View, 6/27/96
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Median Stubble Height -- 5 inches, Sedge



HBC-KA2, Upper Marker, Near View, 10/4/96
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Median Stubble Height -- 5 inches, Sedge



HBC-KA2, Photo Point, Wide View, 10/4/96
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Median Stubble Height -- 5 inches, Grass/Forb



LHC-KA3, Upper Marker, Near View, 7/24/95

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Median Stubble Height -- 5 inches, Grass/Forb



LHC-KA3, Upper Marker, Wide View, 7/24/95

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Median Stubble Height -- 6 inches



BRC-KA1, Lower Marker, Near View, 7/16/96
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Median Stubble Height -- 6 inches



BRC-KA1, Upper Marker, Wide View, 6/13/96
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Median Stubble Height -- 7 inches



HBC-KA2, Upper Marker, Near View, 6/13/96

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Median Stubble Height -- 7 inches



HBC-KA2, Upper Marker, Wide View, 6/13/96

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Median Stubble Height -- 8 inches



RC-KA2, Upper Marker, Near View, 9/25/95

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Median Stubble Height -- 8 inches



RC-KA2 (Wide View) 9/25/95

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Location Index of Key Area Sites

1.0"	CBC-KA1	Corral Basin Creek Key Area #1
2.0"	LHC-KA3	Little Hat Creek Key Area #3
3.0"	TC-KA2	Thompson Creek Key Area #2
4.0" Grass/Forb	LGC-KA1	Long Creek Key Area \$1
4.0" Sedge	CBC-KA1	Corral Basin Creek Key Area #1
5.0" Grass/Forb	LHC-KA3	Little Hat Creek Key Area #3
5.0" Sedge	HBC-KA2	Horse Basin Creek Key Area #2
6.0"	BRC-KA1	Bear Creek Key Area #1
7.0"	HBC-KA2	Horse Basin Creek Key Area #2
8.0"	RC-KA2	Road Creek Key Area #2

Acknowledgments

This photographic field guide was prepared by the staff of the Bureau of Land Management's Challis Resource Area to provide a practical monitoring tool for determining stubble height on riparian areas. In particular, the staff recognizes David Blackstun for analyzing the field data and developing the procedure for using the median instead of the average stubble height and Dianne Simodynes for compiling the photographs for the publication. Thanks to Melinda Ritacco and Ervin Cowley for formatting and preparation for publication.