



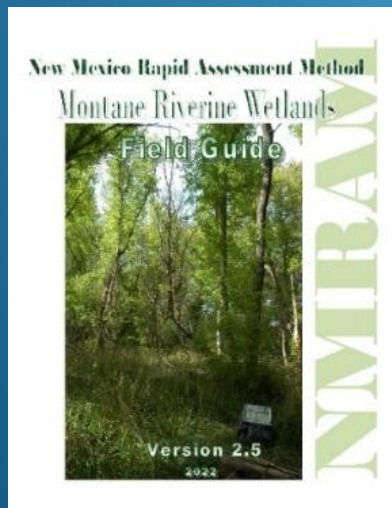
New Mexico Environment Department



New Mexico Rapid Assessment Method (NMRAM)

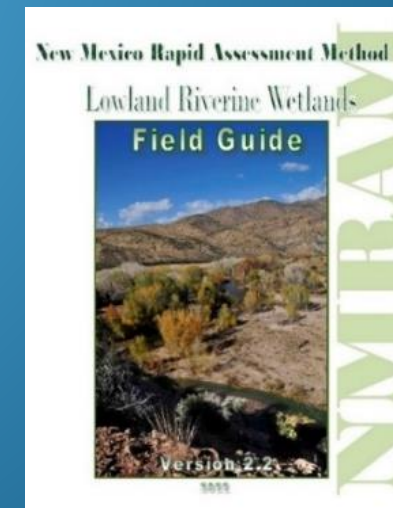
Riverine Wetlands

Stream Bank Stability and Cover



New Mexico Environment Department
Surface Water Quality Bureau
Wetlands Program

Natural Heritage New Mexico
University of New Mexico



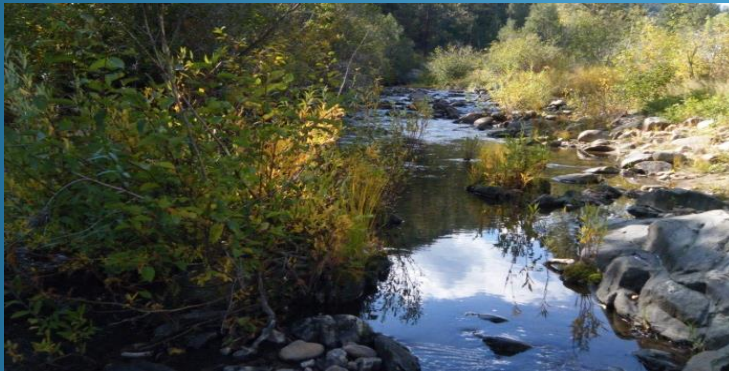
STREAM BANK STABILITY & COVER (MONTANE)

Definition: This metric is a measure of stream bank soil/substrate stability and stream bank erosion potential that reflect overall stream bank stability.

Rationale: The resistance of a stream bank to erosion is important to the integrity and stability of associated riverine wetlands. Stable stream banks should support more perennial vegetation and more stable and healthy wetland communities. Less stable stream banks generally indicate channel instability and associated channel adjustment that could lead to loss or dewatering of adjacent riparian habitat and decline of physical and biological functions.



STREAM BANK STABILITY & COVER



Two Measures:

- Bank Soil Stability

- Measure of active, ongoing erosion
- Estimates the percentage of the bank that is stable

- Stream Bank Erosion Potential

- Erosion potential as it relates to the stability generated by vegetative cover and large (natural) bank material

STREAM BANK STABILITY & COVER

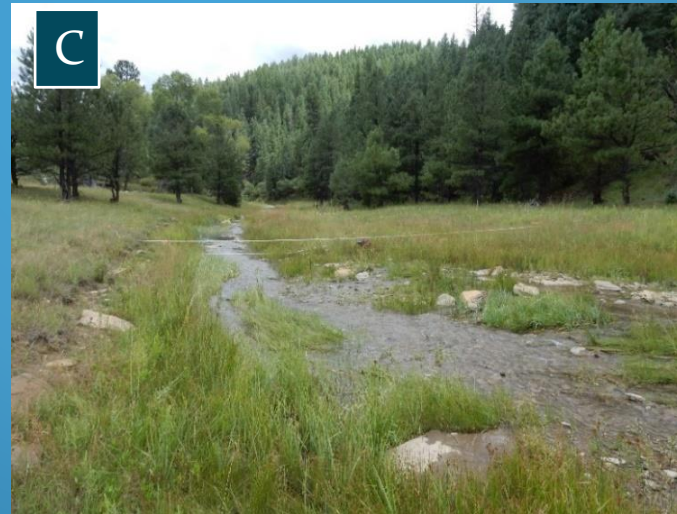
A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	Infrequent raw banks, less than 10% of stream bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.

Bank Soil Stability

- Estimate % of bank with exposed soil
- Channel shape
- Artificial hardening rates “1”



STREAM BANK STABILITY & COVER

Indicators of Stream Bank Erosion Potential	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Stream Bank Erosion Potential

- Estimate % of bank with vigorous vegetation
- Cobble, other large material (natural)
- Artificial hardening still rates “1”



STREAM BANK STABILITY & COVER

A4- Stream Bank Stability and Cover

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Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
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	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score

Table A4. Stream Bank Stability and Cover Rating

Rating	Description
<input checked="" type="radio"/> 4	>3.5 - 4.0
<input type="radio"/> 3	>2.5 - ≤3.5
<input type="radio"/> 2	>1.5 - ≤2.5
<input type="radio"/> 1	1.0 - ≤1.5

Rating for example SA is "4" on all indicators.



STREAM BANK STABILITY & COVER

A4. Stream Bank Stability and Cover.



A) The stream banks here exhibit vigorous vegetative growth and large cobbles and boulders protecting the banks that would support a high Stream Bank Erosion Potential. In addition, little soil is exposed, supporting a high Bank Soil Stability rating.



B) These banks display vigorous vegetation but also raw banks, slumping and exposed soils. The stream is unstable and overwide, leading to a lower rating.



C) Due to bank trampling and grazing, this stream channel has a flattened stream bank, which would rate a 1 for bank stability. Hoof punching is affecting the vegetation continuity as indicated by the exposed soil on between 25 and 50% of the bank surface, leading to a 2 rating for Stream Bank Erosion Potential.



D) This image was taken in approximately the same location as Figure C but after grazing and trampling had been removed for several years. The banks have been able to regain a more stable profile, and the banks are covered with vigorous wetland vegetation. The site would now rate a 4 for Stream Bank Erosion Potential and a 3 for Bank Soil Stability.

Figure A4a. Examples of stream bank soil stability and erosion potential conditions.

Appendix B in Montane Field Guide

- Reference figure A4.A has photographic examples to aid with application in the field