

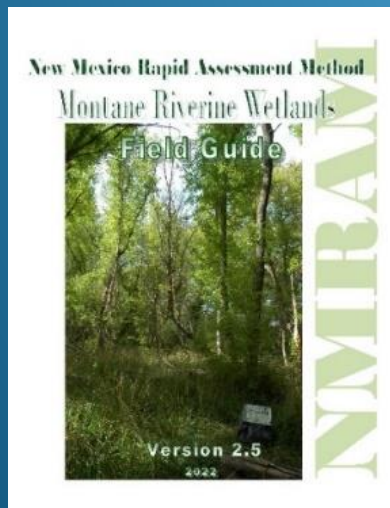


New Mexico Environment Department



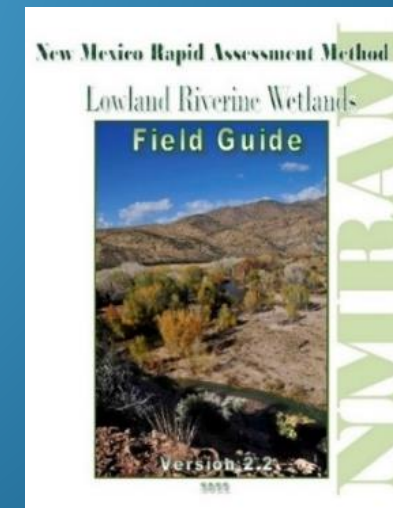
New Mexico Rapid Assessment Method (NMRAM) *Riverine Wetlands*

Channel Equilibrium



New Mexico Environment Department
Surface Water Quality Bureau
Wetlands Program

Natural Heritage New Mexico
University of New Mexico



CHANNEL EQUILIBRIUM (MONTANE)

Definition: Channel Equilibrium is the assessment of the degree of channel aggradation or degradation resulting from the departure from flow patterns associated with the characteristic pattern, profile and dimension of the stream or river.

Rationale: Riverine systems are driven by the long-term trends in peak flow, base flow, and average flow and the types and kinds of sediments that form the floodplain and control ecological functions. Large, persistent changes to the flow or sediment regime caused by upstream land use changes, alterations of the drainage network or climatic changes tend to destabilize the channel and cause it to change form.



CHANNEL EQUILIBRIUM

A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☐	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☐	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☐	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☐	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☐	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☐	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.



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- Check observed field features
 - Looking 25 m up- and down-stream of each cross-section location
- Rating selected from Table A3 based on checklist and preponderance of evidence
- Select rating that best fits overall channel condition of SA



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Table A3. Rating for Channel Equilibrium

Rating	Description
4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

From notes on example SA *"Banks are low and obvious...There are multiple slow water habitats including eddies and backwaters...some deep pools exist"*



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Example of a channel that is not in equilibrium from an SA inside of a livestock pen.



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