Basic Information Sheet: Episodic Riverine

Assessment Area Name:	
Project Name:	
Assessment Area ID #:	
Project ID #:	**Date:**
Assessment Team Members for This AA:	
Average AA Width: **(See Table 2.4)**	
Approximate Length of AA (10 times average AA width, min 100 m, max 200 m)**:**	
Upstream Point Latitude: **Longitude:** **Datum:**	
Downstream Point Latitude: **Longitude:**	
Episodic Stream Sub-type: □ Single-thread □ Multi-thread	
AA Category: □ Restoration □ Mitigation □ Impacted □ Ambient □ Reference □ Training □ Other:	
Did the river/stream have flowing water at the time of the assessment? □ yes □ no	
What is the channel form of the reach you are assessing? □ single thread □ discontinuous □ compound/braided □ alluvial fan □ uncertain/transitional	

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Comments:

Scoring Sheet: Episodic Riverine

AA Name:				**Date:**
Attribute 1: Buffer and Landscape Context				**Comments**
Stream Corridor Continuity (D)		Alpha.	Numeric	
Buffer:				
Buffer submetric A: Percent of AA with Buffer	Alpha.	Numeric		
Buffer submetric B: Average Buffer Width				
Buffer submetric C: Buffer Condition				
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}				**Final Attribute Score = (Raw Score/24) x 100**
Attribute 2: Hydrology				
Water Source		Alpha.	Numeric	
Sediment Transport				
Hydrologic Connectivity				
Raw Attribute Score = sum of numeric scores				**Final Attribute Score = (Raw Score/36) x 100**
Attribute 3: Physical Structure				
Structural Patch Richness		Alpha.	Numeric	
Topographic Complexity				
Raw Attribute Score = sum of numeric scores				**Final Attribute Score = (Raw Score/24) x 100**
Attribute 4: Biotic Structure				
Plant Community Composition (based on sub-metrics A-C)				
Plant Community submetric A: Number of plant layers	Alpha.	Numeric		
Plant Community submetric B: Number of Co-dominant species				
Plant Community submetric C: Percent Invasion				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				
Horizontal Interspersion				
Vertical Biotic Structure				
Raw Attribute Score = sum of numeric scores				**Final Attribute Score = (Raw Score/36) x 100**
Overall AA Score (average of four final Attribute Scores)				

Worksheet 3.1: Stream Corridor Continuity Metric for Episodic Riverine systems

Using satellite imagery or aerial photography, identify the presence of unfavorable land uses, anthropogenic features (e.g. road crossings), and existing infrastructure over a distance of 500 m upstream and 500 m downstream of the AA (Table 3.3). Use the steps outlined in Table 3.1 and Worksheet 3.1 to calculate the metric score. Printed screen shots of aerials, specifically near the AA, should be brought to the field. In addition, the results from any GIS-based landscape assessment (if completed) should be reviewed prior to scoring this metric (See Figure 3.1).

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1		1	
2		2	
3		3	
4		4	
5		5	
Upstream Total Length		Downstream Total Length	

Worksheet 3.2: Percent of AA with Buffer

Percent of AA with Buffer: _____ **%**

Worksheet 3.3: Calculating Average Buffer Width of AA

Line	**Buffer Width (m)**
A	
B	
C	
D	
E	
F	
G	
H	
Average Buffer Width *Round to the nearest integer*	

Table 3.9a: Field Indicators of Sediment Transport for Multi-thread (typically lower watershed) streams.

Condition	Field Indicators (check all existing conditions)
Indicators of Natural Processes in Multi-thread Reaches	☐ There are distinct soil texture and grain size differences between different parts of the AA (e.g. the low-flow channel, floodplain, upper terrace, or other geomorphic surfaces) ☐ Braided compound channels ☐ High density of channels (3 or more low-flow and secondary channels within AA) ☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area ☐ Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar)
Indicators of Altered Sediment Transport in Multi-thread Reaches	☐ Planform simplification (previously braided channels appear to have coalesced into fewer channels or into one single channel) ☐ Low channel density (2 or less primary flow channels per AA) ☐ Soil texture and grain size differences between the low-flow channel and floodplain are not evident or distinctive ☐ An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation ☐ The channel bed appears scoured to bedrock or dense clay ☐ The channel has one or more knickpoints indicating headward erosion of the bed ☐ Channel bed and bars (if present) are not well-sorted, rather a homogenized mix of grain sizes or uniform grain size ☐ There is cement or rip-rap hardening the banks or bed of the channel(s)

Table 3.9b: Field Indicators of Sediment Transport for Single-thread (typically upper watershed) streams.

Condition	Field Indicators (check all existing conditions)
Indicators of Natural Processes in Single-thread Reaches	☐ There are distinct soil texture and grain size differences between different parts of the AA (e.g. the low-flow channel, floodplain, upper terrace, or other geomorphic surfaces) ☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area ☐ Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar) ☐ Well-defined channel ☐ Regulated changes in stream gradient with natural grade control features (boulder steps, cobble rapids, etc.)
Indicators of Altered Sediment Transport in Single-thread Reaches	☐ The channel is characterized by steep or deeply undercut banks ☐ An obvious historical floodplain has recently been abandoned ☐ The channel bed appears scoured to bedrock or dense clay ☐ The channel has one or more knickpoints indicating headward erosion of the bed ☐ Soil texture and grain size differences between the low-flow channel and floodplain are not evident or distinctive ☐ The channel is nebulous or ill-defined ☐ Planform simplification (previously braided channels appear to have coalesced into fewer channels or into one single channel) ☐ There is cement or rip-rap hardening the banks or bed of the channel

Worksheet 3.4: Structural Patch Types for Episodic Riverine systems

Circle each type of patch that is observed in the AA and enter the total number of observed patches in the Table below. Status as confined or non-confined must first be determined (see Figure 2.3) to determine which patches are expected in the system (indicated by a "1" in the table below). Any feature within the AA should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

STRUCTURAL PATCH TYPE (circle for presence)	**Episodic Riverine (Multi-thread)**	**Episodic Riverine (Single-thread)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrack or organic debris in channel or on floodplain	**1**	**1**
Animal mounds and burrows	**1**	**1**
Bank slumps or undercut banks in channels	**1**	**1**
Biotic/algal soil crusts	**1**	**1**
Cobbles and/or boulders	**1**	**1**
Debris jams	**1**	**1**
Coarse woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**1**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Sand ripples	**1**	**1**
Secondary channels on floodplains	**n/a**	**1**
Standing snag	**1**	**1**
Swales	**1**	**1**
Variegated, convoluted, or crenulated channel margins (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (*exposed at high-water stage*)	**1**	**n/a**
Water-cuts	**1**	**1**
Total Possible	**17**	**17**
No. Observed Patch Types (enter here and use in Table 14 below)		

Worksheet 3.5: AA Topographic Complexity

This metric is scored for episodic streams using the alternative states described in Table 3.13. At three locations along the AA, sketch the cross-section profile of the AA lateral extent (by convention, the cross-section is depicted looking downstream). Draw the cross-section from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the macro-topography (e.g., breaks in slope) and intervening micro-topographic relief. Label the location of the low-flow channel and flood plain units. Based on these sketches and the profiles in Figure 3.6, choose a description in Table 3.16 that best describes the overall topographic complexity of the AA.

Profile 1
Profile 2
Profile 3

Worksheet 3.6: Plant Community Metric: Co-dominant species richness for Episodic Riverine systems

A thorough reconnaissance of an AA is required to assess its condition using the plant community submetrics. The assessment for each submetric is guided by a set of Plant Community Worksheets. The Plant Community metric is calculated based on these worksheets. (A dominant species represents ≥10% relative cover.)

Very Short (<0.1 m)	Invasive?	Short (0.1 - 0.5 m)	Invasive?
Medium (0.5 - 1.5 m)	**Invasive?**	**Tall (1.5 - 2.5 m)**	**Invasive?**
Very Tall (>2.5 m)		**Total number of co-dominant species for all layers combined (enter here and use in Table 3.16)**	
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 3.16)	

Special Notes:

* *Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Worksheet 3.7: Horizontal Interspersion

Use the spaces below to make a quick sketch of the AA in plain view. It is helpful to first label the major hydrogeomorphic units present, and then identify and major plant zones (this should take no longer than 10 minutes). Label the zones and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.

	Assigned zones:
	1)
	2)
	3)
	4)
	5)

Worksheet for Wetland disturbances and conversions

Has a major disturbance or episodic event occurred at this site?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this site been converted from another type? If yes, then what was the previous type?	Perennial non-confined riverine	Perennial confined riverine	Episodic ephemeral	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		