

APPENDIX D: ASSESSMENT AREA DATA FORMS

California High-Speed Rail Authority

November 2019

San Jose to Merced Project Section Watershed and Wetland Condition (CRAM) Evaluation Report

Basic Information Sheet: Riverine Wetlands

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Assessment Area Name: AA	3-MIR-02 833-1	VAW - 03235				
Project Name: HSR JM						
Assessment Area ID #:						
Project ID #:	Date:	4/25/19				
Assessment Team Members fo	or This AA:					
LSL, DM						
Average Bankfull Width:						
Approximate Length of AA (10 times bankfull width, r	nin 100 m, max 200 m):				
Upstream Point Latitude:	Lor	ngitude:				
Downstream Point Latitude:	:37.2084 Lor	ngitude: -121.726	2			
Wetland Sub-type:						
	d X Non-confi	ned	c			
AA Category:						
🗆 Restoration 🗆 Mitigation 🗆	Impacted 🗆 Ambient	🗆 Reference 🛛 Train	uing			
VOther: Preproject						
Did the river/stream have flowing water at the time of the assessment? A yes \Box no						
What is the apparent hydrologic flow regime of the reach you are assessing?						
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.						
perennial	□ intermittent	ephemeral				

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

Site Location Description:

Comments:

AA Name: AA3					Date: 4/25/19
Attribute 1: Buffer and Lan	dscape	Contex	t (pp. 11-1	19)	Comments
			Alpha.	Numeric	
Stream Corridor Continuity	(D)		B		100m
Buffer:					
Buffer submetric A:	Alpha.	Numeric			
Percent of AA with Buffer	A				1007
Buffer submetric B:	A				
Average Buffer Width	A				219 m
Buffer submetric C:	ρ.				
Buffer Condition		l		1	Final Attribute Score =
Raw Attribute Sco	re = D+	-[C x (A	x B) ^{1/2}] ^{1/2}		(Raw Score/24) x 100
Attribute 2: Hydrology (pp.	20-26)				
			Alpha.	Numeric	-
Water Source			Ċ		
Channel Stability			A		
Hydrologic Connectivity			B		2.14 AVg.
Raw Attribute Score = su	m of n	umeric	scotes		Final Attribute Score =
Naw Attribute Score – st		uniene	<u>scores</u>		(Raw Score/36) x 100
Attribute 3: Physical Struct	ure (pp.	27-33)			
			Alpha.	Numeric	
Structural Patch Richness			A		
Topographic Complexity			B		82
Raw Attribute Score = st	um of n	umeric	scores		Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure		<u> </u>			
Plant Community Compositio	on (base	d on sub	o-metrics A	1-C)	
	Alpha.	Numeric			Alcolina
Plant Community submetric A: Number of plant layers	A		12.43		Alayero
Plant Community submetric B:	-				
Number of Co-dominant species	C	*			7
Plant Community submetric C:	Λ				
Percent Invasion	M			2011	14/0 INVOSIURS
Plant Communi		L			
(numeric)	average of	submetri	(SA-C)		
Horizontal Interspersion					
Vertical Biotic Structure					
Raw Attribute Score = su	um of n	umeric	scores		Final Attribute Score = (Raw Score/36) x 100
Overall AA Score (average	e of fou	ır final A	Attribute S	cores)	

Scoring Sheet: Riverine Wetlands

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Lengths of Non-buffer S Distance of 500 m Ups		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA		
Segment No.	Length (m)	Segment No. Length		
1		1	100	
2		2		
3		3		
4		4		
5		5		
Upstream Total Length	0	Downstream Total Length	100	

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100%

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	260
В	215
C	200
D	160
E	250
F	230
G	250
Н	250
Average Buffer Width *Round to the nearest integer*	219m



Worksheet for Assessing Channel Stability for Riverine Wetlands

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Condition	Field Indicators (check all existing conditions)					
	The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.					
	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.					
	\Box There is leaf litter, thatch, or wrack in most pools (if pools are present).					
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.					
Channel	□ There is little or no active undercutting or burial of riparian vegetation.					
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.					
	 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). 					
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA					
	□ The larger bed material supports abundant mosses or periphyton.					
	□ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.					
	D There are abundant bank slides or slumps.					
	The lower banks are uniformly scoured and not vegetated.					
Indicators of Active	Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.					
Degradation	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.					
	Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).					
	The channel has one or more knickpoints indicating headward erosion of the bed.					
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.					
	□ There are partially buried living tree trunks or shrubs along the banks.					
Indicators of	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel					
Active	pools, or they are uncommon and irregularly spaced.					
Aggradation There are partially buried, or sediment-choked, culverts. Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. 						
Overall	Equilibrium Degradation Aggradation					

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	TOP	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	бm	12m	8m
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	lm	lm	Im
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	2m	am	am
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	dOm	IBm	17m
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.5m	1.5m	2.13
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate Enter the average result here and use it in Table 13a or	e cross-s 13b.	ections.	2.04

Structural Patch Type Worksheet for Riverine wetlands

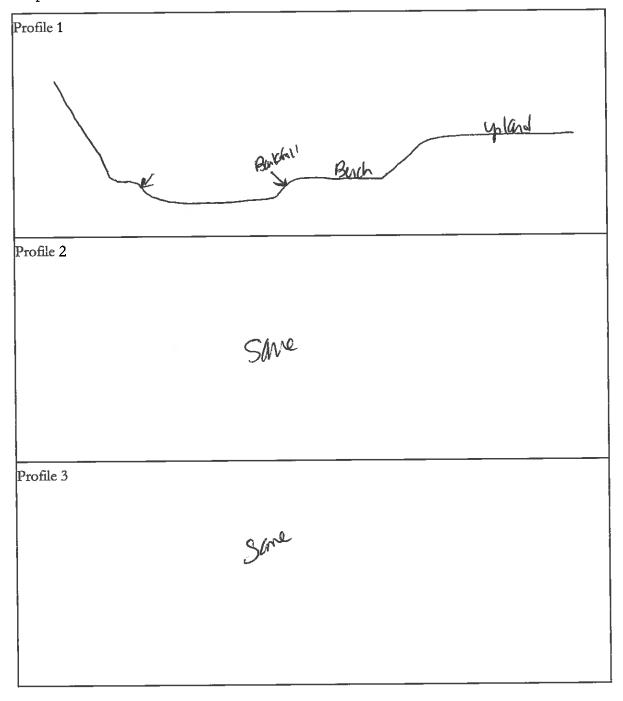
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

<i>putton sypes</i> .						
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)				
Minimum Patch Size	3 m^2	3 m^2				
Abundant wrackline or organic debris in channel, on floodplain	1	1				
Bank slumps or undercut banks in channels or along shoreline		1				
Cobbles and/or Boulders	(1)	1				
Debris jams	1.	1				
Filamentous macroalgae or algal mats	(1)	1				
Large woody debris	$\left(1\right) $	1				
Pannes or pools on floodplain	(1)	N/A				
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				
Riffles or rapids (wet or dry channels)	(1)	1				
Secondary channels on floodplains or along shorelines	1	N/A				
Standing snags (at least 3 m tall)	(1)	1				
Submerged vegetation	Y	N/A				
Swales on floodplain or along shoreline	(1)	N/A				
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)		1				
Vegetated islands (mostly above high-water)	1	N/A				
Total Possible	17	12				
No. Observed Patch Types (enter here and use in Table 14 below)	13					

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

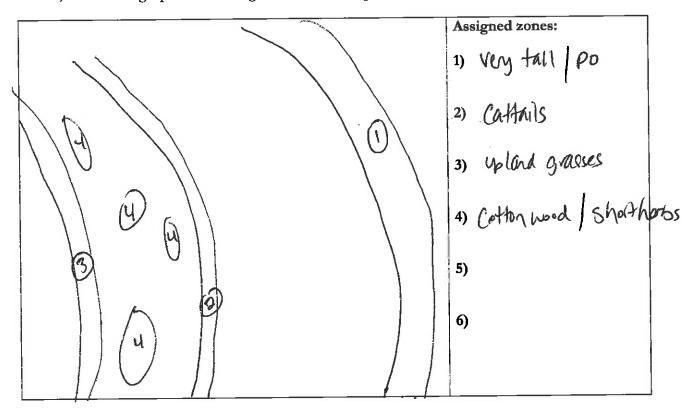
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
		Bronus diandrus	Y
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Mulefer Cottonwood	N	Cotonwood Mulefat	N
Cartails (Typha latafoli Poison Oak	AL N	Poison Gal	
Very Tall (>3.0 m) Cotton WOOD Coast I Ve Oak	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	7
sycamore		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	1/7=1492

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No		4 8*	
If yes, was it a flood, fire, landslide, or other?	flood	od fire		lar	dslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years		likely to aff site next 3 years	-5 site n		y to affect next 1-2 years
	depressional		vernal po	ol		nal pool system
Has this wetland been converted from another type? If yes, then what was the previous type?	non-confine riverine	ed	confine riverine	-		easonal stuarine
	perennial sal estuarine		perennial non- saline estuarine wet me		meadow	
	lacustrine		seep or spi	ring		playa

Stressor Checklist Worksheet

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Present	Significant negative effect on AA
X	
	<u> </u>
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Present	Significant negative effect on AA
X	
X	
1	
	×

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	X		
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	X	
Rangeland (livestock rangeland also managed for native vegetation)	.,	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

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Assessment Area Name: AA	6-COW-02228
Project Name:	
Assessment Area ID #: 6	
Project ID #:	Date: 4 25 19
Assessment Team Members for	
hinealse,	D. Maniscalco
Average Bankfull Width:	
Approximate Length of AA (1	0 times bankfull width, min 100 m, max 200 m): 100 m
Upstream Point Latitude:	Longitude:
Downstream Point Latitude:	Longitude:
Wetland Sub-type:	
□ Confined	Non-confined
AA Category:	
□ Restoration □ Mitigation □	Impacted 🗆 Ambient 🗆 Reference 🗆 Training
Nother: Pre-project	
Did the river/stream have flow	wing water at the time of the assessment? Xyes I no
What is the apparent hydrolog	gic flow regime of the reach you are assessing?
water. Perennial streams conduct wa during and immediately following p	ream describes the frequency with which the channel conducts ater all year long, whereas <i>ephemeral</i> streams conduct water only precipitation events. <i>Intermittent</i> streams are dry for part of the year, er than ephemeral streams, as a function of watershed size and water
🗆 perennial	X intermittent 🗆 ephemeral

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

Site Location Description:

Comments:

AA Name: AAU				Date: 4/35/19	
Attribute 1: Buffer and Land	dscape Context	t (pp. 11-	19)	Comments	
		Alpha.	Numeric		
Stream Corridor Continuity	(D)	A	1		
Buffer:					
Buffer submetric A:	Alpha. Numeric			.50%	
Percent of AA with Buffer	B				
Buffer submetric B:	0			87.5m	
Average Buffer Width	Ċ				
Buffer submetric C:	C				
Buffer Condition					
Raw Attribute Sco	$\mathbf{re} = \mathbf{D} + [\mathbf{C} \mathbf{x} (\mathbf{A})]$	x B) ^{1/2}] ^{1/2}		Final Attribute Score = (Raw Score/24) x 100	
Aduit de OrtTerlaciones (no.	10.26			(Raw Score/24) x 100	
Attribute 2: Hydrology (pp.	20-20)	Alpha.	Numeric		
Water Source		C			
Channel Stability		B			
Hydrologic Connectivity		Ċ		1.57	
				Final Attribute Score =	
Raw Attribute Score = su	im of numeric	scores		(Raw Score/36) x 100	
Attribute 3: Physical Structu	ire (pp. 27-33)				
		Alpha.	Numeric		
Structural Patch Richness		D			
Topographic Complexity		C_			
Raw Attribute Score = su		0.00000		Final Attribute Score =	
Kaw Attribute Score – su	in of numeric	scores		(Raw Score/24) x 100	
Attribute 4: Biotic Structure					
Plant Community Compositio	n (based on sub	-metrics	A-C)	· · · · · · · · · · · · · · · · · · ·	
	Alpha. Numeric			·····	
Plant Community submetric A:	\mathcal{D}				
Number of plant layers Plant Community submetric B:				4-	
Number of Co-dominant species	D				
Plant Community submetric C:	D			759	
Percent Invasion				10	
Plant Communi	· ·				
(numeric d	werage of submetri	cs A-C)			
Horizontal Interspersion		D		Channul w/1 layer of plan	
Vertical Biotic Structure					
Raw Attribute Score = su	m of numeric	scores		Final Attribute Score = (Raw Score/36) x 100	
Overall AA Score (average	e of four final A	Attribute S	cores)		

Scoring Sheet: Riverine Wetlands

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Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Seg Distance of 500 m Downst	
Segment No.	Length (m)	Segment No.	Length (m)
1	75	1	15m
2		2	
3		3	
4		4	
5		5	
Upstream Total Length	75	Downstream Total Length	15

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 50 %

Worksheet for calculating average buffer width of AA

Buffer Width (m)
55 80
+75 85
85
15
80
80
100
115
87.500

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators
	(check all existing conditions)
	The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.
	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 (if pools are present).
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
Channel	There is little or no active undercutting or burial of riparian vegetation.
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.
	□ 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).
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA
	The larger bed material supports abundant mosses or periphyton.
	□ The channel is characterized by deeply undercut banks with exposed living roots of
	trees or shrubs.
	□ There are abundant bank slides or slumps.
	□ The lower banks are uniformly scoured and not vegetated.
Indicators of Active	Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
Degradation	□ 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.
	□ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).
	The channel has one or more knickpoints indicating headward erosion of the bed.
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.
	There are partially buried living tree trunks or shrubs along the banks.
Indicators of Active	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.
Aggradation	There are partially buried, or sediment-choked, culverts.
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.
	There are avulsion channels on the floodplain or adjacent valley floor.
Overall	□ Equilibrium □ Degradation □ Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

att	proximate midpoint empt should be ma	ts along straight riffles or glides, away from deep pools or de to place them at the top, middle, and bottom of the A	: meande A.	r bends.	An
	Steps	Replicate Cross-sections	ТОР	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	67m	Sm	4m
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	lom Lom	D.Sw	0.5n
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.Dm	1. 0ª	1.0 N
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	Юm	9.8m	5.5 20m
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	69m 1.49	1.96m	5.75 Sm
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate Enter the average result here and use it in Table 13a or		ections.	457

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

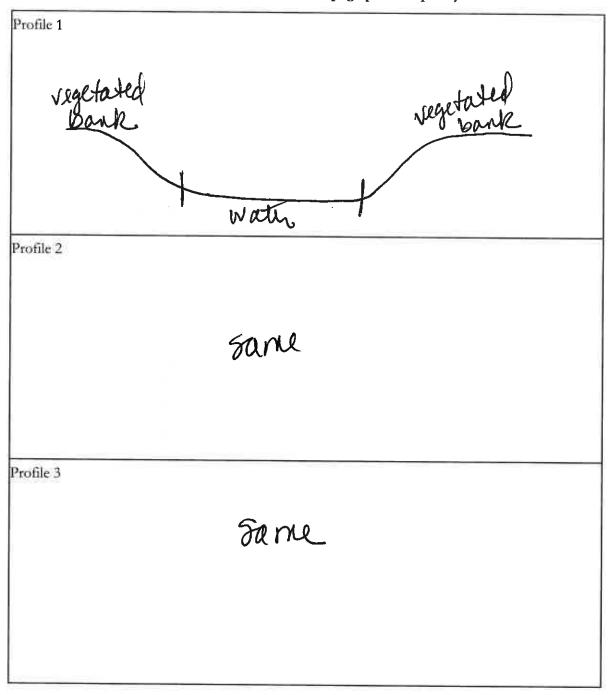
Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following	*Please refe
patch types.	

parco types.		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m ²
Abundant wrackline or organic debris in channel, on floodplain		1
Bank slumps or undercut banks in channels or along shoreline	1	1
Cobbles and/or Boulders	(1)	1
Deb r is jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
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)	Ĩ	1
Riffles or rapids (wet or dry channels)	(1)	1
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	5	

7

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

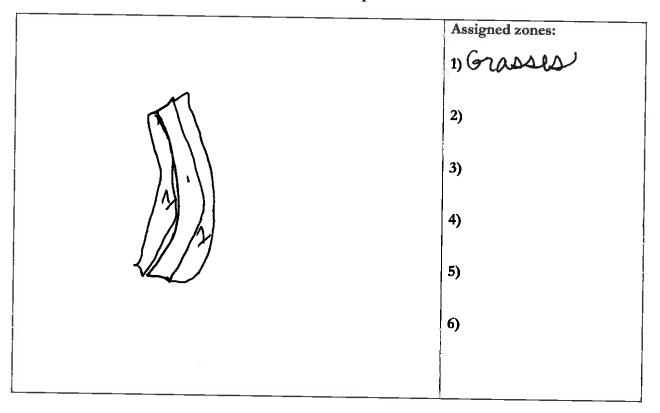
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* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Avina barbada Rumer orispus Unknown Shrub	Y Y		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	75%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No			
If yes, was it a flood, fire, landslide, or other?	flood		fire	lat	ndslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years		likely to aff site next 3 years	-5 site		y to affect next 1-2 years
	depressiona	1	vernal pool			nal pool ystem
Has this wetland been converted from another type? If yes, then what was the	non-confine tiverine	d	confined riverine			asonal tuarine
previous type?	perennial sali	ne	perennial non- saline estuarine		wet	meadow
	lacustrine		seep or spr	ing		playa

Stressor Checklist Worksheet

= 12 ¹² •

Present	negative effect on AA
X	

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)	X	
Planning (Discing (N/A for restoration areas)	X	
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)	X	
II (PS or Non-PS pollution)		
Destinides or trace organics impaired (PS or Non-PS polition)	A	
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)		Significant
Mowing, grazing, excessive herbivory (within AA)	Present	effect on AA
Excessive human visitation	X	
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 of stocking (fisheries areas to	X	
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	<u>X</u>	
Comments	X	
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	D.	Significant negative
Urban residential	Present	effect on AA
Industrial/commercial	<u> </u>	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries	<u> </u>	
Commercial feedlots	X	
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Tansportation corridor		
langeland (livestock rangeland also managed for native vegetation)	<u> </u>	
ports fields and urban parklands (golf courses, soccer fields, etc.)		
assive recreation (bird-watching, hiking, etc.)		
ctive recreation (off-road vehicles, mountain biking, hunting, fishing)		
hysical resource extraction (rock, sediment, oil/gas)		
iological resource extraction (areas 1		
iological resource extraction (aquaculture, commercial fisheries)		1
omments		

yplate ATA poly

Basic Information Sheet: Depressional Wetlands

(a) • (3

Assessment Area Nat	ne: AAB-COB - 1807	2	
Project Name: HS	<u>r</u> Jn		
Assessment Area ID	#:		
Project ID #:		Date: 4/33/1	9
Assessment Team M	embers for This AA		
AL		_	
AA Category:			
Pre-Restoration	Dest-Restoration	□ Pre-Mitigation	Dest-Mitigation
Pre-Impact	□ Post-Impact	□ Training	Ambient
□ Reference	□ Other:		
Origin of Wetland (if known):		
🗆 Natural system	Artificial system		
			water quality □ stormwater ed □ other:
Which best describe	es the type of depressio	nal wetland?	
freshwater mars	h 🗆 alkaline mar	sh 🗆 brackish :	marsh
□ other (specify):			
AA Encompasses:			
🗆 enti:	re wetland	ortion of the wetland	
Which best describe	es the hydrologic state	of the wetland at the d soil, but no surface w	
	t hydrologic regime of	the wetland?	
Perennially flooded syste wetlands are defined a	ms contain surface water	year-round, <i>seasonally f</i> ter for 4-11 months of	the year (in > 5 out of 10
□ perennially flooded	Seasonally floo	oded tempor	arily flooded

			n undefined <u>outlet</u>		undefined
Does	s the wetland	have a defined of	n undefined <u>inlet</u> ?	\Box defined	\square undefined
Are t	he inlet and o	outlet at the same	location?	□ yes	□ no
is th	e topographic	basin of the wet	land 🛛 distinct o	or 🔲 indistinct ?	
An <i>in</i> Exan	<i>distinct</i> topogra	phic basin is one t eatures are seasona	hat lacks obvious bo I, depressional weth	oundaries between ands in very low-gr	wetland and uplas adient landscapes
Phot	to Identificati	on Numbers and	Description:		
Photo.	s should be taken	from edge of AA loo	king toward the centroi	d of AA	
	Photo ID No.	Description	Latitude	Longitude	Datum
1	Photo ID No.	i i	Latitude	Longitude	Datum
1 2	1	Description (to) North (to) East	Latitude	Longitude	Datum
	1	(to) North	Latitude	Longitude	Datum
2	1	(to) North (to) East	Latitude	Longitude	Datum
2 3	1	(to) North (to) East (to) South	Latitude	Longitude	Datum
2 3 4 5 6	1	(to) North (to) East (to) South	Latitude	Longitude	Datum
2 3 4 5 6 7	1	(to) North (to) East (to) South	Latitude	Longitude	
2 3 4 5 6 7 8	1	(to) North (to) East (to) South	Latitude		
2 3 4 5 6 7	1	(to) North (to) East (to) South	Latitude		

3 photos on KHK phane

AA Name: AAS - COB	-1800				Dat	te: 4/22/19	
Attribute 1: Buffer and Land	lscape Co	ontext (pp. 8-1	5)		Comments	
			Alpha.	Num	eric		
Aquatic Area Abundance Sco	ore (D)		C.			30% AAA	
Buffer:							
Buffer submetric A:	Alpha. N	umeric					
Percent of AA with Buffer	A					10070	
Buffer submetric B:						a	
Average Buffer Width	B					154m	
Buffer submetric C:	1					· · · · · · · · · · · · · · · · · · ·	
Buffer Condition				1		Final Attribute Score =	
Raw Attribute Score	= D+[C	x (A x 1	B) ^½] ^½			(Raw Score/24) x 100	
Attribute 2: Hydrology (pp.	16-21)						
<u> </u>			Alpha.	Num	eric		
Water Source		_	C			1 20% developed	
Hydroperiod			D			2 20% developed Controlled in tout	
			1.			679- Levee	
Hydrologic Connectivity						Final Attribute Score =	
Raw Attribute Score = su	um of nu	meric s	cores			(Raw Score/36) x 100	_
Attribute 3: Physical Struct	ure (pp. 2	22-28)		<u> </u>			
			Alpha.	Nur	neric	5 patches	
Structural Patch Richness			C			1 South WIMILO	
Topographic Complexity		A				marcingtoning	
Raw Attribute Score = s	um of pre-	meric e	COTES			Final Attribute Score =	
					_	(Raw Score/24) x 100	
Attribute 4: Biotic Structur	<u>e (pp. 29-</u>	39)					
Plant Community Composition	on (based	on sub	metrics .	n-C)			
Dland Committee and hundrin A.	Alpha. 1	Numeri				2 19495	
Plant Community submetric A: Number of plant layers	C						
Plant Community submetric B:						5 colons	
Number of Co-dominant species	C						
Plant Community submetric C:	D	_				672 invasion	
Percent Invasion							
Plant Commun	ity Comp	osition	Metric				
	average of si	uometrics		+		<u> </u>	
Horizontal Interspersion			ΤÇ-			+	
Vertical Biotic Structure			B			Final Attribute Score =	
Raw Attribute Score = s	um of nu	meric	scores			(Raw Score/36) x 100	
Overall AA Score (avera				Score	s)		
I OVERALI AN OLULE (AVELA	of or total				4	and the second	

Scoring Sheet: Depressional Wetlands

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Percentage of Transec Aquatic Area	t Lines that Contains of Any Kind
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	415m = 959.
South	0%
East	100m = 20%
West	15m = 3%
Average Percentage of Transect Length That Is an Aquatic Feature	29.5 - (30)

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Г

Percent of AA with Buffer:	100 %		

Line	Buffer Width (m)
A	250 250 250
В	250
С	250
D	250
E	180
F	15
G	15
Н	20
Average Buffer Width *Round to the nearest whole number (integer)*	153.75-154

Worksheet for calculating average buffer width of AA

 $2 - 2 \frac{1}{2}$

1

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

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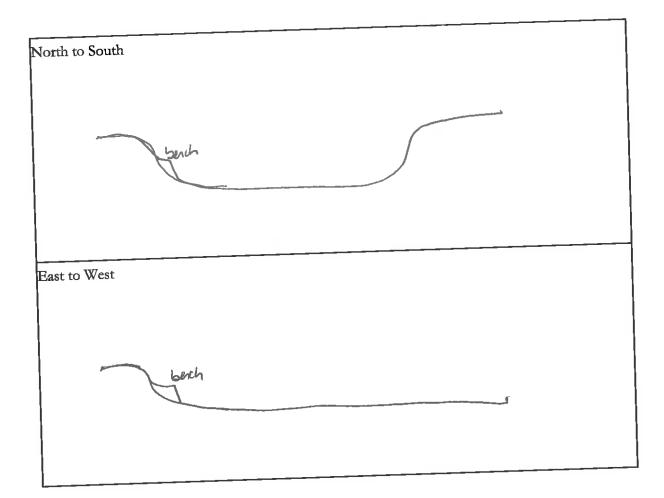
STRUCTURAL PATCH TYPE (circle for presence)	Depressional	
Minimum Patch Size	3 m^2	
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	X	
Animal mounds and burrows	X	1
Bank slumps or undercut banks in channels oralong shoreline		
Cobbles and Boulders		
Concentric or parallel high water marks		1
Filamentous macroalgae or algal mats	-*	1
Islands (mostly above high-water)		1
Large woody debris		
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	X	
Open water		Į.
Plant hummocks and/or sediment mounds	-	1
Soil cracks	X	1
Standing snag(s) (1 or more at least 3 m tall)		
Submerged vegetation		
Swales on floodplain or along shoreline		
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)		
Woody vegetation in water	- 1	
Total Possible	17	1
No. Observed Patch Types (enter here and use in Table 15 below)	BØ	E.

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

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Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

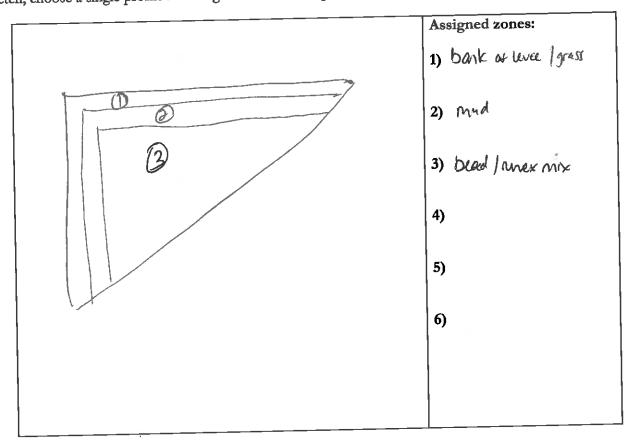
* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive
		@ Francis Con Spills	V
	_	Unknown 1 (not on Cal-IR)	
			+
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasivei
Gestinia parennis	X	/	Altvasive:
	+		+
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant	
		species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion *Round to the nearest	
		whole number (integer)*	6790
ē.	<u></u>	(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

8.4

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Has a major disturbance occurred at this wetland?	Yes	No				
If yes, was it a flood, fire, landslide, or other?	flood	fire	land	dslide	other	
If yes, then how severe is the disturbance?	likely to affect site next 5 or more year	site next	likely to affect site next 3-5 years		likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depression		loo	s	nal pool ystem	
	non-confin riverine	ed confine riverin			ar-built tuarine	
	perennial saline estuarine	non-sali	ne	wet meadow		
	lacustrine		oring		playa	

Wetland	disturbances	and	conversions	Worksheet
---------	--------------	-----	-------------	-----------

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Dessert	Significant
Point Source (PS) discharges (POTW, other non-stormwater discharge)	Present	effect on AA
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	<u> </u>	+
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		
Comments		

Stressor Checklist Worksheet

Present	Significant negative
	effect on AA
· · ·	+
	<u> </u>
	+
<u>×</u>	+
<u> </u>	<u> </u>
	Present

Г

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 of the or second sec		

5 e

Irban residential Irban residential Industrial/commercial Iilitary training/Air traffic Dams (or other major flow regulation or disruption) Dryland farming Intensive row-crop agriculture Intensive row-crow-crop agriculture Intensive row-crop agricu	X 	
ndustrial/commercial Ailitary training/Air traffic Dams (or other major flow regulation or disruption)	X	
Air traffic Dams (or other major flow regulation or disruption) Dryland farming	X	
Dams (or other major flow regulation of disruption)	X	
Dryland farming	X	
is non arriculture	<u></u>	
ntensive fow-clop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies Ranching (enclosed livestock grazing or horse paddock or		
feedlot)	X	
Transportation contact Rangeland (livestock rangeland also managed for native	_	
Since fields and uthan parklands (gon courses, sector		
- Aling watching hiking, club		
Passive recreation (bird-watching, minag, and biking, hunting, Active recreation (off-road vehicles, mountain biking, hunting,		
Physical resource extraction (aquaculture, commercial fisheries) Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

-

Basic Information Sheet: Depressional Wetlands

8 F (0

Assessment Area Nam	1e: AA9 - COB -180	4		
Project Name: KR				
Assessment Area ID #	•	Date: 4/22/14		
Project ID #:			·	
Assessment Team Me	mbers for This AA			
LSL, LC, RJVS,	KK, DD, NL			
	×.			
AA Category:				
D Pre-Restoration	Dest-Restoration	Pre-Mitigation	Dest-Mitigation	
Pre-Impact	Dest-Impact	🗆 Training	□ Ambient	
□ Reference	Other:			
Origin of Wetland (i	f known):			
□ Natural system	Artificial system			
Type of Managemer	nt (if known):			
□ waterfowl/birds □	amphibians □ general v	vildlife 🗆 sediment 🔏	water quality 🗆 stormwater	
1	lture) 🗆 water supply (li			
	s the type of depressio			
freshwater marsh			marsh	
□ other (specify):				
AA Encompasses:				
	e wetland X	ortion of the wetland		
Which best describe	s the hydrologic state	of the wetland at the	time of assessment?	
□ ponded/inun	N /	d soil, but no surface v		
	t hydrologic regime of			
			flooded depressional	
Perennially flooded systems contain surface water year-round, seasonally flooded depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded depressional wetlands possess surface water between 2 weeks and 4 months of the year.				
□ perennially flooded	Kseasonally flo	oded 🕅 tempo	rarily flooded	

Does your wetland connect with the floodplain of a nearby stream? I yes I no (system subject to overbank flow, a dammed stream does not count)					
Does the wetland have a defined on undefined outlet?	defined	undefined			
Does the wetland have a defined on undefined <u>inlet</u> ?	defined	🗄 undefined			
Are the inlet and outlet at the same location?	□ yes	□ no			

Is the topographic basin of the wetland \Box distinct or \Box indistinct?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			+
2		(to) East			<u> </u>
3		(to) South			
4		(to) West			
5					
6					
7					
8					<u> </u>
9					
10					<u> </u>

Site Location Description and Land Use:

Comments:

3 photos on KK phone

AA Name: AAA			I	Date: 4/22/19
Attribute 1: Buffer and Landsca	pe Context			Comments
		Alpha.	Numer	ic
Aquatic Area Abundance Score (D)	B		329. AAA
Buffer:				
Buffer submetric A: Alp	ha. Numeric			
Percent of AA with Buffer				100%
Buffer submetric B:				S
Average Buffer Width	/			llom
Buffer submetric C:	1 .			
Buffer Condition	/			
Raw Attribute Score = D)+[Cx(Ax]	B) ^½] ^½		Final Attribute Score = (Raw Score/24) x 100
Attribute 2: Hydrology (pp. 16-2	21)			
		Alpha.	Numer	
Water Source		101		720% developed
Hydroperiod		D		720% developed pumps/gates
Hydrologic Connectivity		0		
Raw Attribute Score = sum o	of numeric s	cores		Final Attribute Score = (Raw Score/36) x 100
Attribute 3: Physical Structure ((pp. 22-28)			
		Alpha.	Numer	
Contract Distance		$\boldsymbol{\mathcal{L}}$		
Structural Patch Richness				To benches thes mico
Topographic Complexity		CA		no benches masmica
Raw Attribute Score = sum o	of numeric s	cores		Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure (pp	29-39)			
Plant Community Composition (b		netrics A-	0	
Flant Community Composition (b	ha. Numeric		<u></u>	
Plant Community submetric A.				2 layers
Number of plant layers				
Di Cantoni Di				5 codoms
Number of Co-dominant species				
DI IC IL IIC				20% invesion
Plant Community submetric C: Percent Invasion	<u>></u>		130	
Plant Community C	omposition N	letric		
(numeric averag	e of submetrics.	<u>A-C)</u>		
Horizontal Interspersion		C		
Vertical Biotic Structure		CO		4050 and by tonagers meth
Raw Attribute Score = sum o	of numeric s			Final Attribute Score = (Raw Score/36) x 100

Scoring Sheet: Depressional Wetlands

Percentage of Transect Lines that Contains Aquatic Area of Any Kind					
Segment Direction Percentage of Transect Leng That is an Aquatic Feature					
North	140m = 3290				
South	450m = 90%				
East	15 mm = 923, 370				
West	150 m = 3%				
Average Percentage of Transect Length That Is an Aquatic Feature	3,290				

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: % 110

Line	Buffer Width (m)
Α	30
В	15
С	40
D	15 40 250
E	
F	250
G	15
Н	15
Average Buffet Width *Round to the nearest whole number (integer)*	115.6-7116

Worksheet for calculating average buffer width of AA

31 - 04 - 94

Structural Patch Type Worksheet for Depressional Wetlands

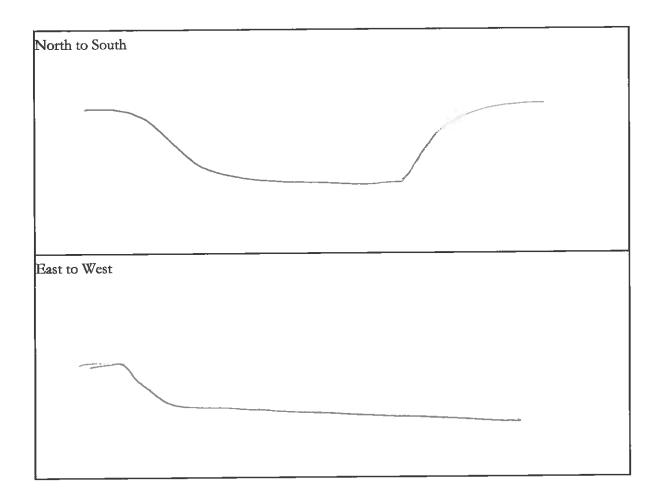
Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Depressional
Minimum Patch Size	3 m^2
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	X
Animal mounds and burrows	X
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	Х
Open water	X
Plant hummocks and/or sediment mounds	
Soil cracks	X
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	
Woody vegetation in water	
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	5

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

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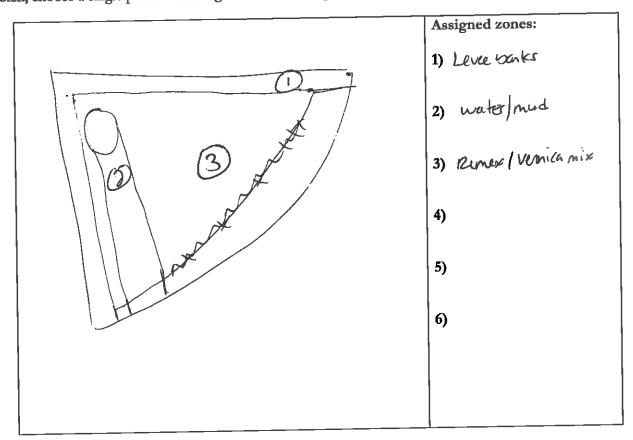
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
/	-	Rumer Crispus	X
		(MKnown 1 (not an Cal-IPC)	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 - 3.0 m)	Invasive?
Epilobium so.			
france this saw			
Vernica anagilis-aquetia		and the second se	
Runex congloniatus			
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant	
		species for all layers combined (enter here and use in Table 19)	5
		Percent Invasion *Round to the nearest	20%
		whole number (integer)*	1000
		(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		No		
If yes, was it a flood, fire, landslide, or other?	flood	f	fire		dslide	other
If yes, then how severe is the disturbance?	next 5 or	likely to affect site next 5 or more years			site	to affect next 1-2 years
	depression	al v	vernal pool			nal pool ystem
Has this wetland been converted from	non-confin riverine	ed	confine riverine			ar-built tuarine
another type? If yes, then what was the previous type?	perennial saline estuarine		perenni non-sali estuarir	ne	wet	meadow
	lacustrine		ep or sp	_		playa

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		<u> </u>
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		<u> </u>
Dike/levees		<u> </u>
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<u> </u>
Comments		<u> </u>

Stressor Checklist Worksheet

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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		X
Comments		

(WITHIN 500 M OF AA)	Present	negative effect on AA
Urban residential	V	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming	~	
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
		_
Darries Ranching (enclosed livestock grazing or horse paddock or		
feedlot)	X	
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,		
Physical resource extraction (rock, sediment, oil/gas)		
Physical resource extraction (recei, error of the physical resource extraction (aquaculture, commercial fisheries)		
Comments		

yphyses

Basic Information Sheet: Riverine Wetlands

a)

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Assessment Area Name: MALI -COW - OLSUS
Project Name: HERTM
Assessment Area ID #:
Project ID #: Date: 4/27/14
Assessment Team Members for This AA:
Arc
Average Bankfull Width: 6M
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100m
Upstream Point Latitude: Longitude:
Downstream Point Latitude: Longitude:
Wetland Sub-type:
Confined Non-confined
AA Category:
□ Restoration □ Mitigation XImpacted □ Ambient □ Reference □ Training
Other:
Did the river/stream have flowing water at the time of the assessment? Xyes \Box no
What is the apparent hydrologic flow regime of the reach you are assessing?
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.
perennial 🗆 intermittent 🗆 ephemeral

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			<u> </u>
3		Middle Right			<u> </u>
4		Downstream			<u> </u>
5					<u> </u>
6					
7					
8					<u> </u>
)					
10					

Site Location Description:

Comments:

2 photos on KK phone 1 taung ypstream 2 taung downstream

AA Name: AAII - COW					Date: 4/22/19	
Attribute 1: Buffer and Lan	dscape	Contex	t (pp. 11-1	19)	Comments	
			Alpha.	Numeric		
Stream Corridor Continuity	(D)		DD		400m break yostream	
Buffer:						
Buffer submetric A:	Alpha.	Numeric				
Percent of AA with Buffer	D				\$0% no butter - road the	he
Buffer submetric B: Average Buffer Width	D					
Buffer submetric C: Buffer Condition	Ď					
Raw Attribute Sco	ne = D-	+[Cx(A	x B) ^{1/2}] ^{1/2}		Final Attribute Score = (Raw Score/24) x 100	
Attribute 2: Hydrology (pp.	20-26)					
			Alpha.	Numeric	2000 de de al-	
Water Source			C		720% developed/ag	
Channel Stability			B		some aggradation but not severe	e
Hydrologic Connectivity			Da		1.2 entreschment ratio	
Raw Attribute Score = sum of numeric		scores		Final Attribute Score = (Raw Score/36) x 100		
Attribute 3: Physical Struct	ure (pp	. 27-33)				
Structural Patch Richness			Alpha.	Numeric	4 patches	
Topographic Complexity			P		mo benches	
Raw Attribute Score = st	um of n	umeric	scores		Final Attribute Score = (Raw Score/24) x 100	
Attribute 4: Biotic Structure	e (pp. 3	4-41)				
Plant Community Composition	on (base	d on sub	-metrics	A-C)		
Plant Community submetric A: Number of plant layers	Alpha.	Numeric			3 layers	
Plant Community submetric B: Number of Co-dominant species	D				4 robons	
Plant Community submetric C: A					0% intesion	
Plant Communi (numeric	-	position f submetri				
Horizontal Interspersion			D			
Vertical Biotic Structure			B			
Raw Attribute Score = st	um of n	umeric	scores		Final Attribute Score = (Raw Score/36) x 100	
Overall AA Score (average	ge of for	ır final A	Attribute S	Scores)		

Scoring Sheet: Riverine Wetlands

- 8 a

Lengths of Non-buffer S Distance of 500 m Ups		Lengths of Non-buffer Seg Distance of 500 m Downst	
Segment No.	Length (m)	Segment No.	Length (m)
. 1	400	1	
2		2	
3		3	
4		4	<u> </u>
5		5	<u> </u>
Upstream Total Length	100m	Downstream Total Length	Om

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 10 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
Α	
В	
С	
D	
E	
F	
G	
Н	
Average Buffer Width	(1)
Round to the nearest integer	0

Worksheet for Assessing Channel Stability for Riverine Wetlands

• 2.0

Condition	Field Indicators (check all existing conditions)
	The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.
	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 (if pools are present).
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
Channel	X There is little or no active undercutting or burial of riparian vegetation.
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.
	□ 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).
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA
	The larger bed material supports abundant mosses or periphyton.
	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	 There are abundant bank slides or slumps.
	 The lower banks are uniformly scoured and not vegetated.
Indicators of	□ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
Active Degradation	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.
	□ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).
	The channel has one or more knickpoints indicating headward erosion of the bed.
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.
	There are partially buried living tree trunks or shrubs along the banks.
Indicators of Active	X The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.
Aggradation	□ There are partially buried, or sediment-choked, culverts.
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.
	There are avulsion channels on the floodplain or adjacent valley floor.
Overall	Equilibrium 🗆 Degradation 🕅 Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

ap	proximate midpoin	should be conducted for each of 3 cross-sections located ts along straight riffles or glides, away from deep pools of de to place them at the top, middle, and bottom of the A	meande	A at the the st bends.	An
	Steps	Replicate Cross-sections	ТОР	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	6.0	6.0	6.0
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.4	0.4	0.4
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	0.8	0.8	0.8
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	7.5	7.0	7.9
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfuli width (Step 1).	1,25	1.17	1.(7 10000
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate Enter the average result here and use it in Table 13a or 1	cross-se 3b.	ctions.	1.20

Structural Patch Type Worksheet for Riverine wetlands

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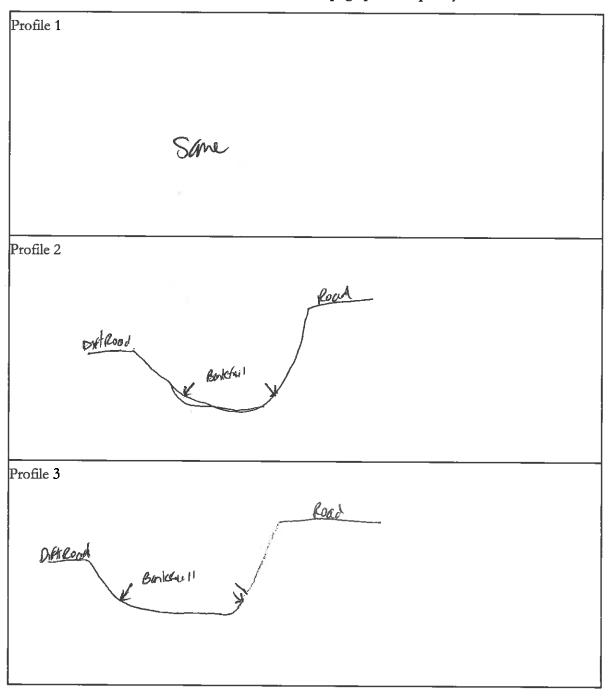
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m ²
Abundant wrackline or organic debris in channel, on floodplain	۲	Ø
Bank slumps or undercut banks in channels or along shoreline	1	A
Cobbles and/or Boulders	L.	
Debris jams	1)	K
Filamentous macroalgae or algal mats		
Large woody debris	1	$ \rangle$
Pannes or pools on floodplain	1	NA
Plant hummocks and/or sediment mounds	Z	۲Į/
Point bars and in-channel bars	1	
Pools or depressions in channels	A	あ
(wet or dry channels)		X
Riffles or rapids (wet or dry channels)	U	
Secondary channels on floodplains or along shorelines] .	NA
Standing snags (at least 3 m tall)	D	μÂ.
Submerged vegetation	Á	NKA
Swales on floodplain or along shoreline	1)	N/A
Variegated, convoluted, or crenulated foreshore	6	
(instead of broadly arcuate or mostly straight)	Ľ	
Vegetated islands (mostly above high-water)	1	NA
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	4	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

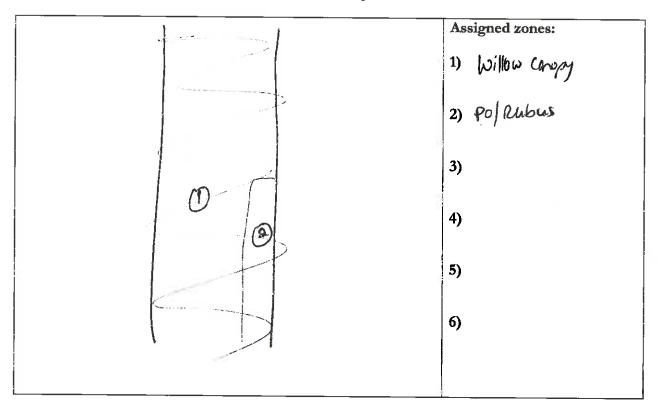
fine.

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
/	-		·
			Invasive
Medium (0.5-1,5 m) Paison oak Antrus ursinus	Invasive?	Tall (1.5-3.0 m) Poison Oak	
Very Tall (>3.0 m)	Invasive?		
Red willow Arrayo willow		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	0%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No			
If yes, was it a flood, fire, landslide, or other?	flood		fire		ndslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	or	likely to aff site next 3 years		site	y to affect next 1-2 years
	depressiona	1	vernal po	ol	i	nal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confined riverine		confined riverine			easonal tuarine
previous type?	perennial saline estuarine		perennial n saline estua		wet	meadow
	lacustrine		seep or spr	ing		playa

Stressor Checklist Worksheet

1.1

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		

		Significant
PHYSICAL STRUCTURE ATTRIBUTE		negative
(WITHIN 50 M OF AA)	Present	effect on AA
illing or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)		_ +
Visiting (N/A for restoration areas)	X	
Resource extraction (sediment, gravel, oil and/or gas)	ļ	
Zentation management	l	
Excessive sediment or organic debris from watershed		
Excessive tunoff from watershed		
Nutrient impaired (PS of Non-PS pollution)	+	
The state of the s	+	
Bacteria and pathogens impaired (PS or Non-PS pollution)	$+-\frac{\lambda}{\lambda}$	X
Trash or refuse		
Comments		

(WITHIN 50 M OF 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	ent effect on 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	
Predation and habitat destruction by non-native vertebrates (e.g., <i>Virginia opossum</i> 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 openeinded	
interstive organic deptis in matrix (for vernal partic)	
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)		Significant negative
Urban residential	Present	effect on AA
Industrial/commercial		
Military training/Air traffic	X	
Dams (or other major flow regulation or dispution)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries	X	X
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		1
		+
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		1
Passive recreation (bird-watching, hiking, etc.)		+
Active recreation (off-road which		+
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		+
Physical resource extraction (rock, sediment, oil/gas)		+
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

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Assessment Area Name: AA12
Project Name: HSR SJM
Assessment Area ID #:
Project ID #: Date: 4 / 24 / 2019
Assessment Team Members for This AA:
RJ Van Sant
Kristen Klinefelter
Average Bankfull Width: 6m
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100 M
Upstream Point Latitude: 34. RAMENA Longitude: -121. MANS
9721 Downstream Point Latitude: 36, 1945 Longitude: 724. 14424
Wetland Sub-type:
□ Confined ☑ Non-confined
AA Category:
□ Restoration □ Mitigation □ Impacted □ Ambient □ Reference □ Training
Other: PRE-IMPACT
Did the river/stream have flowing water at the time of the assessment? grant yes and no
What is the apparent hydrologic flow regime of the reach you are assessing?
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.
Ŋ perennial Ŋ intermittent □ ephemeral

	Photo ID No.	Description	Latitude	Longitude	Datum
1	1	Upstream			
2	2	Middle Left upsh	etm		1
3	3	Middle Right Pow	n	· · · · · · · · · · · · · · · · · · ·	<u> </u>
4		Downstream			
5					
6					<u> </u>
7					
8					
9		6			
10					

* *****

Site Location Description:

7

a ≦ **x** 1

Comments:

AA Name: AA 12.		-			Date: 4/24/2019
Attribute 1: Buffer and Land	dscape	Context	t (pp. 11- 1	(9)	Comments
			Alpha.	Numeric	
Stream Corridor Continuity	(D)		D	3	400 m sing upstream
Buffer:	<u></u>				
Buffer submetric A:	Alpha.	Numeric			
Percent of AA with Buffer	В	9			50%
Buffer submetric B:					250 m a. 10.
Average Buffer Width	A	12_			
Buffer submetric C: Buffer Condition	B	9			Notices and non-ratives
	$re = D_{-}$		• B) 1/2 1/2		Final Attribute Score =
$\mathbf{Raw Attribute Score} = D + [C \times (A)]$			× 0)]		(Raw Score/24) x 100
Attribute 2: Hydrology (pp.	20-26)				
			Alpha.	Numeric	-
Water Source				6	
Channel Stability			A	12	Mostly equilibrium
Hydrologic Connectivity		A	12_	4.6	
Raw Attribute Score = sum of numeric		scores		Final Attribute Score = (Raw Score/36) x 100	
Attribute 3: Physical Struct	ure (pp	. 27-33)			
		Alpha.	Numeric		
Structural Patch Richness			D	3	4 policies
Topographic Complexity			B_	9	82 - 1 bench, micro
Raw Attribute Score = su	um of n	umeric	scores		Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure					
Plant Community Compositio	on (base	d on sub	-metrics	A-C)	
	Alpha.	Numeric	E.233		
Plant Community submetric A: Number of plant layers	B	9			3 longers
Plant Community submetric B:					4 continues
Number of Co-dominant species	D	3			
Plant Community submetric C: Percent Invasion	D	3			50/
Plant Communi	ty Com	position	Metric		
		f submetri		ļ	
Horizontal Interspersion			D	3	
Vertical Biotic Structure			P	9	Mostly very fall over med
Raw Attribute Score = st	um of n	umeric	scores		Final Attribute Score = (Raw Score/36) x 100
Overall AA Score (average	ge of for	ur final A	Attribute S	cores)	

Scoring Sheet: Riverine Wetlands

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Lengths of Non-buffer S Distance of 500 m Ups		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA			
Segment No.	Length (m)	Segment No. Length			
1	400	1			
2		2			
3		3			
4		4			
5		5	1		
Upstream Total Length	400	Downstream Total Length	0		

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

SEE AGUAL

Percent of AA with Buffer: 50 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	
	250
B	250
<u> </u>	2.50
D	250
E	250
F	250
G	250
H	250
Average Buffer Width	250
Round to the nearest integer	230

Worksheet for Assessing Channel Stability for Riverine Wetlands

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 $x = x_{-2}$

Condition	Field Indicators (check all existing conditions)
	The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.
	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 (if pools are present). The channel contains embedded woody debris of the size and amount consistent
Indicators of Channel	with what is naturally available in the riparian area. There is little or no active undercutting or burial of riparian vegetation.
Equilibrium	 If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.
	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).
	□ There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA
	 The larger bed material supports abundant mosses or periphyton. The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	□ There are abundant bank slides or slumps.
	□ The lower banks are uniformly scoured and not vegetated.
Indicators of	Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
Active Degradation	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.
	□ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).
	The channel has one or more knickpoints indicating headward erosion of the bed.
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.
	□ There are partially buried living tree trunks or shrubs along the banks.
Indicators of Active	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.
Aggradation	□ There are partially buried, or sediment-choked, culverts.
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.
	□ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	Equilibrium 🗆 Degradation 🗹 Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

ap	proximate midpoin	should be conducted for each of 3 cross-sections located ts along straight riffles or glides, away from deep pools or de to place them at the top, middle, and bottom of the A	: meande	A at the r bends.	An
	Steps	Replicate Cross-sections	ТОР	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	4	Ş	6
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	D.75	0,5	0.75
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.5	1	1.5
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	25	21	30
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	6.25	2.6	5
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate Enter the average result here and use it in Table 13a or 1	cross-se	ctions.	4.6

Structural Patch Type Worksheet for Riverine wetlands

19 1

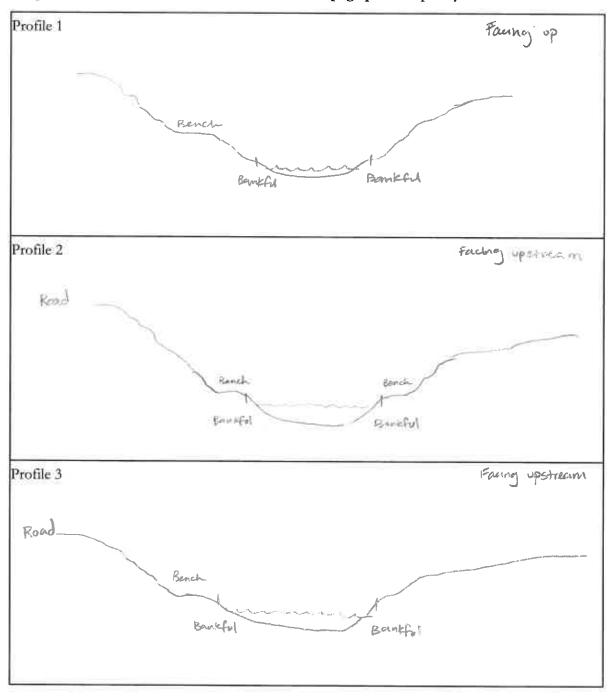
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary	at www.cramwetlands.org for photos of each of the following
	patch types.

parto spos.		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m ²
Abundant wrackline or organic debris in channel, on floodplain	¹ (1)	1
Bank slumps or undercut banks in channels along shoreline	s or 1	1
Cobbles and/or Boulders	1	1
Debris jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
Plant hummocks and/or sediment mound	ls 1	1
Point bars and in-channel bars	1	1
Pools or depressions in channels (wet or dry channels)	1	1
Riffles or rapids (wet or dry channels)	1	1
Secondary channels on floodplains or alor shorelines	^{1g} 1	N/A
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline		N/A
Variegated, convoluted, or crenulated foresh (instead of broadly arcuate or mostly straig	ht)	1
Vegetated islands (mostly above high-wate		N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below) 4	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

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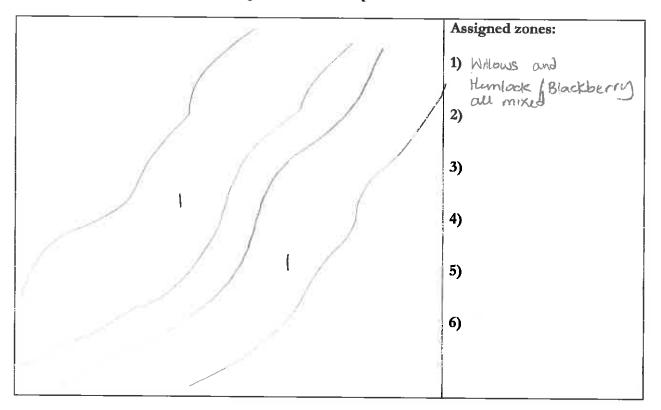
* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
			A.
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Conium maculatum		Conium maculatum	
Rubus Ursinus			
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species	
Suly lacvigeta Allanthus altissima		for all layers combined (enter here and use in Table 18)	4
Ailanthus altissima			
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	

Se . 4

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No	4 S		
If yes, was it a flood, fire, landslide, or other?	flood		fire	lar	ndslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	or	likely to aff site next 3 years		site	y to affect next 1-2 years
Has this wetland been converted from another type? If yes, then what was the previous type?	depressiona	վ	vernal po	ol		nal pool ystem
	non-confine riverine	d	confined riverine		seasonal estuarine	
	perennial sali estuarine	ne	perennial n saline estua		wet	meadow
	lacustrine	1	seep or spr	ing		playa

Stressor Checklist Worksheet

 $||_{\mathcal{L}^{\infty}(\mathbb{R}^{n})} = \mathbb{R}$

L

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)		
Non-point Source (Non-PS) inscharges (Inbail Tunoti, 2000)		
Dams (reservoirs, detention basins, recharge basins) Flow obstructions (culverts, paved stream crossings)		
Flow obstructions (culverts, paved sitean crossing) 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.)	Χ	
Actively managed hydrology		
Comments		

Present	negative effect on AA
X	
X	
<u> </u>	_
<u>X</u>	
X	

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)		Significant negative
Mowing, grazing, excessive herbivory (within AA)	Present	effect on AA
Excessive human visitation	<u> </u>	
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	<u> </u>	
Pesticide application or vector control		
Biological resource extraction or stocking (fisherics 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	<u> </u>	
Comments	<u> </u>	

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	D.	Significant negative
Urban residential	Present	effect on AA
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries	<u> X </u>	
Commercial feedlots	<u> </u>	
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	X	
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 anter rive (1 h Winter biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		<u>+</u>
Biological resource extraction (aquaculture, commercial fisheries)		+
Comments		

Basic Information Sheet: Depressional Wetlands

1.1.22

Assessment Area Nat	me: AAM, FWP	-02526	
Project Name: 15			
Assessment Area ID			
Project ID #:		Date: 4 24 1	9
Assessment Team Mo			
L. Cervai	nder, D. Mani	scalco	
AA Category:			
□ Pre-Restoration	Dest-Restoration	Pre-Mitigation	Dest-Mitigation
Pre-Impact	Post-Impact	🗆 Training	□ Ambient
	Other:		
Origin of Wetland (if known):		
XNatural system	□ Artificial system		
□ water supply (agrice	amphibians 🗆 genetal v	vestock) □ not manag	water quality I stormwater ed tother: Conservation Caserner
	$h \qquad \Box \text{ alkaline mar}$		marsh
□ other (specify):			
AA Encompasses:			
□ enti	re wetland	ortion of the wetland	
	es the hydrologic state	of the wetland at the	time of assessment?
ponded/inur	ndated 🗌 saturate	d soil, but no surface v	vater 🗌 dry
What is the apparer	nt hydrologic regime of	the wetland?	
wetlands are defined	ms contain surface water as supporting surface wat oded depressional wetland	ter for 4-11 months of	f the year (in > 5 out of 10
X perennially flooded	l □ seasonally floo	oded 🛛 tempor	arily flooded

)oes	s the wetland	have a defined o	n undefined <u>outle</u> n undefined <u>inlet</u>	? A defined	undefined undefined
		outlet at the same		□ yes	A no
			tland X distinct		
ln <i>in</i> Lxan	ndistinct topogra nples of such f	aphic basin is one features are season	that lacks obvious l al, depressional we	boundaries between w tlands in very low-grad	retland and upla dient landscape
hot	o Identificati	ion Numbers and	l Description:		
hoto.	s should be taker	n from edge of AA lo	oking toward the centr	oid of AA	
	Photo ID	Description	Latitude	Longitude	Datum
1	No.				· · · · · · · · · · · · · · · · · · ·
1 2		(to) North (to) East		<u> </u>	
3		(to) South		<u> </u>	<u> </u>
4		(to) West		<u>+</u>	+
5				<u> </u>	
6					<u>† </u>
7					
8		╞─────			
9 10					<u> </u>
	Location Des	cription and Lan	d Use:		<u> </u>
omr	nents:				

AA Name: 17-FWP-02526		I	Date: 4	23 19	
Attribute 1: Buffer and Landscape Context				Comments	
Aquatic Area Abundance Score (D)	Alpha.	Numer	ic		
Inquale mea ribulidance score (D)	B		377	>	
Buffer:			0		
Buffer submetric A: Alpha. Numeric			Inter		
Percent of AA with Buffer A			100%		
Buffer submetric B:			2500	n	
Average Buffer Width A					
Buffer submetric C:			Non-n	ative spp	
Buffer Condition		20.00		E U	
Raw Attribute Score = $D+[Cx(AxF)]$	3) ^½] ^½			Attribute Score =	
			(Raw	v Score/24) x 100	
Attribute 2: Hydrology (pp. 16-21)	Almha	Numer			
	Alpha.	numer			
Water Source	ζ		_		
Hydroperiod	0				
Hydrologic Connectivity	¢∦k				
Raw Attribute Score = sum of numeric so	ores			Attribute Score =	
	.0105		(Raw	7 Score/36) x 100	
Attribute 3: Physical Structure (pp. 22-28)			_	•	
	Alpha.	Numer	ic _		
Structural Patch Richness	Ċ		5		
Topographic Complexity	D				
			Final	Attribute Score =	
Raw Attribute Score = sum of numeric sc	ores		(Raw	Score/24) x 100	
Attribute 4: Biotic Structure (pp. 29-39)					
Plant Community Composition (based on subm	etrics A	-C)	_		
Alpha. Numeric					
Plant Community submetric A: Number of plant layers			3		
			-19-		
Plant Community submetric B: Number of Co-dominant species B					
			191	•	
Plant Community submetric C: C			0.1.		
Plant Community Composition M	[etric				
(numeric average of submetrics 2					
Horizontal Interspersion	D				
Vertical Biotic Structure	T		-		
			Final	Attribute Score =	
Raw Attribute Score = sum of numeric sc	ores			Score/36) x 100	
Overall AA Score (average of four final Att	ribute So	cores)		· · · · · · · · · · · · · · · · · · ·	

Scoring Sheet: Depressional Wetlands

e 12. e

Percentage of Transect Lines that Contains Aquatic Area of Any Kind		
Segment Direction Percentage of Transect Leng		
	That is an Aquatic Feature	
North	20	
South	100	
East	29	
West	0	
Average Percentage of Transect	200	
Length That Is an Aquatic Feature	5.1/0	

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

100 % Percent of AA with Buffer:

Line	Buffer Width (m)
A	250
В	
С	
D	
E	
F	
G	
Н	
Average Buffer Width *Round to the nearest whole number (integer)*	250

Worksheet for calculating average buffer width of AA

n 9 e

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

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STRUCTURAL PATCH TYPE (circle for presence)	Depressional
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	X
Animal mounds and burrows	X
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	X
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground	
(sandflats, mudflats, gravel flats, etc.)	
Open water	X
Plant hummocks and/or sediment mounds	
Soil cracks	X
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	
(instead of broadly arcuate or mostly straight)	
Woody vegetation in water	
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	5

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South HILL Butush Water South Waty North It slope Bulrish East to West water

Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

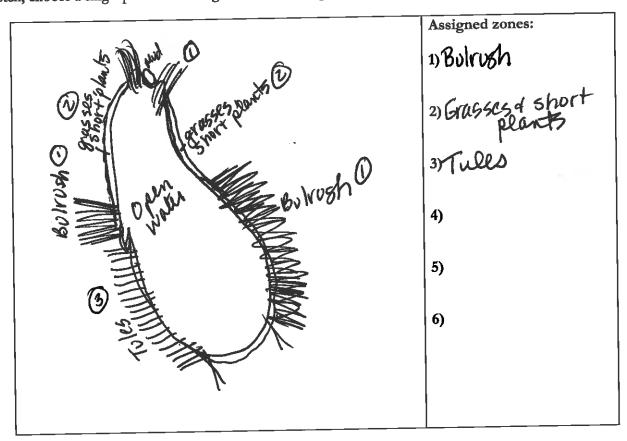
* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Lythnum 500	Y*
		Rumex.	Y.
		Clover not signa thim	N.
		Distichilus	N
		Uterkan solar Linatrigania	n
		a iscoid a	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
RUMLY ONSPOS	Y	Burush	N
TWO			
	-		
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	7
		Percent Invasion *Round to the nearest	29
·· 97		whole number (integer)* (enter here and use in Table 19)	

Horizontal Interspersion Worksheet

a.

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No				
If yes, was it a flood, fire, landslide, or other?	flood	fire	lan	dslide	other	
If yes, then how severe is the disturbance?	likely to affect site next 5 or more year	site next : years	likely to affect site next 3-5 years		likely to affect site next 1-2 years	
	depression	al vernal p	vernal pool		nal pool ystem	
Has this wetland been converted from	non-confin riverine		confined riverine		ar-built tuarine	
another type? If yes, then what was the previous type?	perennial saline estuarine	non-sali	perennial non-saline estuarine		meadow	
	lacustrine		oring		playa	

Stressor Checklist	Worksheet
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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	P	
Dams (reservoirs, detention basins, recharge basins)		<u> </u>
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		- <u> </u>
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		Chect off AA
areas)		
Grading/ compaction (N/A for restoration areas)		†
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		<u>├───</u>
Vegetation management		
Excessive sediment or organic debris from watershed		┼────┥
Excessive runoff from watershed		<u>├───</u>
Nutrient impaired (PS or Non-PS pollution)		┼────┤
Heavy metal impaired (PS or Non-PS pollution)		<u> </u>
Pesticides or trace organics impaired (PS or Non-PS pollution)		<u> </u>
Bacteria and pathogens impaired (PS or Non-PS pollution)		<u> </u>
Trash or refuse		
Comments		·
Nothing in this list		

Present	negative effect on AA
<u> </u>	
×	
<u> </u>	
	×. ×.

 $0 = 2, \dots p$

		Significant
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE		negative
(WITHIN 500 M OF AA)	Present	effect on AA
Jrban residential		
ndustrial/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 reads, only		
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 lishenes)		
Comments		
Sports fields and urban parklands (golf courses, soccer heids, 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)		

Basic Information Sheet: Depressional Wetlands

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oject ID #: sessment Team Mer	nbers for This AA		
L. Cervante	s, D Manuca	lo	
AA Category:			m - Affet des
Pre-Restoration	Post-Restoration	Pre-Mitigation	Post-Mitigation
		🗆 Training	
Reference	□ Other:		
□ Reference Origin of Wetland (if			
Origin of Wetland (if Natural system		rildlife □ sediment □ vestock) □ not manag	water quality \Box stormwater quality \Box stormwater quality \Box stormwater \Box
Origin of Wetland (if Natural system	known): mphibians □ general w ture) □ water supply (liv	vestock) □ not manag	water quality \Box stormwa ed f other: Conserva Caser
Origin of Wetland (if Natural system	known): mphibians □ general w ture) □ water supply (liv	vestock) □ not manag	ed other: Conserva
Origin of Wetland (if Natural system	known): mphibians	vestock) □ not manag	time of assessment?

Doe	s the wetland	have a defined	on undefined outlet?	defined	undefined
Doe	s the wetland	have a defined	on undefined inlet?	Adefined	undefined
re	the inlet and	outlet at the sam	e location?	□ yes	no
s th	e topographi	c basin of the we	tland distinct o	r 🛛 indistinct ?	<u> </u>
n <i>ii</i> Ixan	ndistinct topogr nples of such f	aphic basin is one features are seasor	that lacks obvious bo al, depressional wetla	undaries between v nds in very low-gra	wetland and upl Idient landscape
ho	to Identificat	ion Numbers and	d Description:		
boto	s should be taken	n from edge of AA la	oking toward the centroid	of AA	
	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			<u> </u>
3		(to) South			
4		(to) West			
5					
6	<u> </u>		·		
7					
8 9		└ <u></u>			
9 10		<u>├</u>			
		<u> </u>			
te I	Location Des	cription and Lan	d Use:		
omr	nents:				

Г

AA Name: AAA18				Da	ate: 4/24/19]
Attribute 1: Buffer and Lan	dscape Co	ontext (pp	. 8-1	5)	Comments	
Aquatic Area Abundance So	ore (TT)	Al	pha.	Numeric		
		(<u>C</u>		18.2%	
Buffer:						-
Buffer submetric A:	Alpha. N	umeric				-
Percent of AA with Buffer	A				1001. buffer 250 m avg	
Buffer submetric B:					250 m avg]
Average Buffer Width	A	10			0	_
Buffer submetric C:	C	1			Timmonatives w/disturbance	-
Buffer Condition				1 2 10		-
Raw Attribute Score	$= D + [C_2]$	$\mathbf{x} (\mathbf{A} \mathbf{x} \mathbf{B})^{\frac{1}{2}}$]½		Final Attribute Score = (Raw Score/24) x 100	
Attribute 2: Hydrology (pp	. 16-21)			ļ		1
		Al	pha.	Numeric		1
Water Source			C		7201. Ag	
Hydroperiod			3		600 Prototors Inputs/natural	drawdown
Hydrologic Connectivity			8		1 201. Wsteep banks	
Raw Attribute Score = s	um of our	antic scott	20		Final Attribute Score =	1
Kaw Attribute Score – s			-8		(Raw Score/36) x 100	Į
Attribute 3: Physical Struct	ure (pp. 22					-
		Al	pha.	Numeric	1	
Structural Patch Richness			2		6 patches	
Topographic Complexity		5	3		1 banch, low micro	
Raw Attribute Score = s	um of num	neric score	28		Final Attribute Score = (Raw Score/24) x 100	
Attribute 4: Biotic Structure	e (pp. 29-3	(9)			(114W Scole / 24) X 100	1
Plant Community Compositie		- <i>i</i>	ics A	C)		
	Alpha. N		8.1]
Plant Community submetric A:	B				3 layers	
Number of plant layers	D _					
Plant Community submetric B:	B	-			8 Codom	
Number of Co-dominant species		-			0.02	
Plant Community submetric C: Percent Invasion	C				a5% invasion	
Plant Communi		ition Metr	ic			
	werage of sub					
Horizontal Interspersion		R			medium interspersion	
Vertical Biotic Structure		P			25-307. entrainment (Junus	+ bilrusharos)
Raw Attribute Score = st	am of num				Final Attribute Score =	
					(Raw Score/36) x 100	
Overall AA Score (average	ge of four f	inal Attribi	ute S	cores)		

Scoring Sheet: Depressional Wetlands

ā.

Percentage of Transect Lines that Contains Aquatic Area of Any Kind			
Segment DirectionPercentage of Transect LengThat is an Aquatic Feature			
North 25%			
South 361			
East 12%			
West Or the			
Average Percentage of Transect Length That Is an Aquatic Feature	8.25		

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 105 %

Line	Buffer Width (m)
Α	250
В	
С	
D	
Е	
F	
G	
Н	
Average Buffet Width *Round to the nearest whole number (integer)*	250

Worksheet for calculating average buffer width of AA

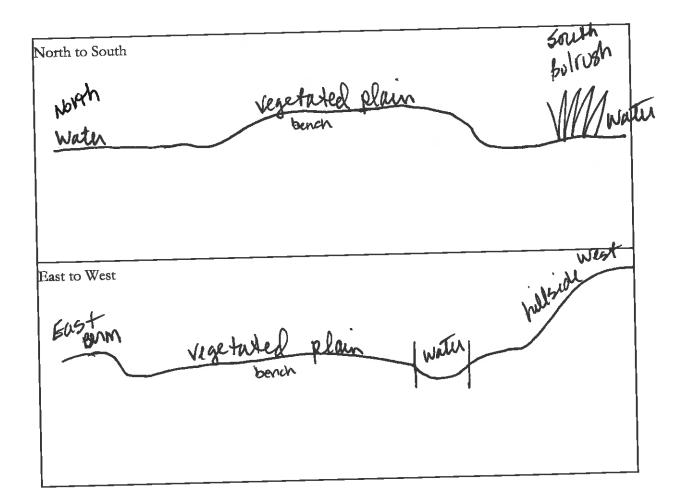
Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Dcpressional
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	X .
Animal mounds and burrows	×
Bank slumps or undercut banks in channels or along shoreline	×
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	X
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Open water	X
Plant hummocks and/or sediment mounds	X
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	-
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	
(instead of broadly arcuate or mostly straight)	
Woody vegetation in water	
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	5

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.



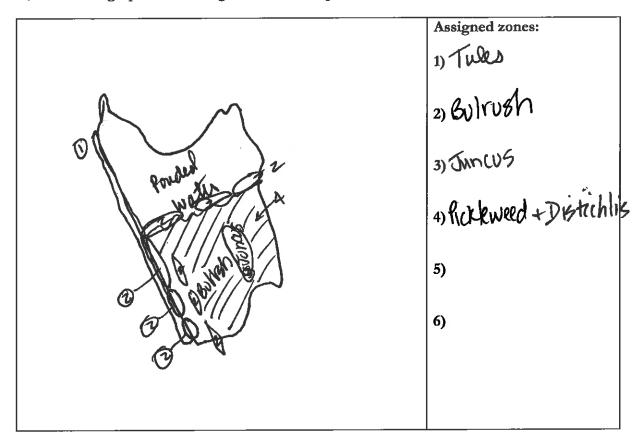
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Rumer Crispus	Y
		Lythrum	TÝ-
		Clover spp	n
		Ustich lug	<u> </u>
	<u></u>	tickleweld	<u>n</u>
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 - 3.0 m)	Invasive?
Rumex anis pus	<u> </u>	Bulrush.	n
	<u> </u>	Tules	n
			+
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	8
		Percent Invasion *Round to the nearest	
	j	whole number (integer)*	251
		(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No			
If yes, was it a flood, fire, landslide, or other?	flood	fire	lan	dslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	site next 3	likely to affect site next 3-5 years		to affect next 1-2 years
	depression	al vernal po	ool		nal pool ystem
Has this wetland been converted from	non-confine riverine		confined riverine		r-built tuarine
another type? If yes, then what was the previous type?	perennial saline estuarine	perenni non-salin estuarin	ne	wet	meadow
	lacustrine	seep or sp	ring		olaya

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)	X	
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)	2	
Vegetation management	í i	
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)	5	
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments	-	· · · · · ·
		·

(WITHIN 50 M OF AA)	Present	effect on AA
fowing, grazing, excessive herbivory (within AA)	8	
excessive human visitation		
redation and habitat destruction by non-native vertebrates (e.g., <i>Tirginia opossum</i> and domestic predators, such as feral pets)		
ree cutting/sapling removal		
emoval of woody debris		
reatment 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)		
ack of vegetation management to conserve natural resources	8	
ack of treatment of invasive plants adjacent to AA or buffer	<u> </u>	
Comments		

.....

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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	8	
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		

Basic Information Sheet: Depressional Wetlands

a.

Assessment Area Name: AA-19-FNP-02524
Project Name: HSR
Assessment Area ID #: 19
Project ID #: Date: 424 9
Assessment Team Members for This AA
Lanika Cervantes, Doana Maniscelco
AA Category:
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation
Pre-Impact Dost-Impact Data Training Data
□ Reference □ Other:
Origin of Wetland (if known):
Artificial system
Type of Management (if known):
\Box waterfowl/birds \Box amphibians \Box general wildlife \Box sediment \Box water quality \Box stormwater.
□ water supply (agriculture) □ water supply (livestock) □ not managed X other: Conservation
Which best describes the type of depressional wetland?
A freshwater marsh 🛛 alkaline marsh 🖓 🗆 brackish marsh
□ other (specify):
AA Encompasses:
□ entire wetland
Which best describes the hydrologic state of the wetland at the time of assessment?
ponded/inundated 🗆 saturated soil, but no surface water 🗆 dry
What is the apparent hydrologic regime of the wetland?
Perennially flooded systems contain surface water year-round, seasonally flooded depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded depressional wetlands possess surface water between 2 weeks and 4
months of the year.

Does your wetland connect with the floodplain of a nearby stream? X yes I no (system subject to overbank flow, a dammed stream does not count)				
Does the wetland have a defined on undefined outlet?	X defined	🗆 undefined		
Does the wetland have a defined on undefined <u>inlet</u> ?	Adefined	□ undefined		
Are the inlet and outlet at the same location?	🗆 yes	Auo		

distinct or 🗆 indistinct? Is the topographic basin of the wetland

An indistinct topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			<u> </u>
4		(to) West			ļ
5					
6					<u> </u>
7					
8					
9					
10					

Site Location Description and Land Use:

Ponded areas on conservation easement

Comments:

AAIA	Scoring Shee	t: Depressior	al Weth	ands		
AA Name: FWP-02	1524		Date:	4 23	tia	
Attribute 1: Buffer and La	andscape Cont	ext (pp 8-15)			1	
Aquatic Area Abundance		Alpha. Nu			Comments	
Buffer:				87.		
Buffer submetric A:	Alpha. Num	eric				
Percent of AA with Buffer	A		Tot	70		
Buffer submetric B: Average Buffer Width	A	1.16-33	23	4		
Buffer submetric C: Buffer Condition	C					
Raw Attribute Scor	re = D + [C x (A)]	$(x B)^{\frac{1}{2}}$			bute Score te/24) x 10	
Attribute 2: Hydrology (p	p. 16-21)					
Water Source		Alpha. Nur	neric Ag	Larms	upstream	of AAs
Hydroperiod		B		V		0
Hydrologic Connectivity		Ă				{
Raw Attribute Score = s	sum of numeric	c scores			oute Score e/36) x 100	
Attribute 3: Physical Struc	ture (pp. 22-28)			C/ J0/ X 100	
Structural Patch Richness		Alpha. Nun	neric 4			
Topographic Complexity						
Raw Attribute Score = s			Fina	al Attrib	ute Score =	
		c scores			e/24) x 100	
Attribute 4: Biotic Structur	e (pp. 29-39)					
Plant Community Composition						
Plant Community submetric A: Number of plant layers	Alpha. Numer		31	ayers		
Plant Community submetric B: Number of Co-dominant species	Ð		3			
Plant Community submetric C: Percent Invasion	C	1112	66%	la		
Plant Communi	ty Composition	Matria				
(numeric a	verage of submetric	sA-C)				
Horizontal Interspersion		D				
Vertical Biotic Structure		D	_			———
Raw Attribute Score = su					te Score = /36) x 100	
Overall AA Score (average	e of four final A	ttribute Scores)				<u> </u>

etter.

Scoring Sheet: Depressional Wetlands

U

Percentage of Transect Lines that Contains Aquatic Area of Any Kind			
Segment Direction	Percentage of Transect Length That is an Aquatic Feature		
North	377		
South 277.			
East 876			
West 0/2			
Average Percentage of Transect Length That Is an Aquatic Feature 18%			

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer:	00 %		

Line	Buffer Width (m)
A	250
B	250 250 250
С	250
D	250
E	125
F	250
G	250
н	250
Average Buffer Width *Round to the nearest whole number (integer)*	234

Worksheet for calculating average buffer width of AA

ς.

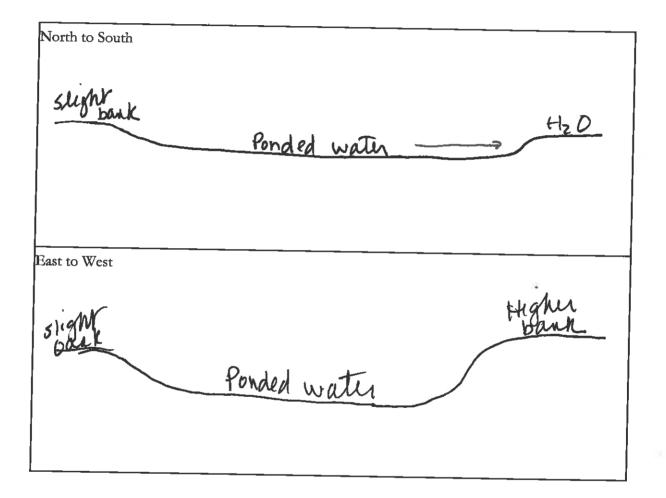
Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Dcpressional
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	×
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Open water	X
Plant hummocks and/or sediment mounds	
Soil cracks	X
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	
(instead of broadly arcuate or mostly straight)	
Woody vegetation in water	
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	4

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
stoome of the store of the stor		Rumer Crispus Lythrum hyssofi folium	<u> </u>
		Lythrum hy 530 Pilolium	<u> </u>
Maltim (0.5 - 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Medium (0.5 – 1.5 m) Rumlx Crispus	V	Tall (1.5 - 3.0 m) Schoene plectus californicus	N
Very Tall (>3.0 m)	Invasive?	ar an Sing ar	
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion	
		*Round to the nearest	66%
		whole number (integer)*	···/
		(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Assigned zones: 1 Autrush 1) Bulrugh 2) Low plant ilay 3) 4) 5) 6)

1

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No			
If yes, was it a flood, fire, landslide, or other?	flood	fire	lan	dslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	site next 3		site	to affect next 1-2 years
	depressiona	l vern al po	vernal pool		nal pool 7stem
Has this wetland been converted from another type? If yes, then what was the	non-confine	d confined riverine			r-built uarine
previous type?	perennial saline estuarine	perennia non-salin estuarine	e	wet 1	neadow
	lacustrine	seep or spr	ing	p	laya

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)	X	
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	<u> </u>	
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 Nothing in this fist		

(WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Iowing, grazing, excessive herbivory (within AA)	X	
Excessive human visitation		
redation and habitat destruction by non-native vertebrates (e.g., <i>irginia opossum</i> and domestic predators, such as feral pets)		
ree cutting/sapling removal		
emoval of woody debris		
reatment of non-native and nuisance plant species		
esticide application or vector control		
iological resource extraction or stocking (fisheries, aquaculture)		
xcessive organic debris in matrix (for vernal pools)		
ack of vegetation management to conserve natural resources	X	
ack of treatment of invasive plants adjacent to AA or buffer	X	
omments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		CHECK ON AM
Industrial/commercial	<u> </u>	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	<u> </u>	
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)	X	
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)		<u>+</u>
Biological resource extraction (aquaculture, commercial fisheries)		÷1
Comments		<u> </u>

Basic Information Sheet: Slope Wetlands

Assessment Area Name: AA21				
Project Name: HSR SJM				
Assessment Area ID#:				
Project ID#: Date 4/24/2019				
Assessment Team Members for This AA:				
Krister Klinefeller				
RJ Van Sant				
Assessment Area Size:				
Surface water present during the assessment? Ves D No Flowing? D Yes No				
Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)				
Part of a large not merchant that is sated				
AA Category:				
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation				
Pre-Impact D Ambient D Reference				
□ Training □ Other:				
Which best describes the type of wetland?				
Channeled Wet Meadow (assoc. with a fluvial channel)				
□ Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring				
Are peat soils present in the AA? D Yes No				
AA Encompasses:				
□ entire wetland				
Which best describes the dominant hydrologic state of the AA at the time of assessment?				
ponded/inundated 🗆 saturated soil, but no surface water 🗅 moist 🗆 dry				
What is the apparent hydrologic regime of the wetland?				
Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.				
□ perennial • seasonal • □ temporarily flooded				

	Photo ID No.	Description	
1		Looking North into the AA	
2		Looking South into the AA	
3		Looking East into the AA	
4		Looking West into the AA	
5			
6			
7			
8			
9			
10			

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

	AA Name: AA 21				Date 4/24/2019			
	Attribute 1: Buffer and Landscape Context					Comments	1	
				Alpha	Numeric			
	Aquatic Area Abundance (D)	Aquatic Area Abundance (D)			12	788%. ang		
	Buffer							
	Buffer submetric A:	Alpha	Numeric			10011		
	Percent of AA with Buffer	A	12			1007		
	Buffer submetric B:							
	Average Buffer Width	A	12					
	Buffer submetric C:	B	9			BI - mix natives lung Lille		
	Disjer Conductore					BI - nix natives/non, little h. Final Attribute Score =	insite 1	
	Raw Attribute Score = $D+[C \ge (A \ge B)^{\frac{1}{2}}]^{\frac{1}{2}}$ (do not round)					(Raw Score/24) x 100		
	Attribute 2: Hydrology			/				
				Alpha	Numeric			
	Water Source			C	6	720%. ag		
Aors	Hydroperiod			B	9			
Pr supply (Pr)	Hydrologic Connectivity (all but	Channe	led)	A	12			
y we coming the	Hydrologic Connectivity (all but Hydro Connectivity submetric A:	Alpha	Numeric		12			
	Bank Height Ratio	, <u></u>				Not charrielized		
	Hydro Connectivity submetric B:	A						
	Percent Dewatered	A	12		- S - H	Not charactered No evidence of de Matering		
	Hydrologic Connectivity for Channeled (ang. of submetrics A-B)			A				
	Raw Attribute Score = sum of numeric scores					Final Attribute Score =		
	Kaw Attribute Score – sum of numeric scores					(Raw Score/36) x 100		
	Attribute 3: Physical Structu	te						
				Alpha	Numeric			
	Structural Patch Richness			D	3	1 patch		
	Topographic Complexity			B	9	D - Physical topo, A-year muchaness		
	Raw Attribute Score = su	mofn	umerio	00000		Final Attribute Score =		
	Raw Attribute Score = sum of numeric scores					(Raw Score/24) x 100		
	Attribute 4: Biotic Structure							
	Plant Community Composition (s	ubmetr	ic A is no	t applicable	for Non-	Channeled meadows)		
	Plant Community submetric A:	Alpha	Numeric					
	Number of plant layers							
	Plant Community submetric B:							
	Number of Co-dominant species	В	9			5 co-doms		
	Plant Community submetric C:		12					
	Percent Invasive species	A	14		1 - A	07.		
	Plant Comm. Composition (avg. of submetrics A-C or B-C)							
				Alpha	Numeric			
	Horizontal Interspersion			C	6	minima		
	Plant Life Forms			D	3	2		
	Raw Attribute Score = sum of numeric scores				Final Attribute Score =			
- I					(Raw Score/36) x 100			
	Overall AA Score (average of four final Attribute Scores)							

Scoring Sheet: Slope Wetlands

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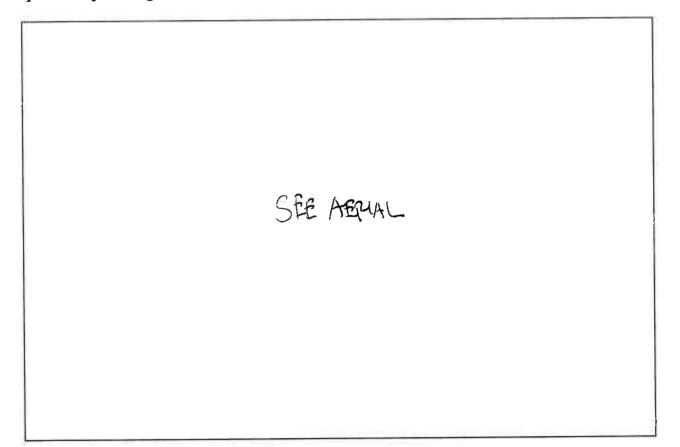
Aors

Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind		
Segment Direction Percentage of Transect Length		
That is an Aquatic Feature		
North 100°/.		
South 7 50 /		
East ////		
West		
Average Percentage of Transect Length That Is an Aquatic Feature	> 88%	

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Line	Buffer Width (m)
Α	250
В	250
С	250
D	2.50
E	250
F	2.50
G	250
Н	/25
Average Buffer Width	234

Worksheet for calculating Average Buffer Width of AA

might be more

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation Worksheet

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	вот
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).			
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.			
5: Calculate date the average results for Step 4 for all 3 replicate cross- average bank height ratio. Calculate the average result for Step 4 for all 3 replicate cross- sections. Enter the average result here and use it in Table 14. Keep two significant figures (hundredths).					

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking Drying of peat Decrease in vigor of hydrophytes Changes in soil structure or moisture content More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (<i>Pseudotsuga menziesü</i>), Lodgepole Pinc (<i>Pinus contorta</i>), see special note) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (<i>Artemisia tridentate</i>), rabbitbrush (<i>Bricameria nauseosa</i>), French broom (<i>Genista monspessulana</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (Hedera belix), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Convolulus arvensis</i>) More than 5% cover in the AA of upland broade (<i>Convolulus arvensis</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (Hedera belix), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Convolulus arvensis</i>) More than 5% cover in the AA of upland proses (e.g. ragweed (<i>Ambrosia artemisiijolia</i>), nustard (<i>Brassica rapa</i>), yellow star thistle (<i>Centaurea solstitialis</i>)
Overall area of the wetland showing evidence of dewatering	No dewatering □ <25% dewatered □ 25-50% dewatered □ >50% dewatered

Structural Patch Type Worksheet for Slope Wetlands

 Σ

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, or across wetland plain	
Active fluvial channel(s)	
Animal mounds and burrows, sediment disturbance, or vole trails	
Bank slumps or undercut banks in channels	
Beaver dams or lodges	
Boulders or bedrock outcrop	
Cutoff channels or oxbows	
Filamentous macroalgae or algal mats	
Gravel, cobble, or sand	
Large woody debris	
Moss	
Non-vegetated flats or bare ground	
Pannes or pools on wetland surface	
Plant hummocks and/or tussocks	
Sediment mounds around the bases of shrubs or trees	
Sediment splays	
Soil cracks	
Springs or upwelling groundwater	$\overline{\mathcal{A}}$
Standing snags (at least 3 m tall)	
Submerged vegetation (in channels or open	
water)	
Swales	
Thatch	
Variegated, convoluted, or crenulated upland	
edge (not broadly arcuate or mostly straight)	
Total Possible	23
No. Observed Patch Types (enter here and use in Table 17 below)	1

Worksheet for AA Topographic Complexity

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.

Physical topographic complexity score	D	Vegetation roughness score	A

Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

.

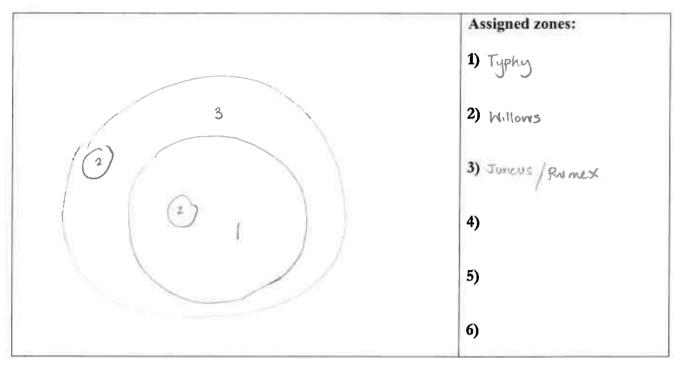
Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive?
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive?
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and see Table 21)	
		Percent Invasion (enter here and see Table 21)	

Co-dominant Species	Check if Invasive
Typha sp.	
Eleochemis macrostachya	
Tuncus preticularius	
Trnavs Xiphiades	· · · · · · · · · · · · · · · · · · ·
Junaus Xuphiodes Rumex conglamerators	
Schoenoplectus sp.	
Total Number of Co-dominants	6
Total Number of Invasive Co-dominant species	0
Percent Invasive Species (round to nearest integer)	0%

Table 22: Worksheet for Co-dominant Plant Species.

Horizontal Interspersion Worksheet

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	
Deciduous Broadleaf Trees	
Evergreen Broadleaf Trees	
Ferns	
Grasses	
Herbs/Forbs	
Lichens or Fungi	
Sedges/Rushes	<
Shrubs	
Vines	
Total Number of life forms	2

Table 24. Plant Life Forms Metric.

Worksheet: Stressor Checklist

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
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		
		· · · · · · · · · · · · · · · · · · ·

Present	Present and likely to have significant negative effect on AA
X	
X	
X	
X	
X	
	Present X X X X

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	
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	Í	
Pesticide application or vector control	e);	1
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	X	
Comments	~~~~	
		3

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential	X	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture	X	
Orchards/nurseries	X	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		1
Passive recreation (bird-watching, hiking, etc.)	ĺ.	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)	λ.	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Slope Wetlands

Assessment Area Name: AA 22
Project Name: HSR_SJM
Assessment Area ID#:
Project ID#: Date 4/24/2019
Assessment Team Members for This AA:
Kristen Klinefelter
RJ Van Sant
Assessment Area Size:
Surface water present during the assessment? □ Yes □ No Flowing? □ Yes √N
Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)
Nor-channelized wet meadow, dry during assessment
Portion of larger wet meadow
Relatively flat
AA Category:
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation
□/Pre-Impact □ Post-Impact □ Ambient □ Reference
Training Other:
Which best describes the type of wetland?
Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow
□ Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring
Are peat soils present in the AA?
AA Encompasses:
□ entire wetland v portion of the wetland
Which best describes the dominant hydrologic state of the AA at the time of assessment?
□ ponded/inundated □ saturated soil, but no surface water □ moist □ dry
What is the apparent hydrologic regime of the wetland?
<i>Perennial</i> slope wetlands contain surface water year-round, <i>seasonal</i> slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) <i>Temporarily flooded</i> slope wetlands possess surface water between 2 weeks and 4 months of the year.
□ perennial □ seasonal ☑ temporarily flooded

	Photo ID No.	Description
1	2	Looking North into the AA
2	3	Looking South into the AA
3		Looking East into the AA
4	4	Looking West into the AA
5		
6		
7		
8		
9	† –	
10	1	

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

AA Name: AA22					Date	4/26/2019
Attribute 1: Buffer and Landscape Context					Comments	
	Alpha	Numeric		Comments		
Aquatic Area Abundance (D)			A	12	81%	
Buffer						
Buffer submetric A:	Alpha	Numeric				
Percent of AA with Buffer	A	12	1.00		100%	
Buffer submetric B:						
Average Buffer Width	A	12			232 m	
Buffer submetric C:	B	9			Mix of no	atives and non, little
Buffer Condition		-				is itertion (soil distribunce
Raw Attribute Sco	ore = D		. x B) ^{1/2}] ^{1/2} ot round)		Final Attribute Score = (Raw Score/24) x 100	
Attribute 2: Hydrology						
			Alpha	Numeric		
Water Source			C	6	7201.0	201
Hydroperiod			ß	9		
Hydrologic Connectivity (all but	Channel		A		<u> </u>	
Hydro Connectivity submetric A:	Alpha	Numeric	H	12		
Bank Height Ratio						
Hydro Connectivity submetric B:					[
Percent Dewatered	A	/2			Little der	akring
Hydrologic Connectivity for Cha	nneled (avo. of sub	metrics A-B)	12		
					Final At	ttribute Score =
Raw Attribute Score = sum of numeric s			scores		1	core/36) x 100
Attribute 3: Physical Structu	ute					
			Alpha	Numeric		
Structural Patch Richness			· D	3	4	
Topographic Complexity			C	6	D- tup	B- Roughness
Raw Attribute Score = su	m of n	umeric	scotes		Final At	tribute Score =
					(Raw S	core/24) x 100
Attribute 4: Biotic Structure						
Plant Community Composition (s			t applicable	for Non-O	Channeled 1	meadows)
Plant Community submetric A:	Alpha	Numeric				
Number of plant layers		-				
Plant Community submetric B:					0	
Number of Co-dominant species	D	3			3 co-de	1 4275
Plant Community submetric C:		2		E. I.	66%.	
Percent Invasive species	D	3			we /.	
Plant Comm. Composition (avg. of	f submetri	ics A-C or	B-C)	1		
			Alpha	Numeric		
Horizontal Interspersion			D	2	Uniform .	through
Plant Life Forms			D	3	2	
Raw Attribute Score = sur	m of nı	umeric s	cotes			tribute Score = core/36) x 100
Overall AA Score (average	e of fou	r final A	ttribute Sc	ores)		

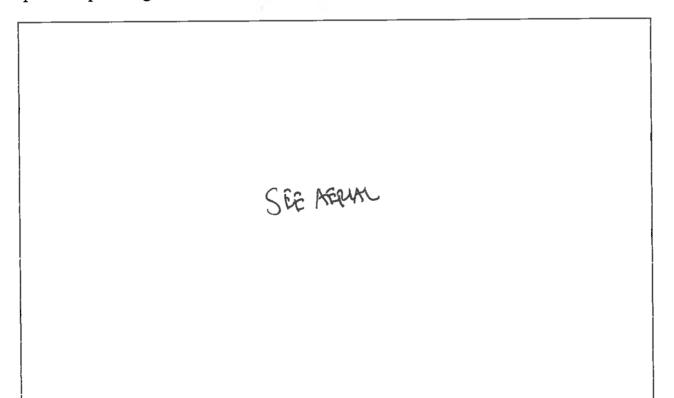
Scoring Sheet: Slope Wetlands

Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind			
Segment Direction	Percentage of Transect Length That is an Aquatic Feature		
North	100		
South	25		
East	100		
West	100		
Average Percentage of Transect Length That Is an Aquatic Feature	811.		

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Line	Buffer Width (m	
A	250	
В	250	
С	250	
D	250	
E	250	
F	250	
G	2.00	
Н	150	
Average Buffer Width	232	

Worksheet for calculating Average Buffer Width of AA

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation Worksheet

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	TOP	MID	вот
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).			
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.			
5:	Calculate average bank height ratio.	Calculate the average results for Step 4 for all 3 replica sections. Enter the average result here and use it in Tab two significant figures (hundredths).	ate cross ble 14. K	.eep	

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking Drying of peat Decrease in vigor of hydrophytes Changes in plant or animal species or communities Changes in plant or animal species or communities Changes in soil structure or moisture content More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (Pseudotsuga menziesii), Lodgepole Pine (Pinus contorta), see special note) More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (Notholithocarpus densiflorus), coast live oak (Quercus agrifolia) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (Artemisia tridentate), rabbitbrush (Ericameria nauseosa), French broom (Genista monspessulana) More than 5% cover in the AA of upland vines (e.g. English ivy (Hedera helix), Himalayan blackberry (Rubus armeniacus), field bindweed (Convoluulus arrensis) More than 5% cover in the AA of upland prasses (e.g. ripgut brome (Bromus diandrus), cheatgrass (Bromus tectorum), needlegrass (Stipa pulchra) More than 5% cover in the AA of upland herbs and forbs (e.g. ragweed (Ambrosia artemisijolia), mustard (Brassica rapa), yellow star thistle (Centaurea solstitialis)
Overall area o the wetland showing evidence of dewatering	f No dewatering * = <25% dewatered 25-50% dewatered = >50% dewatered

* Evidence occording to checklist of deviatoring, but seems like a naturally dry area

Structural Patch Type Worksheet for Slope Wetlands

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STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel,	
or across wetland plain	
Active fluvial channel(s)	
Animal mounds and burrows, sediment	
disturbance, or vole trails	
Bank slumps or undercut banks in channels	
Beaver dams or lodges	
Boulders or bedrock outcrop	
Cutoff channels or oxbows	
Filamentous macroalgae or algal mats	
Gravel, cobble, or sand	
Large woody debris	
Moss	
Non-vegetated flats or bare ground	\bigvee
Pannes or pools on wetland surface	
Plant hummocks and/or tussocks	
Sediment mounds around the bases of shrubs	
or trees	
Sediment splays	
Soil cracks	\checkmark
Springs or upwelling groundwater	
Standing snags (at least 3 m tall)	
Submerged vegetation (in channels or open	
water)	
Swales	L
Thatch	
Variegated, convoluted, or crenulated upland	
edge (not broadly arcuate or mostly straight)	
Total Possible	23
No. Observed Patch Types	4
(enter here and use in Table 17 below)	

Worksheet for AA Topographic Complexity

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.

Physical topographic complexity score D Vegetation roughness score B

Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

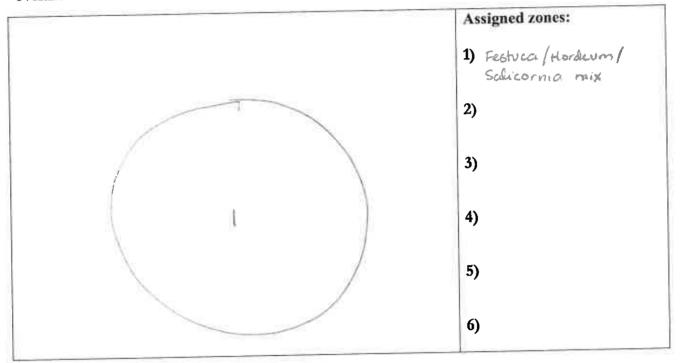
Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive?
		T 11 (1 0 0 0 m)	Invasive
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	IIIVASIVE
	-/		
	1		
/			
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	
		species for all layers combined	
		(enter here and see Table 21)	
		Percent Invasion	1
		(enter here and see Table 21)	
			L

Co-dominant Species	Check if Invasive
Festica permanuis	
Festiva permennais Salicornia sp.	
Hordwin muninum	
	G
Total Number of Co-dominants	3
Total Number of Invasive Co-dominant species	2
Percent Invasive Species (round to nearest integer)	66%

Table 22: Worksheet for Co-dominant Plant Species.

Horizontal Interspersion Worksheet

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



c.

Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	4
Deciduous Broadleaf Trees	
Evergreen Broadleaf Trees	
Ferns	
Grasses	
Herbs/Forbs	v
Lichens or Fungi	
Sedges/Rushes	
Shrubs	
Vines	
Total Number of life forms	2

 \checkmark

÷

Succulent

12

HYDROLOGY ATTRIBUTE	Present	Present and likely to have significant negative effect on
(WITHIN 50 M OF AA)		AA
Point Source (PS) discharges (POTW, other non-stormwater discharge) Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
distantions of linnatural inflows		
Flow diversions of detention basins, recharge basins) 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.)	X	
Actively managed hydrology Comments		

Worksheet: Stressor Checklist

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)	<u> </u>	
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)	X	
Nutrient impaired (PS or Non-PS pollution) Heavy metal impaired (PS or Non-PS pollution)	X	
Heavy metal impaired (PS or Non-FS pollution) Pesticides or trace organics impaired (PS or Non-PS pollution) Bacteria and pathogens impaired (PS or Non-PS pollution)	X	
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on
Mowing, grazing, excessive herbivory (within AA)		AA
Excessive numan visitation		
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opassum and domestic predators, such as feral pets) Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant and		
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	24	
Comments	X	

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on
Urban residential		AA
Industrial/commercial	<u> </u>	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
-) and faithing		
Intensive row-crop agriculture		
Orchards/nurseries	X	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Rangeland (livestock rangeland also managed for native vegetation)	X	10
ports fields and urban pacific 1 (15		
ports fields and urban parklands (golf courses, soccer fields, etc.) assive recreation (bird-watching, hiking, etc.)		
Active recreation (- CC		
ctive recreation (off-road vehicles, mountain biking, hunting, fishing)		
TOCK SACING 1/		
iological resource extraction (aquaculture, commercial fisherice)		
comments		

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Basic Information Sheet: Riverine Wetlands

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Assessment Area Name: AA23
Project Name: HSR STM
Assessment Area ID #:
Project ID #: Date: 4/24/2019
Assessment Team Members for This AA:
Kristen Klinefeller
RJ Van Sant
Average Bankfull Width: 5 M
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100 m
Upstream Point Latitude: 34. 1436 Longitude: ~(2(. 1428
Downstream Point Latitude: 36,9645 Longitude: -121,4426
Wetland Sub-type:
□ Confined □ Non-confined
AA Category:
□ Restoration □ Mitigation □ Impacted □ Ambient □ Reference □ Training
Other: PRE-IMPACT
Did the river/stream have flowing water at the time of the assessment? I yes I no Standing water, not flowing
What is the apparent hydrologic flow regime of the reach you are assessing?
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.
perennial 🗆 intermittent 🗆 ephemeral

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

н А, н

Site Location Description:

Comments:

Could not access mayoring of site due to dense poron ack throughout

AA Name: AA 23	_				Date: 4/24/2019
Attribute 1: Buffer and Lar	ndscape	Contex	at (pp. 11-	-19)	Comments
			Alpha.	Numeric	
Stream Corridor Continuity (D)		A	12	NO INTERNETION	
Buffer:					
Buffer submetric A:	Alpha.	Numeric			
Percent of AA with Buffer	A	12			100%
Buffer submetric B: Average Buffer Width	A	12			25D M
Buffer submetric C: Buffer Condition	B	9			mix of natives from, mostly undesturbed sals
Raw Attribute Sco	ore = D+	+[C x (A :	x B) ^{1/2}] ^{1/2}		Final Attribute Score = (Raw Score/24) x 100
Attribute 2: Hydrology (pp	. 20-26)				
			Alpha,	Numeric	
Water Source			<u> </u>	(a	720°1. cig.
Channel Stability			B	9	Equilibrium + aggredation
Hydrologic Connectivity			<u> </u>	12_	72.2
Raw Attribute Score = su			scores		Final Attribute Score = (Raw Score/36) x 100
Attribute 3: Physical Struct	ute (pp.	27-33)			
			Alpha.	Numeric	
Structural Patch Richness			_D	3	
Topographic Complexity			B	9	1 bench, some micro
Raw Attribute Score = st	un of nu	umeric s	scores		Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure					
Plant Community Compositio			-metrics A	а-С)	
Plant Community submetric A:	Alpha.	Numeric		-	2 /
Number of plant layers	в	9			3 layer
Plant Community submetric B: Number of Co-dominant species	D	3			4 co-clonis
Plant Community submetric C: Percent Invasion	A	12.			0%
Plant Communit					
<i>(numeric a</i> Iorizontal Interspersion	verage of s	submetrics	<i>A-C)</i>	2	An
ertical Biotic Structure			A	3	N uniform
Raw Attribute Score = su	m of nu	meric s		16	750 /. overlap 3 layers Final Attribute Score = (Raw Score/36) x 100
Overall AA Score (average	e of four	final At	tribute Sc	Otes)	(MAW SCOLE/ JU) X 100

Scoring Sheet: Riverine Wetlands

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	0	Downstream Total Length	<u> </u>	

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

SEE AEAUN

Percent of AA with Buffer: \00 %

Worksheet for calculating average buffer width of AA

Buffer Width (m)
250
250
2.50
250
250
2150
250
250
250

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)				
	The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.				
	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.				
	\Box There is leaf litter, thatch, or wrack in most pools (if pools are present).				
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.				
Channel	There is little or no active undercutting or burial of riparian vegetation.				
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.				
	□ 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).				
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA				
	The larger bed material supports abundant mosses or periphyton.				
	□ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.				
	□ There are abundant bank slides or slumps.				
	□ The lower banks are uniformly scoured and not vegetated.				
Indicators of Active	□ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.				
Degradation	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.				
	□ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).				
	The channel has one or more knickpoints indicating headward erosion of the bed				
	that is not vegetated) deposited in the current or previous year.				
	There are partially buried living tree trunks or shrubs along the banks.				
Indicators of	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel				
Active Aggradation	pools, of mey are uncommon and irregularly spaced.				
98-1011	 There are partially buried, or sediment-choked, culverts. Perennial terrestrial or riperion vecession is non-aligned to the second second				
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.				
	□ There are avulsion channels on the floodplain or adjacent valley floor.				
Overall	Equilibrium 🛛 Degradation 🖂 Aggradation				

Riverine Wetland Entrenchment Ratio Calculation Worksheet

	wowimate midpoints	hould be conducted for each of 3 cross-sections located along straight riffles or glides, away from deep pools or le to place them at the top, middle, and bottom of the A	meander	A at the bends.	An
	Steps	Replicate Cross-sections	тор*	MID*	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).			
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.			
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.			
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	72.7	72.2	
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicat Enter the average result here and use it in Table 13a or	te cross-s 13b.	ections.	72.

* could not access due to dense poison oak, but not entrenched because of very gradual slopes

Structural Patch Type Worksheet for Riverine wetlands

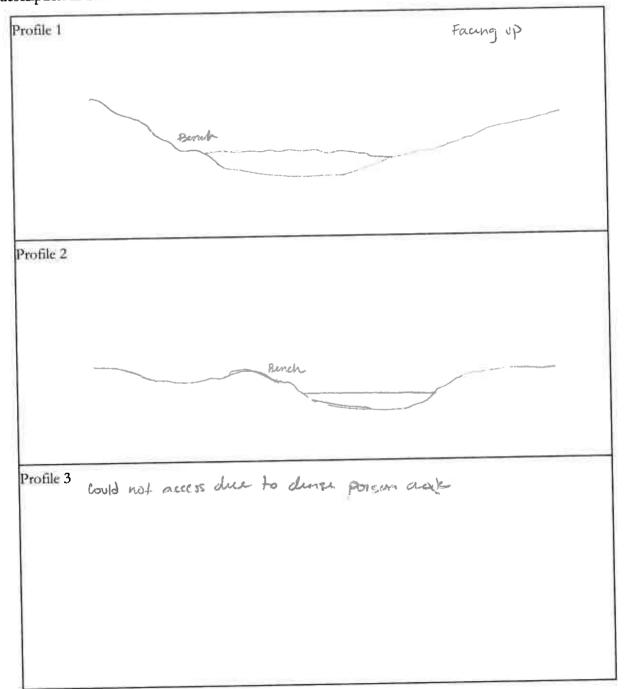
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

	1 /1
*Please refer to the CRAM Photo Dictiona	ry at www.cramwetlands.org for photos of each of the following
	g at a mathematical and sold for photos of each of the following
	patch types.

patch types.		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m^2
Abundant wrackline or organic debris in channel, on floodplain	1	1
Bank slumps or undercut banks in channels or along shoreline	1	1
Cobbles and/or Boulders	1	1
Debris jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
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
Riffles or rapids (wet or dry channels)	1	1
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	2	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

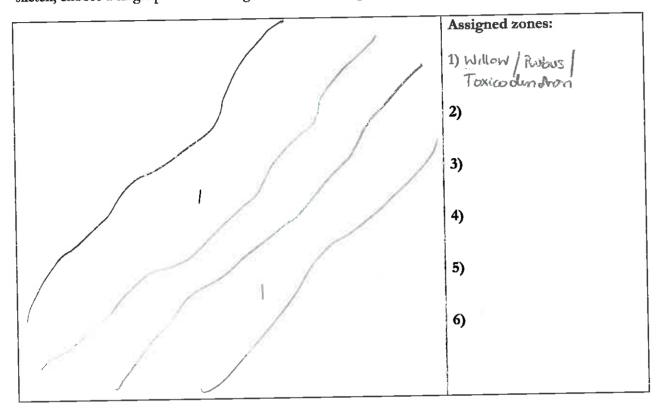
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive
Medium (0.5-1.5 m) Rubus Ursin Jos Toxic odendro a deve asilaburr	Invasive?	Tall (1.5-3.0 m) Toricodenotra deversitation	Invasive?
Very Tall (>3.0 m) Salix Jaevigata Salix Jasiolepis	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	0%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for	Wetland	disturbances	and	conversion	18
---------------	---------	--------------	-----	------------	----

Has a major disturbance occurred at this wetland?	Yes	i.	No)			
If yes, was it a flood, fire, landslide, or other?	flood		fire	lan	dslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 more year	o r	likely to aff site next 3 years			y to affect next 1-2 years
	depression	_	vernal po	ol		nal pool
Has this wetland been converted from another type? If yes, then what was the	non-confin riverine	ed	confine riverine			easonal stuarine
previous type?	perennial sa estuarine		perennial r saline estua		we	meadow
	lacustrine	:	seep or sp	ring		playa

Stressor Checklist Worksheet

e.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative
Point Source (PS) discharges (POTW, other non-stormwater discharge)		effect on AA
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		- <u> </u>
Flow diversions or unnatural inflows	<u>_</u>	
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.)		<u> </u>
Actively managed hydrology		
Comments		<u> </u>

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)		Significant negative
Filling or dumping of sediment or soils (N/A for restoration areas)	Present	effect on AA
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)	<u> </u>	
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)	X	+
Pesticides or trace organics impaired (PS or Non-PS pollution)		+
Bacteria and pathogens impaired (PS or Non-PS pollution)	X	+
Trash or refuse	X	+
Comments		

BIOTIC STRUCTURE ATTRIBUTE		Significant negative
(WITHIN 50 M OF AA)	Present	effect on AA
Mowing, grazing, excessive herbivory (within AA)	<u> </u>	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opassum 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	<u> </u>	_
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	<u> </u>	
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
		Check on the
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture	<u> </u>	
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlor)		
Transportation corridor	<u> X </u>	
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		

Basic Information Sheet: Slope Wetlands

Assessment Area Na	me: AA24-PR	0-13487
	RJM	05.5
Assessment Area IDa	#:	
Project ID#:		Date 4/24/19
Assessment Team M	embers for This A	A:
LSL, M	nL	
Assessment Area Siz	e:	
Surface water preser	nt during the assess	sment? □ Yes ⊠No Flowing? □ Yes ≱No
Briefly describe the	hydrology of the AA	A (e.g., water sources, channels, swales, etc.)
AA Category:		
Pre-Restoration	□ Post-Restoration	□ Pre-Mitigation □ Post-Mitigation
Pre-Impact	□ Post-Impact	□ Ambient □ Reference
Training	□ Other:	
Which best descril	bes the type of wetl	and?
Channeled Wet Me	eadow (assoc. with a f	fluvial channel) 🛛 😿 Non-Channeled Wet Meadow
□ Channeled Forestee	d Slope 🕅 🕅 Non-Cha	anneled Forested Slope □ Seep or Spring
Are peat soils pres	ent in the AA?	□ Yes XNo
AA Encompasses:		
□ ent	ire wetland	Aportion of the wetland
Which best descril assessment?	bes the dominant h	ydrologic state of the AA at the time of
□ ponded/inundated	□ saturated soil, b	but no surface water 🗆 moist 🕅 dry
What is the appare	ent hydrologic regi	me of the wetland?
surface water for 4-1	1 months of the year (i	water year-round, <i>seasonal</i> slope wetlands support in > 5 out of 10 years.) <i>Temporarily flooded</i> slope weeks and 4 months of the year.
□ perer	nnial 🖉 seasona	al Autemporarily flooded

	Photo		Description
	ID No.		
1		Looking North into the AA	
2		Looking South into the AA	
3		Looking East into the AA	
4		Looking West into the AA	
5			
6			
7			45 46 44 14 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
8			
9	S		"hande entre entre de la charte de service de la company"
10			

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

2 pills LSL phone 1 facing N 1 facing S

Alpha A	Numeric	Comments 73%
Alpha	Numeric	7390
		100%
		KARDA IIIM
x B) ^{1/2}] ^{1/2} t round)		Final Attribute Score = (Raw Score/24) x 100
,		
Alpha	Numeric	
C		an stand of the set of the set
A		
Δ		
· 1		
metrics A-B		
		Final Attribute Score =
scores		(Raw Score/36) x 100
Alpha C	Numeric	7 patches
B		C topo A raughness
Topographic Complexity B Raw Attribute Score = sum of numeric scores		Final Attribute Score = (Raw Score/24) x 100
t applicabl	e for Non-	Channeled meadows)
		3 layers
		5 lodons
		4090
r B-C) Alpha	Numeric	
C		
Ø		2 He forms Final Attribute Score =
Raw Attribute Score = sum of numeric scores		
	Alpha Alpha A A A A A metrics A-B scores Alpha C B scores Alpha C A A A A A A A A A A A A A	Alpha Numeric A B A B

Scoring Sheet: Slope Wetlands

Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind			
Segment Direction	Percentage of Transect Length That is an Aquatic Feature		
North	100		
South	63		
East	100		
West	28		
Average Percentage of Transect Length That Is an Aquatic Feature	73		

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

4

Line	Buffer Width (m)
Α	40
В	40
С	250
D	250
E	250
F	30
G	15
Н	15
Average Buffer Width	141

Worksheet for calculating Average Buffer Width of AA

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation Worksheet

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	вот
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).		gen perfec	
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.			
5:	Calculate average bank height ratio.	Calculate the average results for Step 4 for all 3 replic sections. Enter the average result here and use it in Ta two significant figures (hundredths).			

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

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Condition	Field Indicators
	(check all existing conditions)
Indicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
al a frata fra a frata frata a frata frata fra a frata frata fra	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Drying of peat Decrease in vigor of hydrophytes Changes in plant or animal species or communities Changes in soil structure or moisture content More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (<i>Pseudotsuga menziesii</i>), Lodgepole Pine (<i>Pinus contorta</i>), see special note) More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (<i>Notholithocarpus densiflorus</i>), coast live oak (<i>Quercus agrifolia</i>) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (<i>Artemisia tridentate</i>), rabbitbrush (<i>Ericameria nauseosa</i>), French broom (<i>Genista monspessulana</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (<i>Hedera belix</i>), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Convolvulus arvensis</i>) More than 5% cover in the AA of upland grasses (e.g. ripgut brome (<i>Bromus diandrus</i>), cheatgrass (<i>Bromus tectorum</i>), needlegrass (<i>Stipa pulchra</i>) More than 5% cover in the AA of upland herbs and forbs (e.g. ragweed (<i>Ambrosia artemisiifolia</i>), mustard (<i>Brassica rapa</i>), yellow star thistle (<i>Centaurea solstitialis</i>)
Overall area of the wetland showing evidence of dewatering	 ✓ No dewatering □ <25% dewatered □ 25-50% dewatered □ >50% dewatered

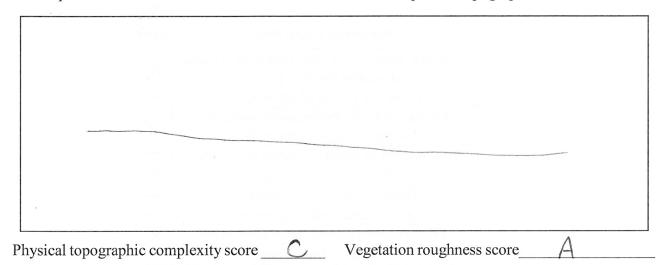
Structural Patch Type Worksheet for Slope Wetlands

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STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel,	N
or across wetland plain	$\left \right\rangle$
Active fluvial channel(s)	
Animal mounds and burrows, sediment	
disturbance, or vole trails	X
Bank slumps or undercut banks in channels	-
Beaver dams or lodges	
Boulders or bedrock outcrop	-
Cutoff channels or oxbows	
Filamentous macroalgae or algal mats	X
Gravel, cobble, or sand	
Large woody debris	X
Moss	
Non-vegetated flats or bare ground	
Pannes or pools on wetland surface	X
Plant hummocks and/or tussocks	-
Sediment mounds around the bases of shrubs	
or trees	2
Sediment splays	-
Soil cracks	~
Springs or upwelling groundwater	changement
Standing snags (at least 3 m tall)	-
Submerged vegetation (in channels or open	
water)	_
Swales	-
Thatch	X
Variegated, convoluted, or crenulated upland	X
edge (not broadly arcuate or mostly straight)	2 H.
Total Possible	23
No. Observed Patch Types	7
(enter here and use in Table 17 below)	

Worksheet for AA Topographic Complexity

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.



Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive?
		Levidium Noraba	X
		Helmintlothera ectioides	X
			/
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive
Nestern boldenod			
· /			
	/		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	-
Red Willow		species for all layers combined	5
Acronowillow		(enter here and see Table 21)	
		Percent Invasion	21.
<		(enter here and see Table 21)	15:4

Correct shuet to use

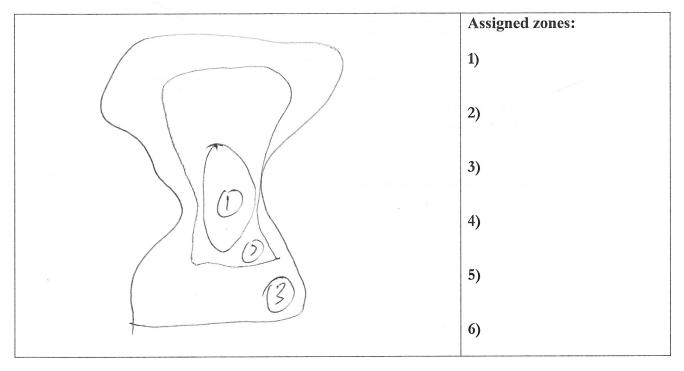
Co-dominant Species	Check if Invasive
Red fusillow	
Arrayo Willow	/
wester goldenod	
Lepicium epotasa	X
Helminthothera echioides	X
X	
	1.04 (Joseff)
Total Number of Co-dominants	5
Total Number of Invasive Co-dominant species	2
Percent Invasive Species (round to nearest integer)	409.

Table 22: Worksheet for Co-dominant Plant Species.

non-chameled forested uses laugers

Horizontal Interspersion Worksheet

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	an commencial and out to based the
Coniferous Trees	
Deciduous Broadleaf Trees	
Evergreen Broadleaf Trees	
Ferns	
Grasses	
Herbs/Forbs	V
Lichens or Fungi	
Sedges/Rushes	
Shrubs	· · · /
Vines	
Total Number of life forms	2

Table 24. Plant Life Forms Metric.

Worksheet: Stressor Checklist

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)	asi ureki d	en l'anne ann all a' l
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.)	X	
Actively managed hydrology		
Comments		
	6	
and when a set of the		Present and likely

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA	
Filling or dumping of sediment or soils (N/A for restoration areas)			
Grading/ compaction (N/A for restoration areas)	X		
Plowing/Discing (N/A for restoration areas)	X		
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)	X		
Heavy metal impaired (PS or Non-PS pollution)			
Pesticides or trace organics impaired (PS or Non-PS pollution)	X		
Bacteria and pathogens impaired (PS or Non-PS pollution)	X		
Trash or refuse			
Comments	estor instal	Carrie Sector Inter	
edument, edif graf		en receber ou la partir de f	
សាងស្តារណ៍បានសំនាយ ។ សំរោយ ។ (94(13) 115(15)(16)	Baskeystan anteres	
		attention of the	

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

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		anter an an and a transfer
Dams (or other major flow regulation or disruption)	1	and the second states in
Dryland farming		Descent Freedom
Intensive row-crop agriculture	\times	naturation extenses States
Orchards/nurseries	\times	
Commercial feedlots	tale and the second	
Dairies	here the second second second	and the second
Ranching (enclosed livestock grazing or horse paddock or feedlot)		Territorial to some A
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)	~	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		andres birs i manadal
Passive recreation (bird-watching, hiking, etc.)		autro - that
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		Custoscole
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Assessment Area Name: ADD5 - SEW - 03857
Project Name: 1+SR JM
Assessment Area ID#:
Project ID#: Date 4/24/19
Assessment Team Members for This AA:
LSY ML
Assessment Area Size:
Surface water present during the assessment? ☐ Yes XNo Flowing? ☐ Yes XN
Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)
AA Category:
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation
APre-Impact D Post-Impact D Ambient D Reference
Training Other:
Which best describes the type of wetland?
□ Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow
□ Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring
Are peat soils present in the AA? Die Yes No
AA Encompasses:
□ entire wetland
Which best describes the dominant hydrologic state of the AA at the time of assessment?
□ ponded/inundated □ saturated soil, but no surface water □ moist dry
What is the apparent hydrologic regime of the wetland?
<i>Perennial</i> slope wetlands contain surface water year-round, <i>seasonal</i> slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) <i>Temporarily flooded</i> slope wetlands possess surface water between 2 weeks and 4 months of the year.
□ perennial

Basic Information Sheet: Slope Wetlands

	Photo ID No.	Description
1		Looking North into the AA
2	4	Looking South into the AA
3		Looking East into the AA
4		Looking West into the AA
5		
6		
7		
8		
9	Τ	
10		

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

AA Name: AA25				Date 1// Jun 1/0	
Attribute 1: Buffer and Land	dscape Conte	ext		Comments	
		Alpha	Numeric		
Aquatic Area Abundance (D)	_	A		55%	
Buffer					
Buffer submetric A:	Alpha Numer	nic .		10.0	
Percent of AA with Buffer	A			100%	
Buffer submetric B:	a			Welen	
Average Buffer Width	B			Helem	
Buffer submetric C:	B				
Buffer Condition					
Raw Attribute Sco		· · ·		Final Attribute Score =	
	(do r	10t round)		(Raw Score/24) x 100	
Attribute 2: Hydrology					
		Alpha	Numeric		
Water Source		-c	/		
Hydroperiod		A			
Hydrologic Connectivity (all but (Channeled)	A	3		
Hydro Connectivity submetric A:	Alpha Numerio				
Bank Height Ratio					
Hydro Connectivity submetric B:					
Percent Dewatered			J. J.L.		
Hydrologic Connectivity for Char	neled (avg. of su	ubmetrics A-H	3)		
	-			Final Attribute Score =	
Raw Attribute Score = su	m of numeric	c scores		(Raw Score/36) x 100	
Attribute 3: Physical Structur	te				
		Alpha	Numeric	·	
Structural Patch Richness		C.		le patches	
Topographic Complexity		C	+		
			+	<u>Final Attribute Score = </u>	
Raw Attribute Score = sur	n of numeric	scores			
Attribute 4: Biotic Structure				(Raw Score/24) x 100	
	1				
Plant Community Composition (su	Alpha Numerie	ot applicabl	e for Non-	Channeled meadows)	
Plant Community submetric A:	Zupita Humene				
Number of plant layers					
Plant Community submetric B:		Duse n'			
Number of Co-dominant species	<u>D</u>		5 5, 22 (1	3 codans	
Plant Community submetric C:	D		Said or A	3 codons 679.7 javash	
Percent Invasive species				6197 Invasih	
lant Comm. Composition (avg. of .	submetrics A-C o	r B-C)			
		Alpha	Numeric		
Iorizontal Interspersion		D			
lant Life Forms					
				Final Attribute Same -	
Kaw Attribute Score = sun	1 of numeric	scores			
				(Itaw Score/ 30) X 100	
Uverall AA Score (average	of four final A	Attribute So	cores)		
9 -116 A (C) -2					
Horizontal Interspersion Plant Life Forms Raw Attribute Score = sum Overall AA Score (average 2 p) 45 on (54 ph	of four final A	D D scores		Final Attribute Score = (Raw Score/36) x 100	

Scoring Sheet: Slope Wetlands

2 plus on USU phone 1 facing east 2 facing mest

Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind		
Segment Direction	Percentage of Transect Length That is an Aquatic Feature	
North	48%	
South	689.	
East	1002	
West	202	
Average Percentage of Transect Length That Is an Aquatic Feature	55%	

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Line	Buffer Width (m)
Α	35
В	90
С	90
D	250
E	250
F	125
G	15
H	250
Average Buffer Width	165.60-111

Worksheet for calculating Average Buffer Width of AA

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).			
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.			
5:	Calculate average bank height ratio.	Calculate the average results for Step 4 for all 3 replica sections. Enter the average result here and use it in Tab two significant figures (hundredths).	te cross- le 14. K	eep	

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

Condition	Field Indicators
condition	(check all existing conditions)
Indicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking Drying of peat Decrease in vigor of hydrophytes Changes in plant or animal species or communities Changes in soil structure or moisture content More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (<i>Pseudotsuga menziesii</i>), Lodgepole Pine (<i>Pinus contorta</i>), see special note) More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (<i>Notholithocarpus densifiorus</i>), coast live oak (<i>Quercus agrifolia</i>) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (<i>Artemisia tridentate</i>), rabbitbrush (<i>Ericameria nauseosa</i>), French broom (<i>Genista monspessulana</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (<i>Hedera helix</i>), Himalayan blackberry (<i>Rubus armeniaxus</i>), field bindweed (<i>Convolvulus aruensis</i>) More than 5% cover in the AA of upland grasses (e.g. ripgut brorne (<i>Bromus diandrus</i>), cheatgrass (<i>Bromus tectorum</i>), needlegrass (<i>Stipa pulchra</i>) More than 5% cover in the AA of upland herbs and forbs (e.g. ragweed (<i>Ambrosia artemisiifolia</i>), mustard (<i>Brassia rapa</i>), yellow star thistle (<i>Centaurea solstitialis</i>)
Overall area of the wetland showing evidence of dewatering	□ No dewatering □ 25-50% dewatered □ 25-50% dewatered □ >50% dewatered

Structural Patch Type Worksheet for Slope Wetlands

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, or across wetland plain	-
Active fluvial channel(s)	
Animal mounds and burrows, sediment disturbance, or vole trails	X
Bank slumps or undercut banks in channels	
Beaver dams or lodges	<u> </u>
Boulders or bedrock outcrop	
Cutoff channels or oxbows	-
Filamentous macroalgae or algal mats	X
Gravel, cobble, or sand	-
Large woody debris	
Moss	
Non-vegetated flats or bare ground	-
Pannes or pools on wetland surface	X
Plant hummocks and/or tussocks	
Sediment mounds around the bases of shrubs	
or trees	
Sediment splays	
Soil cracks	X
Springs or upwelling groundwater	
Standing snags (at least 3 m tall)	
Submerged vegetation (in channels or open water)	
Swales	
Thatch	X
Variegated, convoluted, or crenulated upland	
edge (not broadly arcuate or mostly straight)	$X \mid$
Total Possible	23
No. Observed Patch Types (enter here and use in Table 17 below)	6

Worksheet for AA Topographic Complexity

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.

hysical topographic complexity score	Vegetation roughness score

Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

4

Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive
	/		
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive?
		14H (1.0-5.0 H)	Invasive:
/			
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	
/		species for all layers combined	
		(optor hore and see Table 21)	
		(enter here and see Table 21)	
		Percent Invasion	
		(enter here and see Table 21)	

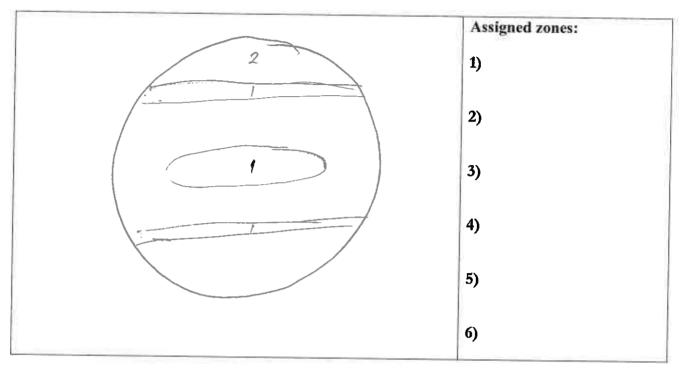
Co-dominant Species	Check if Invasive
Spergularia sp.	
Hodern marinen	
Spergularia sp. Hordenn pravinum Polypogon Sp. draba	X
Total Number of Co-dominants	3
Total Number of Invasive Co-dominant species	2
Percent Invasive Species (round to nearest integer)	67%

Table 22: Worksheet for Co-dominant Plant Species.

Horizontal Interspersion Worksheet

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Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	
Deciduous Broadleaf Trees	
Evergreen Broadleaf Trees	
Ferns	
Grasses	
Herbs/Forbs	
Lichens or Fungi	
Sedges/Rushes	
Shrubs	
Vines	4
Total Number of life forms	2

Table 24. Plant Life Forms Metric.

Worksheet: Stressor Checklist

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PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have 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)	\sim	
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)	V	
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)	X	
Bacteria and pathogens impaired (PS or Non-PS pollution)	X	
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have 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	1	
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control	_X	
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	Present and likely to have 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	X	
Orchards/nurseries	Ň	-
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	<u> </u>	
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		

Basic Information Sheet: Riverine Wetlands

-

Assessment Area Name: Appu
Project Name: HSQ JM
Assessment Area ID #:
Project ID #: Date: 4/34/19
Assessment Team Members for This AA:
LBZ, ML
Average Bankfull Width: 0000 3
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100m
Upstream Point Latitude: Longitude:
Downstream Point Latitude: Longitude:
Wetland Sub-type:
Confined Non-confined
AA Category:
□ Restoration □ Mitigation □ Impacted □ Ambient □ Reference □ Training
D Other: Ple-Impact
Did the river/stream have flowing water at the time of the assessment? \Box yes χ no
What is the apparent hydrologic flow regime of the reach you are assessing?
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.
perennial Aintermittent Kephemeral

No. Upstream 1 Upstream 2 Middle Left 3 Middle Right 4 Downstream 5		Longitude	Latitude	Description	Photo ID	
Middle Left Middle Right Downstream					No.	
Middle Right Downstream Image: Stream				Upstream		
Downstream				Middle Left		2
				Middle Right		3
				Downstream		F
						5
						5
3	<u> </u>					3
)

Site Location Description:

Comments:

AA Name: APJ				Date: 4/24/10
Attribute 1: Buffer and Lar	idscape Con	text (pp. 11	-19)	Comments
Stream Corridor Continuity		Alpha.	Numeric	
				>200m
Buffer:				
Buffer submetric A:	Alpha. Num	eric		
Percent of AA with Buffer	LAL			
Buffer submetric B: Average Buffer Width	A			200m
Buffer submetric C: Buffer Condition	B			
Raw Attribute Sco	$\mathbf{D} = \mathbf{D} + [\mathbf{C} \mathbf{x}]$	(A x B) ^{1/2}] ^{1/2}		Final Attribute Score = (Raw Score/24) x 100
Attribute 2: Hydrology (pp.	20-26)		<u> </u>	(11111 00010/24) x 100
		Alpha.	Numeric	
Water Source		C		
Channel Stability		\square		severe aggradation
Hydrologic Connectivity		Ð		not a chanel anymore
Raw Attribute Score = sum of numeric score				Final Attribute Score = (Raw Score/36) x 100
Attribute 3: Physical Structu	ire (pp. 27-33	3)		(100) X 100
		Alpha.	Numeric	
Structural Patch Richness	_	D		2 patches
Topographic Complexity		Þ		no benches Ino micro
Raw Attribute Score = su		c scores		Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure	(pp. 34-41)			
Plant Community Composition	n (based on su	ab-metrics A	1-C)	
Direct Community I and A	Alpha. Numeri	ic		
Plant Community submetric A: Number of plant layers	$\left \right $			3 layers
Plant Community submetric B:				4 Codonis
Number of Co-dominant species	D			
Plant Community submetric C: Percent Invasion	D		-	50%
Plant Community	Composition	n Metric		
	erage of submetr	rics A-C)		
Iorizontal Interspersion		D		
ertical Biotic Structure		B		
Raw Attribute Score = sun	a of numeric	scores		Final Attribute Score =
			1	(Raw Score/36) x 100

Scoring Sheet: Riverine Wetlands

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		11		
2		2	 	
3		3		
4		4		
5		5		
Upstream Total Length		Downstream Total Length	>20m	

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)		
A	250		
В			
С			
D			
E			
F			
G			
Н			
Average Buffer Width	250		
Round to the nearest integer			

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	ondition Field Indicators (check all existing conditions)				
	The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.				
	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 (if pools are present).				
Indicators of	□ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.				
Channel Familitati	There is little or no active undercutting or burial of riparian vegetation				
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.				
	□ 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).				
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA				
	The larger bed material supports abundant mosses or periphyton.				
	trees or shrubs.				
	□ There are abundant bank slides or slumps.				
	□ The lower banks are uniformly scoured and not vegetated.				
Indicators of Active Degradation	Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.				
	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.				
	Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).				
	The channel has one or more knickpoints indicating headward oroging a full to the				
	that is not vegetated) deposited in the current or previous year.				
	There are partially buried living tree trunks or shrubs along the banks.				
ndicators of Active	A The bed is planar (flat or uniform gradient) overally it locks well defined at				
Aggradation	pools, of hely are uncommon and irregularly spaced.				
	There are partially buried, or sediment-choked, culverts.				
	A Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.				
	 There are avulsion channels on the floodplain or adjacent valley floor. 				
	in the hootplain or adjacent valley floor.				
Overall	Equilibrium Degradation Aggradation				

Riverine Wetland Entrenchment Ratio Calculation Worksheet

	Steps	e to place them at the top, middle, and bottom of the Af Replicate Cross-sections	тор	MID	вот	
]	Ectimate	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	2			
	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.2			
	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	0.4	ļ 		
		Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	K			nothing pra chane filed t not define
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.5			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
6:	6: Calculate average entrenchment ratio. Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			- Anima		

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following	
patch types.	

<i>patto types.</i>		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m^2
Abundant wrackline or organic debris in	n	1
channel, on floodplain	$\downarrow \lor$	
Bank slumps or undercut banks in channels or along shoreline	V	1
Cobbles and/or Boulders	1	1
Debris jams	X	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1717	
Pannes or pools on floodplain	I	N/A
Plant hummocks and/or sediment mounds	1	1
Point bars and in-channel bars	X	1
Pools or depressions in channels		
(wet or dry channels)		1
Riffles or rapids (wet or dry channels)	X	1
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	-	N/A
Swales on floodplain or along shoreline		N/A
Variegated, convoluted, or crenulated foreshore	1	
(instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)		N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	2	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Profile 1			
Profile 2			
Profile 3			

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

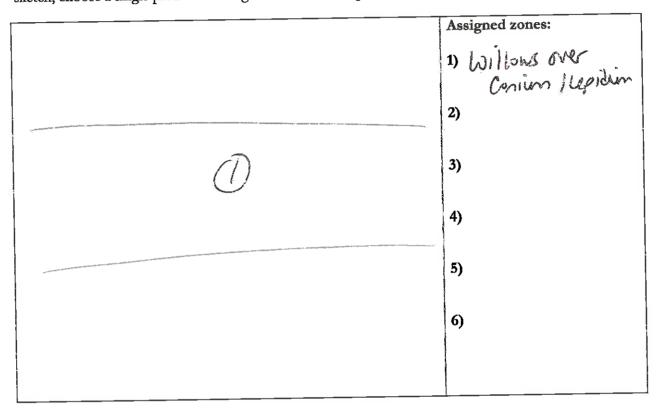
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
/	-	Lepidium se data	X
		Conium noc	×
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Lepidium op. draba Contine mac	X		
Contine mal	×		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species	
Arrayo Willow		for all layers combined (enter here and use in Table 18)	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	50%-

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	Yes No				
If yes, was it a flood, fire, landslide, or other?	flood	lood fire		lan	dslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years		likely to aff site next 3 years		site	y to affect next 1-2 years
	depressional		vernal po	ol		mal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confin riverine	ed	confined riverine			easonal stuarine
previous type?	perennial sal	1	perennial n saline estua		wet	meadow
	lacustrine		seep or spi	ring		playa

Stressor Checklist Worksheet

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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)	V	
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)		Significant negative
Filling or dumping of sediment or soils (N/A for restoration areas)	Present	effect on AA
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)	<u>X</u>	
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)	X,	
Pesticides or trace organics impaired (PS or Non-PS pollution)	10	
Bacteria and pathogens impaired (PS or Non-PS pollution)	X	<u> </u>
Frash or refuse		+
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Iowing, grazing, excessive herbivory (within AA)	X	
xcessive human visitation		
redation and habitat destruction by non-native vertebrates (e.g., <i>Virginia opossum</i> and domestic predators, such as feral pets)		
'ree cutting/sapling removal		
emoval of woody debris		
reatment of non-native and nuisance plant species		
esticide application or vector control		
biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
ack of vegetation management to conserve natural resources		
ack of treatment of invasive plants adjacent to AA or buffer	<u> </u>	
Comments	r	

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	X	
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	<u> </u>	
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		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA6	28 -NAW -02972
Project Name: HSR JM	<u> </u>
Assessment Area ID #:	
Project ID #:	Date: $U/\partial u//q$
Assessment Team Members fo	r This AA:
LSC, ML	
	28
Average Bankfull Width:	n
Approximate Length of AA (1	0 times bankfull width, min 100 m, max 200 m): 100m
Upstream Point Latitude:	Longitude:
Downstream Point Latitude:	Longitude:
Wetland Sub-type:	
XConfined	□ Non-confined
AA Category:	
□ Restoration □ Mitigation □	Impacted 🗆 Ambient 🗆 Reference 🗆 Training
Other: XPR-Impact	
Did the river/stream have flow	ing water at the time of the assessment? X yes X no
What is the apparent hydrologi	c flow regime of the reach you are assessing?
The hydrologic flow regime of a stre water. <i>Perennial</i> streams conduct water during and immediately following pro-	am describes the frequency with which the channel conducts er all year long, whereas <i>ephemeral</i> streams conduct water only ecipitation events. <i>Intermittent</i> streams are dry for part of the year, than ephemeral streams, as a function of watershed size and water
🗆 perennial	intermittent X ephemeral

	Photo ID	Description	Latitude	Longitude	Datum
1	No.				
		Upstream			·
		Middle Left			
		Middle Right			
		Downstream			
r					
					·
)					

Site Location Description:

Comments:

AA Name: AA28	Date: 4/24/19					
Attribute 1: Buffer and La	Comments					
Stream Corridon Continuit	D		Alpha.	Numeric		
Stream Corridor Continuit					0 breaks	
Buffer:				-	0.0.0.0	
Buffer submetric A:	Alpha.	Numeric				
Percent of AA with Buffer				100%		
Buffer submetric B: Average Buffer Width	A				000m	
Buffer submetric C:						
Buffer Condition	B					
Raw Attribute Sc	ore = D)+[Cx(A	x B) ^½] ^½	<u> </u>	Final Attribute Score =	
Attribute 2: Hydrology (pr	20.26				(Raw Score/24) x 100	
indibute 2. Trydrology (pp	. 20-20	<u> </u>	Alpha.	Numeric		
Water Source			A			
Channel Stability			B		<u> </u>	<u> </u>
Hydrologic Connectivity			Â		2.0	
Raw Attribute Score = s	um of n	numeric	<u> </u>		Final Attribute Score = (Raw Score/36) x 100	
Attribute 3: Physical Struct	ure (pp	. 27-33)			(14411 00010/ 30) x 100	
			Alpha.	Numeric		
Structural Patch Richness			A		8 patthes	
Topographic Complexity			Δ		no benches but lots of n	1. 1.
Raw Attribute Score = st	_		scores		Final Attribute Score = (Raw Score/24) x 100	
Attribute 4: Biotic Structure	e (pp. 3	4-41)				
Plant Community Composition	on (base	d on sub-	-metrics A	-C)		
Dlant Committee al and in A	Alpha,	Numeric			0.1.	
Plant Community submetric A: Number of plant layers	C	· •			2 layes	
Plant Community submetric B: Number of Co-dominant species	ſ,				5 Lodons	
Plant Community submetric C:	0				20 % invesion	
Percent Invasion	B				a invelion	
Plant Communi		oosition N submetrics				
Horizontal Interspersion			Þ			
Vertical Biotic Structure	_		CT			
Raw Attribute Score = su	un of nu	imeric se	cores	+	Final Attribute Score = (Raw Score/36) x 100	
Overall AA Score (average	e of fou	r final At	tribute Sc	ores)		-1

Scoring Sheet: Riverine Wetlands

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	0	

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

- –	
Line	Buffer Width (m)
Α	250
В	
С	
D	
E	
F	
G	
Н	
Average Buffer Width *Round to the nearest integer*	250

Field Indicators Condition (check all existing conditions) The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. 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 (if pools are present). The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. Indicators of There is little or no active undercutting or burial of riparian vegetation. Channel Equilibrium If mid-channel bars and/or point bars are present, they are not densely vegetated 'n with perennial vegetation. 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). There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA The larger bed material supports abundant mosses or periphyton. 10 The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. There are abundant bank slides or slumps. □ The lower banks are uniformly scoured and not vegetated. Riparian vegetation is declining in stature or vigor, or many riparian trees and Indicators of shrubs along the banks are leaning or falling into the channel. Active An obvious historical floodplain has recently been abandoned, as indicated by the Degradation age structure of its riparian vegetation. The channel bed appears scoured to bedrock or dense clay. Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). X The channel has one or more knickpoints indicating headward erosion of the bed. There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. There are partially buried living tree trunks or shrubs along the banks. The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel Indicators of pools, or they are uncommon and irregularly spaced. Active Aggradation There are partially buried, or sediment-choked, culverts. Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. There are avulsion channels on the floodplain or adjacent valley floor. 🕅 Equilibrium Degradation □ Aggradation Overall

Worksheet for Assessing Channel Stability for Riverine Wetlands

Riverine Wetland Entrenchment Ratio Calculation Worksheet

E.

ap]	The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.					
	Steps	Replicate Cross-sections	ТОР	MID	BOT	
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	Im	1.5	2n D	
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0,4	0.4	0.4	
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	0.8	0.8	0.8	
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	2.5	3,0	3.0	
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	25	2.0	1.5	
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate Enter the average result here and use it in Table 13a or		ections.	2.0	

Structural Patch Type Worksheet for Riverine wetlands

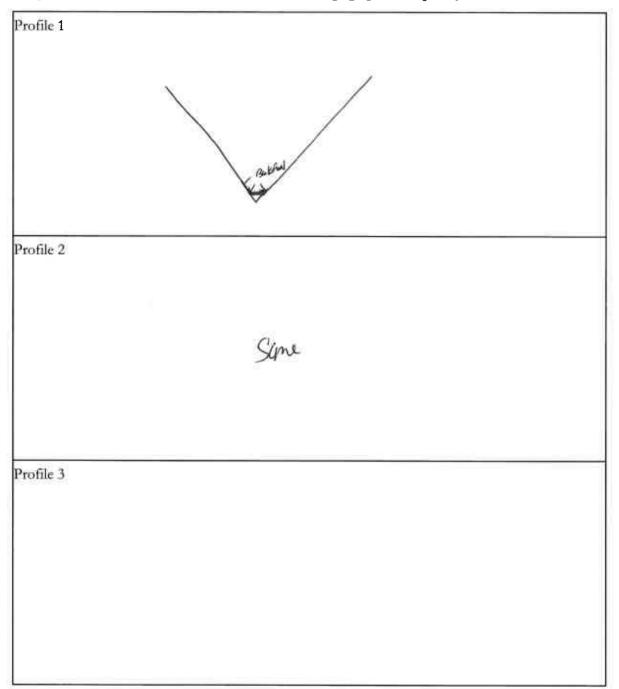
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

<i>purch (jpts)</i>		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m ²
Abundant wrackline or organic debris in channel, on floodplain	1	1
Bank slumps or undercut banks in channels or along shoreline	1	X
Cobbles and/or Boulders	1	0
Debris jams	1	T
Filamentous macroalgae or algal mats	1	A
Large woody debris	1	
Pannes or pools on floodplain	1	N/A
Plant hummocks and/or sediment mounds	1	X
Point bars and in-channel bars	1	1
Pools or depressions in channels (wet or dry channels)	1	1
Riffles or rapids (wet or dry channels)	1	(1)
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	(1)
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)		8

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
/	1		
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Poisan oak		/	
Alternisia cal			
Avena burbata	×		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species	}
Coast live oak		for all layers combined (enter here and use in Table 18)	5
Blue Oak		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	20%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names 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)
6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No			1. 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 -
If yes, was it a flood, fire, landslide, or other?	flood	fire	lar	ndslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	or site next i			y to affect next 1-2 years
	depression	al vernal po	loc		nal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	ed confine riverin		-	easonal stuarine
previous type?	perennial sali estuarine	ine perennial saline estu		wet	meadow
	lacustrine	seep or sp	ring		playa

Stressor Checklist Worksheet

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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 ateas)		
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		

Present	Significant negative effect on AA
·	
X	
	·
	-
X	
	Present

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial	·	
Military training/Air traffic	<u> </u>	
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.)	- X	· · · · · · · · · · · · · · · · · · ·
Active recreation (off-road vehicles, mountain biking, hunting, fishing)	<u>/</u>	
Physical resource extraction (rock, sediment, oil/gas)	· · · · · · · · · · · · · · · · · · ·	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Dasic Information	Sheet:	Riverine	Wetland
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Assess	wettands	
Assessment Area Nat Project Name: Mc	ne: AA AA	
Project Name: HS Assessment Are HS		
Assessment Area ID #	L-JM	
Project ID #:	£:	
Assessment	Date: 4/22/19	
Assessment Team Mer	abers for The second se	
	Listor This AA:	
L. Cerva		7
	nts. M. Lewis	
	1 00013	
Average D. 1		
Average Bankfull Wid	th: /	1
Approximate Length		
	AA (10 times hankfull, it is	
TT.	width, min 100 m may 200 . 10 .	
Upstream Point Latitud	of AA (10 times bankfull width, min 100 m, max 200 m): 100	
D	Longitude:	
Downstream Point Lati		1
	tude;	
Wetland Sub-type:	Longitude:	
type:		
	free 1	1
	uned Non-confined	
A.A. C.		1
AA Category:		
1		1
C Restoration	Impacted 🗆 Ambient 🗆 Reference 🗆 Training	
Mitigation	Transate 1 5	
	Ampacted Ambient Pote	1
□ Other:	Training	1
		1
Did the time (1
file fiver/stream have f	lowing water at the time of the assessment? [] yes Fno	
	water at the time of the and	1
	- of the assessment? I ves	1
Wheel	Degic flow regime of the reach you are assessing?	1
what is the apparent hydrol		1
The hydrole	ogic flow regime of the second	4
water Dame of a st	there is a second of the reach you are assessing 2	1
during and in streams conduct w	recall describes the frequency with the	1
but conduction immediately following	nater all year long, whereas the which the channel conducts	1
Source	Description of the reach you are assessing? tream describes the frequency with which the channel conducts vater all year long, whereas <i>ephemeral</i> streams conduct water only precipitation events. <i>Intermittent</i> streams are dry for part of the year, yer than ephemeral streams, as a function of watershed size and	1
	or than ephemeral streams on a f	
<u>л</u>	as a function of watershed air	
perennial	the size and water	
	ephemeral	

		on Numbers an Description	d Description:	Longitude	Datum
Photo	Identification Photo ID No.	Description	Latitude	10-9	
	140.	Upstream Middle Left			
23		Middle Right Downstream			
4					
6					
8					
1 10					

Site Location Description:

10

Comments:

AA Name: AA29	et: Riveria	N7 1	
Attribute 1: Buffer			
Attribute 1: Buffer and Landscape Contex Stream Corridor Contex	ct (pp. 11.10)	Date: 4/2	Via
Stream Corridor Continuity (D)		Co	mments
Buffer:	N	umeric Co	
Buffer submetric A: Alpha Num		L	
rercent of AA with Buffin			
Buffer submetric B.		1000	
Average Buffer Width		100% biff	er
Duffer submetric C.		250 may	a .
Buffer Condition B 9			
Raw Attribute Score		501. normat	ives.
Raw Attribute Score = $D+[C \times (A \times B)]$ Attribute 2: Hudge 1)12]12	Final Attribute	0
Attribute 2: Hydrology (pp. 20-26)		(Raw Score/24	Score =
TWZ	lpha. Numer		/ 100
Channel Stability	7 12	Terms	
	A 12	all natura	1
Raw Au N		Equalion	W little degrad.
Attribute Score = sum of	10	- O O O IN	
Attribute 3: Physical Structure (pp. 27-33)	28	I Inal Attribute S.	ore =
		(Raw Score/36)	<u>< 100</u>
Structural Patch Richness	a. Numeric		
Topographic Complexity	23	Spatches	
Raw Attribute Sc	6		
Raw Attribute Score = sum of numeric scores		I bench lacks	micro
Attribute 4: Biotic Structure (pp. 34-41) Plant Community Composition		- mai Allfibilte Con	
Plant Community Composition (based on sub-metrics Plant Community Line Alpha, Numeric		(Raw Score/24) x 1	00
	A-C		
Diant Javana N			
Plant Community		slayers	
Charles and the second se	E		
Percent Inus	a second s	codom	
	4	Mainarive	
Plant Community Composition Metric			
(numeric average of submetrics A-C)			
Vertical Biotic Structure	6		
Raw Attril			
multitute Score = sum of numeric score		51. overlap	
Overall AA Score (average of four final Attribute Score		I Attribute o	[]
(tage of four final Attribute Scor	res)	w Score/36) x 100	

Worksheet for Stream Corridor Con	Lengths of Non-buffer Segments For
for Segments For	Distance of 500 m Downstream (m)
Lengths of Non-burier Segment of AA Distance of 500 m Upstream of AA Segment No. Length (m)	Segment No. Lengur (27)
1 2	3
3 4	5 Tratel Length
5 Ji month D	Downstream Total Length

Continuity Metric for Riverine Wetlands

Upstream Total Length

rencent of AA with Butter worksneet In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

D-for	100 %	
Percent of AA with Buffer:		re buffet width of AA
Wo	rksheet for calculating average	Buffer Width (m)
	Line	250
	A	
	B	
	D	
	Е	
	F	
	G	
	H Puffer Width	250
	Average Buffer Width *Round to the nearest intege	r* 00
	*Round to the	

Worksheet for Assessing Channel Stability for Riverine Wetlar

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r

		Channel Stability for Riverice W
	ondition	Channel Stability for Riverine Wetlands
		Field Indicators
1		The channel (inclusion and existing condition
1		contour that closel I
1		profile of the al
1	9 e	profile of the channel throughout most of the AA.
1		8 referencial riparian vegetation is about of the AA.
	1	contour, but not below it.
		Incre is leaf litter these
	1	 The channel contains embedded woody debris of the size and amount consistent There is little or no active undercoming
Indica	ators of	with what is not.
	annel 🔉	
Equili	ibrium	There is little or no active undercutting or burial of riparian vegetation. If mid-channel bars and/or point bars are present al
1		If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.
		Channel hars consistent of the set of the se
		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
		the bar).
		There are the margins and upstream and a
1	-	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). There are channel pools, the spacing between and
L	1 -	Pranar infolighouse 1
1		The larger bed material supports abundant mosses or periphyton. The channel is characterized by deeply undercut bool
1		The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
1		There are abundant is a standard in the standa
		There are abundant bank slides or slumps.
		The lower banks are uniformly scoured and not vegetated.
Indicators	of D	Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
Active	1 0	situdes along the basis and in statute of vigon
Degradatie	on $ \Box $ A	In obvious historical a stating or falling into the channel
1	aj	An obvious historical floodplain has recently been abandoned, as indicated by the ge structure of its riparian vegetation.
1		he channel is indicated by the
1		"he channel bed appears scoured to bedrock or dense clay.
1		ecently active flow pathways appear to have coalesced into one channel (i.e. a reviously braided system is no longer braided).
	I PI	cviously braided and a provide to have coaled at the
		ie channel has one or man i it is braided).
		lere is an anti-
	tha	t is not vegetated) deposited in the sum
_	[], The	ere are partially buried living tree trunks or shrubs along the banks.
Indications of	The The	had in a stand living tree trunks or shart it
Active	000	bed is planar (flat or uniform gradient) overall; it lacks well-defined channel re are partially buried or sodie
Aggradation		
	I he	te are partially butied or as it
	Pere	re are partially buried, or sediment-choked, culverts.
	chan	nel bars below the last an vegetation is encroaching
	D Then	nnial terrestrial or riparian vegetation is encroaching into the channel or onto e are avulsion channels on the G
		e are avulsion channels on the floodplain or adjacent valley floor.
Overall		landing of adjacent valley floor.
	\mathcal{D}^{c}	quilibrium
		Degradation Degradation
		-S5rauation

erine Wetland Entrenchment Ratio Calculation Worksheet

	The A Entrenchment Ratio Calculation			1
Riverine	Wetland Entrenchment Ratio Calculation and	in the A	A at the	An
The following 5 steps sh	wetland Entreme ould be conducted for each of 3 cross-sections located along straight riffles or glides, away from deep pools or to place them at the top, middle, and bottom of the A.	meander A.	benus. 2	BOT
approximate indepond	to place them at the top,	TOP	MID	
attempt should	Replicate Cross-sections			
1 Estimate	Replicate Cross-sections This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left	4.25	2	3.25
bankfull width.	bankfull contours	1	10.1	0.35
2: Estimate max. bankfull depth.	Imagine a level line between the right and reference contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel). Double the estimate of maximum bankfull dept			
3: Estimate flood prone depth.	from Step 2.	od		10
4: Estimate flood prone width.	prone deput right and left banks; estimate intercepts the right of this line.		8	
5: Calculate entrenchment	Divide the flood prone width (Step 4) by the ball	full) e	65 4	
ratio.		blicate cro	oss-sectio	ons. β_i
6: Calculate avera entrenchment	ge Calculate the average results for Step 5 for all 5 to Enter the average result here and use it in Table 1.			
ratio.				

1.9

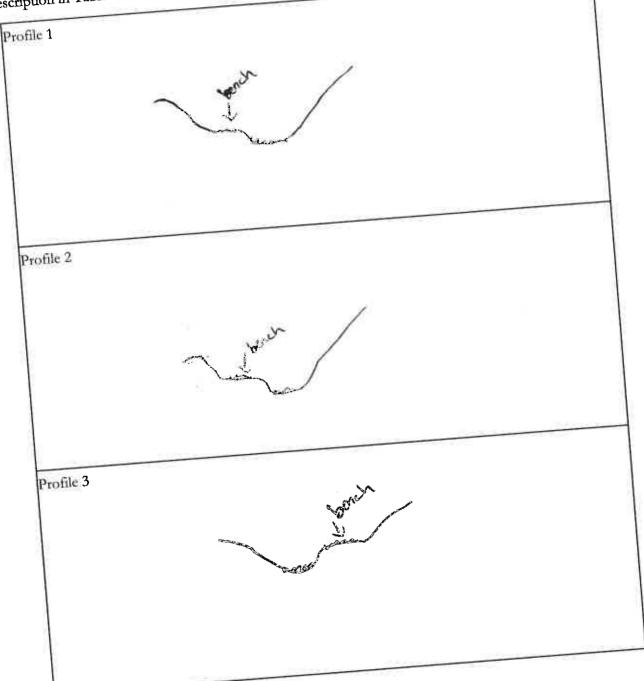
Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following (Non-confined) STRUCTURAL PATCH TYPE (circle for presence) (Confined) Riverine Riverine Minimum Patch Size Abundant wrackline or organic debris in 3 m^2 3 тъ channel, on floodplain Bank slumps or undercut banks in channels or along shoreline 1 Cobbles and/or Boulders Debris jams Filamentous macroalgae or algal mats 1 Large woody debris Pannes or pools on floodplain Ð 1 Plant hummocks and/or sediment mounds 1 Point bars and in-channel bars 1 Pools or depressions in channels 0 (wet or dry channels) 1 Riffles or rapids (wet or dry channels) Secondary channels on floodplains or along \bigcirc shorelines 1\ N/Standing snags (at least 3 m tall) Submerged vegetation 1 Swales on floodplain or along shoreline 1 NXA Variegated, convoluted, or crenulated foreshore 1 N/λ (instead of broadly arcuate or mostly straight) 1 Vegetated islands (mostly above high-water) 1 Total Possible 1 N/A No. Observed Patch Types 17 12 (enter here and use in Table 14 below) 5

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankful contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

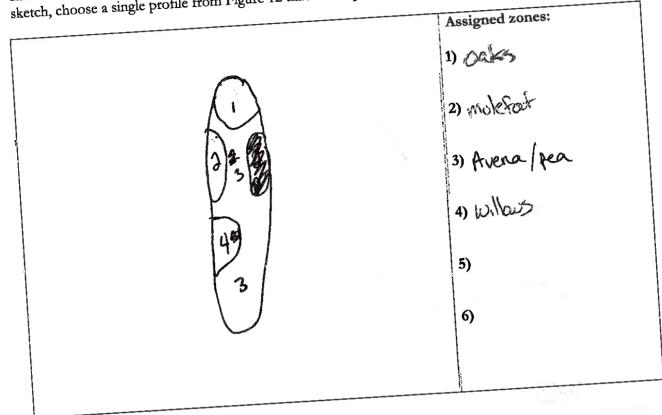
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasiv	Short (<0.5 m)	Invasiye?
		Italian thistle	N
Medium (0.5-1.5 m) Avena sp internations Lathyrus yestitus	Invasivei	Tall (1.5-3.0 m)	Invasive?
Verv Till (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	40%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

	WOIKSHEET IOL TO T					1	
-	Has a major disturbance occurred at this	Yes					
	wetlandr			fite	land	lslide	other
-	If yes, was it a flood, fire, landslide, or other?	flood	<u></u>		ect 1	likel	y to affect
E.	If yes, was it a flood, file, internet	likely to aff	ect	likely to aff site next 3	5	site	next 1-2
		site next 5					years
5	If yes, then how severe is the disturbance?	more year	rs	years		ve	mal pool
ų.		depression	nal	vernal pe	ool		system
				confine	ed .		seasonal
	Has this wetland been converted from	non-confi		riverin			estuarine
	Has this wenand been eout what was the another type? If yes, then what was the	riverine					et meadow
another type? If yes, filen were previous type?		perennial s	aline	saline esta	arine		
!	Picvious 5/F	estuarin		seep or s	pring		playa
		lacustri	ne	seep or -			_

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	 effect on AA
Dams (reservoirs, detention basins, recharge basins) Flow obstructions (culverts, paved stress	
Dams (reservoirs, detention basins, recharge basins) Flow obstructions (culverts, paved stress	
tow obstructions (culverts paved attractions)	
Weir/dross Steam Crossings)	
the structure, tide gates	
Dredged inlet/channel	 +
Engineered channel (riprap, armored channel bank, bed)	
Dike/levees	 +
Groundwater extraction	+
Ditches (borrow, agricultural drainess	 +
ctively managed hydrology	 <u> </u>
omments	<u> </u>
	 L
1/1	

Stressor Checklist Worksheet

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PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF 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) Bacteria and pathogens impaired (PS or Non-PS pollution) Trash or refuse Comments	Present	Significant negative effect on AA

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.,	×	×
Predation and habitat destruction by non matrix feral pets) 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 deoris in main (correct response) Lack of vegetation management to conserve natural resources Lack of treatment of invasive plants adjacent to AA or buffer	×	
Comments		

ATTRIBUTE		Significant negative
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	effect on AA
rban residential		
ndustrial/commercial		
i in / Air traffic		
Ailitary training/ Air traine 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)		
Ranching (enclosed livestock grazing of non-1		
Transportation corridor Rangeland (livestock rangeland also managed for native vegetation)		
Rangeland (livestock rangeland also managed the		
Rangeland (livestock rangeland end) Sports fields and urban parklands (golf courses, soccer fields, etc.)		
	×	
the interview off-road vehicles, mountain bising, interview		
Physical resource extraction (rock, setuniters, 1.9 Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AP - 30	
Assessment Area ID #:	
Project ID #	
Date: 11/22/-	
Assessment Team Members for This AA:	
Lanika Cerventes	
Marky Lenits	
Average Bankfull Width: 5 meters	
Approximate Length - (A A (()	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):	
Upstream Bring Television (DOM): (DOM)	
Upstream Point Latitude: Longitude:	
Downstream Point Latitude: Longitude:	_
Wetland Sub-type:	
sub-type:	-
Confined 🗆 Non-confined	
AA Category:	1
	-
□ Restoration □ Mitigation □ Ympacted □ Ambient □ Reference □ Training	
\Box Other:	
Did the time /	
and the river/stream have flowing water at the time of the	ĺ
Did the river/stream have flowing water at the time of the assessment? \Box yes no	
The apparent hydrologic flow regime of the reach m	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conducts	
during and immediate a conduct water all year long whereas the	
but conduct water for periods has precipitation events. Intermittent streams and had water only	
during and immediately following precipitation events. <i>Intermittent</i> streams conduct water only but conduct water for periods longer than ephemeral streams, as a function of watershed size and water	
There and water	
🗆 perennial 🗆 intermittent 🛛 Sephemeral	

H	hot	o Identificati	on Numbers and	Description: Latitude	Longitude	Datum
			Description			
		No.				
t	1		Upstream			
	2		Middle Left			
	3		Middle Right			
	<u> </u>		Downstream			
	5					
	h					
	6					
	7					
	8					
	9					
	10					

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Site Location Description:

Comments:

AA Name: AA27			Uverin	e Wetlands
Attribute 1: Buffer and	I Land			Date: 6/12/19
	1 Landscape	Comments		
Stream Corridor Conti	nuity (D)		1	Vumeric
Buffer:		F		12 CONFIRMENT
Buffer submetric A:				d Contiguous
Percent of AA with Buffer		Numeric		100% buffer
Buffer submetric B:	A	12		Sorres
Average Buffer Width	A	12		260.
Buffer submetric C:				250 m avg
Buffer Condition	B	9		60-701 nonpatives
Raw Attribute				
Raw Attribute	Score = $D+[($	$C \mathbf{x} (\mathbf{A} \mathbf{x} \mathbf{B})^{\frac{1}{2}}]^{\frac{1}{2}}$	2	Final Attribute Score =
Attribute 2: Hydrology	(pp. 20-26)			(Raw Score/24) x 100
Water Source		Alph	. Nur	neric
		A A	16	
Channel Stability		B	9	Yan i
Hydrologic Connectivity		2		1. Scato
Raw Attribute Score =	Sum of mu	<u>-</u>		
Attribute 2. DL		eric scores		Final Attribute Score =
Attribute 3: Physical Stru	cture (pp. 27-	-33)		(Raw Score/36) x 100
		Alpha.	Nume	tic
Structural Patch Richness		C	6	5 patches
Topographic Complexity		B	9	345 3
Raw Attribute Score $= e$		<u> </u>	+1	5 patches 1 bench w/ lots of micro
A stallar of the stallar		ric scores		$ $ = main full Dulle Score \simeq
Attribute 4: Biotic Structur	e (pp. 34-41)			(Raw Score/24) x 100
Plant Community Compositi	on (based on a	sub-metrics	A-C)	
Plant Community submetric A:	Alpha. Nume	ric		
Number of plant layers	A 12			4 plant ayels
Plant Community submetric B.				- person layers
INumber of Co-dominant species	Bq			Beudan
Plant Community submetric C.				
Percent Invasion	89			25% invasion
Plant Communit	y Composition	n Metric		
TOWINETIC O	verage of submet	rics A-C)		
ionzontal Interspersion		C	1.	
Vertical Biotic Structure		R	<u>6</u> a	how interspersion
Raw Attribute Score = sur	n of mark	<u> </u>	7	reol. overlap of 2 loyers
				Final Attribute Score =
Overall AA Score (average	of four final A	ttribute Se-		(Raw Score/36) x 100
			res)	

Scoring Sheet Bi .

Worksneet 101 Stream		E C Segmente Fot				
Lengths of Non-buffer S Distance of 500 m Ups	egments For tream of AA	Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA				
	Length (m)	Segment No.	10000			
Segment No.	Luigui (/	1				
1	<u> </u>	2				
2	<u></u>	3				
3	<u></u>	4				
4		5				
5		Downstream Total Length	16			
Upstream Total Length	1_0	Domini				

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 02 %	Percent of AA with Bu	uffer:	D	%
---------------------------------	-----------------------	--------	---	---

Worksheet for calculating average buffer width of AA

Worksneet for caretaine 8	
	Buffer Width (m)
Line	160
A	1 <u>C.</u> 2
В	
С	+
D	
E	
F	
G	
Н	
Average Buffer Width *Round to the nearest integer*	250

Worksheet for Assessing Channel Stability for Riverine Wetlands

Г

Condi	tion	Field to P
		Field Indicators (check all existing conditions)
		 contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. 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 (if pools are present). 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. If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. 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). There are channel pools, the spacing between pools tends to be regular and the bed
Indicators o Active Degradation		The larger bed material supports abundant mosses or periphyton. The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. There are abundant bank slides or slumps. The lower banks are uniformly scoured and not vegetated. Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. 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. Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer baside p
Indicators of Active Aggradation		The channel has one or more knickpoints indicating headward erosion of the bed. There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. There are partially buried living tree trunks or shrubs along the banks. The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. There are partially buried, or sediment-choked, culverts. Perennial terrestrial or riparian vegetation is encroaching into the channel or onto hannel bars below the bankfull contours
Overall	1	There are avulsion channels on the floodplain or adjacent valley floor.

Riverine Wetland Entrenchment Ratio Calculation Worksheet

	Wetland Entrenchment Rate			1
he following 5 steps sho pproximate midpoints a ttempt should be made	ould be conducted for each of 3 cross-sections located i long straight riffles or glides, away from deep pools or r to place them at the top, middle, and bottom of the AA	n the AA neander 	at the bends. I	an BOT
	Replicate Cross-sections		1	
1 Estimate i	This is a critical step requiring familiarity with field ndicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	3.75	4.5	2.78
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line shows the thalweg (the deepest part of the channel).			╆╼╼╼╸
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.		10	0.8
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate of measure the length of this line.		9	6.5
5: Calculate entrenchment	Divide the flood prone width (Step 4) by the bankful width (Step 1).		20	-+
ratio. 6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replic Enter the average result here and use it in Table 13a c	ate cross or 13b.	-sections	· //

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

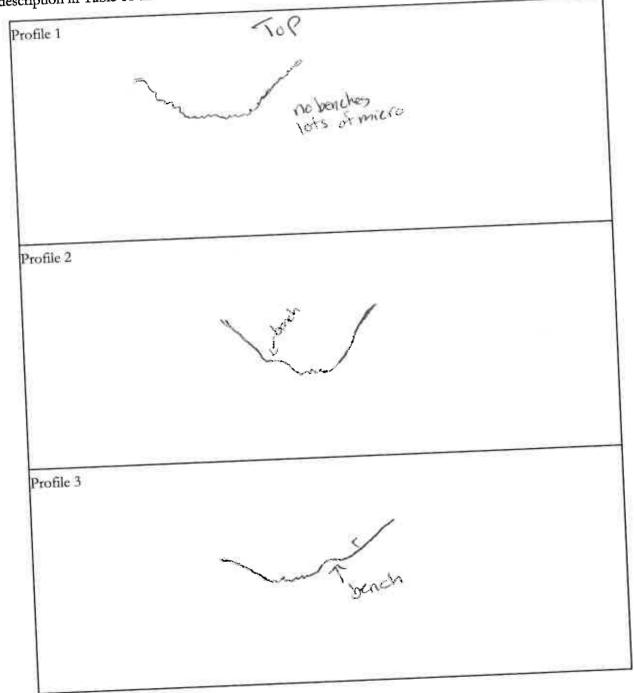
*Please refer to the CD ADA DA	be and a dice will be patch types.
Posto	Dictionary at www.cramwetlands.org for photos of each of the following patch types.
	patch types.

patch types.

				_	
	STRUCTURAL PATCH TYPE (circle for presence)	Diverse	(Non-confined)	Riverine	(Confined)
	Minimum Patch Size	3	m²	3 n	n ²
	Abundant wrackline or organic debris in	-+-		~	-
	channel, on thoodplain		1	(1))
	Dank slumps or undercut banks in channels of	r –	-+		\neg
	along shoreline	- -	1	1	
	Cobbles and/or Boulders		i –†	T	ӡ
	Debris jams		-+	$\frac{1}{1}$	4
	Filamentous macroalgae or algal mats	11		1	-
	Large woody debris	1		ħ	4
	Pannes or pools on floodplain	$+\frac{1}{1}$	_	N/A	-
	Plant hummocks and/or sediment mounds	$+\overline{1}$		1	4
	Point bars and in-channel bars	$\frac{1}{1}$	-+-	1	-
	Pools or depressions in channels	+-	-+-		
	(wet or dry channels)	1	1	7)	
	Riffles or rapids (wet or dry channels)	$\frac{1}{1}$	╊	$\overline{\mathbf{v}}$	-
	Secondary channels on floodplains or along	+-	+>	<u> </u>	1
	shorelines	1	N	/ A	
	Standing snags (at least 3 m tall)	1	+	1	
ŀ	Submerged vegetation	$\frac{1}{1}$	_	/A	
ŀ	Swales on floodplain or along shoreline	$\frac{1}{1}$		$\frac{A}{A}$	
l	vallegated, convoluted of crepulated format	├ <u>─</u> ─	+	4	
ŀ	Instead of broadly afcuate or mostly straigh a	1		L	
	vegetated islands (mostly above high-water)	1	N		
	Total Possible	17	1	_	
	No. Observed Patch Types				
_	(enter here and use in Table 14 below)			>	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

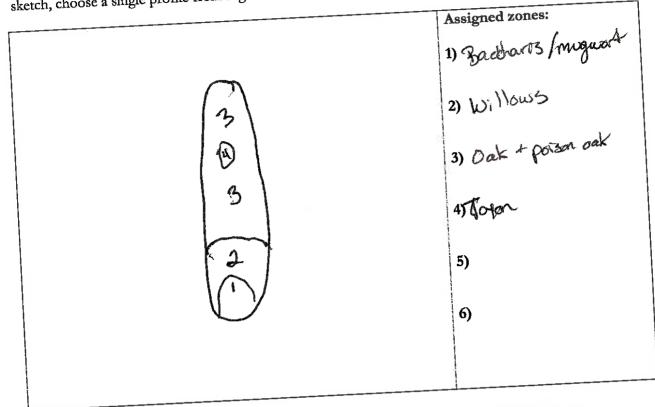
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive	5110H (<0.5 m)	Invasive?
		Italian Histle Cationia	- <u>Y</u>
Medium (0.5-1.5 m) A-tentala cabilennica Avera 3p.	Invasive?	Tall (1.5-3.0 m) loison Oak Bac Salicifdia	Invasive?
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	8
Quercus 2.5 ezeni		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	251

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

W OLLED-		_				
Has a major disturbance occurred at this	Yes		No	200		
wetland:	flood		fire	lano	Islide	other
If yes, was it a flood, fire, landslide, or other?	likely to aff	ect	likely to aff	ect	likel	y to affect e next 1-2
If yes, then how severe is the disturbance?	site next 5 more year	or	site next 3 years	-5		years
	depression		vernal po	ool		rnal pool system
Has this wetland been converted from	non-confir riverine		confine riverin			seasonal estuarine
another type? If yes, then what was the previous type?	perennial sa	aline	perennial saline estu	non- arine	w	et meadow
↓ · · ·	estuarin lacustrir		seep or s			playa

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative
Point Source (PS) discharges (POTW, other non-stormwater discharge)		effect on AA
Four obuice (Non-PS) discharges (urban type ff		
aversions of unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
riow obstructions (culverts, paved stream crossinger)		1
weir/drop structure, tide gates		
Dredged inlet/channel		<u>+</u>
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		1
Groundwater extraction		+
Ditches (borrow, agricultural drainage, mosquito control, etc.)		+
Actively managed hydrology		<u>† </u>
Comments		
N/R		
/		

Stressor Checklist Worksheet

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Trash or refuse Comments	PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF 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)	Present	Significant negative effect on AA
	Trash or refuse	×	

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 appassum and domestic predators, such as feral pets)	×	
Tree cutting/sapling removal		
Demonstral 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 debits in matter (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.)		
A sting regreation (off-road vehicles, mountain biking, numming, numming,		
antraction (rock, sediment, oil/gas)		
Physical resource extraction (aquaculture, commercial fisheries) Biological resource extraction (aquaculture, commercial fisheries)	<u> </u>	
Comments N/A		
6		

Basic Information Sheet: Riverine Wetlands

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Assessment Area Name: AA3	
Project Name: HSK -TW	
Assessment Area ID #: 00-31	
Project ID #:	Date: 4/22/10
Assessment Team Members for This AA	
L. Cervantes mo	vty Lewis
Average Bankfull Width: 1.750 m	
Approximate Length of AA (10 times ba	nkfull width, min 100 m, max 200 m): 100 m
Upstream Point Latitude:	Longitude:
Downstream Point Latitude:	Longitude:
Wetland Sub-type:	
	Non-confined
AA Category:	
🗆 Restoration 🗆 Mitigation 🗴 Impacted	□ Ambient □ Reference □ Training
□ Other:	
Did the river/stream have flowing water a	t the time of the assessment? Types A no
What is the apparent hydrologic flow regin The hydrologic flow regime of a strange line	ne of the reach you are assessing?
water. Perennial streams conduct water all year long during and immediately following	the frequency with which the channel conducts g, whereas <i>ephemeral</i> streams conduct water only ents. <i>Intermittent</i> streams are dry for part of the year, ral streams, as a function of watershed size and water
🗆 perennial 🛛 🖗 interm	

1	Photo ID	on Numbers and Description	Latitude	Longitude	Datum	
	No.	Desert				
-	A	Upstream				
-		Middle Left				
_		Middle Right				
_		Downstream				
-						
_						
	+					
_						
_						
0						
te	Location Do Near Spring	escription: - head water 2007/297 Siv	- of draine hall eftern	eral draining	R.	
te	Location De Near Spring	escription: - head water Sanzen Siv	- of draine hall eftern	eral draining	LE L	
	Location De Near Spring	escription: - head water Sangen Siv	- of draine hall effern	eral draining	L.	
		escription: - head water 25017897 Siv	- of draine hall eftern	eral draining	R	
		escription: - head water Sanes Siv	- of draine hall eftern	eral draining	R	
		escription: - head water Sangen Siv	- of draine hall eftern	eral draining	L.	
		escription: - head water 2000/2017 Siv	- of draine hall eftern	eral draining	R	
		escription: - head water Sanes Siv	- of draine hall eftern	eral draining	R	
		escription: - head water Sangen Siv	- of draine hall eftern	age. Example eral draining	R	

AA Name: AA31						
Attribute 1: Buffer and	Landsc	ape Con	text (n+	, 11	10)	Date: 4/23/19
		1-001		2. 11 - pha.	Num	Comments
Stream Corridor Contin	uity (D)			λ	12	
Buffer:					10	Continuous + no breaks
Buffer submetric A:	Alp	ha. Num	ric			
Percent of AA with Buffer	F	1 12				22 12:001
Buffer submetric B:			-			100% buffer 250m aug buffer
Average Buffer Width	P	112	-			abom and butter
Buffer submetric C: Buffer Condition	10	6				7 751. nonative
Raw Attribute S	icore =		A			
			A x B) ²²]	2		Final Attribute Score = (Raw Score/24) x 100
Attribute 2: Hydrology (1	<u>рр. 20-2</u>	6)				100 × 100
Water Source			Alph	a.	Numeri	ic an insetural savelar
Channel Stability			A		12	no unnatural sources
			A		12	equilibrium w/1ittle agradate
Hydrologic Connectivity			A		12	2.0 eatrinchaeat
Raw Attribute Score =	sum of	numeric	scores			Final Attribute Score =
Attribute 3: Physical Struc						(Raw Score/36) x 100
	<u> </u>	/	Alpha		Numeric	
Structural Patch Richness			C	-+-	6	
Topographic Complexity			n n		6	5 patches
Raw Attribute Score = s					0	mitro and part of AA has a bend
			scores			Final Attribute Score =
Attribute 4: Biotic Structur	e (pp. 3	4-41)				(Raw Score/24) x 100
Plant Community Composition	on (base	d on sub	metrics	A-C)	· · · · · · · · · · · · · · · · · · ·
Plant Community submetric A:	<u>Alpha.</u>	Numeric		1		
Number of plant layers	A	12				4 apers
Plant Community submetric B:	0					6
Number of Co-dominant species	C	6				5 codominate
Plant Community submetric C: Percent Invasion	C	6			ļ	407. invasion
Plant Communit	y Comp	_	letric.	1		
(numeric d	verage of s	ubmetrics	A-C		ŀ	
Iorizontal Interspersion			D		3	1
/ertical Biotic Structure			_ <u>v</u>	6	∼ _∤	low jiver spesion
Raw Attribute Score = sur	nof	- <u> </u>		Q		25-50% overlap
					I	Final Attribute Score = (Raw Score/36) x 100
Overall AA Score (average						(0001e/ 30) X 100

Scoring Sheet: Riverine Wetlands

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W OLKOHOUT =+=		Territoria de la construcción de la				
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				
	Length (m)	Segment No.	Length (m)			
Segment No.	Langun ()	1	<u> </u>			
11		2				
2		3				
3	<u> </u>	4				
4	<u> </u>	5				
5		Total Length	0			
Upstream Total Length	$\Box O$	Downstream Total Length				

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Full buffer

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

WUIKSHEET IOI CHICATAN B	
Line	Buffer Width (m)
Α	250
В	
СС	<u> </u>
D	<u></u>
E	
F	
G	
H	V
Average Buffer Width *Round to the nearest integer*	250

Worksheet for Assessing Channel Stability for Riverine Wetlands

F.

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Condition	Field Indicators
	 (check all existing conditions) The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
Indicators of Channel Equilibrium	 Contour, but not below it. There is leaf litter, thatch, or wrack in most pools (if pools are present). 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. If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. 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). There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA
	The larger bed material supports abundant mosses or noris
Indicators of Active Degradation	 The chained is characterized by deeply undercut banks with exposed living roots of trees or shrubs. There are abundant bank slides or slumps. The lower banks are uniformly scoured and not vegetated. Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. 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. Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). The channel has one or more knickpoints indicating headered headered.
	 There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. There are partially buried living tree trunks or shrubs along the banks. The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. There are partially buried, or sediment-choked, culverts. Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. There are avulsion channels on the floodplain or adjacent valley floor.
Overall	XEquilibrium Degradation Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

	• • • • • • • • • • • • • • • • • • • •	hould be conducted for each of 3 cross-sections located along straight riffles or glides, away from deep pools or e to place them at the top, middle, and bottom of the AA		A at the bends. 1	An
	Steps	Replicate Cross-sections	ТОР	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	1.75	1.35	1.5
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	NBHI	,35	•35
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.		.90	170
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	1 Alet	3.25	\$3.0
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).		2.6	2
6: Calculate average entrenchment ratio. Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.					

Structural Patch Type Worksheet for Riverine wetlands

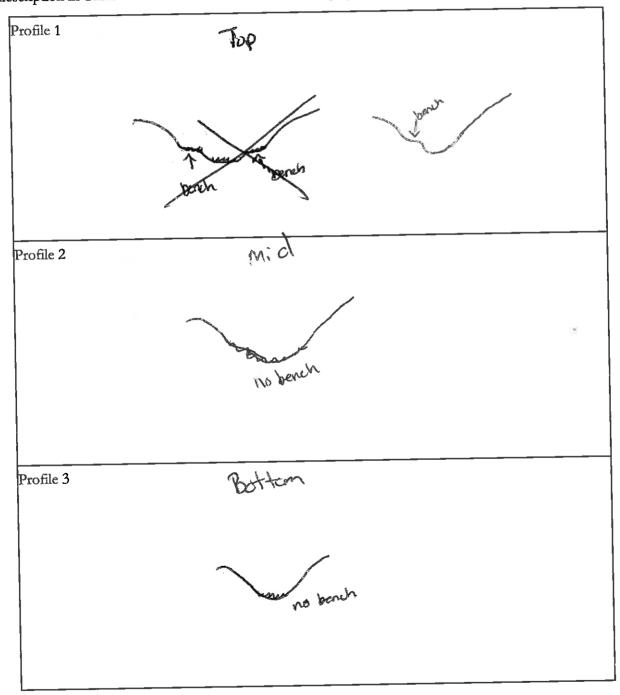
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

STRUCTURAL PATCH TYPE (citcle for presence)	Riverine	(Non-confined)	Riverine (Confined)	
Minimum Patch Size	3/11	n ²	3 m ²	
Abundant wrackline or organic debris in channel, on floodplain	1		1	*
Bank slumps or undercut banks in channels or along shoreline	1		1]
Cobbles and/or Boulders	1		12	1
Debris jams		╈	1	1
Filamentous macroalgae or algal mats	1	╈	XX	1
Large woody debris	17	+-	11	ł
Pannes or pools on floodplain	1		N/A	1
Plant hummocks and/or sediment mounds	1/1	╪	1	1
Point bars and in-channel bars		┿	1	!
Pools or depressions in channels (wet or dry channels)	1)	1	D	V
Riffles or rapids (wet or dry channels)	/1	1	D	
Secondary channels on floodplains or along shorelines	1		J/A	
Standing snags (at least 3 m tall)	1/	1	\mathcal{D}	
Submerged vegetation	1	N	I/A	
Swales on floodplain or along shoreline	1	N	I/A	
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1		1	1
Vegetated islands (mostly above high-water)	<u>h</u>		/ A	
Total Possible	17		12	
No. Observed Patch Types (enter here and use in Table 14 below)		4	5	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

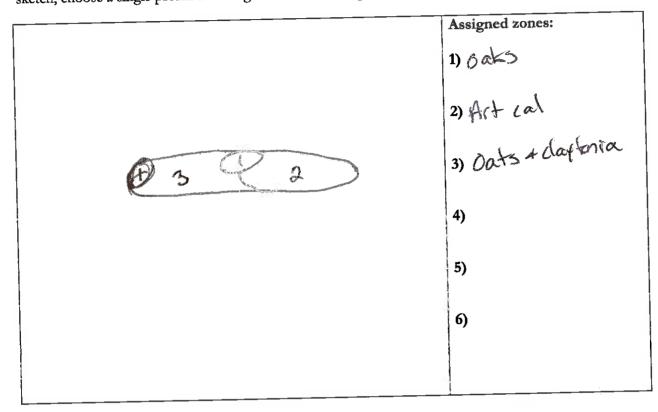
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
· · · · · · · · · · · · · · · · · · ·		Claytonia perfoliata	
		Italian thistle	×
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Avena fatua?)		Artemisia californica	
	+		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species	
Quereus vois lezeni		for all layers combined (enter here and use in Table 18)	5
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	401

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No		No		No		No		No			
If yes, was it a flood, fire, landslide, or other?	flood				dslide	other								
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years		likely to aff site next 3 years	next 3-5 site next		next 1-2 years								
	depressional		vernal po	ol	1	mal pool system								
Has this wetland been converted from another type? If yes, then what was the	non-confin riverine	ed	confine		1	easonal stuarine								
previous type?	perennial sa estuarine		e perennial non- saline estuarine wet me		t meadow									
1	lacustrine		seep or sp	ring		playa								

Stressor Checklist Worksheet

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HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		Chect on MA
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		

Present	Significant negative effect on AA
	Present

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	1	
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
wild the pigs in alea.		

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	<u> </u>	
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)	2	
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments N/R		

Basic Information Sheet: Riverine Wetlands

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a.

Assessment Area Name: AA32-NAW-05133	
Project Name: HSR JM	
Assessment Area ID #:	
Project ID #: Date: 4/23/19	
Assessment Team Members for This AA:	
USL, KK	
Average Bankfull Width: 8m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):	20m
Upstream Point Latitude: Longitude:	
Downstream Point Latitude: Longitude:	
Wetland Sub-type:	
Confined Confined	
AA Category:	
\Box Restoration \Box Mitigation X Impacted \Box Ambient \Box Reference \Box Training	
□ Other:	
Did the river/stream have flowing water at the time of the assessment? \Box yes	X no
What is the apparent hydrologic flow regime of the reach you are assessing?	
The hydrologic flow regime of a stream describes the frequency with which the channel condu- water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water of during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the but conduct water for periods longer than ephemeral streams, as a function of watershed size a source.	nly he vear.
perennial X intermittent X ephemeral	

	Photo ID	Description	Latitude	Longitude	Datum
	No.				
		Upstream			
2		Middle Left			
3		Middle Right			
ŀ		Downstream			
;					
5					
7					
;					
10					

Site Location Description:

Comments:

2 photos on KIK phone 1 facting upstream 2 facing docenstream

AA Name: AA 32				
Attribute 1: Buffer and	Landscape Cor	itext (pp. 11-	-19)	
Stream Corridor Contin		Alpha.	Numeric	Comments
Buffer:		D		7350m engesteren break
Buffer submetric A:	Alpha. Nurr	_		
Percent of AA with Buffer		ieric		
	A			1007.
Buffer submetric B: Average Buffer Width	B			133m
Buffer submetric C: Buffer Condition	B			
Raw Attribute S	Score = $D+[Cx]$	(A x B) ^{1/2}] ^{1/2}		Final Attribute Score =
Attribute 2: Hydrology ((Raw Score/24) x 100
]		Alpha.	Numeric	
Water Source		C		
Channel Stability		B		
Hydrologic Connectivity		TAT		
Raw Attribute Score =	sum of turnor			Final August of the
				Final Attribute Score = (Raw Score/36) x 100
Attribute 3: Physical Strue	ture (pp. 27-33)		
Structure Dec. 1 D. 1		Alpha.	Numeric	
Structural Patch Richness		C		8 patches
Topographic Complexity		D		no benches
Raw Attribute Score = a	um of numeric	Scores	I	Final Attribute Score =
ttribute 4: Biotic Structur				(Raw Score/24) x 100
lant Community Compositi	e (pp. 34-41)			
	Alpha. Numeric	D-metrics A-(2	
lant Community submetric A:	A Numeric			0
Number of plant layers	C			2 layers
lant Community submetric B: Jumber of Co-dominant species	D		4	colors
lant Community submetric C:				
ercent Invasion	D		7	5% invasion
Plant Communit	y Composition	Metric		
(numeric d	verage of submetric.	sA-C)		
prizontal Interspersion		D		
rtical Biotic Structure		D		
Raw Attribute Score = su		cores	1 78	al Attribute Score =
Overall AA Score (average	of four final At	teilant C		law Score/36) x 100

Scoring Sheet: Riverine Wetlands

egments For ream of AA	Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA		
Length (m)	Segment No.	Length (m)	
Tangui ()	1		
	2		
	2		
	5		
	4	+	
	5		
	Downstream Total Length	300m	
	egments For ream of AA Length (m)	ream of AA Distance of 500 m Downstr	

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 10

Worksheet for calculating average buffer width of AA

%

WULSHCCT IOL CHECKING	
Line	Buffer Width (m)
	250
A	
В	250
C	250
D	250
E	0
F	15
G	25
Н	15
Average Buffer Width	133.1
Round to the nearest integer	10

Worksheet for Assessing Channel Stability for Riverine Wetlands

·····		Channel Stability for Riverine Wetlands
Con	dition	
		Field Indicators
Indicato Chan Equilibr	nel rium	is not planar throughout the AA
Indicators o 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. The lower banks are uniformly scoured and not vegetated. Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. 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. Recently active flow pathways appear to have coalesced into one channel of the structure of
Indicators of Active Aggradation		The channel has one or more knickpoints indicating headward erosion of the bed. There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. There are partially buried living tree trunks or shrubs along the banks. The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel ools, or they are uncommon and irregularly spaced. Here are partially buried, or sediment-choked, culverts. Frennial terrestrial or riparian vegetation is encroaching into the channel or onto mannel bars below the bankfull contour. There are avulsion channels on the floodplain or adjacent valley floor.
Overall	>	Equilibrium Degradation Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

ne following 5 steps sh	ould be conducted for each of 3 cross-sections located in along straight riffles or glides, away from deep pools or r to place them at the top, middle, and bottom of the AA	neander	bends.	An
proximate midpoints tempt should be made		тор	MID	BOT
Estimate bankfull width.	Replicate Cross of the field This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	8	8	8
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankful contours; estimate or measure the height of the line who the bankful (the deepest part of the channel).			
	above the inline of maximum bankfull depth			
3: Estimate flood	Exam 2			
prone depth.4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line prone the tight and left banks; estimate of	50r	7 50n	nt Sh
5: Calculate	Divide the flood prone width (Step 4) by the bankfu	11 72.	2 30	12 7:
entrenchment ratio.	width (Step 1). Calculate the average results for Step 5 for all 3 replic	ate cros	s-sectio	^{ns.} 7
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 5 top Enter the average result here and use it in Table 13a	of 150.		

Structural Patch Type Worksheet for Riverine wetlands

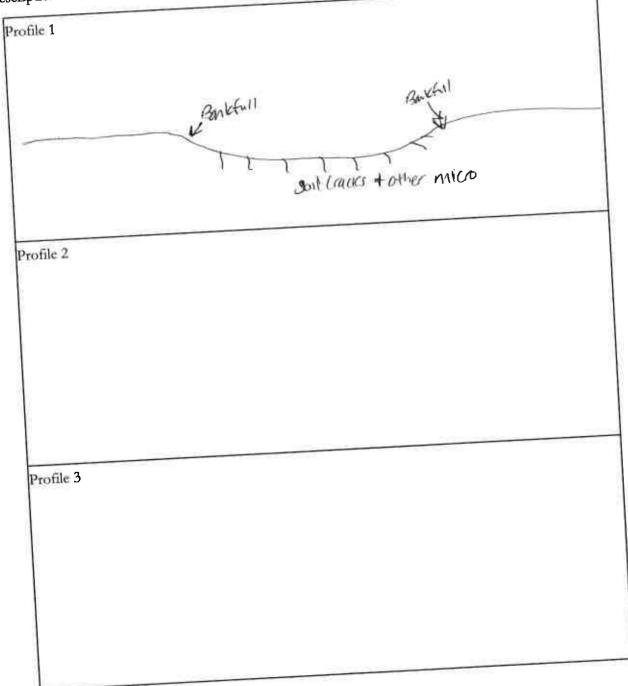
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following

	1				
	STRUCTURAL PATCH TYPE (circle for presence)		Riverine	(Non-confined)	Kuverine (Confined)
	Minimum Patch Size		3 n	1 ² 3	m ²
	Abundant wrackline or organic debris in channel, on floodplain)	1
	Bank slumps or undercut banks in channels along shoreline	or	1	1	1
	Cobbles and/or Boulders Debris jams		1		1
	Filamentous macroalgae or algal mats		1		1
	Large woody debris	-4	1		
	Pannes or pools on floodelais	+	-		· ·
	I fait nummocks and/or sediment mound	-#		N	
	Foint bars and in-channel bars	4	D	1	
	Pools or depressions in channels	+		1	
	(Wet of dry channels)	10	$\mathbb{D} $	1	
	Riffles or rapids (wet or dry channels)		1	1	-
	Secondary channels on floodplains or along shorelines	17	D	 N//	
L	Standing snags (at least 3 m tall)				1
Ļ	Submerged vegetation	1		1	
L	Swales on floodplain of along al	$\frac{1}{1}$		N/A	
				N/A	4
-	Children of Divadiv archite or mostly in the	(1))	1	
	- O HONE ISTATION (MOSTLY above high-water)	$\frac{\checkmark}{1}$		/ /A	1
	1 otal Possible	17		12	
	No. Observed Patch Types	6	+-		
-	(enter here and use in Table 14 below)	ð			

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species tichness for Rivetine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

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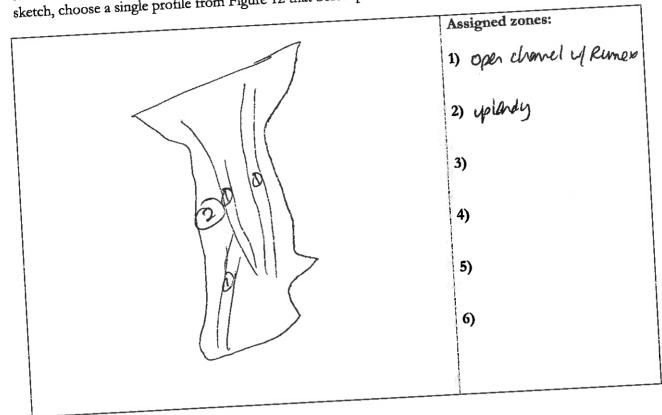
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* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming (non-confined only)	Invasive	? Short (<0.5 m)	Invasive
		Horden Marmaninum	X
Medium (0.5-1.5 m)			
Polypom an monuting	Invasive?	Tall (1.5-3.0 m)	Invasive?
Rurez conglomentus Festuca perenis	X		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species	
		for all layers combined (enter here and use in Table 18)	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	75%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

WOIKSDEEL IOI WOM						
Has a major disturbance occurred at this	Yes		No			and Same
wetland:			fire	lan	dslide	other
If yes, was it a flood, fire, landslide, or other?	flood	L	likely to aff	ect	likel	y to affect
If yes, then how severe is the disturbance?	likely to affe site next 5 more year	or	site next 3	-5		next 1-2 years rnal pool
	depression	nal	vernal po	l		system
Has this wetland been converted from	non-confir riverine		confine riverin	e		seasonal estuarine
another type? If yes, then what was the previous type?	perennial sa	aline	perennial saline estu	non- arine	we	et meadow
r	estuarin lacustrir		seep or s		T	playa

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

Stressor Checklist Worksheet

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PHYSICAL		
PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)		Significant
ruing or dumping of sediment	Present	negative effect on AA
Grading/ compaction (N/A for restoration areas) Plowing/Discing (N/A for restoration areas)		
	X	
Resource extraction (sediment, gravel, oil and/or gas) Vegetation management	X	
Excessive sediment or ormein 111		+
		<u> </u>
Nutrient impaired (PS of No. 200		f
inclaining the for an Ministry in the second s	X	<u> </u>
Bacteria and pathogens impaired (PS or Non-PS pollution) Trash or refuse	X	
Comments	X	
	[

X	
X	
<u>X</u>	
-	

	Significant negative
Present	effect on AA
X	
X	
X	
<u>X</u>	
1	
	Present X X X

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AP23 - ASUP - 05/22 Project Name: HSP JM Assessment Area ID #: Date: Project ID #: Date: Assessment Area ID #: Project ID #: Date: U/J32/M Assessment Team Members for This AA USL (UL Assessment Team Members for This AA Assessment Team Members for This AA Ull (UL Assessment Team Members for This AA Ull						
Project ID #: Date: U as [1] Assessment Team Members for This AA LSL, LL AA Category: Pre-Restoration Post-Restoration Pre-Impact Post-Impact Reference Other: Origin of Wetland (if known): Natural system Artificial system Type of Management (if known): water fowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater water supply (agriculture) □ water supply (livestock) \cong not managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh \alkaline marsh						
Assessment Team Members for This AA USL 1/4L AA Category: Pre-Restoration Pre-Mitigation Pre-Mitigation Pre-Impact Post-Impact Post-						
Assessment Team Members for This AA USU(U) AA Category: Pre-Restoration Pre-Restoration Pre-Impact Post-Impact Post-Impact Ortigin of Wetland (if known): Natural system Artificial system Type of Management (if known): water fowl/birds amphibians general wildlife water supply (agriculture) water supply (livestock) Which best describes the type of depressional wetland? freshwater marsh						
AA Category: Pre-Restoration Post-Restoration Pre-Mitigation Pre-Impact Post-Impact Training Ambient Reference Other: Origin of Wetland (if known): Vatural system Artificial system Type of Management (if known): waterfowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater water supply (agriculture) □ water supply (livestock) > (aprox managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh Alkaline marsh □ brackish marsh						
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation ✓ Pre-Impact □ Post-Impact □ Training □ Ambient □ Reference □ Other: □ □ Ambient Origin of Wetland (if known): ✓ ✓ Natural system □ Artificial system Type of Management (if known): □ water fowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater □ water supply (agriculture) □ water supply (livestock) ♀ not managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh ✓ alkaline marsh						
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation ✓ Pre-Impact □ Post-Impact □ Training □ Ambient □ Reference □ Other: □ □ Ambient Origin of Wetland (if known): ✓ ✓ ✓ Natural system □ Artificial system Type of Management (if known): □ water fowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater □ water supply (agriculture) □ water supply (livestock) ♀ not managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh ✓ alkaline marsh						
Image: Second Stress Image:						
Origin of Wetland (if known): Natural system □ Artificial system Type of Management (if known): □ waterfowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater □ water supply (agriculture) □ water supply (livestock) ♀ not managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh ✓ alkaline marsh						
Natural system □ Artificial system Type of Management (if known): □ waterfowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater □ water supply (agriculture) □ water supply (livestock) Conot managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh Calkaline marsh						
Type of Management (if known): □ waterfowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater □ water supply (agriculture) □ water supply (livestock) Image: Constrained and the store of the						
 waterfowl/birds amphibians general wildlife sediment water quality stormwater water supply (agriculture) water supply (livestock) xnot managed other: Which best describes the type of depressional wetland? freshwater marsh Xalkaline marsh D brackish marsh 						
 waterfowl/birds amphibians general wildlife sediment water quality stormwater water supply (agriculture) water supply (livestock) cnot managed other: Which best describes the type of depressional wetland? freshwater marsh Alkaline marsh D brackish marsh 						
□ water supply (agriculture) □ water supply (livestock) ♀ not managed □ other: Which best describes the type of depressional wetland? □ freshwater marsh ♀ alkaline marsh □ brackish marsh						
Which best describes the type of depressional wetland? □ freshwater marsh Xalkaline marsh □ brackish marsh						
🗆 freshwater marsh 🛛 🖾 kalkaline marsh 🗆 brackish marsh						
□ other (specify):						
AA Encompasses:						
Ventire wetland						
Which best describes the hydrologic state of the wetland at the time of assessment?						
ponded/inundated saturated soil, but no surface water						
What is the apparent hydrologic regime of the wetland?						
Perennially flooded systems contain surface water year-round, seasonally flooded depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded depressional wetlands possess surface water between 2 weeks and 4 months of the year.						
perennially flooded seasonally flooded temporarily flooded						

Does your wetland connect with the floodplain of a nearby stream? yes no						
(system subject to overbank flow, a dammed stream does not count)						
Does the wetland have a defined on undefined outlet?	defined	undefined				
Does the wetland have a defined on undefined <u>inlet</u> ?	\Box defined	\Box undefined				
Are the inlet and outlet at the same location?	□ yes	□ no				

Is the topographic basin of the wetland \Box distinct or \Box indistinct?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

1	Photo ID	Description	Latitude	Longitude	Datum
1	No.				
1		(to) North			L
2		(to) East			
3		(to) South			<u> </u>
4		(to) West			<u> </u>
5					<u> </u>
6					
7					
8					
9					<u> </u>
10	0/				

Site Location Description and Land Use:

Comments:

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AA Name: AA3-3 Da				ite: 4/23/19		
Attribute 1: Buffer and Landscape Context (pp. 8-15)					Comments	
Aquatic Area Abundance Score (D)			Alpha.	Numeric		
					26%	
Buffer:	L A 1 1					
Buffer submetric A:	Alpha.	Numeric				
Percent of AA with Buffer	A				1009-	
Buffer submetric B:	B				151m	
Average Buffer Width	Þ					
Buffer submetric C: Buffer Condition	B					
		[<u> </u>	_	Final Attribute Score =	
Raw Attribute Score = $D+[C x (A x B)]$					(Raw Score/24) x 100	
Attribute 2: Hydrology (pp	Attribute 2: Hydrology (pp. 16-21)					
			Alpha.	Numeric		
Water Source			0			
Hydroperiod			A			
Hydrologic Connectivity			Δ			
Raw Attribute Score = st	and after				Final Attribute Score =	
Maw Attribute Score – si		umenc sc	ores		(Raw Score/36) x 100	
Attribute 3: Physical Struct	ute (pp.	. 22-28)				
			Alpha.	Numeric	0	
Structural Patch Richness			D	_	3 patches	
Topographic Complexity			D		no berches, minimalm	in l
Raw Attribute Score = sum of numeric scores					Final Attribute Score =	0.0
	(Raw Score/24) x 100					
Attribute 4: Biotic Structure				~		
Plant Community Compositic		d on subm	etrics A	-C)		
Plant Community submetric A:		INUILIETIC			1 layer	
Number of plant layers	D				r ruger	
Plant Community submetric B:	Ν				3 LOCIONS	
Number of Co-dominant species	D					
Plant Community submetric C:	D				679- invasion	
Percent Invasion						
Plant Communi			1	ŀ		
	(numeric average of submetrics A Horizontal Interspersion					
					·	
Vertical Biotic Structure			<u> </u>		Rin 1 Augusture 0	
Raw Attribute Score = sum of numeric scores					Final Attribute Score = (Raw Score/36) x 100	
Overall AA Score (averag	e of fou	r final Atti	ribute Sc	cores)		

Scoring Sheet: Depressional Wetlands

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Percentage of Transect Lines that Contains Aquatic Area of Any Kind					
Segment Direction	Percentage of Transect Length				
	That is an Aquatic Feature				
North	Yom = 820				
South	$320_{m} = 649_{0}$				
East	50m = 109.				
West	100m = 20%				
Average Percentage of Transect Length That Is an Aquatic Feature	25.5 - 26%				

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

11

Percent of AA with Buffer: 100 %

Line	Buffer Width (m)	
A	250	
В	250	
С	25D 25D 250	
D	130	
E	100	
F	90	
G	60	
н	80	
Average Buffer Width *Round to the nearest whole number (integer)*	151m	

Worksheet for calculating average buffer width of AA

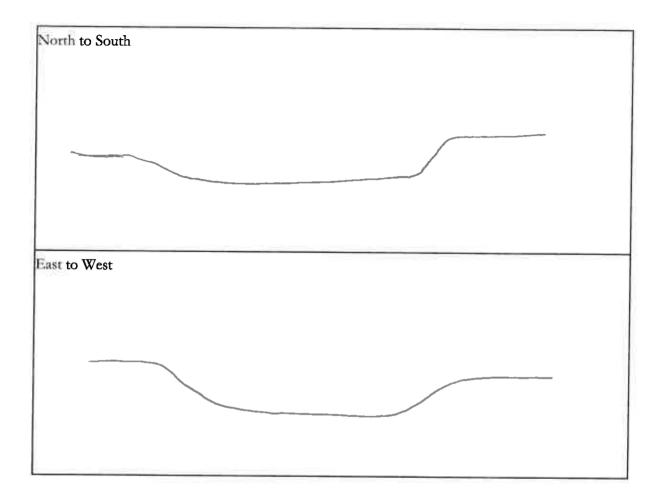
Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Depressional
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	X
Open water	
Plant hummocks and/or sediment mounds	
Soil cracks	X
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	
(instead of broadly arcuate or mostly straight)	
Woody vegetation in water	
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	3

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.



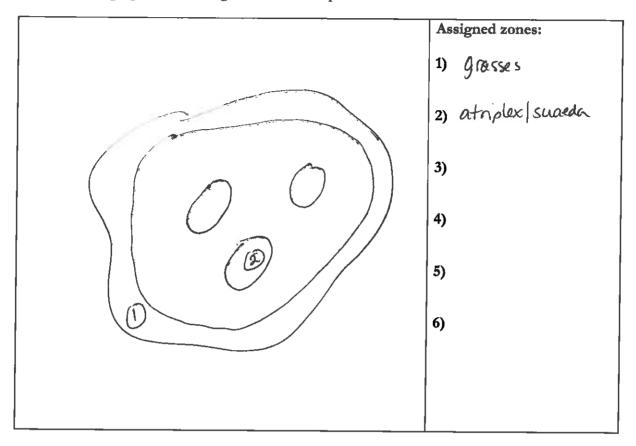
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
/	-	Bromus hordeaceous	X
		Horderm mannun	X
		Atriplex / Sueada	
Medium (0,5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
		/	
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion *Round to the nearest	100
		whole number (integer)*	677.
		(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No			
If yes, was it a flood, fire, landslide, or other?	flood fire la		lan	dslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	site next 3		likely to affect site next 1-2 years	
	depressiona	l vernal po	ool		nal pool ystem
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	d confine riverine			r-built tuarine
previous type?	perennial saline estuarine	perennia non-salir estuarin	ne	wet	meadow
	lacustrine	seep or spi	ring	F	olaya

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	\checkmark	
drainage)	<u> </u>	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel	*	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	×	
Groundwater extraction	X	
Ditches (borrow, agricultural drainage, mosquito control, etc.)	$\underline{}$	
Actively managed hydrology	<u>×</u>	
Comments		

Present	Significant negative effect on AA
×	
<u> </u>	
<u> </u>	
<u> </u>	
<u> </u>	
	Present

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	$\overline{\mathbf{x}}$	
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	$\mathbf{\hat{x}}$	
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	\overline{X}	
Lack of treatment of invasive plants adjacent to AA or buffer	X	
Comments		

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BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	\times	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture	×	
Orchards/nurseries	X	
Commercial feedlots		
Dairies		-
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	_
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	<i></i>	

Basic Information Sheet: Depressional Wetlands

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Assessment Area N	ame: APA34 -ASW-	15125	
- abject I tallic.	DKJA	<u>(2)[2]</u>	
Assessment Area ID)#:		
Project ID #:		Date: U23	19
Assessment Team N	lembers for This AA		
LSL, KK			
AA Category:			
□ Pre-Restoration	Dest-Restoration	□ Pre-Mitigation	D Post-Mitigation
Pre-Impact	Dest-Impact	□ Training	□ Ambient
□ Reference	□ Other:		
Origin of Wetland (if known):		
Natural system	□ Artificial system		[
Type of Managemen	nt (if known):		
□ waterfowl/birds □	amphibians 🗆 general wi	ildlife 🗖 sodiment –	vater quality 🗆 stormwater
water supply (agricu	Iture) El mater		vater quality stormwater
	lture) 🗆 water supply (live		d □ other:
	s the type of depression	al wetland?	
freshwater marsh	alkaline marsh	□ brackish m	arsh
□ other (specify):			
AA Encompasses:			
	wetland	tion of the wetland	
Which best describes	the hydrologic state of	the wetland at the di	
ponded/inund		oil, but no surface wat	
	hydrologic regime of th	e wetland?	er Xdry
Perennially flooded systems wetlands are defined as	s contain surface water ye supporting surface water d depressional wetlands po	ar-round, seasonally flood	
perennially flooded	□ seasonally flooded	d Ktemporaril	v flag 1, 1
	·	, Comportant	ly nooded

		_
Does your wetland connect with the floodplain of a near (system subject to overbank flow, a dammed stream does not count)	by stream?	! yes □ no
Does the wetland have a defined on undefined outlet?	🗌 defined	\Box undefined
Does the wetland have a defined on undefined inlet?	defined	\Box undefined
Are the inlet and outlet at the same location?	🗆 yes	🗆 no

Is the topographic basin of the wetland 🛛 distinct or 🖓 indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID	Description	Latitude	Longitude	Datum
ł	No.			+	
		(to) North		+	+
2		(to) East			+
3		(to) South		<u> </u>	+
4		(to) West		+	+
5				<u></u>	+
6	├ ────	+			+
	L	++		1	
7_		<u>+</u> +		+	
8				+	+
9				+	+
10	1				

Site Location Description and Land Use:

Comments:

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AA Name: AA34				D	ate: 4/23/19
Attribute 1: Buffer and La	indscap	e Context	t (pp. 8-1	5)	Comments
Aquatic Area Abundance				Numerie	
		ツ	C		2.890
Buffer:				1251	
Buffer submetric A:	Alph	a. Numeri	c		
Percent of AA with Buffer	A				100%
Buffer submetric B:	a				158m
Average Buffer Width	B				7 <u>56</u> 7
Buffer submetric C:	B				
Buffer Condition					
Raw Attribute Scor	e = D +	[C x (A x]	B) ^½] ^½		Final Attribute Score =
Attribute 2: Hydrology (p)	16_21)				(Raw Score/24) x 100
in the state of th	. 10-21)		Alpha	Numeric	· · · · · · · · · · · · · · · · · · ·
Water Source				1 tuillelle	
Hydroperiod			I G		
			<u> </u>		
Hydrologic Connectivity			LA		
Raw Attribute Score = s	um of r	umeric se	cores		Final Attribute Score =
Attribute 3: Physical Struc		22-28)			(Raw Score/36) x 100
	the opp		Alpha	Numeric	
Structural Patch Richness			C		4 natives
			0.16		M patches no benches but micro
Topographic Complexity			CB		no benches but micro
Raw Attribute Score = s	um of n	umeric sc	ores	Í	Final Attribute Score =
Attribute 4: Biotic Structur	e (nn. 2	9_39)			(Raw Score/24) x 100
Plant Community Composition	on (base	d on subm	etrics A-	<u></u>	
		Numeric			
Plant Community submetric A:					layer
Number of plant layers	D				
Plant Community submetric B:	D	1			2 codonnis
Number of Co-dominant species Plant Community submetric C:		{			
Percent Invasion	D			_	57 90 /masily
Plant Communi		notition M	etui e		
(numeric a	verage of s	ubmetrics A		-	
Iorizontal Interspersion	<u> </u>		D		
Vertical Biotic Structure					
			_D		Final Attribute Score =
Raw Attribute Score = su					(Raw Score/36) x 100
Overall AA Score (averag	e of four	final Attr	ibute Sco	res)	

Scoring Sheet: Depressional Wetlands

Percentage of Transect Lines that Contains Aquatic Area of Any Kind				
Segment Direction	Percentage of Transect Length That is an Aquatic Feature			
North	50m = 10%			
South	350m = 7090			
East	50m = 109.0			
West	100m = 2020			
Average Percentage of Transect Length That Is an Aquatic Feature	27.5 - 28%			

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Line	Buffer Width (m)
A.	115
B	60
С	100
D	250
E	250
F	250
G	130
Н	105
Average Buffer Width *Round to the nearest whole number (integer)*	158

Worksheet for calculating average buffer width of AA

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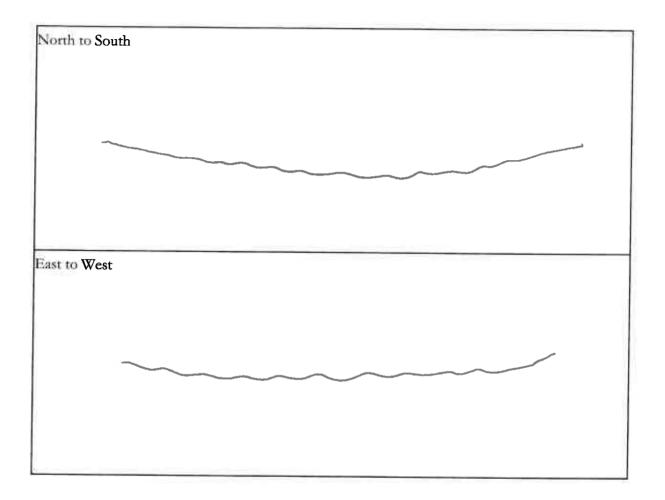
Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Depressional
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	Х
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large woody debris	†
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	X
Open water	
Plant hummocks and/or sediment mounds	
Soil cracks	\times
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	X
(instead of broadly arcuate or mostly straight)	$\uparrow \sim$
Woody vegetation in water	2
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	4

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.



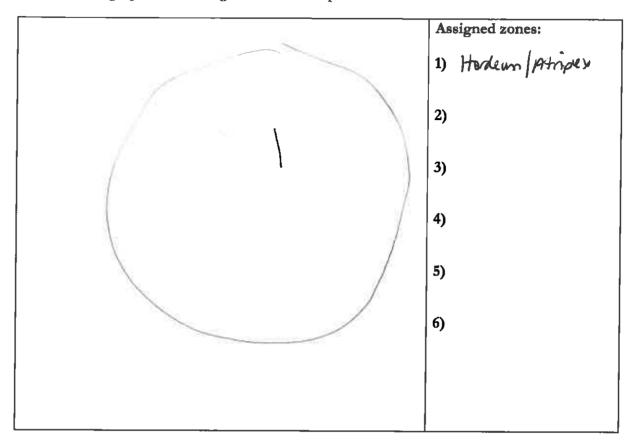
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Hordeum menning	X
		Hordeum marinum Atriplex / snaeda	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	2
		Percent Invasion *Round to the nearest	ma
		whole number (integer)*	1 50%-
		(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and	l conversions Worksheet
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Has a major disturbance occurred at this wetland?	Yes	Yes No			
If yes, was it a flood, fire, landslide, or other?	flood	od fire 1		dslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years				
	depressiona	ul vernal po	ol		nal pool ystem
Has this wetland been converted from	non-confine riverine				r-built tuarine
another type? If yes, then what was the previous type?	perennial saline estuarine	non-salir	perennial non-saline wet meador estuarine		meadow
	lacustrine	seep or spi	ing	1	olaya

Stressor Checklist Worksheet

(WITHIN 50 M OF AA)	Present	Significant negative effect on AA
oint Source (PS) discharges (POTW, other non-stormwater ischarge)		
Ion-point Source (Non-PS) discharges (urban runoff, farm rainage)	\times	
low diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
low obstructions (culverts, paved stream crossings)	×	
Veir/drop structure, tide gates		
Dredged inlet/channel		
Ingineered channel (riprap, armored channel bank, bed)		
Dike/levees	<u> × </u>	
Groundwater extraction	\times	
Ditches (borrow, agricultural drainage, mosquito control, etc.)	\times	
ctively 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)	<u> </u>	
Plowing/Discing (N/A for restoration areas)	X	
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)	\sim	
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)	\times	
Bacteria and pathogens impaired (PS or Non-PS pollution)	$\sim \chi$	
Trash or refuse		
Comments		
	·	

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	\times	
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	<u> </u>	
Lack of treatment of invasive plants adjacent to AA or buffer	X	
Comments		

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BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	×	
Industrial/commercial	\sim	
Military training/Air traffic	- •	
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture	\times	
Orchards/nurseries	\times	
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		

Basic Information Sheet: Depressional Wetlands

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Assessment Area Na	me: AA35-ASW-	05124			
	SR JM				
Assessment Area ID	#:				
Project ID #: Date: 4/23 (9					
Assessment Team M	embers for This AA		_		
LSLIKK					
AA Category:					
□ Pre-Restoration	\Box Post-Restoration	Dere-Mitigation	\Box Post-Mitigation		
Pre-Impact	D Post-Impact	Training	□ Ambient		
□ Reference	□ Other:				
Origin of Wetland (if known):				
XNatural system	□ Artificial system				
Type of Manageme	nt (if known):				
🗆 waterfowl/birds 🗆	amphibians □ general w	rildlife 🗆 sediment 🗆	water quality 🗆 stormwater		
□ water supply (agricu	ulture) 🗆 water supply (liv	vestock) tynot manage	ed □ other:		
Which best describe	s the type of depression	nal wetland?			
□ freshwater marsl	h 🍂 🏹 🕅 🕅	h 🗆 brackish 1	marsh		
□ other (specify):					
AA Encompasses:					
Lentir	e wetland 🗆 po	ortion of the wetland			
Which best describe	s the hydrologic state o	of the wetland at the	time of assessment?		
□ ponded/inun		l soil, but no surface w			
What is the apparen	t hydrologic regime of				
Perennially flooded systems contain surface water year-round, seasonally flooded depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded depressional wetlands possess surface water between 2 weeks and 4 months of the year.					
□ perennially flooded	\Box seasonally floor	ded Ctemporz	arily flooded		

Does your wetland connect with the floodplain of a nearby stream? \Box yes \Box no				
(system subject to overbank flow, a dammed stream does not count)				
Does the wetland have a defined on undefined outlet?				
Does the wetland have a defined on undefined inlet?				
Are the inlet and outlet at the same location?				

Are the inlet and outlet at the same location?

Is the topographic basin of the wetland \Box distinct or \Box indistinct?

An indistinct topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

11	Photo ID	Description	Latitude	Longitude	Datum
	No.				
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

I pic on KK phone

AA Name: AA 35 D				Date: 4/23/19	
Attribute 1: Buffer and La	ndscape	Context	(pp. 8-1	5)	Comments
	Aquatic Area Abundance Score (D)			Nume	
			C		2890
Buffer:					
Buffer submetric A:	Alpha.	Numeric			
Percent of AA with Buffer	A				100%
Buffer submetric B:	B				
Average Buffer Width	D				14Am
Buffer submetric C:	B		750.00		
Buffer Condition					
Raw Attribute Score	e = D+[C x (A x E	3) ^{1/2}] ^{1/2}		Final Attribute Score =
Attribute 2: Hydrology (pp	16-21)				(Raw Score/24) x 100
			Alpha.	Numer	ic
Water Source			C		_
Hydroperiod			A		
Hydrologic Connectivity			A		
Raw Attribute Score = s	um of n	umeric sc	ores		Final Attribute Score =
					(Raw Score/36) x 100
Attribute 3: Physical Struct	ure (pp.	. 22-28)	A1.1		
		ł	Alpha.	Numer	
Structural Patch Richness			Ċ		5 patches
Topographic Complexity			C		no benches, but micro
Raw Attribute Score = si	um of n	umeric sc	ores		Final Attribute Score =
Attribute 4: Biotic Structure	e (pp. 29	9-39)			(Raw Score/24) x 100
Plant Community Compositio			etrics A-	-C)	
		Numeric	201		
Plant Community submetric A: Number of plant layers	C				2 lagers
Plant Community submetric B: Number of Co-dominant species	D				4 codores
Plant Community submetric C: Percent Invasion	С				257 invasia
Plant Communi		osition Me	tric		
	* *	ubmetrics A			
Horizontal Interspersion	_		C		
Vertical Biotic Structure			D		
Raw Attribute Score = su	m of nu	imeric sco	ores		Final Attribute Score = (Raw Score/36) x 100
Overall AA Score (average of four final Attribute Scores)					

Scoring Sheet: Depressional Wetlands

Percentage of Transect Lines that Contains Aquatic Area of Any Kind					
Segment Direction	Percentage of Transect Length That is an Aquatic Feature				
North	100m =209.				
South	380m = 11 76%				
East	1 90 1				
West	70m = 1420				
Average Percentage of Transect Length That Is an Aquatic Feature	21.5 -28%				

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Line	Buffer Width (m)
Α	20
В	10
C	25
D	230
E	250
F	250
G	200
н	150
Average Buffer Width *Round to the nearest whole number (integer)*	142

Worksheet for calculating average buffer width of AA

1.0

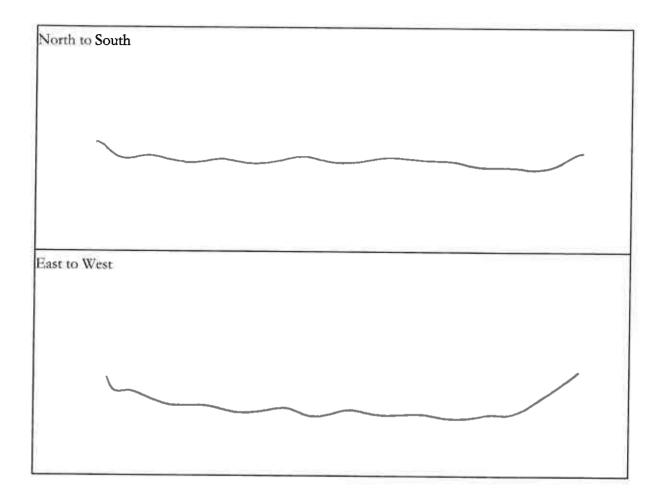
Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Depressional	
Minimum Patch Size	3 m ²	
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	$\left X \right $	
Animal mounds and burrows		
Bank slumps or undercut banks in channels or along shoreline		
Cobbles and Boulders		
Concentric or parallel high water marks		
Filamentous macroalgae or algal mats		
Islands (mostly above high-water)		
Large woody debris	X	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	X	
Open water		
Plant hummocks and/or sediment mounds	1	
Soil cracks	X	
Standing snag(s) (1 or more at least 3 m tall)		
Submerged vegetation		
Swales on floodplain or along shoreline	1.1.1	
Variegated, convoluted, or crenulated foreshore		
(instead of broadly arcuate or mostly straight)		
Woody vegetation in water		
Total Possible	17	
No. Observed Patch Types (enter here and use in Table 15 below)	5	

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.



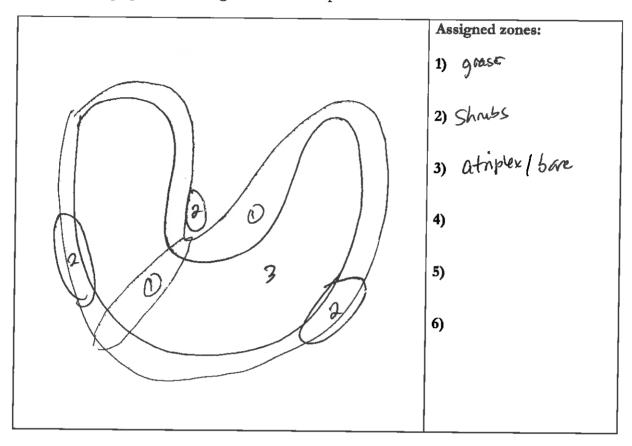
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% relative cover)

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Hordeum maginum	X
		Atrisles / Suseda	
		Craiscula convota	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Atoplex conescens (4-wing)			
Very Tall (>3.0 m)	Invasive?	C	
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	034
		Percent Invasion *Round to the nearest	0.09
		whole number (integer)*	25/0
	1	(enter here and use in Table 19)	

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No			
If yes, was it a flood, fire, landslide, or 	flood	fire	landslide		other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	site next 3	likely to affect site next 3-5 years		to affect next 1-2 years
	depressions	l vernal po	ol		nal pool ystem
Has this wetland been converted from another type? If yes, then what was the previous type?	non-confine riverine	d confined riverine	-		r-built uarine
	perennial saline estuarine	perennia non-salir estuarine	ne	wet	meadow
	lacustrine	seep or spr	ing	t	olaya

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)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	\times	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	X	
Groundwater extraction	<u> </u>	
Ditches (borrow, agricultural drainage, mosquito control, etc.)	<u> </u>	
Actively managed hydrology	<u>× </u>	
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)	X	
Plowing/Discing (N/A for restoration areas)	<u> </u>	
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)	<u> </u>	
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)	<u> </u>	
Bacteria and pathogens impaired (PS or Non-PS pollution)	X_	
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA	
Mowing, grazing, excessive herbivory (within AA)	<u> </u>		
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	X		
Comments			

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Present	Significant negative effect on AA
X	
X	
$\overline{\mathbf{x}}$	
	+

Basic Information Sheet: Riverine Wetlands

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6

Assessment Area Name: 36 - COW-02313					
Project Name: H5R					
Assessment Area ID #: 36					
Project ID #: Date: 4 2.3 19					
Assessment Team Members for This AA:					
RJ, DM					
Average Bankfull Width: 1 m					
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100m					
Upstream Point Latitude: 37,098967 Longitude: - 120.845170					
Downstream Point Latitude: 37. 099684 Longitude: - 120.845192					
Wetland Sub-type: Concrete channel. Connot nigrate?					
□ Confined □ Non-confined 0					
AA Category:					
□ Restoration □ Mitigation □ Impacted □ Ambient □ Reference □ Training					
X Other: Pre-project					
Did the river/stream have flowing water at the time of the assessment? U yes A no					
What is the apparent hydrologic flow regime of the reach you are assessing?					
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.					
perennial intermittent perennial					

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

Site Location Description: Concrete ag ditch

Comments:

AA Name: AA36					Date: 4/23/19
Attribute 1: Buffer and Landscape Context (pp. 11-19)					Comments
Stream Continuity (D)		Alpha.	Numeric		
Stream Corridor Continuity (D)			D		
Buffer:	Buffer:				
Buffer submetric A:	Alpha.	Numeric			
Percent of AA with Buffer	A		li patro		100%
Buffer submetric B:	h				Jm
Average Buffer Width					
Buffer submetric C: Buffer Condition	D				
Raw Attribute Sco	re = D-	+[C x (A :	x B) ^{1/2}] ^{1/2}		Final Attribute Score = (Raw Score/24) x 100
Attribute 2: Hydrology (pp.	20-26)			1	
			Alpha.	Numeric	
Water Source			Ċ		
Channel Stability			D		Concrete_
Hydrologic Connectivity			A		
Raw Attribute Score = su	umeric	scores		Final Attribute Score = (Raw Score/36) x 100	
Attribute 3: Physical Struct	ure (pp	. 27-33)			
			Alpha.	Numeric	
Structural Patch Richness			D		
Topographic Complexity		D			
Raw Attribute Score = su	ım of n	umeric	scores		Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure	e (pp. 34	4-41)			
Plant Community Compositio	on (base	d on sub	-metrics A	1-C)	
Dlant Committe automatric A.	Alpha.	Numeric			
Plant Community submetric A: Number of plant layers	D				No plants
Plant Community submetric B: Number of Co-dominant species	D				
Plant Community submetric C: Percent Invasion	D				
Plant Communi (numeric a		position i submetric			
Horizontal Interspersion			D		
Vertical Biotic Structure		Ď			
Raw Attribute Score = sum of numeric scores					Final Attribute Score = (Raw Score/36) x 100
Overall AA Score (average of four final Attribute Scores)					

Scoring Sheet: Riverine Wetlands

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 (
1		1			
2		2			
3		3			
4		4			
5		5			
Upstream Total Length	500m	Downstream Total Length			

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent	of AA	with	Buffer:	100	%

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
Α	1
В	1
С	1
D	7
Е	7
F	1
G	7
Н	1
Average Buffer Width	1
Round to the nearest integer	

Worksheet for Assessing Channel Stability for Riverine Wetlands

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Condition	Field Indicators				
Condition	(check all existing conditions)				
	□ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.				
	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 (if pools are present).				
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.				
Channel	□ There is little or no active undercutting or burial of riparian vegetation.				
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.				
	□ 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).				
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA				
	□ The larger bed material supports abundant mosses or periphyton.				
	□ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.				
	There are abundant bank slides or slumps.				
	□ The lower banks are uniformly scoured and not vegetated.				
Indicators of	□ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.				
Active Degradation	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.				
	Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).				
	The channel has one or more knickpoints indicating headward erosion of the bed.				
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.				
	□ There are partially buried living tree trunks or shrubs along the banks.				
Indicators of	□ The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel				
Active	pools, or they are uncommon and irregularly spaced.				
Aggradation	There are partially buried, or sediment-choked, culverts.				
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.				
	There are avulsion channels on the floodplain or adjacent valley floor.				
Overall	Equilibrium Degradation Aggradation				

None of these

Riverine Wetland Entrenchment Ratio Calculation Worksheet

	Steps	ТОР	MID	BOT	
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	Im		
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	.75m		
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.5m		
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	>200m	r -	
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	200mt	save	same
6: Calculate average entrenchment ratio. Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			72		

Structural Patch Type Worksheet for Riverine wetlands

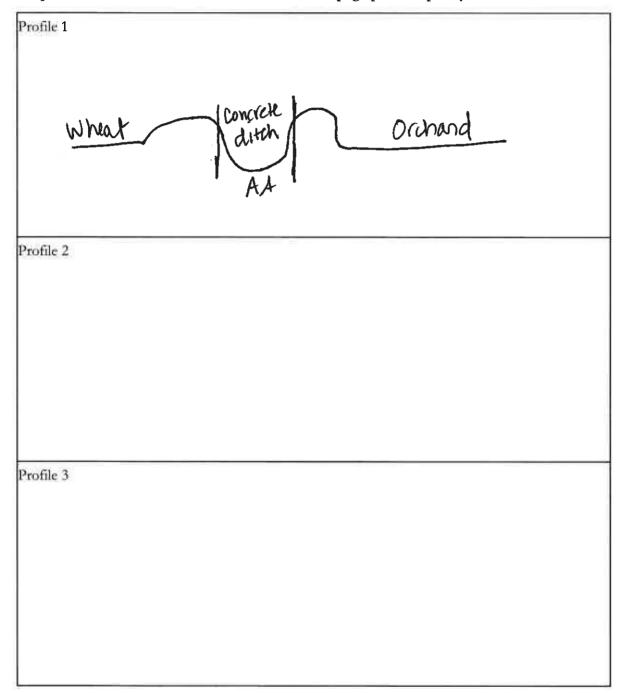
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwethands.org for photos of each of the following patch types.

<i>parra spess</i>					
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)			
Minimum Patch Size	3 m^2	3 m ²			
Abundant wrackline or organic debris in channel, on floodplain	1	1			
Bank slumps or undercut banks in channels or along shoreline	1	1			
Cobbles and/or Boulders	1	1			
Debris jams	1	1			
Filamentous macroalgae or algal mats	1	1			
Large woody debris	1	1			
Pannes or pools on floodplain	1	N/A			
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			
Riffles or rapids (wet or dry channels)	1	1			
Secondary channels on floodplains or along shorelines	1	N/A			
Standing snags (at least 3 m tall)	1	1			
Submerged vegetation	1	N/A			
Swales on floodplain or along shoreline	1	N/A			
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1			
Vegetated islands (mostly above high-water)	1	N/A			
Total Possible	17	12			
No. Observed Patch Types (enter here and use in Table 14 below)	Ø	Ø			

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

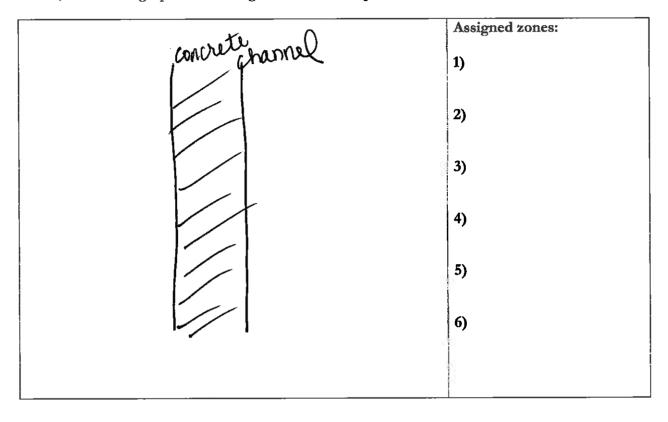
* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

No plants

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	ē.	No				
If yes, was it a flood, fire, landslide, or other?	flood		fire	lar	landslide ot		
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years		likely to aff site next 3 years		site	y to affect next 1-2 years	
	depression	al	vernal po	ol	ļ	nal pool ystem	
Has this wetland been converted from another type? If yes, then what was the	non-confine	ed	confined riverine		-	seasonal estuarine	
previous type?	perennial sal estuarine		perennial r saline estua		wer meadow		
	lacustrine		seep or sp	ring		playa	

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.)	X	
Actively managed hydrology	X	
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)	X	
Plowing/Discing (N/A for restoration areas)	X	
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)	X	
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)	X	
Trash or refuse		
Comments		

	effect on AA
X	
	X

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	X	
Orchards/nurseries	X	
Commercial feedlots	*	
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	-	
Transportation corridor	X	
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		

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Basic Information Sheet: Riverine Wetlands

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Assessment Area Name:
Project Name: HSK Assessment Area ID #: 37 COW - 03329 Project ID #: Date: 123/19
Assessment Area ID #: 37 COW - 02329
Project ID #: Date: 1/23/19
Assessment Team Members for This AA:
RJ, D. Manuscalto
Average Bankfull Width: 2 m
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):
Upstream Point Latitude: 37. 1840 78 Longitude: - 120, 835469
Downstream Point Latitude: 31, 103345 Longitude: - 120.835293
Wetland Sub-type:
Confined X Non-confined
AA Category:
□ Restoration □ Mitigation □ Impacted □ Ambient □ Reference □ Training
A Other: Pre-project - dutch
Did the river/stream have flowing water at the time of the assessment? U yes no
What is the apparent hydrologic flow regime of the reach you are assessing?
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.
perennial intermittent ephemeral

	Photo ID	on Numbers and Description	Latitude	Longitude	Datum
	No.	Description			
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10		7.5. E	_		

Site Location Description:

Comments:

AA Name: AA37					Date: 4/23 P	
Attribute 1: Buffer and Land	dscape	• Contex	t (pp. 11-	19)	Comments	
Stroom Corridor Continuitor			Alpha.	Numeric		
Stream Corridor Continuity	(D)		D		375m break	
Buffer:						
Buffer submetric A:	Alpha.	Numeric				
Percent of AA with Buffer	C				4090	
Buffer submetric B: Average Buffer Width	A				250m	
Buffer submetric C: Buffer Condition	C					
Raw Attribute Scor	re = D	+[Cx(A	x B) ^{1/2}]1/2		Final Attribute Score = (Raw Score/24) x 100	
Attribute 2: Hydrology (pp.	20-26)					
			Alpha.	Numeric		
Water Source			C			
Channel Stability			B		No Hows SO AD SIVE	agrad astur
Hydrologic Connectivity			A		0	00-
Raw Attribute Score = su	m of n	umeric	scores		Final Attribute Score = (Raw Score/36) x 100	
Attribute 3: Physical Structu	re (pp	. 27-33)		·		
Structural Patch Richness			Alpha.	Numeric		
Topographic Complexity			D			
Raw Attribute Score = su	m of n	umeric s	scores		Final Attribute Score = (Raw Score/24) x 100	
Attribute 4: Biotic Structure	(pp. 34	4-41)				
Plant Community Composition			-metrics /	1-C)		
	Alpha.	Numeric	F LPF.			
Plant Community submetric A: Number of plant layers	C					
Plant Community submetric B: Number of Co-dominant species	D					
Plant Community submetric C:	D					
Percent Invasion				or of		
Plant Community (numeric av				ŀ		
Horizontal Interspersion			D			
Vertical Biotic Structure			B			
Raw Attribute Score = sur	n of n	umeric s			Final Attribute Score = (Raw Score/36) x 100	
Overall AA Score (average	of fou	r final A	ttribute So	cores)		

Scoring Sheet: Riverine Wetlands

Lengths of Non-buffer Distance of 500 m Ups		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA		
Segment No.	Length (m)	Segment No. Length (
1		1		
2		2		
3		3		
4		4		
5		5		
Upstream Total Length	375	Downstream Total Length		

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer:	4p	%
----------------------------	----	---

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
Α	250
В	
С	
D	
E	
F	
G	
Н	
Average Buffer Width *Round to the nearest integer*	250

Worksheet for Assessing Channel Stability for Riverine Wetlands

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011-1	Field Indicators
Condition	(check all existing conditions)
	□ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.
	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 (if pools are present).
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
Channel	□ There is little or no active undercutting or burial of riparian vegetation.
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.
	□ 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).
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA
	□ The larger bed material supports abundant mosses or periphyton.
	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	□ There are abundant bank slides or slumps.
	□ The lower banks are uniformly scoured and not vegetated.
Indicators of Active	□ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
Degradation	□ 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.
	□ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).
	□ The channel has one or more knickpoints indicating headward erosion of the bed.
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.
	\Box There are partially buried living tree trunks or shrubs along the banks.
Indicators of Active	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.
Aggradation	There are partially buried, or sediment-choked, culverts.
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.
	□ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	Equilibrium Degradation Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	am		
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	Im		
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	2m		
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	200m		
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	100m	Score	Sine
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate Enter the average result here and use it in Table 13a or		ctions.	272

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo D	Dictionary at www.cramwetlands.org for photos of each of the following
-	patch types.

Parta SP		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m ²
Abundant wrackline or organic debris in channel, on floodplain	1	1
Bank slumps or undercut banks in channels or along shoreline	1	1
Cobbles and/or Boulders	1	1
Debris jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
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
Riffles or rapids (wet or dry channels)	1	1
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	1	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Profile 1	
	Pasture Ditable Residence AA
Profile 2	
Profile 3	

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

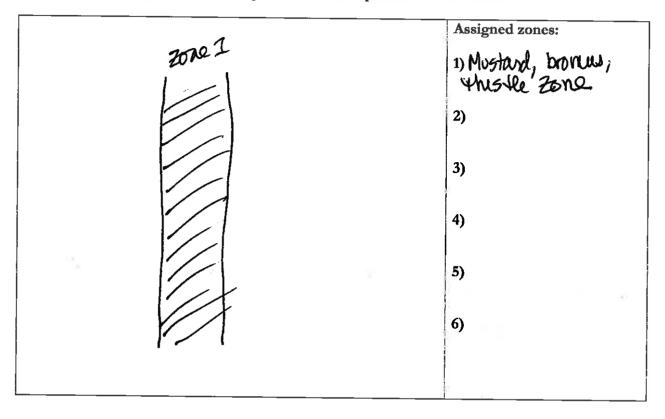
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

	Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
Blessed Ni	Medium (0.5-1.5 m) Brone stop Horauaum Musile (Hall Balian) Silybum marianium Triticum arzityrum	Invasive?	Tall (1.5-3.0 m) MUSTANO (Brassica 5pp)	Invasive?
Gar	Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18) Percent Invasion	
			Round to the nearest integer (enter here and use in Table 18)	

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No	P		
If yes, was it a flood, fire, landslide, or other?	flood	fire	lan	dslide	other
If yes, then how severe is the disturbance?	likely to affeo site next 5 o more years			site	y to affect next 1-2 years
	depressional	l vernal po	ol		nal pool ystem
Has this wetland been converted from another type? If yes, then what was the previous type?	non-confine riverine	d confine riverine	- !		asonal tuarine
	perennial salir estuarine	ne perennial n saline estua		wet	meadow
	lacustrine	seep or spi	ting		playa

Stressor Checklist Worksheet

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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)	<u>×</u>	
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, agticultural drainage, mosquito control, etc.)	<u>×</u>	
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)	X	
Plowing/Discing (N/A for restoration areas)	X	
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)	<u>×</u>	
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

Procent	Significant negative
Fresent	effect on AA
<u>⊢ </u>	
<u> </u>	i
<u> </u>	
	Present X X

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	enect on AA
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)	X	
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)		<u> </u>
Comments		· -

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA 38_ (OW-OA 186
Project Name: HSR
Assessment Area ID #: 38
Project ID #: Date: 4 23 19
Assessment Team Members for This AA: R.T. Donna Maniscalo
Average Bankfull Width: 2.5m
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100M
Upstream Point Latitude: 37.0997 Longitude: -120.8235
Downstream Point Latitude: Longitude:
Wetland Sub-type:
Confined Non-confined
AA Category:
\square Restoration \square Mitigation \square Impacted \square Ambient \square Reference \square Training
& Other: Pre. Impact
Did the river/stream have flowing water at the time of the assessment? U yes in no
What is the apparent hydrologic flow regime of the reach you are assessing?
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.
🗆 perennial 🗆 intermittent 🛛 ephemeral

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

Site Location Description: Roudside dutch

Comments: Potentially non-jurisdictional. Appears to receive roadside runoff. only

AA Name: AA38				Date: 41.)3/19	_
Attribute 1: Buffer and La	indscape Conte	xt (pp. 11-	19)	Comments	
		Alpha.	Numeric		
Stream Corridor Continuit	y (D)	D		430m break	7
Buffer:				15 th Gran	
Buffer submetric A:	Alpha. Numeric				hoth
Percent of AA with Buffer	\mathbf{D}			No bucher due to	and the
Buffer submetric B:				- moad of agroi	sides of
Average Buffer Width	$ \mathbb{D} $				-aital
Buffer submetric C:	D				-
Buffer Condition					-
Raw Attribute Sc	core = D + [C x (A)]	$(x B)^{\frac{1}{2}}]^{\frac{1}{2}}$		Final Attribute Score = (Raw Score/24) x 100	
Attribute 2: Hydrology (pr	5. 20-26)				-
		Alpha.	Numeric		-1
Water Source		C			
Channel Stability		B		denada tion of plow no sever	
Hydrologic Connectivity		A		Contraction of a contractor	n piese
Raw Attribute Score = s				Final Attribute Score =	\exists
	sum of numeric	scores		(Raw Score/36) x 100	
Attribute 3: Physical Struct	ture (pp. 27-33)				-
		Alpha.	Numeric		1
Structural Patch Richness		D			1
Topographic Complexity		D			-
Raw Attribute Score = s	um of numeric	scores		Final Attribute Score =	1
				(Raw Score/24) x 100	
Attribute 4: Biotic Structur	e (pp. 34-41)				
Plant Community Composition		-metrics A	-C)		
Plant Community submetric A:	Alpha. Numeric				-
Number of plant layers			-		-
Plant Community submetric B:					1
Number of Co-dominant species					ł
Plant Community submetric C:	B				
Percent Invasion					
Plant Communi	ty Composition]	Metric			
	average of submetric.	(A-C)			
Horizontal Interspersion		D			
Vertical Biotic Structure		D_			
Raw Attribute Score = su	um of numeric s	cores	1	Final Attribute Score = (Raw Score/36) x 100	
Overall AA Score (averag	e of four final At	tribute Sco	ores)		

Scoring Sheet: Riverine Wetlands

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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	IOM	1	430m	
2		2		
3		3		
4		4		
5		5		
Upstream Total Length		Downstream Total Length		

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer:) '	%
----------------------------	--	-----	---

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	
В	
С	3
D	
E	
F	
G	
Н	
Average Buffer Width	0
Round to the nearest integer	

Worksheet for Assessing Channel Stability for Riverine Wetlands

....

Condition		Field Indicators (check all existing conditions)
	co	the channel (or multiple channels in braided systems) has a well-defined bankfull antour that clearly demarcates an obvious active floodplain in the cross-sectional ofile of the channel throughout most of the AA.
	🗆 Pe	rennial riparian vegetation is abundant and well established along the bankfull ntour, but not below it.
	🗆 Th	nere is leaf litter, thatch, or wrack in most pools (if pools are present).
Indicators of	□ Th wi	ne channel contains embedded woody debris of the size and amount consistent th what is naturally available in the riparian area.
Channel	🗆 Th	nere is little or no active undercutting or burial of riparian vegetation.
Equilibrium	□ If wi	mid-channel bars and/or point bars are present, they are not densely vegetated th perennial vegetation.
	do	nannel bars consist of well-sorted bed material (smaller grain size on the top and wnstream end of the bar, larger grain size along the margins and upstream end of e bar).
		ere are channel pools, the spacing between pools tends to be regular and the bed not planar throughout the AA
	D Th	e larger bed material supports abundant mosses or periphyton.
		e channel is characterized by deeply undercut banks with exposed living roots of es or shrubs.
	🗆 Th	ere are abundant bank slides or slumps.
	🗆 Th	e lower banks are uniformly scoured and not vegetated.
Indicators of Active	□ Rip shr	parian vegetation is declining in stature or vigor, or many riparian trees and tubs along the banks are leaning or falling into the channel.
Degradation		obvious historical floodplain has recently been abandoned, as indicated by the structure of its riparian vegetation.
		e channel bed appears scoured to bedrock or dense clay.
	□ Rec pre	cently active flow pathways appear to have coalesced into one channel (i.e. a viously braided system is no longer braided).
	D The	e channel has one or more knickpoints indicating headward erosion of the bed.
	🗆 The	ere is an active floodplain with fresh splays of coarse sediment (sand and larger t is not vegetated) deposited in the current or previous year.
	□ The	ere are partially buried living tree trunks or shrubs along the banks.
Indicators of Active		e bed is planar (flat or uniform gradient) overall; it lacks well-defined channel ols, or they are uncommon and irregularly spaced.
Aggradation	□ The	ere are partially buried, or sediment-choked, culverts.
	Per cha	ennial terrestrial or riparian vegetation is encroaching into the channel or onto nnel bars below the bankfull contour.
	□ The	ere are avulsion channels on the floodplain or adjacent valley floor.
Overall		Equilibrium 🗆 Degradation 🗆 Aggradation

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA. **Replicate Cross-sections** TOP MID BOT Steps This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or 2.5m 1 Estimate measure the distance between the right and left bankfull width. bankfull contours. Imagine a level line between the right and left bankfull 2: Estimate max. contours; estimate or measure the height of the line 2M bankfull depth. above the thalweg (the deepest part of the channel). Double the estimate of maximum bankfull depth 3: Estimate flood дm prone depth. from Step 2. Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line 4: Estimate flood intercepts the right and left banks; estimate or 200m prone width. measure the length of this line. 5: Calculate Divide the flood prone width (Step 4) by the bankfull 80m Some entrenchment Sime width (Step 1). ratio. 6: Calculate average Calculate the average results for Step 5 for all 3 replicate cross-sections. entrenchment Enter the average result here and use it in Table 13a or 13b. ratio.

Structural Patch Type Worksheet for Riverine wetlands

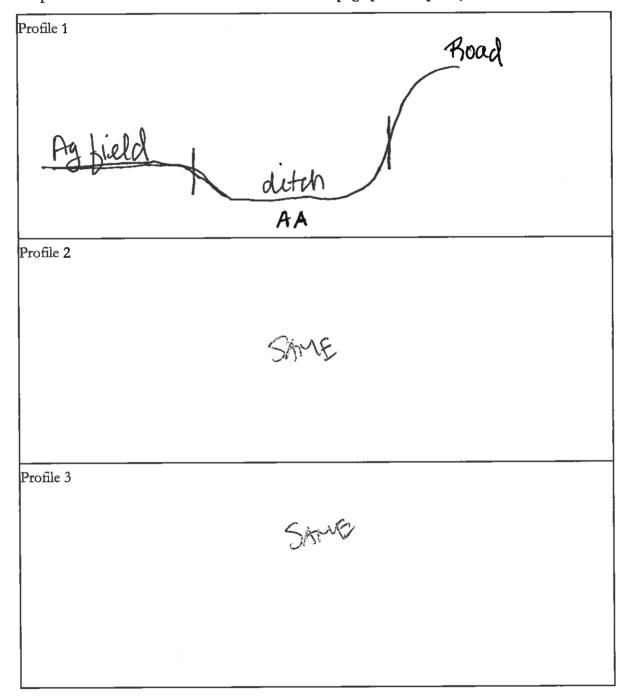
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

putto sypes.		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m ²	3 m^2
Abundant wrackline or organic debris in channel, on floodplain		1
Bank slumps or undercut banks in channels or along shoreline	1	1
Cobbles and/or Boulders	1	1
Debris jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
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
Riffles or rapids (wet or dry channels)	1	1
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	HAK.	Ð

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

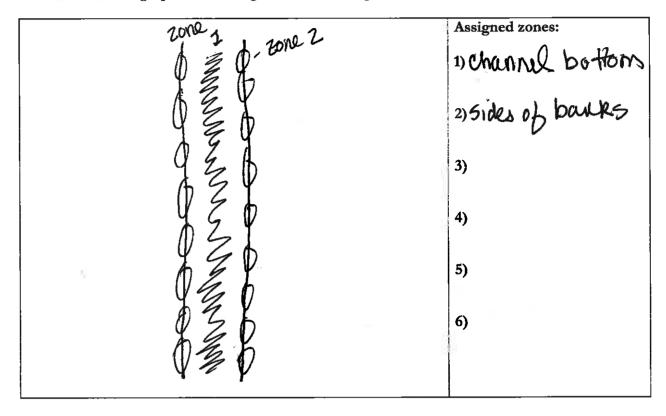
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

	Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
			Unknown I	M
	Medium (0.5-1,5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
	Fiddlenick Brom VS spp. Hordenin	N	Mistand	¥
Common_ wheat	Triticum aestivum	·XN		
	Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species fot all layers combined (enter here and use in Table 18)	4
			Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	25

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No			
If yes, was it a flood, fire, landslide, or other?	flood		fire	lar	ndslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	or	likely to aff site next 3 years			y to affect next 1-2 years
	depressiona	al	vernal po	ol	i	mal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	ed	confined riverine		-	easonal stuarine
previous type?	perennial sali estuarine	ine	perennial n saline estua		wet	meadow
	lacustrine		seep or spi	ing		playa

Stressor Checklist Worksheet

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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)	X	
Flow diversions or unnatural inflows	X	
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	×	
Weir/drop structure, tide gates	X	
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)	X	
Actively managed hydrology	X	
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)	X	
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)	$\overline{\mathbf{X}}$	
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	X	
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	X	
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	- X	
Orchards/nurseries		
Commercial feedlots		_
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
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		
· · · · · · · · · · · · · · · · · · ·		

Basic Information Sheet: Slope Wetlands

Project Name: H3R TM Assessment Area ID#: Project ID#: Date 4/25/19 Assessment Team Members for This AA: USU, DM Assessment Area Size: Surface water present during the assessment? Yes XNo Flowing? Yes XNo Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.) Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.) AA Category: Pre-Restoration Pre-Mitigation Post-Mitigation Yre-Impact Post-Impact Arabient Reference Training Other: Which best describes the type of wetland? Non-Channeled Wet Meadow (assoc. with a fluvial channel) Whon-Channeled Wet Meadow Channeled Wet Meadow (assoc. with a fluvial channel) Are peat soils present in the AA? Yes XNo AA Encompasses: In entire wetland yortion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? ponded/inundated Isaturated soil, but no surface water Xmoist Ydry What is the apparent hydrologic regime of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in >5 out of 10 years.) Temporarily flooded slope wetlands posses surface water between	Assessment Area Name: AA40 -AUM - 00305	
Project ID#: Date ↓ > 5 19 Assessment Team Members for This AA: ↓ S↓, DM Assessment Area Size: Surface water present during the assessment? □ Yes ↓ No Flowing? □ Yes ↓ No Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.) AA Category: □ Pre-Restoration □ Pre-Mitigation Pre-Impact □ Post-Impact □ Ambient □ Reference □ Training □ Other: Which best describes the type of wetland? □ Channeled Wet Meadow (assoc. with a fluvial channel) ↓ Non-Channeled Wet Meadow Channeled Forested Slope ↓ Non-Channeled Forested Slope □ Scep or Spring Are peat solls present in the AA? □ Yes ↓ No AA Encompasses: □ entire wetland ↓ portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? □ ponded/inundated □ saturated soil, but no surface water ↓ dry What is the apparent hydrologic regime of the wetland? ? ? ↓ dry Ponded/inundated □ asturated soil, but no surface water ? ↓ dry Ponded/inundated □ asturated water year-round,	Project Name: HSR TH	
Assessment Team Members for This AA: USL, DM Assessment Area Size: Surface water present during the assessment? □Yes XNo Flowing? □Yes XNo Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.) AA Category: □Pre-Restoration □Post-Restoration □Pre-Mitigation □Post-Mitigation XPre-Impact □Post-Impact □ Ambient □ Reference □Training □Other: Which best describes the type of wetland? □Channeled Wet Meadow (assoc. with a fluvial channel) XNon-Channeled Wet Meadow %Channeled Forested Slope XNon-Channeled Forested Slope □ Seep or Spring Are peat soils present in the AA? □Yes XNo AA Encompasses: □ entire wetland Xportion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? □ ponded/inundated □ saturated soil, but no surface water Xmoist Xdry What is the apparent hydrologic regime of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year. Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year.		
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Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.) AA Category: Pre-Restoration Post-Restoration Pre-Impact Post-Impact Training Other: Which best describes the type of wetland? Channeled Wet Meadow (assoc. with a fluvial channel) Pre-storation Non-Channeled Forested Slope Channeled Forested Slope Non-Channeled Forested Slope Are peat soils present in the AA? Yes Portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? ponded/inundated saturated soil, but no surface water Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.	Assessment Area Size:	
AA Category: Pre-Restoration Post-Restoration Pre-Mitigation Yre-Impact Post-Impact Ambient Reference Training Other: Ambient Reference Which best describes the type of wetland? Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow Channeled Forested Slope Non-Channeled Forested Slope Seep or Spring Are peat soils present in the AA? Yes ↓No AA Encompasses: □ entire wetland ↓portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? □ ponded/inundated □ saturated soil, but no surface water □ ponded/inundated □ saturated soil, but no surface water ↓dry What is the apparent hydrologic regime of the wetland? Yerennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.	Surface water present during the assessment? □ Yes XNo Flowing? □ Yes X	No
 Pre-Restoration Post-Restoration Pre-Mitigation Post-Mitigation Ambient Reference Training Other: Which best describes the type of wetland? Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow Channeled Forested Slope Non-Channeled Wet Meadow Channeled Forested Slope Non-Channeled Forested Slope Seep or Spring Are peat soils present in the AA? Yes Portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? ponded/inundated saturated soil, but no surface water What is the apparent hydrologic regime of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.	Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)	
Pre-Impact Post-Impact Ambient Reference Training Other: Which best describes the type of wetland? Channeled Wet Meadow (assoc. with a fluvial channel) Channeled Forested Slope Non-Channeled Forested Slope Step or Spring Are peat soils present in the AA? Yes A Encompasses: entire wetland Aportion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? ponded/inundated asturated soil, but no surface water What is the apparent hydrologic regime of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water by weeks and 4 months of the year.	AA Category:	
 □ Training □ Other: Which best describes the type of wetland? □ Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow Channeled Forested Slope Non-Channeled Forested Slope □ Seep or Spring Are peat soils present in the AA? □ Yes No AA Encompasses: □ entire wetland ✓ portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? □ ponded/inundated □ saturated soil, but no surface water X moist X dry What is the apparent hydrologic regime of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year. 	□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation	
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AA Encompasses:	□ Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow	
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assessment? ponded/inundated	entire wetland portion of the wetland	
What is the apparent hydrologic regime of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.		
<i>Perennial</i> slope wetlands contain surface water year-round, <i>seasonal</i> slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) <i>Temporarily flooded</i> slope wetlands possess surface water between 2 weeks and 4 months of the year.	Donded/inundated sturated soil, but no surface water moist dry	
surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.	What is the apparent hydrologic regime of the wetland?	
perennial seasonal Ktemporarily flooded	surface water for 4-11 months of the year (in > 5 out of 10 years.) Temporarily flooded slope	
	perennial seasonal Xtemporarily flooded	

	Photo ID No.	Description	
1		Looking North into the AA	
2		Looking South into the AA	
3		Looking East into the AA	
4		Looking West into the AA	
5	1		·
6			
7			
8			
9			
10			

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

AA Name: AA40				Date 424 19	
Attribute 1: Buffer and Landscape Context				Comments	-1
	Alpha	Numeric		-	
Aquatic Area Abundance (D)	A		9790		
Buffer					-1
Buffer submetric A:	Alpha Numer	nic		10-0	-
Percent of AA with Buffer		E. E. 2 F		100%	
Buffer submetric B:					-1
Average Buffer Width	B			178	
Buffer submetric C:		10000			-
Buffer Condition	I H				
Raw Attribute S				Final Attribute Score =	7
	(do 1	not round)		(Raw Score/24) x 100	
Attribute 2: Hydrology					1
		Alpha	Numeric		1
Water Source		C		>20% ag	
Hydroperiod		B		flood waters award in the all	hida
Hydrologic Connectivity (all bu	t Channeled)	BA	+	flood waters pumped in but nath	AN I CALM
Hydro Connectivity submetric A:	Alpha Numeri	- OF	-	- not altu	ed hyc
Bank Height Ratio		1. 1. 1. A. 4. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.			
Hydro Connectivity submetric B:					-
Percent Dewatered					
Hydrologic Connectivity for Ch	anneled (aug. of a	herestrian (P)			
Raw Attribute Score = s	um of numeri	c scores		Final Attribute Score =	
Attribute 3: Physical Struct		<u> </u>		(Raw Score/36) x 100	
indibute 5. 1 Hysical Struct	ure	Alpha	NT		
Structural Patch Richness		-	Numeric		
				Tpatches	
Topographic Complexity		$\perp A$		B to a A reaconationess	
Raw Attribute Score = s	um of numeri	1 800#80		B po A veg roughuss Final Attribute Score =	
				(Raw Score/24) x 100	
Attribute 4: Biotic Structure	2				
Plant Community Composition	(submetric A is n	ot applicable	for Non-C	Channeled meadows)	
Plant Community submetric A:	Alpha Numeric				
Number of plant layers	B			3 layers	
Plant Community submetric B:					
Number of Co-dominant species	C	Anna Carro	Sector	5 Lodoms	
Plant Community submetric C:		1201	1 1 1		
Percent Invasive species	A			0% invasion	
Plant Comm. Composition (avg.	of submetrics A-C o				
FT 1 . 1		Alpha	Numeric		
Horizontal Interspersion		B			
Plant Life Forms				3 life forms	
Raw Attribute Score = su	mofermoria	200000		Final Attribute Score =	
		acores		(Raw Score/36) x 100	
Overall AA Score (averag	e of four final A	Attribute Sco	ores)		

Scoring Sheet: Slope Wetlands

Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind		
Segment Direction	Percentage of Transect Length	
c	That is an Aquatic Feature	
North	92	
South	100	
East	98	
West	98	
Average Percentage of Transect Length	A1	
That Is an Aquatic Feature		

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Line	Buffer Width (m)	
A		
В	100	
С	250	
D	250	
E	250	
F	250	
G	250	
н	50	
Average Buffer Width	178	

Worksheet for calculating Average Buffer Width of AA

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation Worksheet

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	вот
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).			
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.		-	
5:	Calculate average bank height ratio.	Calculate the average results for Step 4 for all 3 replica sections. Enter the average result here and use it in Tab two significant figures (hundredths).	ate cross ble 14. K	- eep	

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking Drying of peat Decrease in vigor of hydrophytes Changes in plant or animal species or communities Changes in soil structure or moisture content More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (<i>Pseudotsuga menziesii</i>), Lodgepole Pine (<i>Pinus contorta</i>), see special note) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (<i>Artemisia tridentate</i>), rabbitbrush (<i>Ericameria nauseosa</i>), French broom (<i>Genista monspessulana</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (<i>Hedera helix</i>), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Connobulus arvensis</i>) More than 5% cover in the AA of upland grasses (e.g. ragweed (<i>Ambrosia artemisiifoiia</i>), mustard (<i>Brassica rapa</i>), yellow star thistle (<i>Centaurea solstitiais</i>)
Overall area of the wetland showing evidence of dewatering	No dewatering = <25% dewatered = 25-50% dewatered Athal Clawhan

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

Structural Patch Type Worksheet for Slope Wetlands

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STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m^2
Abundant wrack or organic debris in channel, or across wetland plain	X
Active fluvial channel(s) Animal mounds and burrows, sediment disturbance, or vole trails	
Bank slumps or undercut banks in channels Beaver dams or lodges	
Boulders or bedrock outcrop Cutoff channels or oxbows	
Filamentous macroalgae or algal mats Gravel, cobble, or sand	X
Large woody debris Moss	X
Non-vegetated flats or bare ground	$\boldsymbol{\chi}$
Pannes or pools on wetland surface Plant hummocks and/or tussocks	\times
Sediment mounds around the bases of shrubs or trees	
Sediment splays Soil cracks	
Springs or upwelling groundwater	X
Standing snags (at least 3 m tall) Submerged vegetation (in channels or open water)	
Swales	
Thatch Variegated, convoluted, or crenulated upland edge (not broadly arcuate or mostly straight)	×
Total Possible	23
No. Observed Patch Types (enter here and use in Table 17 below)	7

Worksheet for AA Topographic Complexity

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.

Physical topographic complexity score

Vegetation roughness score

A

Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

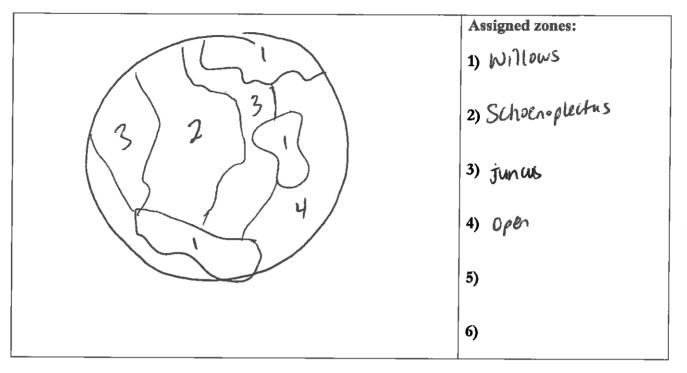
Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive?
		Short (<0.3 m) Xanthiyn Strunarim	
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m) School oble the Californica	Invasive?
		Schoenople the Californica Typha Latifalia Thancas effectus	
Very Tall (>3.0 m) Salix goodingii	Invasive?	Total number of co-dominant species for all layers combined (enter here and see Table 21)	5
		Percent Invasion (enter here and see Table 21)	0%

Co-dominant Species	Check if Invasive
	4
Total Number of Co-dominants	
Total Number of Invasive Co-dominant species	
Percent Invasive Species (round to nearest integer)	

Table 22: Worksheet for Co-dominant Plant Species.

Horizontal Interspersion Worksheet

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	
Deciduous Broadleaf Trees	X
Evergreen Broadleaf Trees	
Ferns	
Grasses	
Herbs/Forbs	×
Lichens or Fungi	
Sedges/Rushes	X
Shrubs	
Vines	<u></u>
Total Number of life forms	3

Table 24. Plant Life Forms Metric.

Worksheet: Stressor Checklist

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

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have 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	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation	1	
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opassum and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	ф.	
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	10	1
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
L		
		· ·

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA		
Urban residential				
Industrial/commercial				
Military training/Air traffic				
Dams (or other major flow regulation or disruption)				
Dryland farming		Î		
Intensive row-crop agriculture				
Orchards/nurseries				
Commercial feedlots				
Dairies				
Ranching (enclosed livestock grazing or horse paddock or feedlot)				
Transportation corridor	X			
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)	X			
Physical resource extraction (rock, sediment, oil/gas)				
Biological resource extraction (aquaculture, commercial fisheries)	X			
Comments				
duck hunting				

Basic Information Sheet: Slope Wetlands

Assessment Area Name: AA41 - ALA - 00292
Project Name: HSQ JM
Assessment Area ID#:
Project ID#: Date 4/25/19
Assessment Team Members for This AA:
LSL, DM
Assessment Area Size:
Surface water present during the assessment? ☐ Yes XNo Flowing? ☐ Yes X
Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)
AA Category:
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation
Pre-Impact Dost-Impact Ambient Reference
Training Other:
Which best describes the type of wetland?
□ Channeled Wet Meadow (assoc. with a fluvial channel) ★Non-Channeled Wet Meadow
□ Channeled Forested Slope Non-Channeled Forested Slope □ Seep or Spring
Are peat soils present in the AA?
AA Encompasses:
$\Box \text{ entire wetland} \qquad \qquad \bigstar \text{ portion of the wetland}$
Which best describes the dominant hydrologic state of the AA at the time of assessment?
🗆 ponded/inundated 🗆 saturated soil, but no surface water 🛛 👷 moist 🖉 dry
What is the apparent hydrologic regime of the wetland?
<i>Perennial</i> slope wetlands contain surface water year-round, <i>seasonal</i> slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) <i>Temporarily flooded</i> slope wetlands possess surface water between 2 weeks and 4 months of the year.
□ perennial ★ seasonal ★ temporarily flooded

	Photo ID No.	Description	
1		Looking North into the AA	
2		Looking South into the AA	
3		Looking East into the AA	
4		Looking West into the AA	
5			
6			
7			
8	Ì		
9			
10			

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

AA Name: AA41					Date	UDELA	
Attribute 1: Buffer and Lar	idscape	Contex				Comments	
			Alpha	Numeric			
Aquatic Area Abundance (D)			A		74.	10	
Buffer				5 5 A T			
Buffer submetric A:	Alpha	Numeric			1		
Percent of AA with Buffer	A				1009	0	
Buffer submetric B:	2						
Average Buffer Width	B				144	า	
Buffer submetric C:							
Buffer Condition	M						
Raw Attribute Sc	some = Γ		x B) ^{1/2}] ^{1/2} ot round)			ttribute Score = Score/24) x 100	
Attribute 2: Hydrology						(01C/2+) x 100	
W7. 0			Alpha	Numeric			
Water Source							
Hydroperiod			ß		flood u	a to amardia	natural dra
Hydrologic Connectivity (all but	Channe	led)	DA		>	ato pumpidin	lleal in
Hydro Connectivity submetric A:	Alpha	Numeric		S THE S	· · · · · · · · · · · · · · · · · · ·	MANAGE A	OT CHING
Bank Height Ratio							
Hydro Connectivity submetric B:							
Percent Dewatered					-		
Hydrologic Connectivity for Cha	- anneled (avo. of sub	metrics A-B		_		
					Final At	tribute Score =	
Raw Attribute Score = s	um of n	umeric	scores			core/36 x 100	
Attribute 3: Physical Struct	ure			<u> </u>	(11411 0	core/ 30) x 100	
			Alpha	Numeric	<u>├──</u> ──		
Structural Patch Richness			C		8 pat	1 Lac	
				<u> </u>	0 (1		
Topographic Complexity			H		13-for top	tribute Score =	pughness
Raw Attribute Score = st	ım of n	umeric	scores				
Assettante A. D' at O					(Raw S	core/24) x 100	<u> </u>
Attribute 4: Biotic Structure							
Plant Community Composition (submetr	ic A is no	t applicable	e for Non-0	Channeled r	neadows)	
Plant Community submetric A:	Alpha	Numeric			-		
Number of plant layers	B				3 lay	ers	
Plant Community submetric B:							
Number of Co-dominant species		1			5 00	lyns	
Plant Community submetric C:	Δ						
Percent Invasive species	A				0%	lers lens rivasion	
Plant Comm. Composition (avg. a	f submetri	ics A-C or	B-C)				
			Alpha	Numeric			
Horizontal Interspersion			B				
Plant Life Forms			B		4 life	forms	
Raw Attribute Score = su						ribute Score =	
Maw Aufibule Score = SU		imeric s	scores			ore/36) x 100	
Overall AA Score (average	e of fou	r final A	ttribute Sc	ores)			

Scoring Sheet: Slope Wetlands

24

Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind			
Segment Direction Percentage of Transect Length			
	That is an Aquatic Feature		
North 15			
South 24			
East 100			
West 98			
Average Percentage of Transect Length That Is an Aquatic Feature	74		

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Line	Buffer Width (m)
Α	25
В	50
C	115
D	175
E	250
F	250
G	250
<u> </u>	50
Average Buffer Width	HUM

Worksheet for calculating Average Buffer Width of AA

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation Worksheet

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	вот
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).			·
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.			
5:	Calculate average bank height ratio.	Calculate the average results for Step 4 for all 3 replica sections. Enter the average result here and use it in Tab two significant figures (hundredths).	ate cross ble 14. K	- cep	

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking Drying of peat Decrease in vigor of hydrophytes Changes in plant or animal species or communities Changes in soil structure or moisture content More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (<i>Pseudotsuga menziesii</i>), Lodgepole Pine (<i>Pinus contorta</i>), see special note) More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (<i>Notholithocarpus densiflorus</i>), coast live oak (<i>Quercus agrifolia</i>) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (<i>Artemisia tridentate</i>), rabbitbrush (<i>Bricameria nauseosa</i>), French broom (<i>Genista monspesulana</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (<i>Hedera belix</i>), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Convolvulus areensis</i>) More than 5% cover in the AA of upland prases (e.g. ripgut brome (<i>Bromus diandrus</i>), cheatgrass (<i>Stipa pulcbra</i>) More than 5% cover in the AA of upland prases (e.g. ripgut brome (<i>Bromus diandrus</i>), cheatgrass (<i>Stipa pulcbra</i>) More than 5% cover in the AA of upland prases (e.g. ragweed (<i>Ambrasia artemisijolia</i>), nustard (<i>Brassica rapa</i>), yellow start thistle (<i>Centaurea solstitialis</i>)
Overall area of the wetland showing evidence of dewatering	No dewatering = <25% dewatered = 25-50% dewatered Natural drawdown

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

Structural Patch Type Worksheet for Slope Wetlands

- 82

4

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel, or across wetland plain	×
Active fluvial channel(s)	
Animal mounds and burrows, sediment disturbance, or vole trails	
Bank slumps or undercut banks in channels	
Beaver dams or lodges	
Boulders or bedrock outcrop	
Cutoff channels or oxbows	
Filamentous macroalgae or algal mats	X
Gravel, cobble, or sand	
Large woody debris	X
Moss	
Non-vegetated flats or bare ground	X
Pannes or pools on wetland surface	X
Plant hummocks and/or tussocks	
Sediment mounds around the bases of shrubs or trees	
Sediment splays	
Soil cracks	X
Springs or upwelling groundwater	
Standing snags (at least 3 m tall)	X
Submerged vegetation (in channels or open	
water)	
Swales	
Thatch	X
Variegated, convoluted, or crenulated upland	
edge (not broadly arcuate or mostly straight)	
Total Possible	23
No. Observed Patch Types (enter here and use in Table 17 below)	8

Worksheet for AA Topographic Complexity

Physical topographic complexity score <u><u>B</u></u>

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.

Physical topographic complexity score	Q	Vegetation roughness score	A

Vegetation roughness score_

Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

.

Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive?
		Short (<0.3 m) Xonthism Stoumenium	
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive?
		Junus Chasus Typhy Latifolia Bolboschoenus mentimus	
		Typing Latifolia	
		Bolboschoenus mentinu	
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	
Very Tall (>3.0 m) Salix good ingh		species for all layers combined (enter here and see Table 21)	5
		Percent Invasion (enter here and see Table 21)	0

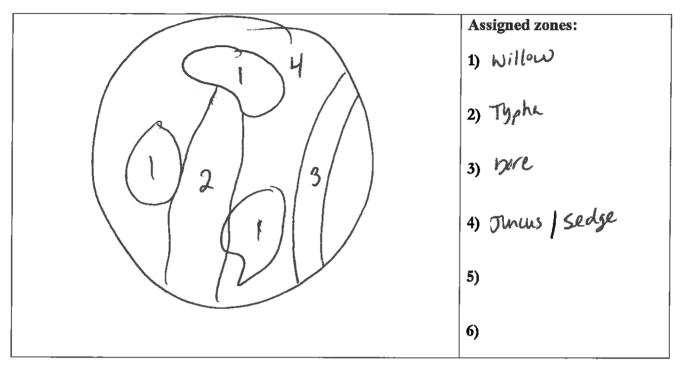
Co-dominant Species	Check if Invasive
	1
Total Number of Co-dominants	
Total Number of Invasive Co-dominant species	
Percent Invasive Species (round to nearest integer)	1

Table 22: Worksheet for Co-dominant Plant Species.

Horizontal Interspersion Worksheet

4

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	1
Deciduous Broadleaf Trees	×
Evergreen Broadleaf Trees	
Ferns	
Grasses	×
Herbs/Forbs	×
Lichens or Fungi	
Sedges/Rushes	×
Shrubs	
Vines	
Total Number of life forms	4

Table 24. Plant Life Forms Metric.

Worksheet: Stressor Checklist

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

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have 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	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	1	
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 of 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	1	
Comments		10
· · · · · · · · · · · · · · · ·		

Present	Present and likely to have significant negative effect on AA
	1
(
6	
X	
X	
/\	
X	
	\$

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA42-COW-02335				
Project Name: HBR				
Assessment Area ID #: 42				
Project ID #: Date: 4 24 19				
Assessment Team Members for This AA:				
Lanika Cervantes, Donna Maniscalco				
Average Bankfull Width: 7m				
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100m				
Upstream Point Latitude: 36.9891 Longitude: -121.4949				
Downstream Point Latitude: 36.97235 Longitude: -121.5244]				
Wetland Sub-type:				
Confined Non-confined				
AA Category:				
🗆 Restoration 🗆 Mitigation 🗆 Impacted 🗆 Ambient 🗆 Reference 🗆 Training				
& Other: Pre-project				
Did the river/stream have flowing water at the time of the assessment? yes on no				
What is the apparent hydrologic flow regime of the reach you are assessing?				
The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. <i>Perennial</i> streams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only during and immediately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.				
perennial intermittent perennial				

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

Site Location Description:

Comments:

AA Name: AA42			Date: 4 Dulla
Attribute 1: Buffer and Landscape Conte	ext (pp. 11.	.19)	
	Alpha,		Comments
Stream Corridor Continuity (D)		Numeric	
Buffer:	4		25m nonbuffer
	-		
Buffer submetric A: Alpha. Numeri Percent of AA with Buffer Q	ic .		
			50% buffer on No. side
Buffer submetric B: Average Buffer Width			
Buffer submetric C:			and ism and riely full
Buffer Condition			258 15m - Agained Field - ball Non-native up plants Distarbed 50
Raw Attribute Score = $D+[C \times (A$	x B) ^{1/2}] ^{1/2}		rinal Attribute Score =
Attribute 2: Hydrology (pp. 20-26)			(Raw Score/24) x 100
(pp. 20-20)	Alpha.	Numeric	
Water Source		INUMERIC	A. M. 11
Channel Stability	2		rig runopp
Hydrologic Connectivity	A		19-entrenchment
Raw Attribute Score = sum of numeric	scores		Final Attribute Score =
			(Raw Score/36) x 100
Attribute 3: Physical Structure (pp. 27-33)			
	Alpha.	Numeric	
Structural Patch Richness	D		
Topographic Complexity	C		
Raw Attribute Score = sum of numeric a	scores		Final Attribute Score =
Attribute 4: Biotic Structure (pp. 34-41)			(Raw Score/24) x 100
Plant Community Composition (based on sub-	metrics A		
Alpha. Numeric	Metiles 11		
Plant Community submetric A: 0			3 avara Very to 10 to 00 aver
Number of plant layers B		-	3 layers Very tall, tall, ned.
Plant Community submetric B:		1.04.57	
Number of Co-dominant species			5 Codoms
Plant Community submetric C: D			
		[60% Invasive
Plant Community Composition N	Aetric	L	
(numeric average of submetrics	<u>A-C)</u>		
Horizontal Interspersion	D		
Vertical Biotic Structure	C		
Raw Attribute Score = sum of numeric sc	cores		Final Attribute Score = $(Raw Score / 36) = 100$
Overall AA Score (average of four final Att	ribute Sco	res)	(Raw Score/36) x 100

Scoring Sheet: Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Segments Fo Distance of 500 m Downstream of A	
Segment No.	Length (m)	Segment No.	Length (m)
1	25	1	0
	0	2	0
3	0	3	0
		4	0
4 5	0		0
Upstream Total Length	25	Downstream Total Length	0

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer:	50	%
----------------------------	----	---

Worksheet for calculating average	buffer width of AA -	Drawing on
Line	Buffer Width (m)	avria
A	15	
В	200	
С	190	
D	180	
E	160	
F	160	
G	160	
Н	<u>40</u>	-
Average Buffer Width *Round to the nearest integer*	153	

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators			
	(check all existing conditions)			
	□ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.			
	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.			
1	X There is leaf litter, thatch, or wrack in most pools (if pools are present).			
Indicators of	□ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.			
Channel	□ There is little or no active undercutting or burial of riparian vegetation.			
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.			
	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).			
	There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA			
	The larger bed material supports abundant mosses or periphyton.			
	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.			
	There are abundant bank slides or slumps.			
	□ The lower banks are uniformly scoured and not vegetated.			
Indicators of Active	□ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.			
Degradation	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.			
	Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).			
	The channel has one or more knickpoints indicating headward erosion of the bed.			
	There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.			
	X There are partially buried living tree trunks or shrubs along the banks.			
Indicators of Active	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.			
Aggradation	□ There are partially buried, or sediment-choked, culverts.			
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.			
	There are avulsion channels on the floodplain or adjacent valley floor.			
Overall	Equilibrium Degradation			

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	тор	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	7m	7m	7m
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	3m	3m	дm
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	6m	Gm	4m
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	200m.†	200 ⁺ M	NDm
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	28.5n	28.51	h1.4v
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicat Enter the average result here and use it in Table 13a or		ections.	19

Structural Patch Type Worksheet for Riverine wetlands

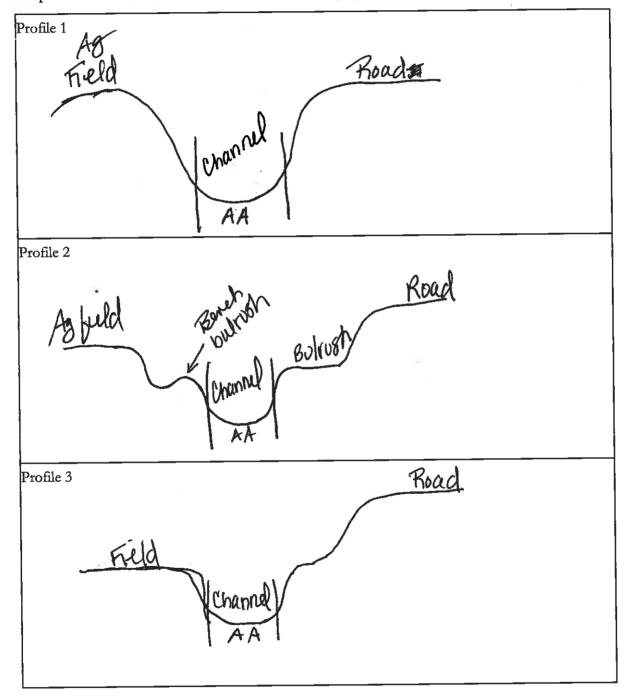
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m^2	3 m ²
Abundant wrackline or organic debris in channel, on floodplain	Ì	1
Bank slumps or undercut banks in channels or along shoreline	1	1
Cobbles and/or Boulders	1	1
Debris jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
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
Riffles or rapids (wet or dry channels)	(1)	1
Secondary channels on floodplains or along shorelines		N/A
Standing snags (at least 3 m tall)	(1)	1
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)	4	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% *relative* cover)

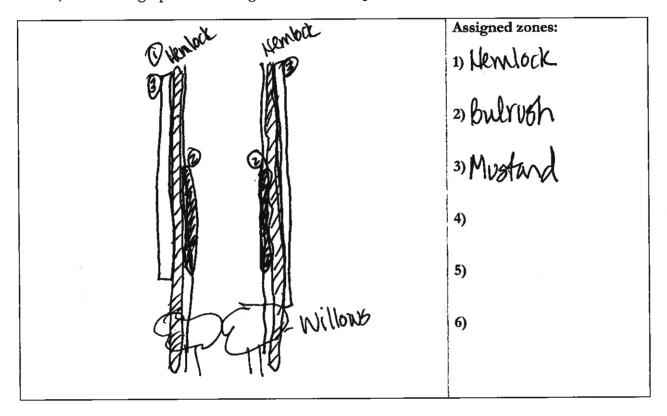
Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m) Himlayn black wrry Poison hemlock	Invasive?	Tall (1.5-3.0 m) Bul (1.5-3.0 m) Muss and	Invasive?
Very Tall (>3.0 m) 30 X 200. AV010	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	607.

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes		No			
If yes, was it a flood, fire, landslide, or other?	flood		fire	lar	ndslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 o more years	or	likely to aff site next 3 years		site	y to affect next 1-2 years
	depression	al	vernal po	ol	i	mal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	ed	confine riverine	_		easonal stuarine
previous type?	perennial sal estuarine		perennial n saline estua		wet	meadow
	lacustrine		seep or spi	ring		playa

Stressor Checklist Worksheet

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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)	\times	
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.)	- X	
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)	X	
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)	X	
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)	X	
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., <i>Virginia opossum</i> 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	X	
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	X	
Comments		

Present	Significant negative effect on AA
X	
$\overline{\mathbf{X}}$	
X	
	Present

Basic Information Sheet: Slope Wetlands

Assessment Area Name: AA43 - MER - 03486
Project Name: HSR JM
Assessment Area ID#:
Project ID#: Date 4/24/19
Assessment Team Members for This AA:
LSL, ML
Assessment Area Size:
Surface water present during the assessment? ☐ Yes XNo Flowing? ☐ Yes XNo
Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)
AA Category:
□ Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation
Pre-Impact Post-Impact Reference
Training Other:
Which best describes the type of wetland? Channeled Wet Meadow (assoc. with a fluvial channel) Non-Channeled Wet Meadow Channeled Forested Slope Non-Channeled Forested Slope Seep or Spring
Are peat soils present in the AA?
AA Encompasses:
□ entire wetland X portion of the wetland
Which best describes the dominant hydrologic state of the AA at the time of assessment?
🗆 ponded/inundated 🗆 saturated soil, but no surface water 🗆 moist 📉 dry
What is the apparent hydrologic regime of the wetland?
<i>Perennial</i> slope wetlands contain surface water year-round, <i>seasonal</i> slope wetlands support surface water for 4-11 months of the year (in > 5 out of 10 years.) <i>Temporarily flooded</i> slope wetlands possess surface water between 2 weeks and 4 months of the year.
□ perennial

	Photo ID No.	Description
1		Looking North into the AA
2		Looking South into the AA
3		Looking East into the AA
4		Looking West into the AA
5)	
6	1	
7		
8		
9		
10		

Site Location Description (including County and USGS Topographic Quadrangle if known):

Comments:

- 2 pills on LSL phone 1 facing SWO 2 facing NE

AA Name: AAY 3			Date 4/24/19			
Attribute 1: Buffer and Landscape Conte	Comments					
	Alpha	Numeric	Connicitis			
Aquatic Area Abundance (D)	A		639-			
Buffer						
Buffer submetric A: Alpha Numeric						
Percent of AA with Buffer			1009.			
Buffer submetric B:						
Average Buffer Width B			186			
Buffer submetric C: Q						
Buffer Condition 5						
Raw Attribute Score = $D+[Cx(A)]$			Final Attribute Score =			
	ot round)		(Raw Score/24) x 100			
Attribute 2: Hydrology						
	Alpha	Numeric				
Water Source						
Hydroperiod	A					
Hydrologic Connectivity (all but Channeled)	ß		625%			
Hydro Connectivity submetric A: Alpha Numeric						
Bank Height Ratio						
Hydro Connectivity submetric B:						
Percent Dewatered						
Hydrologic Connectivity for Channeled (avg. of sul	hmetrics A-B)					
			Final Attribute Score =			
Raw Attribute Score = sum of numeric	scores		(Raw Score/36) x 100			
Attribute 3: Physical Structure						
	Alpha	Numeric				
Structural Patch Richness	BB		8 patches			
Topographic Complexity	ß					
			C tops A for veg ranginers			
Raw Attribute Score = sum of numeric	scores		Final Attribute Score =			
Attribute 4: Biotic Structure			(Raw Score/24) x 100			
Plant Community Composition (submetric A is no	ot applicable	for Non-(Channeled meadows)			
Plant Community submetric A: Alpha Numeric						
Number of plant layers			Degrees			
Plant Community submetric B:			4 coctoms			
Number of Co-dominant species			4 codoms			
Plant Community submetric C:						
Percent Invasive species			75%			
Plant Comm. Composition (avg. of submetrics A-C or	r B-C)					
	Alpha	Numeric				
Horizontal Interspersion	D					
Plant Life Forms	C	_				
Porr Attribute Contra - C			Final Attribute Score =			
Raw Attribute Score = sum of numeric	scores		(Raw Score/36) x 100			
Overall AA Score (average of four final A	unibute Sc	ores)				

Scoring Sheet: Slope Wetlands

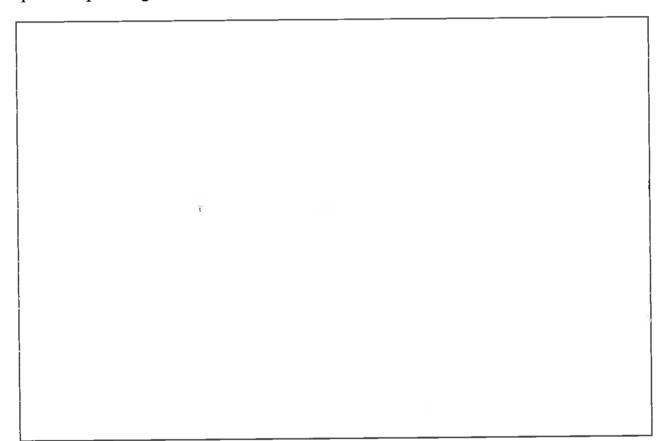
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Worksheet for Aquatic Area Abundance Metric

Percentage of Transect Lines that Contains Wetland or Aquatic Habitat of Any Kind		
Segment Direction	Percentage of Transect Length That is an Aquatic Feature	
North	100	
South	30	
East	100	
West	20	
Average Percentage of Transect Length That Is an Aquatic Feature	63	

Percent of AA with Buffer Worksheet.

In the space provided on the datasheet, make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Line	Buffer Width (m)		
Α	250		
B	250		
СС	250		
D	250		
E	175.		
F	250		
G	25		
Н	35		
Average Buffer Width	1860		

Worksheet for calculating Average Buffer Width of AA

Channeled Wet Meadow and Channeled Forested Slope Wetland Bank Height Calculation Worksheet

The following 4 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	ТОР	MID	вот
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Measure the distance between the right and left bankfull contours.			001
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; measure the height of the line above the thalweg (the deepest part of the channel).			
3:	Estimate max. bank height	Identify the location of the top of bank. Measure the height between the thalweg and the top of bank location.			
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.			
	5: Calculate average bank height ratio. Calculate the average results for Step 4 for all 3 replicate cross- sections. Enter the average result here and use it in Table 14. Keep two significant figures (hundredths).				

Condition	Field Indicators (check all existing conditions)
ndicators of Intact Hydrologic Connectivity	 No channel incision Vigor of plant species, especially hydrophytes Low or no cover of upland plant species No rill or gully development No areas of bare soil No soil cracking No changes in soil structure or moisture content Surface water present on the wetland plain late into the summer season Groundwater emerging Moist peat soil Floating fens Evidence of regular inundation on floodplain slope wetlands (wrack etc.)
Indicators of Degraded Hydrologic Connectivity (dewatering)	 Evidence of channel incision, including low entrenchment ratios, undercut banks, block bank failures, sloughing banks, hanging or exposed roots, channel scoured to bedrock or dense clay, active knickpoints, active gully erosion, active headcutting Stress or mortality of plants Presence of xeric plant species Development of rills or gullies on the wetland surface Areas of bare soil Areas of soil cracking Drying of peat Decrease in vigor of hydrophytes Changes in plant or animal species or communities Changes in soil structure or moisture content More than 5% cover in the AA of upland broadleaf tree species (e.g. Douglas fir (<i>Pseudotsuga menziesit</i>), Lodgepole Pine (<i>Pinus contorta</i>), see special note) More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (<i>Notholithocarpus densiflorus</i>), coast live oak (<i>Quercus agrifolia</i>) More than 5% cover in the AA of upland shrub species (e.g. sagebrush (<i>Artemisia tridentate</i>), rabbitbrush (<i>Ericameria nauseosa</i>), French broom (<i>Genista monspessulana</i>) More than 5% cover in the AA of upland vines (e.g. English ivy (<i>Hedera belix</i>), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Convobulus arvensis</i>) More than 5% cover in the AA of upland strust species (e.g. ragweed (<i>Ambrosic artemisiifolia</i>), mustard (<i>Brassica rapa</i>), yellow star thistle (<i>Centaurea solstitialis</i>)
Overall area of the wetland showing evidence of dewatering	$\square \text{ No dewatering} \qquad \checkmark <25\% \text{ dewatered} \\ \checkmark 25-50\% \text{ dewatered} \qquad \square >50\% \text{ dewatered} \\ \blacksquare \square \square$

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands.

Structural Patch Type Worksheet for Slope Wetlands

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
Minimum Patch Size	3 m ²
Abundant wrack or organic debris in channel,	
or across wetland plain	
Active fluvial channel(s)	\geq
Animal mounds and burrows, sediment	
disturbance, or vole trails	
Bank slumps or undercut banks in channels	
Beaver dams or lodges	
Boulders or bedrock outcrop	Ĩ7
Cutoff channels or oxbows	
Filamentous macroalgae or algal mats	
Gravel, cobble, or sand	\square
Large woody debris	V
Moss	>
Non-vegetated flats or bare ground	X
Pannes or pools on wetland surface	X
Plant hummocks and/or tussocks	\rightarrow
Sediment mounds around the bases of shrubs	
or trees	
Sediment splays	
Soil cracks	/
Springs or upwelling groundwater	
Standing snags (at least 3 m tall)	X
Submerged vegetation (in channels or open	7
water)	
Swales	/
Thatch	X
Variegated, convoluted, or crenulated upland	
edge (not broadly arcuate or mostly straight)	X
Total Possible	23
No. Observed Patch Types (enter here and use in Table 17 below)	8

Worksheet for AA Topographic Complexity

Complete a sketch of the topographic profile of the AA along a cross section perpendicular to the overall slope of wetland within the AA. Draw the section to include both AA boundaries. Include both the ground surface and the vegetation roughness. Indicate the letter grade for each component in the space below the sketch. Note the AA boundaries and important topographic features.

Physical topographic complexity score Vegetation roughness score	•A

Plant Community Metric Worksheet: Co-dominant species richness for Channeled Wet Meadow, Channeled Forested Slope Wetlands, Non-channeled Forested Slope Wetlands, and Seeps and Springs

÷

Floating or Canopy-forming	Invasive?	Short (<0.3 m)	Invasive?
/		lepidius go draba	X
		lotus sp.	
		Polypagen	X
	+		
/			
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive?
epidium sp. drash	X		
KANAN 2 (Collected)			
Lepidium latitolium	×.		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and see Table 21)	84
		Percent Invasion (enter here and see Table 21)	7.5%

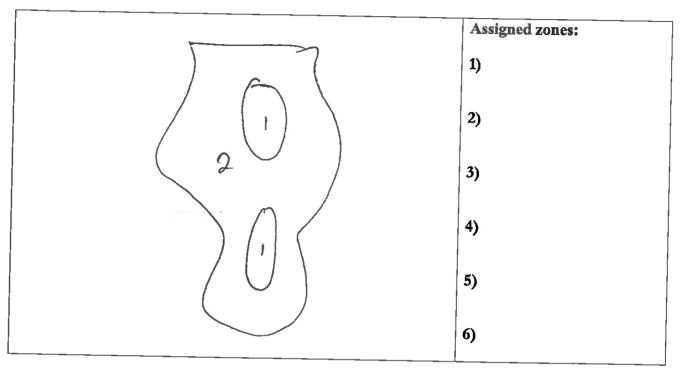
Co-dominant Species	Check if Invasive
Total Number of Co-dominants	
Total Number of Invasive Co-dominant species	
Percent Invasive Species (round to nearest integer)	

Table 22: Worksheet for Co-dominant Plant Species.

Horizontal Interspersion Worksheet

a

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 17 that best represents the AA overall.



Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	
Deciduous Broadleaf Trees	
Evergreen Broadleaf Trees	÷
Ferns	
Grasses	
Herbs/Forbs	
Lichens or Fungi	
Sedges/Rushes	
Shrubs	
Vines	
Total Number of life forms	3

Table 24. Plant Life Forms Metric.

Worksheet: Stressor Checklist

.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	- X	
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)		3
Dike/levees		<u> </u>
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		<u> </u>

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have 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)	X	
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed	i	
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)	- <u>~</u>	
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)	<u> </u>	
I'rash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., /irginia opossum and domestic predators, such as feral pets) Free cutting/sapling removal	×	X
Removal of woody debris	X	
Ireatment 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	X	
Lack of treatment of invasive plants adjacent to AA or buffer	X	
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential	<u> </u>	
Industrial/commercial		
Militaty training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture	X	
Orchards/nurseries	<u>×</u>	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	<u> </u>	
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		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA 44 NAW-0	3114
Project Name: H.SK	
Assessment Area ID #: 44	
Project ID #:	Date: 4 23 19
Assessment Team Members for This AA:	
RJ, D. Maniscalco	
Average Bankfull Width:	
Approximate Length of AA (10 times bankfull	width, min 100 m, max 200 m):
Upstream Point Latitude: 37,0719	Longitude: -/21.2152-
Downstream Point Latitude: 37.0719	Longitude: -121,2152-
Wetland Sub-type:	
Confined 🗆 Non	-confined
AA Category:	
□ Restoration □ Mitigation □ Impacted □ Ar	nbient 🗆 Reference 🗆 Training
& Other: Pre-project	
Did the river/stream have flowing water at the	time of the assessment? I yes no
What is the apparent hydrologic flow regime o	f the reach you are assessing?
The hydrologic flow regime of a stream describes the fr water. <i>Perennial</i> streams conduct water all year long, wh during and immediately following precipitation events. but conduct water for periods longer than ephemeral st source.	ereas <i>ephemeral</i> streams conduct water only Intermittent streams are dry for part of the year,
🗆 perennial 🕅 🕅 intermitter	at

	Photo ID	Description	Latitude	Longitude	Datum
	No.				
L		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
3		()			
)					
10					

Site Location Description:

Comments:

Scoring	Sheet:	Riverine	Wetlands
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2.1

	AA Name: AAUU				Date: 4/23/19		
	Attribute 1: Buffer and Landscape Context (pp. 11-19)				Comments		
	Stream Corridor Continuity	(D)		Alpha.	Numeric		
	Buffer:						
	Buffer submetric A: Percent of AA with Buffer	Alpha.	Numeric			open land - hells ide	
	Buffer submetric B: Average Buffer Width					A11 250 m	
	Buffer submetric C: Buffer Condition	B	_			Non nativegrasses = ~25	
	Raw Attribute Score = $D+[C \times (A \times A)]$			x B) ^{1/2}] ^{1/2}		Final Attribute Score = (Raw Score/24) x 100	
	Attribute 2: Hydrology (pp	20-26)					
	Water Source			Alpha.	Numeric		
	Channel Stability			A			
	Hydrologic Connectivity			A			
	Raw Attribute Score = st	ım of n	umeric	scores		Final Attribute Score = (Raw Score/36) x 100	
	Attribute 3: Physical Structure (pp. 27-33)						
	Structural Patch Richness			Alpha.	Numeric		
	Topographic Complexity			C.			
	Raw Attribute Score = su	um of n	umeric	scores		Final Attribute Score = (Raw Score/24) x 100	
	Attribute 4: Biotic Structure						
	Plant Community Compositio			-metrics A	1-C)		
	Plant Community submetric A: Number of plant layers	Alpha.	Numeric				
87800000	Plant Community submetric B: Number of Co-dominant species	B					
Ť	Plant Community submetric C: Percent Invasion	Ø					
	Plant Communi (numeric d	-	oosition I submetric				
	Horizontal Interspersion			D			
	Vertical Biotic Structure			C			
	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 for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer S Distance of 500 m Ups	<u> </u>	Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA		
Segment No.	Length (m)	Segment No.	Length (m)	
1	Ø	1	Q	
2		2		
3		3		
4		4		
5		5		
Upstream Total Length		Downstream Total Length		

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
В	
С	
D	
Е	
F	
G	
н	
Average Buffer Width *Round to the nearest integer*	250

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)			
	 □ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. 			
	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 (if pools are present).			
Indicators of	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.			
Channel	X There is little or no active undercutting or burial of riparian vegetation.			
Equilibrium	□ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.			
	□ 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).			
	There are channel pools, the spacing between pools tends to be regulat and the bed is not planar throughout the AA			
	X The larger bed material supports abundant mosses or periphyton.			
	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.			
	There are abundant bank slides or slumps.			
	The lower banks are uniformly scoured and not vegetated.			
Indicators of Active	Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.			
Degradation	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.			
	□ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).			
	The channel has one or more knickpoints indicating headward erosion of the bed.			
	□ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.			
	 There are partially buried living tree trunks or shrubs along the banks. 			
Indicators of	The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel			
Active	pools, or they are uncommon and irregularly spaced.			
Aggradation	□ There are partially buried, or sediment-choked, culverts.			
	Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.			
	There are avulsion channels on the floodplain or adjacent valley floor.			
Overall	Equilibrium Degradation Aggradation			

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

	Steps	Replicate Cross-sections	тор	MID	BOT
1	Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	1.5m	Im	1.75m
2:	Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	.3m	.3m	.75m
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	.bm	.6m	1.5m
4:	Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	2.5m	4m	2.5n
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.6m	Am	1.4m
6:	Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicat Enter the average result here and use it in Table 13a or	e cross-s 13b.	ections.	2.33

Structural Patch Type Worksheet for Riverine wetlands

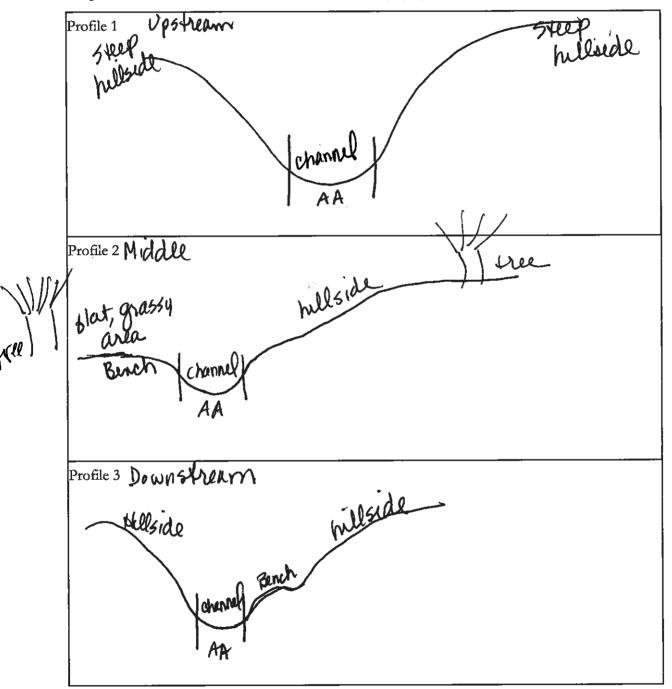
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite 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.

*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)		
Minimum Patch Size	3 m^2	3 m ²		
Abundant wrackline or organic debris in channel, on floodplain	1	1		
Bank slumps or undercut banks in channels or along shoreline	1	1		
Cobbles and/or Boulders	Ø	(1)		
Debris jams	Ĭ	1		
Filamentous macroalgae or algal mats	$\left(\mathcal{A}\right) $	(1)		
Large woody debris	1			
Pannes or pools on floodplain	1	N/A		
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)	Ø	1		
Riffles or rapids (wet or dry channels)	(A)	(1)		
Secondary channels on floodplains or along shorelines	1	N/A		
Standing snags (at least 3 m tall)	1	1		
Submerged vegetation	1	N/A		
Swales on floodplain or along shoreline	1	N/A		
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1		
Vegetated islands (mostly above high-water)	1	N/A		
Total Possible	17	12		
No. Observed Patch Types (enter here and use in Table 14 below)	7	М		

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands (A dominant species represents ≥10% relative cover)

Special Note:

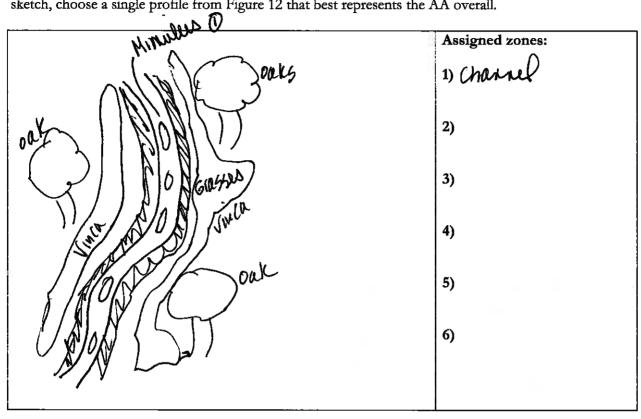
6

* Combine the counts of co-dominant species from all layers to identify the total species count. 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.

	Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
	Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3,0 m)	Invasive?
hupines	Vince tetrasperma.	N.		
	Minulus sop.	N		
	Minurs lettuce	N		
	Hordeum spp (nurinum)	Y_		
(4)	restuca pervenus	Y		
	Avena spp.	Y		
	Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species	
loaves	Quercus spp.	N	for all layers combined (enter here and use in Table 18)	8
			Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	14tho 50%
Ŀ	Bromus diandrus	У		

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	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 affeo site next 5 o more years			ely to affect te next 1-2 years	
	depressional	l vernal po	ol	ernal pool system	
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	d confine riverine	1	seasonal estuarine	
previous type?	perennial salir estuarine	ne perennial r saline estua		et meadow	
	lacustrine	seep or sp	ring	playa	

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		

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NOTING PROVING

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	X	
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	· · · -	i i
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		4
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)		1
Comments		•

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