

# APPENDIX D: ASSESSMENT AREA DATA FORMS

California High-Speed Rail Authority

December 2019

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

# **Basic Information Sheet: Riverine Wetlands**

Assessment Area	Name: 1
Project Name: (	USP
Assessment Area	ID #:
Project ID #:	Date: 9/10/19
Assessment Tean	n Members for This AA:
RJ, DM	
Average Bankfu	all Width: 3m
Approximate L	ength of AA (10 times bankfull width, min 100 m, max 200 m): 100 M
Upstream Poin	t Latitude: 37.757518 Longitude: -122, 392(232
Downstream Po	oint Latitude: 37.756704 Longitude: -122. 3925108
Wetland Sub-ty	Contrad (Non-confined) Steep hillside on West side - raul Mack on east side
AA Category:	
Restoration Other: Pre-	Mitigation Impacted Ambient Reference Training
	ream have flowing water at the time of the assessment? (yes)
What is the app	arent hydrologic flow regime of the reach you are assessing?
water. Perennial str during and immedi	w regime of a stream describes the frequency with which the channel conducts eams conduct water all year long, whereas <i>ephemeral</i> streams conduct water only iately following precipitation events. <i>Intermittent</i> streams are dry for part of the year, for periods longer than ephemeral streams, as a function of watershed size and wate
p	erennial intermittent (ephemeral)

	Photo ID No.	Description	Latitude	Longitude	Datum
1	-	Upstream		Calo L	minute PET and a
2		Middle Left		11/2/01	of humaning in
3		Middle Right	eased .		- denum merene
4		Downstream			
5			1000	of the rest of the second s	a constraint difference
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7					TO MELLE DO
8					
9					
10	1			THE STATES	Arridge B.m.
	ments:				
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AA Name: 1					Date: 9/10/19	
Attribute 1: Buffer and Land	dscape	Context	t (pp. 11-	19)	Comments	
		a second day	Alpha.	Numeric		
Stream Corridor Continuity	(D)		D	3		
Buffer:				and the second		
Buffer submetric A:	Alpha.	Numeric	2.648255		450%	_
Percent of AA with Buffer	U	6				
Buffer submetric B: Average Buffer Width	D	3			8.3 milers willie	
Buffer submetric C:	C	6				
Buffer Condition		-		0.04	The LAW H Comment	0.12 100
Raw Attribute Sco	ore = D-	+[Cx(A:	x B) <sup>1/2</sup> ] <sup>1/2</sup>	8.04	Final Attribute Score = (Raw Score/24) x 100	33.5
Attribute 2: Hydrology (pp.	. 20-26)					
			Alpha.	Numeric 6		
Water Source			C		Street runo) b	
Channel Stability			B	9		_
Hydrologic Connectivity		_	A	12	IOm	
Raw Attribute Score = st	um of n	umeric	scores	27	Final Attribute Score = (Raw Score/36) x 100	75
Attribute 3: Physical Struct	ure (pp	. 27-33)	_			
			Alpha.	Numeric		
Structural Patch Richness		1. 18	D	3		
Topographic Complexity			$\square$	3		
Raw Attribute Score = st	um of r	umeric	scores	6	Final Attribute Score = (Raw Score/24) x 100	25
Attribute 4: Biotic Structure	e (pp. 3	4-41)				
Plant Community Composition	on (base	d on sul	o-metrics	A-C)		
	Alpha.	Numeric	S. S. S. S. 2			
Plant Community submetric A:	C	6	a main		and a second second second second	a a serie
Number of plant layers						-
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	В	9			Ck grass spp	
Plant Commun (numeric	-	position of submetry		6		
Horizontal Interspersion			D	3	and the second s	
Vertical Biotic Structure			D	3		
Raw Attribute Score = sum of numeric scores				12	Final Attribute Score = (Raw Score/36) x 100	33.33
Overall AA Score (average	ge of fo	ur final /	Attribute	Scores)	42	

# Scoring Sheet: Riverine Wetlands

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Worksheet for Stream	Corridor	Continuity	Metric for	Riverine '	Wetlands
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Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA			
Segment No.	Length (m)	Segment No.	Length (m)
1	390	1	500
2		2	+
3		3	2 - Water law
4		4	7 www.bubu.gove
5		5	
Upstream Total Length	390	Downstream Total Length	500

No stream DS of AA

#### 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.

completed on destrop WW - Not 10m buffer NNN Percent of AA with Buffer: %

#### Worksheet for calculating average buffer width of AA

C.L. arrive.	Line		Buffer Width (m)		
	Α	6			
	В	5			
	С	9			
-	D	10			
	E	9			
	F	9	111		
Highly Long 19	G	9	-040		
CRACE STOR	Н	10	145.0		
	ge Buffer Width the nearest integer*	8.3	-)(%)		

## Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators
	(check all existing conditions)
1.145	X 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.
. in 1 1104	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.
rath rath)	□ 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	M 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.	3m	3m	3т
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).	0.5m	0,5m	0.5m
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1m	1.0m	Im
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.	30m	30m	30 m
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	10m	10m	10m
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.	10 m

#### Structural Patch Type Worksheet for Riverine wetlands

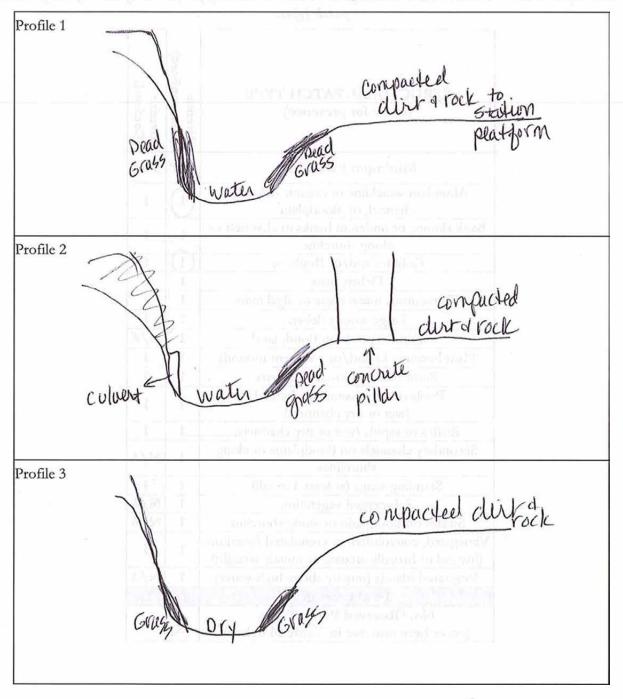
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" 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 <sup>2</sup>	3 m <sup>2</sup>
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-i (non-confined or		Invasive?	Short (<0.5 m)	Invasive
Uhuna SOP		N	Cynodon dactylon	Y
oppin oppi			Malva nicaeensis Panetaria judauca	YN
			Parietaria induca	¥N
	10		- 0	
			/	
	- 11-			
Medium (0.5-1.5	m)	Invasive?	Tall (1.5-3.0 m)	Invasive
	12		<u></u>	
	10			
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	25
		-	*Round to the nearest integer* (enter here and use in Table 18)	
marita tale tale	a 3 41	Line and Line		

#### 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) Charvel 2) ( 3) 4) Chevin 5) 6)

### 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 affect site next 5 or more years	likely to affec site next 3-5 years		y to affect next 1-2 years
	depressional	vernal pool		nal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confined confined riverine riverine			easonal stuarine
previous type?	perennial saline estuarine	perennial nor saline estuarir	wet	meadow
	lacustrine	seep or sprin	g	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)	e o o tra livadi	to show pail is much
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)	1	
Flow obstructions (culverts, paved stream crossings)		Read and a second se
Weir/drop structure, tide gates	12,21,21	
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	1.000	
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		12000
Actively managed hydrology	1. The second second	
Comments		
a second provide the second		
	Constanting and a	Sector Products

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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)	14- 14 14 14 14 1	and the second second
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed	the second sec	
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)	P. Mailland Torritory	
Trash or refuse	and the state of the state	
Comments		nartsen fannetti
	al Profice living	in the light of the
Standard and a s	Real States	NUMBER OF STREET
		Soon manage

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	in populations Arris (1998) Pripa yaan tahi ahan kalang	n names early
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opossum and domestic predators, such as feral pets) Tree cutting/sapling removal	rina yanah Tina yanah Matukatan	of its second record
Virginia opossum and domestic predators, such as feral pets) Tree cutting/sapling removal	énya gaintah alah kasa ki	n ni minist minis
Removal of woody debris		The second se
Removal of woody debits	and a line of	
Treatment of non-native and nuisance plant species		1
Pesticide application or vector control	100	
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		
Comments	and the second second	

	Present	Significant negative effect on AA
THE PROPERTY AND	(DAIPHY BALING	194
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uption)		in the last
	In section of the sec	and the second second
	1 v 855 887	1
		-
paddock or feedlot)	- W. W. Sel	
	the second second	
for native vegetation)		
es, soccer fields, etc.)		and have allowed it
)		and an array of the
h biking, hunting, fishing)	The particular in the	
oil/gas)		
ommercial fisheries)		
	9.	
	TEXT ATTRIBUTE FAA)	F AA) Present  presen

# **Basic Information Sheet: Riverine Wetlands**

Assessment Area Name: 2	
Project Name:	
Assessment Area ID #:	
Project ID #:	Date: 9/10/19
Assessment Team Members for This A	A:
RJ, DM	
Average Bankfull Width: 7 m	
Approximate Length of AA (10 times b	oankfull width, min 100 m, max 200 m): 145
Upstream Point Latitude: 37.7244	175 Longitude: -122.396906
Downstream Point Latitude: 37.72	3197 Longitude: - 122, 39728
Wetland Sub-type:	
Confined	Non-confined
AA Category:	
Restoration Mitigation Impacte	d Ambient Reference Training
Other: Pre-project	
Did the river/stream have flowing wat	ter at the time of the assessment? (yes) no
What is the apparent hydrologic flow r	regime of the reach you are assessing?
water. <i>Perennial</i> streams conduct water all yea during and immediately following precipitation	ribes the frequency with which the channel conducts r long, whereas <i>ephemeral</i> streams conduct water only on events. <i>Intermittent</i> streams are dry for part of the year, hemeral streams, as a function of watershed size and water
perennial in	ntermittent ephemeral

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			- could to a
2		Middle Left		: 0.15	A Transie
3		Middle Right	19		that was
4		Downstream	X/44		
5			60 R		S c Tarrental S
6					1 1 2 5
7			1911 - C		1 E.G. D.
8					
9					1.8 D*
10				an I mantifican	and Kineserver

#### Site Location Description:

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Comments:

August 1993

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AA Name: 2					Date: 9/10/19
Attribute 1: Buffer and Lan	dscape	Context	t (pp. 11-	19)	Comments
	0.5.1		Alpha.	Numeric	and the second strength the second
Stream Corridor Continuity	(D)		D	3	
Buffer:					
Buffer submetric A:	Alpha.	Numeric			10%0
Percent of AA with Buffer	D	3			/
Buffer submetric B: Average Buffer Width	D	3			6.5 m avg buffer
Buffer submetric C: Buffer Condition	D	3		ans An Astro	Bulles <5m on both sides exception !!
Raw Attribute Sco	re = D	+[ C x (A :	x B) <sup>16</sup> ] <sup>16</sup>	6	Final Attribute Score = 25 (Raw Score/24) x 100
Attribute 2: Hydrology (pp.	. 20-26)		_		
			Alpha.	Numeric 6	Q., 14
Water Source			<u> </u>		runof D
Channel Stability			B	9	
Hydrologic Connectivity			A	12	4.28 Entreachment
Raw Attribute Score = st	um of r	numeric	scores	27	Final Attribute Score = 75 (Raw Score/36) x 100
Attribute 3: Physical Struct	ure (pp	. 27-33)			
Structural Patch Richness			Alpha.	Numeric 3	
			Ď	3	
Topographic Complexity			<u> </u>		
Raw Attribute Score = s	um of r	numeric	scores	6	Final Attribute Score =25(Raw Score/24) x 100
Attribute 4: Biotic Structure					1
Plant Community Composition	on (base	ed on sub	o-metrics	A-C)	
	Alpha.	Numeric			
Plant Community submetric A: Number of plant layers	B	9			and the second second
Plant Community submetric B:					
Number of Co-dominant species	D	3			a state of the
Plant Community submetric C: Percent Invasion	D	3			
Plant Commun (numeric	*	position		5	
Horizontal Interspersion			D	3	H
Vertical Biotic Structure	- E.	- ac	O	9	
Raw Attribute Score = s	um of 1	numeric	scores	17	Final Attribute Score = 47.22 (Raw Score/36) x 100
Overall AA Score (avera	ge of fo	ur final /	Attribute	Scores)	43

# Scoring Sheet: Riverine Wetlands

Lengths of Non-buffer Distance of 500 m Up:	0	Lengths of Non-buffer Se Distance of 500 m Downs	0
Segment No.	Length (m)	Segment No.	Length (m)
1	312	1	66
2	40	2	
3		3	
4		4	a nor i di Avia
5		5	
Upstream Total Length	352	Downstream Total Length	347

#### Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

### Percent of AA with Buffer Worksheet

500

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.

computed on desktup 10% % Percent of AA with Buffer:

Line	Buffer Width (m)
Α	5
В	6
С	6
D	7
E	7
F	7
G G G	7 –
H	7
Average Buffer Width	6.5
*Round to the nearest integer*	

## Worksheet for calculating average buffer width of AA

## 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.
10	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
Ten / Fast .	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.
IN PART	□ 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).
with part	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.
101-101	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
191	□ There are abundant bank slides or slumps.
Sec. 5 million	□ 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	X 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.	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).	Zm	Зm	Zm
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	4m	<m< td=""><td>4m</td></m<>	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.	30 m	30m	30 m
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	4.28	4.28	4.28
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.	4.28

-provide the experiment of the concentration pairs for an experimentation of the concentration of an electronic terms.

- $[X_{i}]$  for out is plane then compare in the dimension of the set  $i \in \mathbb{N}$  with  $i \in \mathbb{N}$  with  $i \in \mathbb{N}$  and  $i \in \mathbb{N}$  with  $i \in \mathbb{N}$ .
  - a to Based, she ever only a set from a Schemen successful
- Without the second s
  - A provide a set of the set of the set of the provide the set of the set of

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#### 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.

parch types.		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	$3 \text{ m}^2$	3 m <sup>2</sup>
Abundant wrackline or organic debris in channel, on floodplain	1	1
Bank slumps or undercut banks in channels or along shoreline	Ô	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.

Profile 1	Fence Blackberner to compacted Veg. Typha compacted wither wither	Pack
Profile 2	Contestantes and endeding	
I TOTILE Z	Same as I	
Profile 3	Same as 2	

## 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 Ca (non-confi		Invasive?	Short (<0.5 m)	Invasive?
A BARADA D	312451 (51			
P Brites	P. S. and Y. L.			
			1138 7	
	- 101		1.20 22	
			1132.5	
			1 1 4 4	
Medium (	0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive
Rubus arr		V	Typha spp	N
Centranthu	GIGINAA	N	i ihin chat	-
Advarting	adenophora			
AGALINIA	adempiran	- 7		
Very Tall	(>3.0 m)	Invasive?		
		N	Total number of co-dominant species for all layers combined	1
Typha	300		(enter here and use in Table 18)	-
			Percent Invasion *Round to the nearest integer*	507
		245	(enter here and use in Table 18)	50%
and the second		1		a second for
			41	
			1	
			, L	

#### 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) Blackberry Centrantha 3) 4) Channel W/ 5) 6)

### Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		2
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affec site next 3-5 years		y to affect next 1-2 years
Has this wetland been converted from another type? If yes, then what was the	depressional	vernal pool		nal pool system
	non-confined riverine	confined riverine		scasonal estuarine
previous type?	perennial saline estuarine	perennial nor saline estuarir	1 Wet	meadow
	lacustrine	seep or sprin	g	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)	10	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	and the second se	
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	1.1.2.2	
Ditches (borrow, agricultural drainage, mosquito control, etc.)		a second s
Actively managed hydrology		
Comments	1000	
	F	

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)	and the Colorest	
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)	and the second second	
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed	The Charles	10 50
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	ALL MARKET AND	
Comments	T HOLE IN THE PLANE	Number 1 1004
agric.stra		a two a transferra
Standard and the second second	아니는 아이에 가지 않는 것이 같이	ores of the set
		THUR DOWN

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	12011001001	
Excessive human visitation	when recently the	
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opossum and domestic predators, such as feral pets)	All of the second second	
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		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	-	
Comments	The F	

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)		
TO ALCOLOGICAL	COMPANY AND	21.0.94
7 2 A 469 184	R M THERE	
En and the second of the second	and the second second	- Contraction
sruption)		
	and the second second	
se paddock or feedlot)		
	0 0 MIL	
d for native vegetation)		
ses, soccer fields, etc.)		
c.)		
in biking, hunting, fishing)		
, oil/gas)		
commercial fisheries)		
	oF AA) sruption) sruption) rse paddock or feedlot) rses, soccer fields, etc.) c.) ain biking, hunting, fishing) t, oil/gas) commercial fisheries)	rsc paddock or feedlot)  rsc paddock or feedlot)  rscs, soccer fields, etc.)  c.)  ain biking, hunting, fishing)  t, oil/gas)

# **Basic Information Sheet: Riverine Wetlands**

5 . . . 6

Assessment Area Name: 3	L	
Project Name: CAHSR		A second s
Assessment Area ID #:		aliatia
Project ID #:	Date:	9110119
Assessment Team Members for Th	is AA:	
RJ, DM		
Average Bankfull Width: \.2		
Approximate Length of AA (10 tir	nes bankfull width, i	min 100 m, max 200 m): 100m
Upstream Point Latitude: 37.7	22071 Lor	ngitude: -122,397495
Downstream Point Latitude: 37	.721224 Lor	ngitude: -122,397780
Wetland Sub-type:		
(Confined)	Non-confi	ned
		schrosentice.
AA Category:		
		D. Constant The initial
	pacted Ambient	Reference Training
Other: Pre-project		
Did the river/stream have flowing	g water at the time	of the assessment? yes no
What is the apparent hydrologic f	low regime of the 1	each you are assessing?
The hydrologic flow regime of a stream water. <i>Perennial</i> streams conduct water a during and immediately following precip but conduct water for periods longer the source.	describes the frequent all year long, whereas e pitation events. Interm.	cy with which the channel conducts <i>phemeral</i> streams conduct water only <i>ittent</i> streams are dry for part of the year
perennial	intermittent	ephemeral

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream		S21-0 5 3	dec Vene
2		Middle Left		20 M (10 A	A.S. XCHARIN
3		Middle Right	9. til		A Stevens
4		Downstream			
5			(a) a a 200 B	1. 101 monitor in the	of the substance
6					10.71 - CTS N
7		1			1 24 1 2 1
8				.90	1.1
9 10					
	ments:				
	ments:				
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	ments:		than hald 		
	ments:	arried anomenyapa, into ter s	(mm haid madarit <sup>a</sup> tamata Mata 10 de amati	angen Construction Margenien Inn Pate J. L.C. Pate J. L.C.	in a tour trach A-C course or min a course Maria a faire Maria a faire s
	ments:	arried anomenyapa, into ter s	(mm haid madarit <sup>a</sup> tamat analarit <sup>a</sup> tamat		in a tour trach A-C course or min a course Maria a faire Maria a faire s
Com	ments:	artist sever sites anomingupa, site for a second page descer of the transmission of the content to a factor of the for the transmission of the	Inter No.2 	angen Construction Margenien Inn Pate J. L.C. Pate J. L.C.	Art construction Art companys in a company in a company i

AA Name: 3	<u>al - 1 - 2</u>			- 11-co-11-	Date: 9 10 19
Attribute 1: Buffer and La	ndscape	Context	t (pp. 11-	19)	Comments
and the second second	1.0	r chercher	Alpha.	Numeric	850 m of non-buffer land
Stream Corridor Continuity	7 (D)		D	3	cover
Buffer:	1			S a Mart	
Buffer submetric A:	Alpha.	Numeric	A SALA		
Percent of AA with Buffer	В	9			Buffer on 1/2
Buffer submetric B: Average Buffer Width	D	3			9.90m avg width
Buffer submetric C: Buffer Condition	D	3			width <5m
Raw Attribute Sc	ore = D	+[ C x (A	x B) <sup>1/2</sup> ] <sup>1/2</sup>	6.9	Final Attribute Score = 28.9 (Raw Score/24) x 100
Attribute 2: Hydrology (p)	o. 20-26)	)			
Water Source			Alpha.	Numeric 6	Runoff Concrete-Imed Channel
Channel Stability			B	9	Concrete-Imed Channel
Hydrologic Connectivity			A	12	
Raw Attribute Score = sum of numeric		scores	27	Final Attribute Score = 75 (Raw Score/36) x 100	
Attribute 3: Physical Struc	ture (pr	o. 27-33)			
			Alpha.	Numeric	_
Structural Patch Richness			D	3	
Topographic Complexity			D	3	
Raw Attribute Score =	sum of a	numeric	scores	6	Final Attribute Score = 25 (Raw Score/24) x 100
Attribute 4: Biotic Structu	re (pp. 3	34-41)			
Plant Community Composit	ion (bas	ed on sub	o-metrics	A-C)	
Plant Community submetric A: Number of plant layers	Alpha.	Numeric 3			No plants lvy
Plant Community submetric B: Number of Co-dominant species	D	3			
Plant Community submetric C: Percent Invasion	D	3			
Plant Commu (numeri		nposition of submetri		3	
Horizontal Interspersion			D	3	
Vertical Biotic Structure			D	3	
Raw Attribute Score =	sum of	numeric	scores	9	Final Attribute Score =25(Raw Score/36) x 100
Overall AA Score (aver	age of fo	our final A	Attribute	Scores)	38

# Scoring Sheet: Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Se Distance of 500 m Downs		
Segment No. Length (m)		Segment No.	Length (m)	
1	86	1		No stream
2 264		2	1	DS of AA
3		3		
4		4	C from 1 1- Sweet	
5		5		
Upstream Total Length	350	Downstream Total Length	500	

#### 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.

Z B Percent of AA with Buffer: %

	Line	Buffer Width (m)
	A	9.78
	B	9.66
	С	9.32
	D	9.47
	E	9.34
	F	7.89
deficition 1	G	8.28
i pinse seu	Н	9.0
	e Buffer Width the nearest integer*	9.09

## Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators				
1	(check all existing conditions)				
14 - 1400 1	X 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.				
S. Doublet	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.				
E. mas	□ 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**

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.	1.2	liam	1.2
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).	.4	.4m	4
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	.8	,Bm	.\$
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.	3,4	3.4m	3.4
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.83	2.83	2.83
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.				

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S. "B. - Jaser P. Letters", Reconf. Spectropal 40, 10 (1997); A. Reconf. J. Reconf. Mathematical Strength and Conference on Network in Telescopy (NYP) (1997).

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#### 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	$3 \text{ m}^2$	3 m <sup>2</sup>
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	
Large woody debris	1	Ĭ
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)		

#### 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	rain Track	K Rac	X Stall and Adde water
	1	1	A land bar of the set
Profile 2	Same	as	
Profile 3	1.1.1.1		Ferromény eliquinde ou finistipitate un deseg
Prome 5	Same	as	The boy year (a law ) may
	IA VA		
		Ľ.,	

### 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?
Hedera canariensis	Y	1.01 A	
	C C C C C C C C C C C C C C C C C C C		
18	1. N. C. C.	PRIME FREE T	
	11	14 19 19 19 19 19 19 19 19 19 19 19 19 19	
	<u> </u>	note de	
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
(a)		*	
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined	
		(enter here and use in Table 18)	<u> </u>
A A A A A A A A A A A A A A A A A A A	1	Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	100%

#### 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)
NO to a	2)
planty ivy guy overhaving I sport in I channel	3)
1 sport	4)
Chu	5)
	6)

W/		.1 . 1	12	1	
worksneet i	or we	tiand	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 affect site next 5 or more years	likely to affect site next 3-5 years		
	depressional	vernal pool		nal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confined riverine	confined riverine		
previous type?	perennial saline estuarine	perennial non saline estuarin	wet meadow	
	lacustrine	seep or spring	3	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)	den de la composition de la co	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	4 M 1	1
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 1
Actively managed hydrology		
Comments		
a set for the set of the set of the		

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)		The second
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed	11111	
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)	A DE LA CARA	
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)	Carl State of State of State of State	
Trash or refuse		이 해난 것이 없어요? 집
Comments	1,2000 1,0,10- m	C THE ALL CONTRACT
	selection and period	1 North 1 - 201
second a state	erubet instruction	officer all and the first
		along the di

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	AND DEPOSITION	
Excessive human visitation	No MILAN SI	
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opossum and domestic predators, such as feral pets)	ingeneration of the	P. P. Marker P. M. P.
Tree cutting/sapling removal	manter Coursel 5	
Removal of woody debris		
Treatment of non-native and nuisance plant species	and the second second	
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		1 1 2 3 4 3 1 4 3
Comments	S the it	
a second second in many size of the second		

BUFFER AND LANDSCAPE CONT (WITHIN 500 M OF A		Present	Significant negative effect on AA
Urban residential	LETS MURICES AND	PUDICITY LINCO	P. L. M.
Industrial/commercial	364 SEC 10 0	192411211372	
Military training/Air traffic	and a second second second second		
Dams (or other major flow regulation or disrupt	ion)	C. S. C. Name	
Dryland farming			
Intensive row-crop agriculture			
Orchards/nurseries	· · · · · · · · · · ·		
Commercial feedlots		Autor of the	
Dairies			
Ranching (enclosed livestock grazing or horse pa	addock or feedlot)		
Transportation corridor		The second second	
Rangeland (livestock rangeland also managed for	r native vegetation)		
Sports fields and urban parklands (golf courses,	soccer fields, etc.)	Hickory and the second	
Passive recreation (bird-watching, hiking, etc.)			and a street
Active recreation (off-road vehicles, mountain b	iking, hunting, fishing)	a the second second second	and an and the second
Physical resource extraction (rock, sediment, oil,	(gas)		P
Biological resource extraction (aquaculture, com	mercial fisheries)		
Comments			

## **Basic Information Sheet: Slope Wetlands**

Assessment Area Name: AA-4
Project Name: HSP
Assessment Area ID#: 4
Project ID#: Date 9/10/19
Assessment Team Members for This AA:
MAL, MCM
Assessment Area Size: 360 × 15 m
Surface water present during the assessment? $\Box$ Yes $\Box$ No Flowing? $\Box$ Yes $\not\triangleleft$
Briefly describe the hydrology of the AA (e.g., water sources, channels, swales, etc.)
small basin with welland vy that flows into plastic
lined channel and into authert
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)
□ Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring
Are peat soils present in the AA?
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 □ seasonal d temporarily flooded

**Photo Identification Numbers and Description:** Description Photo ID No. Looking North into the AA DS Lo DS 1 37, 6974123, -122, 4053085 1 2 Looking South into the AA by to US V 2 3 Looking East into the AA +> West 37.6985570 -122.405 41112 2 4 Looking West-into-the-AA to east V 4 5 Small fired channel 37. 699 0881 -122, 40539 817 5 6 UP + DS 6 37.10909754 - 122. 4053821 7 -7 UP to UP 8 9 10 Site Location Description (including County and USGS Topographic Quadrangle if known): culvert DS 15 48", flows from low point busin to channel **Comments:** Redrew and to be above cultury For They around the

### Scoring Sheet: Slope Wetlands

AA Name: 4					Date	A	
Attribute 1: Buffer and Landscape Context					1	Comments	
Aquatic Area Abundance (D)		Alpha D	Numeric 3				
Buffer				A CALE CALEN	Martin Law		
Buffer submetric A: Percent of AA with Buffer	Alpha	Numeric 12			100	10	
Buffer submetric B: Average Buffer Width	B	9			157		
Buffer submetric C: Buffer Condition	С	6		No. Constant		- 18 - printer Inde	
Raw Attribute Sco	ore = D		x B) <sup>1⁄2</sup> ] <sup>1⁄2</sup> t round)	10.9	Final Attribute Score = 45.4 (Raw Score/24) x 100		
Attribute 2: Hydrology				Ref (12)	Taffinkty on	Harris I.	
Water Source			Alpha 13	Numeric	mostly r	ortural some ed Arcas	e develop
Hydroperiod			C	6	develop	ed Arrean	
Hydrologic Connectivity (all but	Channe	led)			1		
Hydro Connectivity submetric A: Bank Height Ratio	Alpha A	Numeric 12			1.07	al al table	i alan
Hydro Connectivity submetric B: Percent Dewatered	D	3			most (	water doc	int get
Hydrologic Connectivity for Cha	inneled (	ana of sub	metrics A-R	7.5		buddh over	
Raw Attribute Score = s				22.5		ibute Score = ore/36) x 100	62.5
Attribute 3: Physical Structu	ıre			_			
Structural Patch Richness	k.		Alpha Þ	Numeric 3			
Topographic Complexity			P	3			
Raw Attribute Score = st	um of r	umeric	scores	6		ibute Score = ore/24) x 100	25
Attribute 4: Biotic Structure							<u></u>
Plant Community Composition		ric A is no	t applicab	le for Non-	-Channeled me	eadows)	
Plant Community submetric A: Number of plant layers	Alpha B	Numeric 9					
Plant Community submetric B: Number of Co-dominant species	c	6					
Plant Community submetric C: Percent Invasive species	P	3					
Plant Comm. Composition (avg.	of submet.	rics A-C or	r B-C)	6			
Horizontal Interspersion	1		Alpha C	Numeric 6			
			C	6			
Plant Life Forms Raw Attribute Score = st	Raw Attribute Score = sum of numeric scores			18		ibute Score = ore/36) x 100	50
Overall AA Score (average	ge of fo	ur final A	Attribute S	Scores)	46		

## **Aquatic Area Abundance Worksheet**

Percentage of Transect I Wetland or Aquatic Ha		menni yara
Segment Direction	Percentage of Transe That is an Aquatic	0
North	11.10	
South	0.1	
East	14.4	- mittle
West	0	there really
Average Percentage of Transect Length That Is an Aquatic Feature	7	an in the

#### 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.

done on desktop 100%

Line	Buffer Width (m)	
A sector of sector	63	
B	61	
C in the short of	64	
D	64	
E	250	
F	250	
G - Harrison - G	250	
Н	250	
Average Buffer Width	157	

### 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	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.	9.6	2.2	2,6
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).	051	025	۰4
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.	07	.5	-6
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.	1.37	02	1.5
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).			1.07

Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	<ul> <li>No channel incision</li> <li>Vigor of plant species, especially hydrophytes</li> <li>Low or no cover of upland plant species</li> <li>No rill or gully development</li> <li>No areas of bare soil</li> <li>No soil cracking</li> <li>No changes in soil structure or moisture content</li> <li>Surface water present on the wetland plain late into the summer season</li> <li>Groundwater emerging</li> <li>Moist peat soil</li> <li>Floating fens</li> <li>Evidence of regular inundation on floodplain slope wetlands (wrack etc.)</li> </ul>
Indicators of Degraded Hydrologic Connectivity (dewatering)	<ul> <li>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</li> <li>Stress or mortality of plants</li> <li>Presence of xeric plant species</li> <li>Development of rills or gullies on the wetland surface</li> <li>Areas of bare soil</li> <li>Areas of soil cracking</li> <li>Drying of peat</li> <li>Decrease in vigor of hydrophytes</li> <li>Changes in plant or animal species or communities</li> <li>Changes in soil structure or moisture content</li> <li>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)</li> <li>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>)</li> <li>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>)</li> <li>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>Convolulus arvensis</i>)</li> <li>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>)</li> <li>More than 5% cover in the AA of upland herbs and forbs (e.g. ragweed (<i>Ambrosia artemisifalia</i>), mustard (<i>Brassica rapa</i>), yellow star thistle (<i>Centaurea solstitialis</i>)</li> </ul>
Overall area of the wetland showing evidence of dewatering	<ul> <li>□ No dewatering</li> <li>□ &lt;25% dewatered</li> <li>□ 25-50% dewatered</li> <li>□ 25-50% dewatered</li> </ul>

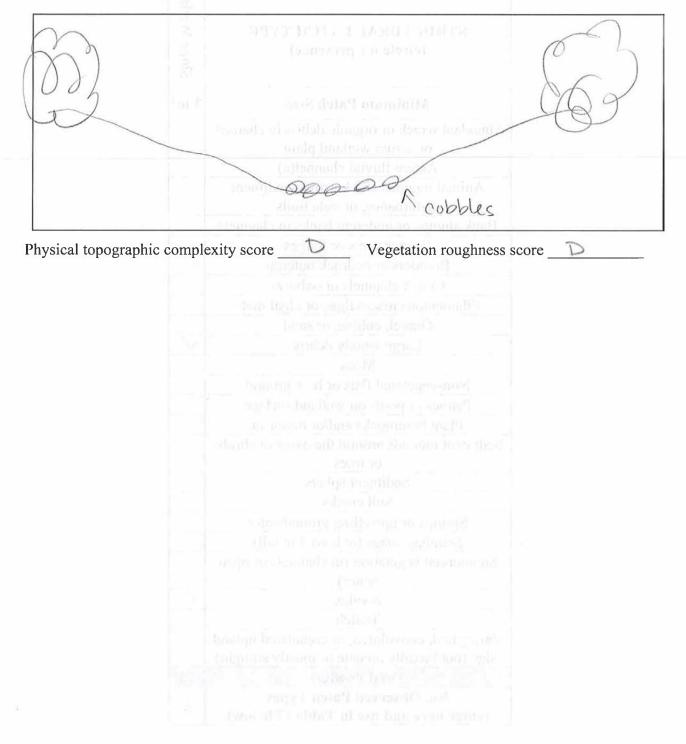
#### Structural Patch Type Worksheet for Slope Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 17 below.

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland
<b>Minimum Patch Size</b>	3 m <sup>2</sup>
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	<b>Nullar</b>
Boulders or bedrock outcrop	V
Cutoff channels or oxbows	
Filamentous macroalgae or algal mats	
Gravel, cobble, or sand	
Large woody debris	$\vee$
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	
Standing snags (at least 3 m tall)	
Submerged vegetation (in channels or open	
water)	1
Swales	1
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)	2

#### 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

(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	Invasive?	Short (<0.3 m)	Invasive?
		lotus	N
		polypochen mon	V
		. 01 0	
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive
phalaris anin	Ч	genista (Enerch	Ч
Future pomenus	T U	(mond	- <u>-</u>
Bristly ox tongue			
			De letter
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	m
		species for all layers combined (enter here and see Table 21)	6
		Percent Invasion	-
		(enter here and see Table 21)	911-19

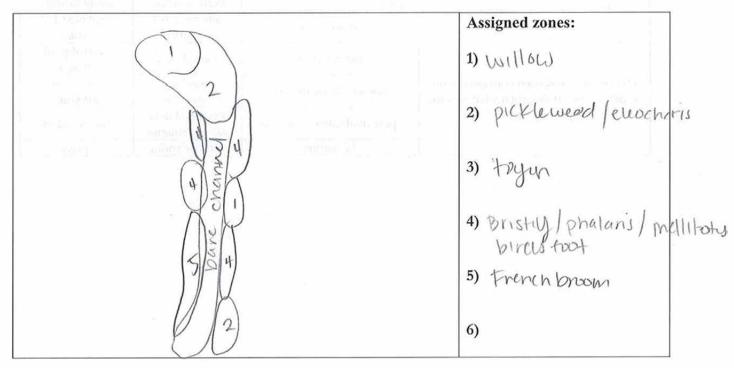
## Non-Channeled Wet Meadows Worksheet for Co-dominant Plant Species

Note: A dominant species represents ≥10% *relative* cover. Count species only once when calculating any Plant Community sub-metric. Invasive species are listed in Appendix IV of the User's Manual.

Co-dominant Species	Check if Invasive
	10 W 20
and the second	
	2000
August and the solid second seco	
FIX with Conception with respect to the XIII of the XIIII of the XIIII of the XIII of the XIIII of the XIII of the XIIII of the XIIIII of th	
[1] P. G. P. Transford and structure (2019).	
Total Number of Co-dominants	
Total Number of Invasive Co-dominant species	
Percent Invasive Species (round to nearest integer)	

#### **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.



#### Plant Life Forms Worksheet

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

Has a major disturbance occurred at this wetland?	Yes	(	No		
If yes, was it a flood, fire, landslide, or other?	flood	gtala is san	fire	landslid	e other
If yes, then how severe is the disturbance?	likely to affect site more yea				kely to affect site next 1-2 years
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional		vernal poo	1	vernal pool system
	non-confined riverine		confined riverine		seasonal estuarine
	perennial saline estuarine		perennial no saline estuari		vet meadow
	lacustrin	e	seep or sprin	ng	playa

## Wetland disturbances and conversions

#### t outstroof situated from the

<ul> <li>Changer - al manage</li> </ul>		

## 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)	100	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	1	
Flow diversions or unnatural inflows	$\checkmark$	BAR BARAN AN BARAT
Dams (reservoirs, detention basins, recharge basins)	10.000	comment and a row in th
Flow obstructions (culverts, paved stream crossings)	1.65.2	
Weir/drop structure, tide gates		
Dredged inlet/channel	ar an araits	
Engineered channel (riprap, armored channel bank, bed)	a a nanki sere	
Dike/levees		Hom(11211_12
Groundwater extraction		1
Ditches (borrow, agricultural drainage, mosquito control, etc.)	a second as	,
Actively managed hydrology	$\checkmark$	$\checkmark$
Comments		
lined channel		

The state of the second	Present and likely to have significant negative effect on AA		
$\checkmark$	Simon Lone of		
1	These many reserves		
	Terminan herring herrid		
	in the second		
and sources	When the second second		
The second second second	and the second		
and the later of	the state he could be a through		
They align an	the strain of the		
Station of the states	- total kontagencer i-		
ker ut dotten h	A feel multiple encountry		
allow, then in	Course Marine Current		
mit fair int	Moleck decourse a discoloff		
and the second second	Contraction of the		
1			

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	196709646	9(4):23
Predation and habitat destruction by non-native vertebrates (e.g., <i>Virginia opossum</i> and domestic predators, such as feral pets)	ay or NIER	3(2)
Tree cutting/sapling removal	0.000	will a station min
Removal of woody debris	Compadants (E	loo koraan 2 maaa oo
Treatment of non-native and nuisance plant species	a state of the	same a son colleged
Pesticide application or vector control	adam comunity	www.ticzen.elec.il.u.u.u
Biological resource extraction or stocking (fisheries, aquaculture)	a martina a	a belle block the order and
Excessive organic debris in matrix (for vernal pools)		All Same and and
Lack of vegetation management to conserve natural resources	1	Tenne Dela berton
Lack of treatment of invasive plants adjacent to AA or buffer	$\checkmark$	and the little barrier
Comments		THE PROPERTY AND
		The Concillence work of the
Lasdedas senoras	กระสมเดิมป้าย	when herenes and all a
		the of the test of the

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	V	1.1.1.2.2.134	
Military training/Air traffic	2 ION DECEMBER	1070	
Dams (or other major flow regulation or disruption)			
Dryland farming	due to war	Les Branigent au melle	
Intensive row-crop agriculture	Storest The P	The second highly	
Orchards/nurseries	error target statement of	A Managal Course	
Commercial feedlots	red or suffering	built solverther course	
Dairies		South an and south that	
Ranching (enclosed livestock grazing or horse paddock or feedlot)	of much was	to a carmidian wait was	
Transportation corridor	- Garthout	Wines Whenly Swamp	
Rangeland (livestock rangeland also managed for native vegetation)	arthur 21 mer-	as division and	
Sports fields and urban parklands (golf courses, soccer fields, etc.)	a Pinstein	Providence be so you i	
Passive recreation (bird-watching, hiking, etc.)	Ris Houtsteine a	finance must so estimate	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)	so 220 hours	nongodiej bezelo o	
Physical resource extraction (rock, sediment, oil/gas)	V	1. A. & Mark	
Biological resource extraction (aquaculture, commercial fisheries)		ALTPOPTION	
Comments			
	T		

## **Basic Information Sheet: Slope Wetlands**

Assessme	ent Area N	ame: At	45				n ser
Project N			(14)3333	192014			
	ent Area II	D#: 5	-				
Project I	D#:			$\overline{\mathbf{v}}$	Date	9/10/19	
Assessme	ent Team I	Members	for This A.	A:			
N	AL, MCW	Λ					
Assessme	ent Area S	ize:  0	8mx-	70m			
Surface	water pres	ent during	g the assess	sment? 🗆	Yes 7/No	→ Flowing? □	Yes □No
Briefly d	escribe the	e hydrolog	gy of the A	A (e.g., wa	ter sources	, channels, swales,	etc.)
WI	nding c	hanne	ls mao	le from	trail	use as seen	on
aeni	ls, A constr	nea ap	pear to	be le	ow to	but berms plastic lined e	have hannel.
	tegory:						
D Pre-Re	estoration	🗆 Post-	Restoration	D Pre-1	Aitigation	□ Post-Mitigation	
D Pre-In	npact	🗆 Post-J	Impact	🗆 Amb	ent	□ Reference	
🗆 Traini	ng	🗆 Othe	r:				
Chan	neled Wet N	Aeadow (as	ype of wetl soc. with a f □ Non-Ch	fluvial chan		Ion Channeled Wet № □ Seep or Spring	
Are pe	at soils pre	sent in th	e AA?	• Yes	No		
AA En	compasses	:	3				
And and the second	ø er	ntire wetlan	d maybe	□ portion	of the wetlar	nd	
Which assessr		ibes the d	ominant h	ydrologic	state of the	AA at the time of	
pond	ed/inundate	d □ sat	urated soil,	out no surfa	ce water	🗆 moist 🛛 🛱 dry	
What i	s the appa	rent hydr	ologic regi	me of the	wetland?	/	
surface	water for 4-	11 months	of the year (	in > 5 out o		al slope wetlands supp Temporarily flooded s ne year.	
	🗆 per	ennial	🗆 seasona	1 9	emporarily f	looded	

1

Photo Identification Numbers and Description: Photo Description ID No. 1 Looking North into the AA 1 37. 6994996, -122. 4047035 2 Looking South into the AA 2 3 3 Looking East into/the WA/ 4 Looking West into the AA 4 5 6 7 8 9 10 Site Location Description (including County and USGS Topographic Quadrangle if known): Created vervicgated shallow channels that dont lead of come from specific flow areas. 3 sides with berm, non-berned side flows into lined Impervious channel. **Comments:** 

2

### Scoring Sheet: Slope Wetlands

AA Name: 6		oring bi		Je metiai	Date		
	lanama	Contort			Joan	Commente	
Attribute 1: Buffer and Landscape Context			Alpha	Numeric	1.0010	Comments	
Aquatic Area Abundance (D)		C	U	-10	1.25		
Buffer	una di u	a filo rec	Hush				
Buffer submetric A: Percent of AA with Buffer	Alpha A	Numeric 12			100	%	
Buffer submetric B: Average Buffer Width	A	12			190	1m Avg	
Buffer submetric C: Buffer Condition	B	9				0	
<b>Raw Attribute Score =</b> $D+[C \times (A = D)]$			x B) <sup>1⁄2</sup> ] <sup>1⁄2</sup> t round)	16.39		ttribute Score = Score/24) x 100	68.3
Attribute 2: Hydrology			/	279/024	1 Selampara	ANA OLIGAT	_
			Alpha	Numeric			
Water Source			A	12			
Hydroperiod			B	9			
Hydrologic Connectivity (all but	Channe	led)					_
Hydro Connectivity submetric A: Bank Height Ratio	Alpha D	Numeric 3		and the second	54	maybe con	nsideree
Hydro Connectivity submetric B: Percent Dewatered	B	9			small		distantion in
Hydrologic Connectivity for Cha	nneled	(avg. of sub)	metrics A-B	) 6	¢	heterogram automatic	
Raw Attribute Score = sum of numeric s				27		ttribute Score = Score/36) x 100	75
Attribute 3: Physical Structu	ire						
			Alpha	Numeric			
Structural Patch Richness Topographic Complexity			A	12	TH	2010-5	(A+B)
Raw Attribute Score = su	ım of r	umeric		18	Final A	ttribute Score = $Score/24$ x 100	75
Attribute 4: Biotic Structure				1	(Itaw c	500107 1147 x 100	
Plant Community Composition (		ric A is no	t applicabl	e for Non-	Channeled	meadows)	
	Alpha	Numeric	- appacado	10111011	8		
Plant Community submetric A: Number of plant layers	B	9			3100		
Plant Community submetric B: Number of Co-dominant species	B	9				o-doms	
Plant Community submetric C: Percent Invasive species	C	4		- A	2901	6	
Plant Comm. Composition (avg. o	f submet.	rics A-C or	<i>(</i>	8			
			Alpha	Numeric			
Horizontal Interspersion			A	12			
Plant Life Forms			B	<u>າ</u> 29		mus ttribute Score =	80.56
Raw Attribute Score = su	m of n	umeric s	scores	23		Score/36) x 100	00.00
Overall AA Score (averag	e of for	ur final A	ttribute S.	cores)	75		

## Aquatic Area Abundance Worksheet

Percentage of Transect Wetland or Aquatic H		
Segment Direction	Percentage of Transect Length That is an Aquatic Feature	
North	17% +11=28%	
South	= 35%	
East	10+3.6 = 13.6	
West	0.4	
Average Percentage of Transect Length That Is an Aquatic Feature	77%/4=19	.25

#### 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.

100% buffer

Line	Buffer Width (m)
(-most larmannation the donies)	250
В	250
Complex depth/articles	196
D	194
E	250
F	110
mention is a ${f G}$ while ${f h}$ is a prime of ${f h}$	105
Н	240
Average Buffer Width	198

#### 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	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.	1,0	57	.9
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).	,08	,68	.08
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.	•2	.35	e Ц
4:	Calculate bank height ratio.	Divide the bank height (Step 3) by the bankfull depth (Step 2). Keep two significant figures.	25	4.4	5.0
5:	Calculate Calculate the average results for Step 4 for all 3 replicate cross- average bank height ratio. Calculate the average result here and use it in Table 14. Keep two significant figures (hundredths).				3.9

5

Tchannels are very shallow water likely tops and spills over easily, all veg appear similar Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands

Condition	Field Indicators (check all existing conditions)
	□ No channel incision
	Vigor of plant species, especially hydrophytes
	□ Low or no cover of upland plant species
	□ No rill or gully development
Indicators of	□ No areas of bare soil
Intact	No soil cracking
Hydrologic	No changes in soil structure or moisture content
Connectivity	□ 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.)
noitstade ) i	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
301.0.1	□ Stress or mortality of plants
The adult of	D Presence of xeric plant species
	Development of rills or gullies on the wetland surface
ana Louis	A reas of hare soil
ton dit	<ul> <li>Areas of soil cracking</li> </ul>
	Drving of peat
x 1:	Decrease in vigor of hydrophytes
Indicators of	<ul> <li>Changes in plant or animal species or communities</li> </ul>
Degraded	Changes in soil structure or moisture content
Hydrologic	More than 5% cover in the AA of upland conifer species (e.g. Douglas fir (Pseudotsuga
Connectivity	mengiesii), Lodgepole Pine (Pinus contorta), see special note)
(dewatering)	□ 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
10.1 100.1	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 ( <i>Rubus armeniacus</i> ), field bindweed ( <i>Convolvulus arvensis</i> )
100 CM 120	
1.5	cheatgrass (Bromus tectorum), needlegrass (Stipa pulchra)
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	□ More than 5% cover in the AA of upland herbs and forbs (e.g. ragweed (Ambrosia artemisiifolia), mustard (Brassica rapa), yellow star thistle (Centaurea solstitialis)
Overall area of	
the wetland	$\Box$ No dewatering $\Box$ <25% dewatered
showing	8
evidence of dewatering	$\Box$ 25-50% dewatered $\Box$ >50% dewatered

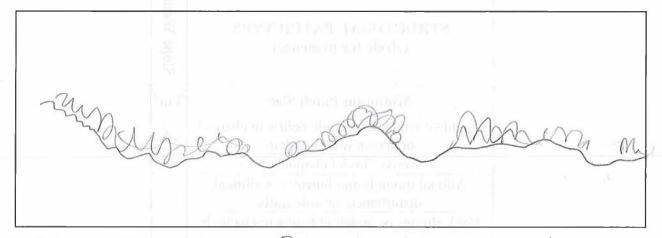
## Structural Patch Type Worksheet for Slope Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 17 below.

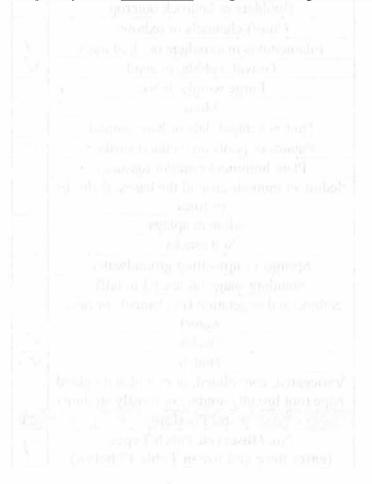
STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland	
Minimum Patch Size	3 m <sup>2</sup>	
Abundant wrack or organic debris in channel, or across wetland plain	V	
Active fluvial channel(s)	$\overline{\mathbf{V}}$	
Animal mounds and burrows, sediment disturbance, or vole trails		
Bank slumps or undercut banks in channels		
Beaver dams or lodges	Traching (	
Boulders or bedrock outcrop		
Cutoff channels or oxbows		
Filamentous macroalgae or algal mats	$\checkmark$	
Gravel, cobble, or sand	V	
Large woody debris		
Moss		
Non-vegetated flats or bare ground		
Pannes or pools on wetland surface	$\checkmark$	
Plant hummocks and/or tussocks		
Sediment mounds around the bases of shrubs or trees		
Sediment splays		
Soil cracks		
Springs or upwelling groundwater		
Standing snags (at least 3 m tall)		
Submerged vegetation (in channels or open		
water)		
Swales	V	
Thatch	$\checkmark$	
Variegated, convoluted, or crenulated upland		
edge (not broadly arcuate or mostly straight)		12
Total Possible	23	- 1
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 B 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

(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	Invasive?	Short (<0.3 m)	Invasive?
		poly poron morio	Ч
		salt grand	N
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive
Bloocharis sp.	7		
Bolboschoenus maritimi	4 hJ		
PULMEX Mispus	14		
chenopodium ip	N		
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	
Salix sp.	N	species for all layers combined (enter here and see Table 21)	7
		Percent Invasion (enter here and see Table 21)	294

2/7 = 29%

9

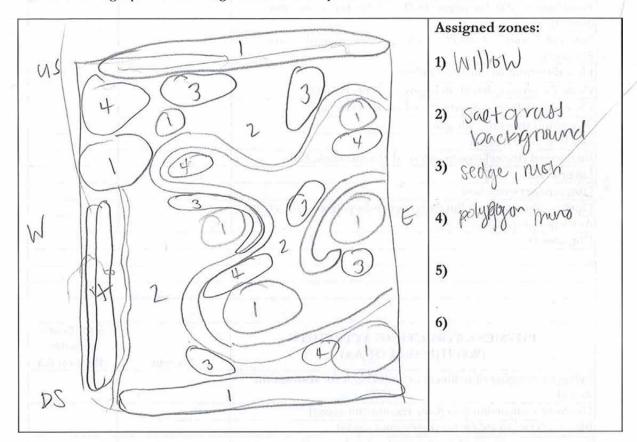
## Non-Channeled Wet Meadows Worksheet for Co-dominant Plant Species

Note: A dominant species represents ≥10% *relative* cover. Count species only once when calculating any Plant Community sub-metric. Invasive species are listed in Appendix IV of the User's Manual.

Co-dominant Sp	CUIC3	namber (* 1914) 1946 - Alexandre Alexandre 1946 - Alexandre Alexandre	
	0		
Statistical and the second states of the second sta	다. 1999년 - 1997년 - 1997년 1997년 - 1997년 -		21 A 24 A 2 A 2 A 2 A 2 A 2 A 2 A 2 A 2 A
			1
			=
		NOT WORK W	And a second
			9 - 1 Bal
	1.0	- New Pro-	an an fail an
uncount as to set the set of the		and the second	
			Contract to the second s
QANDON - REAL STRATE	_		
Total Number of Co-d	ominants		
Total Number of Invasive Co-	dominant sp	pecies	
Percent Invasive Species (round	to nearest i	nteger)	

#### 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	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affec site next 3-5 years	s site	v to affect next 1-2 years
	depressional	vernal pool		nal pool ystem
Has this wetland been converted from	non-confined riverine	confined riverine		ir-built tuarine
another type? If yes, then what was the previous type? May have been Non-channeled converted	perennial saline estuarine	perennial non-saline estuarine	wet	meadow
non-coanneled converted	lacustrine	seep or sprin	ng	playa

channelle 10

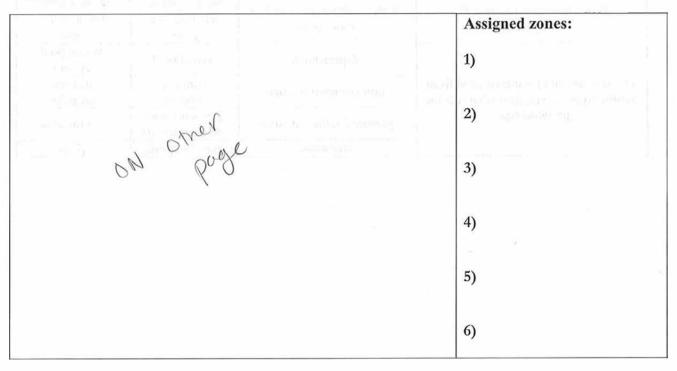
## Stressor Checklist Worksheet

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	1	1 1 1 1
Dams (reservoirs, detention basins, recharge basins)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Flow obstructions (culverts, paved stream crossings)		1. K. 1
Weir/drop structure, tide gates	N 2 7 2	
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	Contraction of the second	
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)	a second second	6334 -
Actively managed hydrology		64 H 1
Comments		
$\lambda/2$		
X	No. 6	
		1511

PHYSIC	CAL STRUCTU (WITHIN 50	URE ATTRIBUTE M OF AA)		Present	Significant negative effect on AA
Filling or dumping areas)	of sediment or s		- D'		
Grading/ compacti	ion (N/A for re	storation areas)	1	· · · · · · · · · · · · · · · · · · ·	
Plowing/Discing (	N/A for restora	ation areas)			
Resource extraction	n (sediment, grav	vel, oil and/or gas)	1		-
Vegetation manage	ment //	and survey fine	e-manda	Xeil) biost-s-W	
Excessive sediment	t or organic debr	ris from watershed		1	
Excessive runoff from watershed				Carl Content to the Carl	for summer
Nutrient impaired (					
Heavy metal impair			20.031-0	ana Cus mase s	ALC: THE REAL
		d (PS or Non-PS pol		Tulusie (	
	gens impaired (F	S or Non-PS pollution	on)		
Trash or refuse		3418 D-9461	110	an him free is	n per la companya da serie da
Comments	1	ning brait	_	and the second	
long hitting 1	1				
110031-710	loc -sub to this	Carter external sectors			
Hird-Sud	lim(ires	1. banfittasa miya 1			
administra	_ulur as i	milesels	PRPERIOR NO.	- bran maderial	sokal and and s

#### 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.



#### Plant Life Forms Worksheet

Life Form	Present in > 5% of AA?
Bryophytes (mosses, liverworts,	
hornworts)	
Coniferous Trees	
Deciduous Broadleaf Trees	Yes
Evergreen Broadleaf Trees	
Ferns	
Grasses	Yes
Herbs/Forbs	Jes
Lichens or Fungi	0
Sedges/Rushes	Yes
Shrubs	
Vines	
Total Number of life forms	4

Has a major disturbance occurred at this wetland?	Yes	lataşla desi Ver 01 rou	No	dellation of the
If yes, was it a flood, fire, landslide, or other?	flood	pals a mo	fire	andslide other
If yes, then how severe is the disturbance?	likely to affect site more year		likely to affect site next 3-5 years	likely to affect site next 1-2 years
()	depressional		vernal pool	vernal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confined riverine		confined riverine	seasonal estuarine
previous type?	perennial saline estuarine lacustrine		perennial non- saline estuarine	wet meadow
			seep or spring	playa

## Wetland disturbances and conversions

Desibel (1997) consultability famility

industrial and a second

# 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)		a series of the series of the
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		and the second with the
Flow diversions or unnatural inflows	V	PERCENT AND ADDRESS OF A
Dams (reservoirs, detention basins, recharge basins)	이 아파 가석 ?	A REPORT OF A
Flow obstructions (culverts, paved stream crossings)	The rectarde	and the most of Responsibility of the
Weir/drop structure, tide gates	121	
Dredged inlet/channel	ingen in 16 de	
Engineered channel (riprap, armored channel bank, bed)	1.4994	
Dike/levees	in 199	A REALINGTON AND
Groundwater extraction	la la lan	- A
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	· · · · · · · · ·	
Comments		-
in the second		
10000 1000 100 x 101		
A WARD THE PARTY AND AND AND A PARTY AND A	1130 CIA	and there have taken

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)	$\checkmark$	
Grading/ compaction (N/A for restoration areas)		Contract A ray
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		The second second second
Vegetation management		
Excessive sediment or organic debris from watershed	of the state	
Excessive runoff from watershed		due site in the second of the
Nutrient impaired (PS or Non-PS pollution)	NUCLER PROV	the in standard dist.
Heavy metal impaired (PS or Non-PS pollution)	- Colo (Bagers	a suspect that an edition of the
Pesticides or trace organics impaired (PS or Non-PS pollution)	-Shir studye	-based in the second
Bacteria and pathogens impaired (PS or Non-PS pollution)	at the residence in	with the state of the state
Trash or refuse	are division	Ware Selfered we bli
Comments appears to be an old fill	the second node	The state of the second
		a to the second
		<u></u>

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		0.27.6
Predation and habitat destruction by non-native vertebrates (e.g., <i>Virginia opossum</i> and domestic predators, such as feral pets)	1.63 (63) (7)	2003
Tree cutting/sapling removal	779044 14	difference Profile for
Removal of woody debris	a contraction of the	ALCONTROLOGY - AND
Treatment of non-native and nuisance plant species	- weitin 765	in description is particular
Pesticide application or vector control	for the second of	Wet Inconverting and
Biological resource extraction or stocking (fisheries, aquaculture)	-nu borrier	when more provided with
Excessive organic debris in matrix (for vernal pools)		der mennenen fist
Lack of vegetation management to conserve natural resources		Same Tot estat Youlese
Lack of treatment of invasive plants adjacent to AA or buffer	ing income	and home below more
Comments		in the second second
In the past maybe had	sig an	peffect
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Infort spectrum Www.

Present and likely to have significant negative effect on AA	
a section!	
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## **Basic Information Sheet: Slope Wetlands**

Assessment Area Name: AA Ø6	
Project Name:	
Assessment Area ID#: (0	Date
Project ID#:	Date/10/19
Assessment Team Members for This AA:	and the second state of th
MAL, MCM	
Assessment Area Size: $100 \times 80$ m	
Surface water present during the assessment?	□ Yes ∠ No Flowing? □ Yes □ No
Briefly describe the hydrology of the AA (e.g., v	vater sources, channels, swales, etc.)
Same of AAS	
AA Category:	
Pre-Restoration Post-Restoration Pre	-Mitigation Dost-Mitigation
Pre-Impact     Post-Impact     Am	bient
□ Training Ø Other:	
Which best describes the type of wetland?	3 CA231 G H H S
□ Channeled Wet Meadow (assoc. with a fluvial cha	annel) 🗆 Non-Channeled Wet Meadow
□ Channeled Forested Slope	
a chaimered i orested stope ja Non-Chaimered i	
Are peat soils present in the AA?	∠ No
AA Encompasses:	
entire wetland	n of the wetland
Which best describes the dominant hydrologi assessment?	c state of the AA at the time of
□ ponded/inundated □ saturated soil, but no sur	face water 🗆 moist 🗖 dry
What is the apparent hydrologic regime of the	
Perennial slope wetlands contain surface water year-	
surface water for 4-11 months of the year (in $>$ 5 out wetlands possess surface water between 2 weeks and	of 10 years.) Temporarily flooded slope
perennial seasonal	temporarily flooded

-	Photo ID No.	Description
L		Looking North into the AA
2	2	Looking South into the AA 37. 6985416 -122.46462
3	3	Looking East into the AA/
ł	4	Looking West into the AA
5		
5		
7		CONTRACTOR DEPARTMENT
}	115 20.1	editer water movent darding the scoretiment? PTERS A two Principal's
0		
C	omments	noit dippear to direct flows if lined small channel to flow out of wetland depressivi
		properties of the second dependence of the sec
		(Chain is left ) successify there = printered cannolisis the entry fittings = 1. Successing and providence, A result proceeding the three sets? A result in the sets?
		(A) Preparent in the stat (A) (A) (A) (A) Preparents: (A) Preparents: (A) Preparents: (A) Preparents: (A) Preparents: (A) Preparents: (A) (A) (A) (A) (A) (A) (A) (A) (A) (A)
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		( remaining pressed in the statistical state of the st
		( re-mean andly present in the start 3, 5 Factor present in the start 2 compression 2 compression and and a start of the section 3 bits from describer the dimension by it should start of the 5 million and assertation of
	Neor	A recent with pressure in the stats of a state of the
	Neor	<ul> <li>(************************************</li></ul>

### **Scoring Sheet: Slope Wetlands**

AA Name: 10					Date		
Attribute 1: Buffer and Landscape Context						Comments	
Aquatic Area Abundance (D)	Î	\$36) (J. 18) 	Alpha D	Numeric 3	15%	o Ava	r.
Buffer	in Mall on		C. S. Children			0	
Buffer submetric A:	Alpha	Numeric					1
Percent of AA with Buffer	A	12	Alter Mital		1009	· puffer	
Buffer submetric B: Average Buffer Width	B	9			194	" buffer M Aug	
Buffer submetric C:		-					
Buffer Condition	C	Ce.	Nervice milit		NN	reg	
Raw Attribute Sco	ore = D	0+[Cx(A	x B) <sup>1/2</sup> ] <sup>1/2</sup>	10.92	and the second s	ttribute Score =	45.5
		(do not	t round)	Fic nord	(Raw S	Score/24) x 100	
Attribute 2: Hydrology	- 19° - 1			1000	Asphark	1 m 1 m	
			Alpha	Numeric			
Water Source			B	9			
Hydroperiod	6		C	4			
Hydrologic Connectivity (all but	Channe	led)	С	6			
Hydro Connectivity submetric A: Bank Height Ratio	Alpha	Numeric			ne na s Na stela se la		
Hydro Connectivity submetric B: Percent Dewatered	R	4	Tre gehade		1	флак Фолод В тал	
		lang of sub	mathics A R			ba Storatoria	100 M
Hydrologic Connectivity for Cha				21	Final A	ttribute Score =	58.33
Raw Attribute Score = s	um of r	numeric	scores		(Raw S	Score/36) x 100	
Attribute 3: Physical Struct	ure			T			
			Alpha	Numeric			
Structural Patch Richness			D	3			
Topographic Complexity			B	9			T
Raw Attribute Score = st	um of 1	numeric	scores	12		ttribute Score = Score/24) x 100	50
Attribute 4: Biotic Structure							
Plant Community Composition	(submet	ric A is no	t applicabl	e for Non-	Channeled	meadows)	
Plant Community submetric A:	Alpha	Numeric					
Number of plant layers Plant Community submetric B:	•	10					
Number of Co-dominant species	A	12					
Plant Community submetric C:	В	9			2		
Percent Invasive species				10.5			
Plant Comm. Composition (avg.	of submet	rics A-C or		10.5			
Horizontal Interspersion			Alpha B	Numeric 9			
Plant Life Forms	В	9					
Raw Attribute Score = s	um of 1	numeric	scores	28.5		ttribute Score = Score/36) x 100	79.17
Overall AA Score (average of four final Attribute Scores)				cores)	58		<u> </u>

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	40				
South	D	110			
East	13+3.2 = 16.2	white:			
West	6. 4. MAR - 3. 4.	Nor ST			
Average Percentage of Transect Length That Is an Aquatic Feature	14.9 200	L I I I			

#### Aquatic Area Abundance Worksheet

#### 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.

all sides have buffer hear are the activity particle for the act ()

Line	Buffer Width (m)
- A A A A A A A A A A A A A A A A A A A	250
В	250
С	250
D	112
E	100
F	150
G	250
Н	186
Average Buffer Width	194

## 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	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.			n ganda
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).			Acative etc.ue purces
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.	und a welle		
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).	ate cros ble 14. l	s- Keep	

n mashir na mashir na mashir Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	<ul> <li>No channel incision</li> <li>Vigor of plant species, especially hydrophytes</li> <li>Low or no cover of upland plant species</li> <li>No rill or gully development</li> <li>No areas of bare soil</li> <li>No soil cracking</li> <li>No changes in soil structure or moisture content</li> <li>Surface water present on the wetland plain late into the summer season</li> <li>Groundwater emerging</li> <li>Moist peat soil</li> <li>Floating fens</li> <li>Evidence of regular inundation on floodplain slope wetlands (wrack etc.)</li> </ul>
Indicators of Degraded Hydrologic Connectivity (dewatering)	<ul> <li>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</li> <li>Stress or mortality of plants</li> <li>Presence of xeric plant species</li> <li>Development of rills or gullies on the wetland surface</li> <li>Areas of bare soil</li> <li>Areas of soil cracking</li> <li>Drying of peat</li> <li>Decrease in vigor of hydrophytes</li> <li>Changes in plant or animal species or communities</li> <li>Changes in soil structure or moisture content</li> <li>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)</li> <li>More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (<i>Notholithocarpus densiflorus</i>), coast live oak (<i>Quercus agrijolia</i>)</li> <li>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>)</li> <li>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>)</li> <li>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>)</li> <li>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>)</li> </ul>
Overall area of the wetland showing evidence of dewatering	□ No dewatering □ <25% dewatered □ 25-50% dewatered

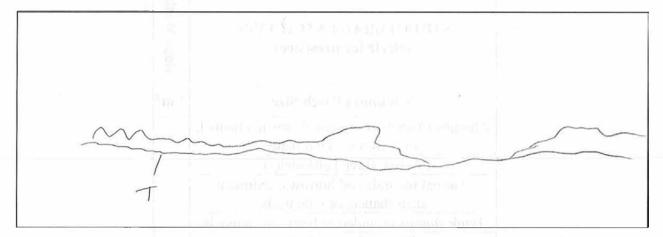
## Structural Patch Type Worksheet for Slope Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 17 below.

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland	
<b>Minimum Patch Size</b>	3 m <sup>2</sup>	
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	la-co	
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	$\checkmark$	
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		
Standing snags (at least 3 m tall)		
Submerged vegetation (in channels or open		
water)		
Swales	$\checkmark$	
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)	2	

### 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 3 Vegetation roughness score 3

A second to second se

## 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

(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 Caropy-forming	Invasive?	Short (<0.3 m)	Invasive?
		pathogon mon	
		chenoroduum murale	N
		Plantago C.	N
		Solt gross	N
Medium (0.3-1.0 m)	Invasive?	Tall (1.0-3.0 m)	Invasive
melilotus ulbus	N	×	
Compens ex.	N		
Schoenopulaturo	N		5 5 1 m - 1 m - 1 m - 1
Juncus Dult	W		
Very Tall (>3,8 m)	Invasive?	Total number of co-dominant	
	and the second s		0
Salix P	N	species for all layers combined (enter here and see Table 21)	9-
		Percent Invasion	
		(enter here and see Table 21)	Tref
	·	a second se	

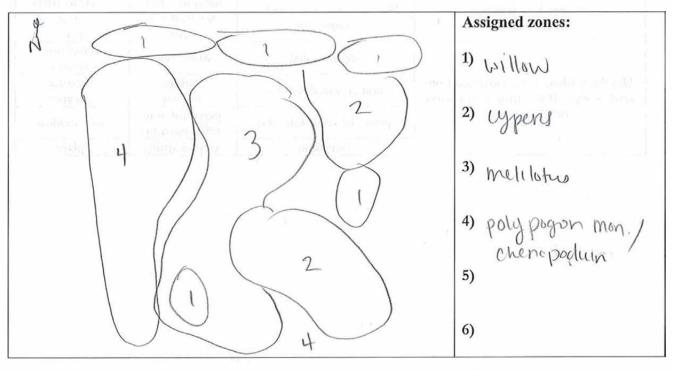
# Non-Channeled Wet Meadows Worksheet for Co-dominant Plant Species

Note: A dominant species represents ≥10% *relative* cover. Count species only once when calculating any Plant Community sub-metric. Invasive species are listed in Appendix IV of the User's Manual.

Co-dominant Species	
polypagon mon	Y
cheno podium murale	A STRAIL NO.
Plantago	
SCILL SP	
melitative celleus	
Cuppens	
Schoenoplectus	diam'r.
Minaus	- 34
0	A STATE
<ul> <li>As visionity recept his out existing</li> </ul>	
Pentro have will any field in the	
en hi shiki" and maximil server	
Total Number of Co-dominants	9
Total Number of Invasive Co-dominant species	Ī
Percent Invasive Species (round to nearest integer)	(1%)

### 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.



### **Plant Life Forms Worksheet**

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

Has a major disturbance occurred at this wetland?	Yes	(	No		
If yes, was it a flood, fire, landslide, or other?	flood	1986 1 1966	fire	landslid	e other
If yes, then how severe is the disturbance?	likely to affect site more year		likely to affe site next 3- years		cely to affect ite next 1-2 years
Has this wetland been converted from another type? If yes, then what was the previous type?	depression	al	vernal dool		vernal pool system
	non-confined r	riverine		seasonal estuarine	
	perennial saline e	perennial saline estuarine perennial no saline estuar		1 11	vet meadow
	lacustrine		seep or sprin	ng	playa

# Wetland disturbances and conversions

#### Barbolun Wannasherhid Gaulth

	- ch - a -

## 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)		I STATION CONTRACTOR
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		e de la lleve de la hydremade
Flow diversions or unnatural inflows	~	and the first first start of
Dams (reservoirs, detention basins, recharge basins)	for a shirt	an an gemelike zuediteel
Flow obstructions (culverts, paved stream crossings)		The second second second second
Weir/drop structure, tide gates	P. 100	
Dredged inlet/channel		with the second second
Engineered channel (riprap, armored channel bank, bed)	H COUNT SOO	a 10 to mentance a static
Dike/levees		STATE OF STATE
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		
Zena la la contra la contra la contra de la		and and an and an and an and an

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)		All the second s
Grading/ compaction (N/A for restoration areas)		all parts of the
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)	V	a strend to be a
Vegetation management		
Excessive sediment or organic debris from watershed	an gunteed as	
Excessive runoff from watershed	- U	an arrange week and the
Nutrient impaired (PS or Non-PS pollution)	CONTRACTOR DUNC	is applicate timenate
Heavy metal impaired (PS or Non-PS pollution)	illion) -test inte	norma nea ugento com
Pesticides or trace organics impaired (PS or Non-PS pollution)	T Start, Law St. 1	Sal Bringham and
Bacteria and pathogens impaired (PS or Non-PS pollution)	and straight to	in the set of the set
Trash or refuse	light printing	The second second
Comments	offering the trail-	S the top off the later?
		and the second sec
References and the second s		

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	A YEARO	ROL 1981
Predation and habitat destruction by non-native vertebrates (e.g., <i>Virginia opossum</i> and domestic predators, such as feral pets)	A 38 99 AP	101
Tree cutting/sapling removal	o illustration	and the set was
Removal of woody debris	e anthan is	andy Have may in-
Treatment of non-native and nuisance plant species	AND INCOME.	and the second second
Pesticide application or vector control	in single	mentione enclanced
Biological resource extraction or stocking (fisheries, aquaculture)		Section Calescond
Excessive organic debris in matrix (for vernal pools)		dia suma sa anima a
Lack of vegetation management to conserve natural resources	V	Bingoli Andau Leviere
Lack of treatment of invasive plants adjacent to AA or buffer	V	with home to here has
Comments		niedene
		with a sit addition
de la tata da t	e suom delse	erten horne, second
	1.1.1.1	stelled to an in the
		ada talunasii kultain massan

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	$\checkmark$	UX:10971.01
Military training/Air traffic	e nu terrese	nary -
Dams (or other major flow regulation or disruption)		
Dryland farming	dia - o min	Fall Appendit provide
Intensive row-crop agriculture	million tool. A.	The station of the second s
Orchards/nurseries	only market p	A STRATE STRATE
Commercial feedlots	edber maroan	A - millera mesoa
Dairies		And and the street of
Ranching (enclosed livestock grazing or horse paddock or feedlot)	บาร์อธิเวลา	a regulation theory wave-up
Transportation corridor	- balati	a tool brothers
Rangeland (livestock rangeland also managed for native vegetation)	allowed in 2	an the contraction
Sports fields and urban parklands (golf courses, soccer fields, etc.)	18 not in	W. man and
Passive recreation (bird-watching, hiking, etc.)	al n andon A	44-4700 (HE) 30 11 1301 -
Active recreation (off-road vehicles, mountain biking, hunting, fishing)	n Spinner	decounting to a second
Physical resource extraction (rock, sediment, oil/gas)	V	Notas yo U.V.
Biological resource extraction (aquaculture, commercial fisheries)		#341 AP0(01)
Comments		

# **Basic Information Sheet: Depressional Wetlands**

Assessment Area N	ame: MA-7		
Project Name:			
Assessment Area II	)#: 7	Andrew on Tem Para	and the American March
Project ID #:		Date: 9/10/19	)
	Members for This AA	WILLIAM LINE	a statistic statistics and
MAL, MCN	1 Forein antidament interret		a manage stars the second of the
pala by via g	and egge of the stage have	n salah jaran sa sai	e ne repet de ser le soltene de
AA Category:	South?	gases to ender	ALC HOLES WINSING STATES
Pre-Restoration	Post-Restoration	Pre-Mitigation	Post-Mitigation
9Pre-Impact	□ Post-Impact	□ Training	Ambient
□ Reference	D Other:		
Origin of Wetland	(if known):		
Natural system	□ Artificial system		
□ water supply (agr.	iculture)	vestock) 🗆 not manaș	water quality □ stormwater ged □ other:
freshwater ma		sh □ brackish	marsh
AA Encompasses:			Comment a
en	tire wetland $\Box p$	ortion of the wetland	
Which best descri	bes the hydrologic state of	of the wetland at the	time of assessment?
ponded/in	undated saturated	d soil, but no surface	water dry
What is the appar	ent hydrologic regime of	the wetland?	
wetlands are define	looded depressional wetlands	er for 4-11 months o	of the year (in $> 5$ out of 10
perennially flood	ed seasonally floo	oded (tempo	rarily flooded

Does your wetland connect with the floodplain of a nearby stream?				
Does the wetland have a defined on undefined	outlet? defined undefined			
Does the wetland have a defined on undefined i	nlet? defined 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 No.	Description	Latitude	Longitude	Datum
1	1	(to) North	17,69 76173	-122.4029822	
2	2	(to) East			commit all a
3	3	(to) South			
4	4	(to) West	1	1	the second s
5	1	DS Josking US	371 69 62927	-122/4029175	hangs terminist?
6					
7				often met infristations	Marine Stewarts,
8	hand the show	being the second of	our shift have a	1. MILLING THE MALE	1
9					1
10	0.000	N. C. STRUCK KSI	A SUPERSIM OF THE	The a child act	265 AVE 2 28 28 1

#### Site Location Description and Land Use:

Historical Fill site, Adjourt to train trades. Pominted by sult grass. Panpas grass lining Perimeter, nostly. Sparse Willows C northern end. Evidence of post vehicle novenent through AA.

**Comments:** 

AA Name: 7 Da			ate:		
Attribute 1: Buffet and Landscape Context (pp. 8-15)			Comments		
Aquatic Area Abundance Score (D)			Alpha.	Numerie	c
and a literature	ure (m)	11100	D	3	~
Buffer:		INT ·			
Buffer submetric A:	Alpha.	Numeric			A shared a
Percent of AA with Buffer	A	12			
Buffer submetric B: Average Buffer Width	B	9	and a second		
Buffer submetric C: Buffer Condition	C	6			
<b>Raw Attribute Score</b> = $D+[C \times (A \times A)]$		B) <sup>%</sup> ] <sup>%</sup>	10.92	Final Attribute Score =45.5(Raw Score/24) x 100	
Attribute 2: Hydrology (pp	. 16-21)	tice in the	in the second	Lines."	
National and the second second			Alpha.	Numeri	c surrounding Berns, railroad be afforent susale to the routh
Water Source		shold of	B	9	the second se
Hydroperiod		-	C	6	swate routh of AA
Hydrologic Connectivity			C	6	Berms, RR
Raw Attribute Score = sum of numeric s		umeric s	cores	21	Final Attribute Score = 58.33 (Raw Score/36) x 100
Attribute 3: Physical Struct	ture (pp	. 22-28)			
			Alpha.	Numeri	c Algae, lage wordy debuis,
Structural Patch Richness			P	3	Island
Topographic Complexity			C	6	Lishtly
Raw Attribute Score = s	um of n	umeric s	cores	9	Final Attribute Score = (Raw Score/24) x 100 37.5
Attribute 4: Biotic Structur	e (pp. 2	9-39)			
Plant Community Compositi	on (base	ed on subr	netrics I	1-C)	
	Alpha.	Numeric			31
Plant Community submetric A: Number of plant layers	B	9			> layors
Plant Community submetric B: Number of Co-dominant species	Ø	3			4 Panhants
Plant Community submetric C: Percent Invasion	V	3			50%
Plant Commun (numeric	-	position N submetrics		5	~
Horizontal Interspersion	0 7		C	6	
Vertical Biotic Structure			D	3	No caropy
Raw Attribute Score = s	um of r	numeric s	2	14	Final Attribute Score = (Raw Score/36) x 100 38.89
Overall AA Score (avera	ge of fo	ur final At	tribute S	Scores)	45

# Scoring Sheet: Depressional Wetlands

Percentage of Transect Aquatic Area	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	50
South	3
East	3
West	0
Average Percentage of Transect Length That Is an Aquatic Feature	(4)

### 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) %

16.1 × 108 20004 1643

AND ANY TRADING MADA

Line	Buffer Width (m)
A	250
В	250-
С	55
D	55
E	55
F	250-
G	200
н	250-
Average Buffer Width *Round to the nearest whole number (integer)*	170

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	$3 \text{ m}^2$
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	0
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	- /
Concentric or parallel high water marks	1
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	
Plant hummocks and/or sediment mounds	
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)	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.

North to South		
torin to boun		
	1. 1. 1. 1.	
East to West		

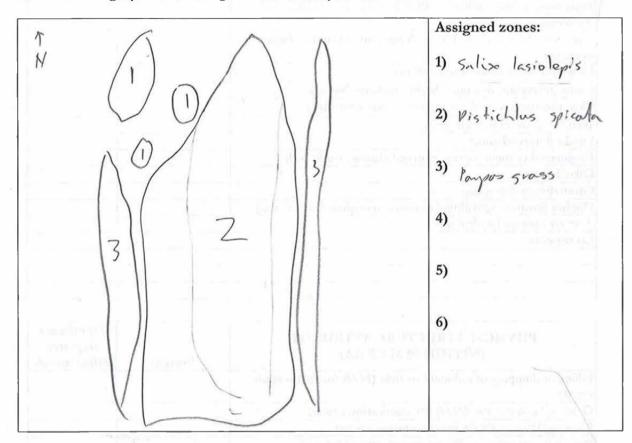
### Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% *relative* cover)

\* 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?
		Pistichlus spicate	N
		Yoh, por m	У
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
		layer grass	<u>У</u>
Very Tall (>3.0 m)	Invasive?		1 Washington M
Palix lariolepis	N	Total number of co-dominant species for all layers combined (enter here and use in Table 19)	4
		Percent Invasion *Round to the nearest whole number (integer)*	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 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	andslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years		
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool		nal pool ystem
	non-confined riverine	confined riverine		r-built tuarine
	perennial saline estuarine	perennial non-saline estuarine	wet	meadow
	lacustrine	seep or spring		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)	<u> </u>	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)	N CON	
Flow obstructions (culverts, paved stream crossings)		1
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		6
Dike/levees	No.	
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		5 L

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)				Present	Significant negative effect on AA
Filling or dumping areas)	g of sediment or s	soils (N/A for restora	ition		
Grading/ compac	tion (N/A for re	storation areas)		F F	
Plowing/Discing	(N/A for restora	tion areas)			
Resource extraction	on (sediment, grav	vel, oil and/or gas)	1		
Vegetation manag	ement	saniarmano lum e	sometine.	Wedness W	
Excessive sediment	nt or organic debr	is from watershed			
Excessive runoff from watershed				DR-1900000000000000	
Nutrient impaired (PS or Non-PS pollution)				ARTICLE RELATION	
Heavy metal impaired (PS or Non-PS pollution)				en narren ander a	20021 - 2 11
Pesticides or trace	organics impaire	d (PS or Non-PS pollu	ition)	M 200.	
		S or Non-PS pollution			
Trash or refuse		Wia (59)16	142	Pro-to- Pickardi	. 19/31
Comments		in é ligne - p		historic marga	
		(1075, 1075)			
lossy literary		la se			
1031872	and a second	- Destroyant of the			
Wird trad	hadita	Leabarra-re-w. J.			
ano agina	10202-011	1000	n		ave with ever 1

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Aowing, 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)		
ree cutting/sapling removal		
Removal of woody debris		
freatment 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		
ack of treatment of invasive plants adjacent to AA or buffer		
Comments		

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

5.8

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# **Basic Information Sheet: Depressional Wetlands**

	17 M	m	National Annual Annual
Assessment Area Na			
Project Name: C/	7 HER		
Assessment Area ID	#: 100 Columbre	- at at	ecorp boorbuilt who can't
Project ID #:		Date: 9 10 1	9
Assessment Team M	lembers for This AA	0	· · · · · · · · · · · · · · · · · · ·
RJ, DM	one such and south	ala Salt an Ritch	A beautypicture of the sector
- api si mana si pi si na si pi si p	neath an cho dh' ndh co dhuar in	angala bawa wa mwa	nuoventul nori morphismo i
AA Category:			
□ Pre-Restoration	Dest-Restoration	D Pre-Mitigation	Dest-Mitigation
Pre-Impact	Post-Impact	Training	□ Ambient
□ Reference	D Other:	- Marine	
Origin of Wetland	(if known):	4.w	
□ Natural system	Artificial system	Along RR	line
	es the type of depression sh	nal wetland?	Stational International
AA Encompasses:		A	· · ·
	ire wetland □ po	ortion of the wetland	
Which best describ	es the hydrologic state o	f the wetland at the	time of assessment?
ponded/inur	ndated X saturated	soil, but no surface v	water 🛛 dry
What is the apparent	nt hydrologic regime of t	he wetland?	
wetlands are defined	ems contain surface water y as supporting surface wate <i>oded</i> depressional wetlands	er for 4-11 months o	f the year (in $> 5$ out of 10
□ perennially flooded	d 🛛 seasonally flood	ded it tempor	rarily flooded

An <i>indi</i> Examp Photo Photos 3 1 2 3 4 5 6 7 8 9 10	listinct topogra ples of such f	aphic basin is one eatures are season on Numbers and	etland distinct of that lacks obvious be hal, depressional weth d Description: boking toward the centron Latitude	oundaries between ands in very low-gr	
Photos 3 1 2 3 4 5 6 7 8 9 10	should be taken Photo ID	to from edge of AA la Description (to) North (to) East (to) South	ooking toward the centrol		Datum
2 3 4 5 6 7 8 9 10		(to) North (to) East (to) South	Latitude	Longitude	Datum
2 3 4 5 6 7 8 9 10		(to) East (to) South	dA	21 Gifa.	Nelérentez:
3 4 5 6 7 8 9 10		(to) East (to) South	i <u>UN</u> energe b	PERMIT	sanarálaði Helferarra
4 5 6 7 8 9 10	- - -	(to) South	dA	ajamentikj (a salazile	
5 6 7 8 9 10		(to) West	alla annyak	aparanta operation interaction	HURST NUMBER
6 7 8 9 10	- - 		ananga M	and the	
7 8 9 10			1		males helbulk
8 9 10	an katan				
9 10	and the street war			Analyze Land	and in the second second second
10		without an end	cercuith-fair Second	a manifold of the second of	to determine a
Site Lo	15.0.1717	<ol> <li>posterentinged</li> </ol>	<ul> <li>Stocksonskinklight</li> </ul>	aanaari Lifaadaha Di	ea artefut con as
	ocation Des	cription and Lar	nd Use:		
			4		
Comm	nents:				
				5 F. R.	
				handerer sloten	
	A MARINE	Postaria Infrarra ha	e and shot have prove b	in a strain	1 paneledia
			odens white serios		

AA Name: g Da					te: 9/10/19		
Attribute 1: Buffer and Lan	dscape	Context	(pp. 8-1	5)	Comments		
			Alpha.	Numeric	1. S. 1		
Aquatic Area Abundance Sc	ore (D)		D	3	48/4-12		
Buffer:	1.15		Reason	CARE ST.			
Buffer submetric A:	Alpha.	Numeric					
Percent of AA with Buffer	3	9			50%		
Buffer submetric B: Average Buffer Width	C	6			NIIZ, AVg		
Buffer submetric C: Buffer Condition	C	6			0		
Raw Attribute Score	=D+[	C x (A x I	B) <sup>№</sup> ] <sup>№</sup>	9.64	Final Attribute Score = (Raw Score/24) x 100	40.17	
Attribute 2: Hydrology (pp	. 16-21)	ou in 11	an tèn g	1	na strassilia bitume	hi une	
Water Source			Alpha. B	Numeric 9	RR thack compacted + rock	sail	
Hydroperiod		Y	A	12			
Hydrologic Connectivity			D	3	Hark on west	RK	
Raw Attribute Score = sum of numeric so			cores	24	Final Attribute Score = (Raw Score/36) x 100	66.67	
Attribute 3: Physical Struct	ure (pp	. 22-28)		<u>.</u>	1		
			Alpha.	Numeric			
Structural Patch Richness			C	6			
Topographic Complexity			C	6			
Raw Attribute Score = s	um of r	umeric s	cores	12	Final Attribute Score = (Raw Score/24) x 100	50	
Attribute 4: Biotic Structur	е (рр. 2	9-39)					
Plant Community Compositi				A-C)			
	Alpha.	Numeric				_	
Plant Community submetric A: Number of plant layers	A	12					
Plant Community submetric B: Number of Co-dominant species	C	6	A STATE		within different Alla taxes		
Plant Community submetric C:	D	3					
Percent Invasion	-		1000 M	A SAME			
Plant Commun (numeric)		position I submetrics		7			
Horizontal Interspersion			DK	3			
Vertical Biotic Structure			C	6			
Raw Attribute Score = s	um of r	umeric s	cores	16	Final Attribute Score = (Raw Score/36) x 100	44.44	
Overall AA Score (avera	ge of fo	ur final At	ttribute S	Scores)	50	-	

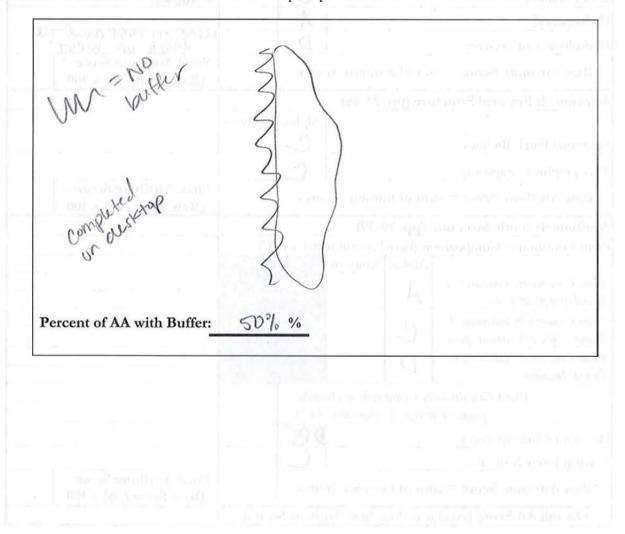
# Scoring Sheet: Depressional Wetlands

Percentage of Transect Aquatic Area		Consultation (	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature	diference in a	
North	10.4	10.6	
South	20	and the second	
East	110	10-16	
West	26	9+15-2	1
Average Percentage of Transect Length That Is an Aquatic Feature	48.6/4-212		1

#### 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.



Line	Buffer Width (m)
Α	114
В	113
С	112
D	113
E (terrete a sil	110
F	109
G	113
Н	112
Average Buffer Width *Round to the nearest whole number (integer)*	112.5hA

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 <sup>2</sup>
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	V
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	,
Cobbles and Boulders	1
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	A
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	V
Open water	
Plant hummocks and/or sediment mounds	
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)	1
Woody vegetation in water	V
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.

North to South East to West RR tracks Veguated Some vegetate channel

### 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?
		Helminthothera echoides	Y_
		Enve	14.00.000
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Nelnumbothera echicodes	<u> </u>	Taypha spp	<u>N</u>
bransica nigra	<u>y</u>	Foch Culum Vulgare	Y
They phan shoup	N	0	
Very Tall (>3.0 m)	Invasive?		
Prroyo willow/Salix lasiolenia		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	5
		Percent Invasion *Round to the nearest whole number (integer)*	60%
Pando	litta (	(enter here and use in Table 19)	

3 invasives/5

#### 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) Typha spp 2) Bare 3) Mustard/Bristly 1 (1)3 3 ox tonse 4) 2 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	landslide	other	
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	site next 3-5 site		/ to affect next 1-2 years	
	depressional	vernal pool		nal pool ystem	
Has this wetland been converted from	non-confined riverine	confined riverine	and the second se	bar-built estuarine	
another type? If yes, then what was the previous type?	perennial saline estuarine	perennial non-saline wet meas estuarine		meadow	
· · · · · · · · · · · · · · · · · · ·	lacustrine	seep or sprin	g	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)	1	1
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		1.5
Flow diversions or unnatural inflows		1 N
Dams (reservoirs, detention basins, recharge basins)	A	
Flow obstructions (culverts, paved stream crossings)	- VI - 7	201
Weir/drop structure, tide gates	1	
Dredged inlet/channel	7	5.4
Engineered channel (riprap, armored channel bank, bed)	2.3.3	Sec. 1.
Dike/levees		125/
Groundwater extraction	1.2	27
Ditches (borrow, agricultural drainage, mosquito control, etc.)	1 A. V	×1.
Actively managed hydrology	1.101 1_	
Comments		<u></u>

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)	· · · · · ·	9
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	with Londow W.	
Excessive sediment or organic debris from watershed		1 m m 2 m
Excessive runoff from watershed		AND A DESCRIPTION
Nutrient impaired (PS or Non-PS pollution)	- Tupunday war	
Heavy metal impaired (PS or Non-PS pollution)	com lan hear a	Control of the
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	Contraction of the second s	
Comments	4 w0intfnbil/r	
The second secon		
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white way	within An	And good	105 art and a state of a state of the second state of the

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	F	
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
		5 P

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

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# **Basic Information Sheet: Depressional Wetlands**

Assessment Area Nan	ne: 9	_	
Project Name:	· · · · · · · · · · · · · · · · · · ·		
Assessment Area ID # Project ID #:	f:	Date: 9/11/1	a
Project ID #:		Date: 9 /////	7
Assessment Team Me	mbers for This AA		
D Maniscale	D, M. Lewis		
AA Category:			
Pre-Restoration	Post-Restoration	Pre-Mitigation	Post-Mitigation
Pre-Impact	□ Post-Impact	□ Training	□ Ambient
□ Reference	□ Other:		í
Origin of Wetland (i	f known):	RR track	adjacent to
□ Natural system	Artificial system		AA
Type of Managemer	nt (if known):		
u waterfowl/birds u	amphibians 🗆 general wi	ldlife □ sediment □	water quality 🗆 stormwater
	lture) 🗆 water supply (live		• • • • • • • • • • • • • • • • • • •
Which best describe	s the type of depression	al wetland?	
freshwater marsh	n 🗆 alkaline marsh	□ brackish	marsh
□ other (specify):			
AA Encompasses:		- <u>-</u>	- pł
entir	e wetland	rtion of the wetland	
Which best describe	s the hydrologic state of	the wetland at the	time of assessment?
ponded/inun	dated saturated	soil, but no surface v	vater (dry)
What is the apparent	t hydrologic regime of t	he wetland?	$\bigcirc$
wetlands are defined a	ns contain surface water y s supporting surface water ded depressional wetlands y	r for 4-11 months of	f the year (in $> 5$ out of 10
perennially flooded	seasonally flood	led (tempor	rarily flooded

		1 1 0 1	1 ( 1 )	1 C 1	<u> </u>
			n undefined <u>outlet</u> ?		undefined
Does	the wetland	have a defined or	n undefined <u>inlet</u> ?	defined	undefined
re t	he inlet and o	outlet at the same	location?	□ yes	∦ no
s the	e topographie	c basin of the wet	land distinct o	r indistinct ?	97
			hat lacks obvious bo		
Exam	ples of such f	eatures are seasona	l, depressional wetla	nds in very low-grad	dient landscape
Phot	o Identificati	on Numbers and	Description:		
	o fuentineau	on realisers and	Description.		
	1 171 . 1	C 1 C 4 4 1		1 ( 1 1	
Photos	s should be taken	n from edge of AA loo	king toward the centroid	l of AA	
Photos	Photo ID	r from edge of AA loo	king toward the centroid	d of AA Longitude	Datum
		Description	Latitude	Longitude	Datum
1	Photo ID No.	Description       (to) North	Latitude		Datum
1 2	Photo ID No. l	Description(to) North(to) East	Latitude	Longitude	Datum
1 2 3	Photo ID No. l 2 3	Description(to) North(to) East(to) South	Latitude	Longitude	Datum
1 2 3 4	Photo ID No. l	Description(to) North(to) East	Latitude	Longitude	Datum
1 2 3 4 5	Photo ID No. l 2 3	Description(to) North(to) East(to) South	Latitude	Longitude	Datum
1 2 3 4 5 6	Photo ID No. l 2 3	Description(to) North(to) East(to) South	Latitude	Longitude	Datum
1 2 3 4 5	Photo ID No. l 2 3	Description(to) North(to) East(to) South	Latitude	Longitude	Datum

Site Location Description and Land Use: Historic fill site and next to RR Mack.

**Comments:** 

AA Name: 9	ite: 9/11/19					
Attribute 1: Buffer and Lan	dscape	Context	(pp. 8-1	5)	Comments	
Aquatic Area Abundance Sc	Aquatic Area Abundance Score (D)		Alpha.	Numeric		
			D	3	12.51 1-	
Buffer:		r		P Second		
Buffer submetric A:	Alpha.				5105% and	
Percent of AA with Buffer	B	9	1-2-32			
Buffer submetric B: Average Buffer Width	13	9			169m avg width	
Buffer submetric C: Buffer Condition	C	6		and the		
Raw Attribute Score	= D+[	C x (A x ]	B) <sup>½</sup> ] <sup>½</sup>	10.35	Final Attribute Score = (Raw Score/24) x 100	43.12
Attribute 2: Hydrology (pp.	. 16-21)					
			Alpha.	Numeric		
Water Source			B	9		
Hydroperiod			A	12	-	
Hydrologic Connectivity			D	3		
Raw Attribute Score = sum of numeric scores				24	Final Attribute Score = (Raw Score/36) x 100	66.67
Attribute 3: Physical Structure (pp. 22-28)						
			Alpha.	Numeric		
Structural Patch Richness			D	3		
Topographic Complexity			C	6	<i>.</i>	
Raw Attribute Score = sum of numeric scores 9				9	Final Attribute Score = (Raw Score/24) x 100	37.5
Attribute 4: Biotic Structure	e (pp. 2	9-39)				
Plant Community Composition		-		а-С)		
	Alpha.	Numeric				
Plant Community submetric A: Number of plant layers	A	12				
Plant Community submetric B: Number of Co-dominant species	C	6				
Plant Community submetric C: Percent Invasion	D	3				
Plant Communi	ity Com	position N	Aetric			
	(numeric average of submetrics $A-C$ )					
Horizontal Interspersion			C	6		
Vertical Biotic Structure			D	3		_
Raw Attribute Score = st	um of n	umeric s	cores	16	Final Attribute Score = (Raw Score/36) x 100	44.44
Overall AA Score (average	ge of for	ur final At	tribute S	cores)	48	

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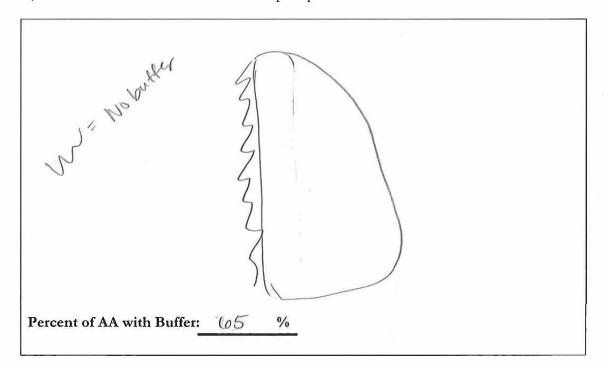
# Scoring Sheet: Depressional Wetlands

Percentage of Transect Aquatic Area		
Segment Direction	Percentage of Transect Length That is an Aquatic Feature	
North	30	30
South	11.2	6 4 4
East	9.16	2 7.6
West	O in	19 E
Average Percentage of Transect Length That Is an Aquatic Feature	50,81 = 2	]
Dongin That to an rightable I catule		Ĺ

#### 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.



Line	Buffer Width (m)
Α	167
В	134
С	137
D	169
E	163
F	203
G	169
Н	206
Average Buffer Width *Round to the nearest whole number (integer)*	169

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 <sup>2</sup>
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	1
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	
Plant hummocks and/or sediment mounds	
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)	R

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## 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 East to West What Rock RR

### 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?
		Unalayou blackberry	- Y
		0	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Bastly extensive	Ý	Forniculum Vulgare	Y
Brassira negra	¥	10 - fort we with the eges	1
Starshill ray to -	1		
Very Tall (>3.0 m)	Invasive?		
Arrovo-Sulix alsonoilis	N	Total number of co-dominant	
Alloy all all allogo all	12	species for all layers combined	5
		(enter here and use in Table 19)	5
		Percent Invasion	
		*Round to the nearest	807
		whole number (integer)*	0 10
		(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) Bristly oxtongere 2) Willow 3) Mustard 4) 5) 6)

#### Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No			08
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other	rack
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to af site next 3 years		y to affect e next 1-2 years	10
×	depressional	l vernal po		rnal pool system	
Has this wetland been converted from	non-confine	d confine	d b	ar-built	
another type? If yes, then what was the	riverine	riverine	e e	stuarine	
	perennial	perenni	al		
previous type? Withown	saline	non-sali	ne we	t meadow	
Withman	estuarine	estuarin	e		
	lacustrine	seep or sp	ring	playa	

## Stressor Checklist Worksheet

	Present	effect on AA
oint Source (PS) discharges (POTW, other non-stormwater		
ischarge)		
Non-point Source (Non-PS) discharges (urban runoff, farm		
rainage)		
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		
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)	V.	
Grading/ compaction (N/A for restoration areas)	V	
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)	1	
Trash or refuse	V	
Comments		
		1

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA	
Mowing, grazing, excessive herbivory (within AA)			
Excessive human visitation	V		
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opossum and domestic predators, such as feral pets)			
Free cutting/sapling removal			
Removal of woody debris			
Freatment 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	V	1	
Comments			

o - 8

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	1	
Industrial/commercial	V	
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	V	
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		



Atteriouto 1. Duffer and I	dagater	Content	(mm 0 1)	5)	· · · ·	nments	
Attribute 1: Buffer and Lan	uscape	Context		Numeric		nments	_
Aquatic Area Abundance Sc	ore (D)		$\mathcal{D}$	3			
Buffer:			1423				
Buffer submetric A: Percent of AA with Buffer	Alpha.	Numeric			100 % /0 /04	ffered	
Buffer submetric B: Average Buffer Width	B	9			–133m avg v	vidth —	
Buffer submetric C: Buffer Condition	C	6					
Raw Attribute Score	= D+[	С х (А х 1	B) <sup>1/2</sup> ] <sup>1/2</sup>	10.89	Final Attribu (Raw Score/	4	5.4
Attribute 2: Hydrology (pp	. 16-21)						
Water Source			Alpha. B	Numeric 9			
Hydroperiod			A	12			
Hydrologic Connectivity			D	3			
Raw Attribute Score = s	um of n	umeric s	cores	24	Final Attribu (Raw Score/		6.6
Attribute 3: Physical Struct	ure (pp	. 22-28)					
			Alpha.	Numeric			
Structural Patch Richness			C.	6			
Topographic Complexity			C	6			
Raw Attribute Score = s	um of n	umeric s	cores	12	Final Attribu (Raw Score/		50
Attribute 4: Biotic Structur	е (рр. 2	9-39)					
Plant Community Compositi			netrics A	а-С)			
	Alpha.	Numeric	No. of Contraction				
Plant Community submetric A: Number of plant layers	B	9					_
Plant Community submetric B: Number of Co-dominant species	D	3			_		
Plant Community submetric C: Percent Invasion	D	3					
Plant Commun (numeric d		position N submetrics		5			
Horizontal Interspersion			C	6			
Vertical Biotic Structure			D	3	No overla	p-allwi	11
Raw Attribute Score = s	um of n	utaorio o	cotos	14	Final Attribu (Raw Score/	te Score = 3	8.8

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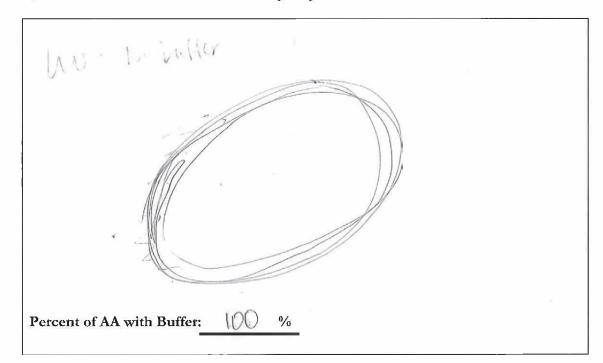
# Scoring Sheet: Depressional Wetlands

Percentage of Transect Lines that Contains Aquatic Area of Any Kind				
Segment Direction	Percentage of Transect Length That is an Aquatic Feature			
North	10			
South	12.0			
East	3.6			
West	0			
Average Percentage of Transect Length That Is an Aquatic Feature	1.3			

#### 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.



Line	Buffer Width (m)
Α	250
В	204
С	127
D	150
E	139
F	133
G	_26
Н	37
Average Buffer Width *Round to the nearest whole number (integer)*	133

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	$3 \text{ m}^2$
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	I
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	1
Non-vegetated flats or bare ground	
(sandflats, mudflats, gravel flats, etc.)	
Open water	
Plant hummocks and/or sediment mounds	
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)	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.

North to South willows East to West Grassland Willows

#### 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?
			-
	-		
Medium (0.5 – 1.5 m)	Invasive?	Tall $(1.5 - 3.0 \text{ m})$	Invasive?
Bristly oxtangue	Y	Fennel	Y
1 0			
	_		_
		· · · ·	
Very Tall (>3.0 m)	Invasive?		
Salix alpsolus	N	Total number of co-dominant	6
		species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion	
		*Round to the nearest	662
		whole number (integer)*	01 0
		(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) Willows 2) Grassland 3) French broom 4) Oxteenque/fennel Gras X 5) B 6)

#### 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		land	slide	other	)RR
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to af site next 3 years		site	to affect next 1-2 years	
2	depressiona	l vernal po	vernal pool		nal pool ystem	
Has this wetland been converted from	non-confine riverine	d confine riverine	tertile version			
another type? If yes, then what was the previous type?	perennial saline estuarine	perenni non-sali estuarin	ne	wet	meadow	
	lacustrine	seep or sp	ring	1	playa	

## Stressor Checklist Worksheet

Point Source (PS) discharges (POTW, other non-stormwater lischarge) Non-point Source (Non-PS) discharges (urban runoff, farm	
Non-point Source (Non-PS) discharges (urban runoff, farm	
lrainage)	
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	

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	V V	
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		
Resource extraction (sediment, gravel, oil and/or gas)         Vegetation management         Excessive sediment or organic debris from watershed         Excessive runoff from watershed		
Vegetation management Excessive sediment or organic debris from watershed Excessive runoff from watershed		
Excessive sediment or organic debris from watershed Excessive runoff from watershed		
Excessive runoff from watershed		
		1
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., <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 organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	V.	
Lack of treatment of invasive plants adjacent to AA or buffer	V	
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	V	
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**

A			
Assessment Area Na			and the second second
Project Name: HS1 Assessment Area ID		ante de la transferio e	contraction with market
Project ID #:	7.	Date: SELT 10	1.19
Hojeet ID #.		Date: 5817 10	101 (
Assessment Team M	embers for This AA		
RJV, MCM,	MAL, DCM		
my mention ap alban-	nd ye on dorther that	reiningh. Drair abir, 197 e	where it is a set particular
AA Category:	i den	diame. Internation.	A source of the second s
Pre-Restoration	Post-Restoration	Pre-Mitigation	Post-Mitigation
Pre-Impact	🗆 Post-Impact	□ Training	□ Ambient
□ Reference	□ Other:	14.4	4(A) 6 (A)
Origin of Wetland	(if known):	1	
🗆 Natural system	Artificial system		
117.00	ulture)  water supply (lives the type of depression with the type of depression with the type of depression with the type of t	nal wetland?	ing the Location Demograph
AA Encompasses:		н 1	konny and
⊭ enti	ire wetland $\Box p$	ortion of the wetland	
Which best describ	es the hydrologic state o	of the wetland at the	time of assessment?
ponded/inu	ndated) saturated	l soil, but no surface w	vater dry
What is the apparent	nt hydrologic regime of	the wetland?	
wetlands are defined	ems contain surface water as supporting surface wat <i>oded</i> depressional wetlands	er for 4-11 months of	the year (in $> 5$ out of 10
perennially flooded	d seasonally floo	ded tempor	arily flooded

Does your wetland connect with the floodplain of a nea (system subject to overbank flow, a dammed stream does not count)	rby stream?	yes no
Does the wetland have a defined on undefined outlet?	defined	(undefined )
Does the wetland have a defined on undefined inlet?	defined	(undefined)
Are the inlet and outlet at the same location?	□ yes	□ no
$\sim$	1.2 motor-b/	DATE TO A DESIGN AND A

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

1	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East		3676-03-24	2010001071
3		(to) South			
4		(to) West	1 P. M.	- Second two	a survey and the filter
5			and the later	Ald Zing and a	a service development
6					5
7				A CATACANA (CD), In Consult	arma to sula
8	the state of the second state of the	den er er eren i	anana efficience and	the subdoment sta	A hard manage
9					
10	- 10   1 President	<ul> <li>Desperation in the</li> </ul>	a traver a stratilita	Trough Research	Jul Des Barres

### Site Location Description and Land Use:

**Comments:** 

AA Name: AA11 Da					Date:	
Attribute 1: Buffer and Lan	dscape	Context			Comments	
		1	Alpha.		ric No aquatic areas	
Aquatic Area Abundance Sc	ore $(D)$		D	3		
Buffer:				and the second	The second s	
Buffer submetric A:	Alpha.	-	A Selling		100% buffer	
Percent of AA with Buffer	A	12				
Buffer submetric B:	D	3			57m avg buffer length	
Average Buffer Width						
Buffer submetric C:		6				
Buffer Condition	C			SKE 1		
Raw Attribute Score	= D+[	C x (A x I	3) <sup>1/2</sup> ] <sup>1/2</sup>	9	Final Attribute Score = 3 (Raw Score/24) x 100	7.5
Attribute 2: Hydrology (pp	. 16-21)	man ist	en di Sur	hilidh i	the encoderated below we are	n dad
ndel ni unitioni i stran Dog J		) ministration	Alpha.	Numer	ric	
Water Source			В	9	adapting three states and states and the second	R UND
Hydroperiod			A	12		1
			C	6		1
Hydrologic Connectivity Raw Attribute Score = sum of numeric se			cores	27	Final Attribute Score = 7	'5
					(Raw Score/36) x 100	-
Attribute 3: Physical Struct	ure (pp	. 22-28)	1			
			Alpha.	-	ric	
Structural Patch Richness			0	3		
Topographic Complexity	1		В	9		_
Raw Attribute Score = st	um of n	umeric s	cores	12	Final Attribute Score = (Raw Score/24) x 100 5	50
Attribute 4: Biotic Structur	е (рр. 2	9-39)				
Plant Community Compositi				L-C)		11
	Alpha.	Numeric				_
Plant Community submetric A: Number of plant layers	B	9				
Plant Community submetric B:		3	Steller I		Phone and the philip and the monored	
Number of Co-dominant species	D		and she			
Plant Community submetric C:	17	3				
Percent Invasion			AS ANTER		34	
Plant Commun (numeric d		position N submetrics		5		_
Horizontal Interspersion			C	6		
Vertical Biotic Structure			A	12		
Raw Attribute Score = s	um of r	umeric s	cores	23	Final Attribute Score = 6 (Raw Score/36) x 100	63.89
Overall AA Score (avera	ec of for	ur final At	tribute S	cores)	57	

# 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	0	
South	0	
East	0	
West	0	
Average Percentage of Transect Length That Is an Aquatic Feature	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% buffer % Percent of AA with Buffer:

Line	Buffer Width (m)
A	250
В	62
С	37
D	12
E fraction to	5
F	8
G	14
Н	71
Average Buffer Width *Round to the nearest whole number (integer)*	57

Worksheet for calculating average buffer width of AA

and and the service of the service o

## 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	$3 \text{ m}^2$
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	0
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	
Plant hummocks and/or sediment mounds	
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	X
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)	Ţ

#### 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 East to West

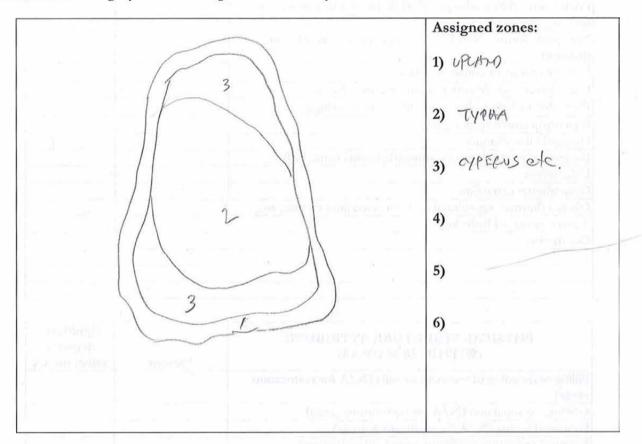
### Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% *relative* cover)

\* 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?
		BUSTLY of Tongue	Y
		(HERMINITENCA ECHINDES)	C DELET
Medium (0.5 – 1.5 m)	Invasive?	Tall $(1.5 - 3.0 \text{ m})$	Invasive?
BRISTLY OR TINGLE	Y	- TYPHA S1.	N
EPILOBIUM CILIATUM	K/	FOENCULIUM VULGAFE	Y
			/
Very Tall (>3.0 m)	Invasive?		and a start of the
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	4
		Percent Invasion *Round to the nearest	50
	_	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.



Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire 1	andslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affec site next 3-5 years	site	v to affect next 1-2 years
	depressional	vernal pool		nal pool ystem
Has this wetland been converted from another type? If yes, then what was the previous type?	non-confined riverine	confined riverine	the second se	ar-built tuarine
	perennial saline estuarine	perennial non-saline estuarine	wet	meadow
	lacustrine	seep or spring	g	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		

PHYSI	CAL STRUCTU (WITHIN 50 M	RE ATTRIBUTE 1 OF AA)		Present	Significant negative effect on AA
Filling or dumping areas)	g of sediment or so	oils (N/A for restor	ation		
Grading/ compac	tion (N/A for res	toration areas)			
Plowing/Discing	(N/A for restorat	tion areas)			
Resource extraction	on (sediment, grave	el, oil and/or gas)			
Vegetation manag	ement	and anyone has	comultin	di bouhalt	
Excessive sedimer	nt or organic debri	s from watershed			
Excessive runoff	from watershed			a survey reprise	A PARTY A PARTY A
	(PS or Non-PS po			Autor State	
	ired (PS or Non-P		in Squip fi	i lloni, idt, idl	In some of the
		(PS or Non-PS poll		A DATE:	
	ogens impaired (PS	S or Non-PS pollutio	n)		
Trash or refuse		prin specify	10	- nerve and en-	the state of the
Comments		1 of \$ 150(1		™ x ⇒inoiel.	
		the states			
New Assess					
1002 112	and an it is a	Berrine School			
dimbard	braziany	Local room local			
	hark met		The second second		and other man

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)	
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	
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	
Removal of woody debris	
Treatment of non-native and nuisance plant species Pesticide application or vector control	1
Pesticide application or vector control	
	-
Rich rich records autoration on the high (fick arise a queatiture)	
biological resource extraction of stocking (isneries, 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	

Significant negative effect on AA	Present	BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)
		Jrban residential
		ndustrial/commercial
	_	Military training/Air traffic
		Dams (or other major flow regulation or disruption)
		Dryland farming
		ntensive row-crop agriculture
		Orchards/nurseries
		Commercial feedlots
		Dairies
<u> </u>		Ranching (enclosed livestock grazing or horse paddock or eedlot)
		Fransportation 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, ishing)
		Physical resource extraction (rock, sediment, oil/gas)
		Biological resource extraction (aquaculture, commercial fisheries)
		Comments

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ssessment Area ID#: roject ID#: Date 9 11 16 ssessment Team Members for This AA: D. Maniscalco, M. Lewis ssessment Area Size: urface water present during the assessment? • Yes No Flowing? • Yes No riefly describe the hydrology of the AA (e.g., water sources, channels, ewgles, etc.) Nigin of Wetland DNatural Arrithmal - Historical fill ype of Management - not managed ype of Management - not managed acs wetland connect w/ flood plain of nearby Stream? <u>Marith</u> AA Category: • Pre-Restoration • Post-Restoration • Pre-Mitigation		ndary of AA due to 2 different westlan Depressional types whin Basic Information Sheet: Slope Wetlands
seessment Area ID#: roject ID#: Date 9 11 A ssessment Team Members for This AA: D MANISCALCO, M. Lew IS seessment Area Size: urface water present during the assessment? Yes No Flowing? Yes No ricity describe the bydrology of the AA (e.g., water courses, channels, evelos, etc.) Night of Welfand DNatural WAT Wild - Historical fill yae of Manageneut - not nanaged tess welfand connect w/ flood plain of neuroby Stheam? Int AA Category: Pre-Restoration Post-Restoration Pre-Mitigation Post-Mitigation %Pre-Impact Post-Impact Ambient Reference Training Other: Which best describes the type of welland? 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: Mentire wetland portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? Multiplication of the wetland? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year. Mentire water to weter year in 25 out of 10 years.) Temporarity flooded slope wetlands possess surface water by even year water Mentand? Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year. Mentare water for 4-11 months of the year. Merennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year. Merennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year. Merennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year. Merennial slope wetlands contain surface water year-round, seasonal slope wetlands support Merennial slope water between 2 weeks and 4 months of the year.		
Image: ID#:       Date       P II A         ssessment Team Members for This AA:       D. Maniscalco, M. Lawis         b. Maniscalco, M. Lawis         ssessment Area Size:         urface water present during the assessment?       Yes       No         Flowing?       Yes       No       Flowing?       Yes         wight of Welland       Data assessment?       Yes       No       Flowing?       Yes       No         Findy describe the bydelogy of the AA (e.g., water sources, channels, cweles, etc.)       No       Flowing?       Yes       No         Findy describe the bydelogy of the AA (e.g., water sources, channels, cweles, etc.)       No       Flowing?       Yes       No         Findy describe the bydelogy of the AA (e.g., water sources, channels, cweles, etc.)       No       Flowing?       Yes       No         At Category:       Pre-Matagel       An Category:       Pre-Restoration       Pre-Mitigation       Post-Mitigation         Pre-Impact       Post-Impact       Ambient       Reference       Pre-Impact       Reference         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       Non-Channeled Wet Meadow		
ssessment Team Members for This AA: D. Man Scalco, M. Lewis ssessment Area Size: urface water present during the assessment? Yes No Flowing? Yes No Flowing?		
D. Maniscalce, M. Lewis   sessment Area Size:	Project ID#:	Date 9 11 19
ssessment Area Size:   arface water present during the assessment? Yes No Flowing? Yes No Actactory: Pre-Restoration Post-Entrance Post-Impact Post-Impact Post-Impact Post-Impact Post-Impact Post-Impact Post-Impact Post-Mitigation Post-Mitigation Post-Mitigation Post-Mitigation Post-Mitigation Post-Mitigation Post-Mitigation Post-Mitigation Post-Mitigation Superior Non-Channeled Forested Slope Slope Seep or Spring Actional Elements Actional Element and Protein of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? Monded/inundated I saturated soil, but no surface water of the the apparent hydrologic regime of the wetland? Post-Mitigation of the year. Multi she apparent hydrolo		
riefly describe the budrelagy of the AA (c.g., water sources, channels, ewales, etc.) Angin of Wetfand □Natural tArrificial - Historical fill yee of Mavagement - not managed 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? □ Yes □ No AA Encompasses:		
AA Category:   Pre-Restoration   Pre-Impact   Post-Impact   Ambient   Pre-Impact   Post-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 Step or Spring Are peat soils present in the AA? Ves - No AA Encompasses: And entire wetland I portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? Yponded/inundated I 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. Appendix Perennial I seasonal I perennial I seasonal	Surface water prese	ent during the assessment? $\Box$ Yes $\lambda$ No Flowing? $\Box$ Yes $\lambda$ No
<ul> <li>Pre-Restoration □ Post-Restoration □ Pre-Mitigation □ Post-Mitigation</li> <li>Pre-Impact □ Post-Impact □ Ambient □ Reference</li> <li>Training □ Other:</li> <li>Which best describes the type of wetland?</li> <li>Channeled Wet Meadow (assoc. with a fluvial channel) □ Non-Channeled Wet Meadow</li> <li>□ Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring</li> </ul> Are peat soils present in the AA? □ Yes □ No AA Encompasses: <ul> <li>∅ entire wetland □ portion of the wetland</li> </ul> Which best describes the dominant hydrologic state of the AA at the time of assessment? 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. A perennial □ seasonal	Type of Mana Does wetland	connect w/ bloodplain of nearby stream? 1051
<ul> <li>□ Training □ Other:</li> <li>Which best describes the type of wetland?</li> <li>□ Channeled Wet Meadow (assoc. with a fluvial channel) □ Non-Channeled Wet Meadow</li> <li>□ Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring</li> </ul> Are peat soils present in the AA? □ Yes □ No AA Encompasses: <ul> <li>∅ entire wetland □ portion of the wetland</li> </ul> Which best describes the dominant hydrologic state of the AA at the time of assessment? <ul> <li>∅ ponded/inundated □ saturated soil, but no surface water □ moist ☑ dry</li> </ul> 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. <ul> <li>∅ perennial □ seasonal</li> <li>∅ perennial □ seasonal</li> </ul>	AA Category:	□ Post-Restoration □ Pre-Mitigation □ Post-Mitigation
Which best describes the type of wetland?   Channeled Wet Meadow (assoc. with a fluvial channel)   Non-Channeled Wet Meadow (assoc. with a fluvial channel)   Non-Channeled Wet Meadow   Channeled Forester Slope   Non-Channeled Forested Slope   Seep or Spring   Are peat soils present in the AA? Yes = No AA Encompasses: A entire wetland I portion of the wetland Which best describes the dominant hydrologic state of the AA at the time of assessment? Yponded/inundated I saturated soil, but no surface water I moist 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. A perennial I seasonal I temporarily flooded	Pre-Impact	
<ul> <li>Channeled Wet Meadow (assoc. with a fluvial channel) □ Non-Channeled Wet Meadow</li> <li>Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring</li> <li>Are peat soils present in the AA? □ Yes □ No</li> <li>AA Encompasses:         <ul> <li>∅ entire wetland □ portion of the wetland</li> </ul> </li> <li>Which best describes the dominant hydrologic state of the AA at the time of assessment?</li> <li>ৄ ponded/inundated □ saturated soil, but no surface water □ moist ↓ dry</li> <li>What is the apparent hydrologic regime of the wetland?</li> <li>Perennial slope wetlands contain surface water year-round, seasonal slope wetlands support surface water for 4-11 months of the year (in &gt; 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.</li> <li>☑ perennial □ seasonal □ seasonal in temporarily flooded</li> </ul>		
<ul> <li>Channeled Forested Slope □ Non-Channeled Forested Slope □ Seep or Spring</li> <li>Are peat soils present in the AA? □ Yes □ No</li> <li>AA Encompasses:         <ul> <li>If entire wetland □ portion of the wetland</li> </ul> </li> <li>Which best describes the dominant hydrologic state of the AA at the time of assessment?             <ul> <li>If ponded/inundated □ saturated soil, but no surface water □ moist</li> <li>If what is the apparent hydrologic regime of the wetland?</li> </ul> </li> <li>Perennial slope wetlands contain surface water year-round, <i>seasonal</i> slope wetlands support surface water for 4-11 months of the year (in &gt; 5 out of 10 years.) Temporarily flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.             <ul> <li>If perennial</li> <li>If seasonal</li> <li>If temporarily flooded</li> </ul> </li> </ul>	Which best descri	bes the type of wetland?
Are peat soils present in the AA?     Yes     AA Encompasses:     Image: 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.	□ Channeled Wet M	leadow (assoc. with a fluvial channel)
AA Encompasses: <ul> <li>portion of the wetland</li> <li>portion of the wetland</li> </ul> Which best describes the dominant hydrologic state of the AA at the time of assessment?         ponded/inundated              saturated soil, but no surface water <ul> <li>moist</li> <li>dry</li> </ul> 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         month              seasonal	Channeled Foreste	ad Slope □ Non-Channeled Forested Slope □ Seep or Spring
Which best describes the dominant hydrologic state of the AA at the time of assessment?   ************************************	Are peat soils pres	sent-in the AA? Yes No
Which best describes the dominant hydrologic state of the AA at the time of assessment?         Image: ponded/inundated	AA Encompasses:	
Which best describes the dominant hydrologic state of the AA at the time of assessment?         Image: ponded/inundated	🕺 en	tire wetland
ponded/inundated       □ saturated soil, but no surface water       □ moist         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.         Image: perennial       □ seasonal		bes the dominant hydrologic state of the AA at the time of
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.         Image: Perennial perennial slope wetlands contain surface water year-round, seasonal slope wetlands support flooded slope wetlands possess surface water between 2 weeks and 4 months of the year.         Image: Perennial perenni		a saturated soil, but no surface water in moist and solution
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	Y	×_
wetlands possess surface water between 2 weeks and 4 months of the year. perennial  seasonal temporarily flooded	Perennial slope wetl	ands contain surface water year-round, seasonal slope wetlands support
The second se		
indefined inlet and owflet interfand owflet are not in the same location	pere	ennial 🗆 seasonal Ftemporarily flooded
Inlefand outlet are not in the same location	Undefined in	let and owflet
D. M. O. L. conclaim la li	Inlefand a	whet are not in the same location
UP I HAD TO OCCUPATION IN A MAN	an wind o	$1.1 \times 1$

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	oto Ider	ntification Numbers and Description:
	Photo ID No.	Description
	2	Looking North into the AA 37.694351 -122,400253
2	3	Looking South into the AA 37. 694079 - 122. 399922
	t	Looking East into the AA 37, 694403 ~ 122. 399781
	4	Looking West into the AA 37.694153 - 122.400265
		STUDIEL II LEVEN
		2014 1710 A 18 01/201
0	_	Manufari and W. 191, and S. C. 1990 and the model of the state of the
	Nea	r factory aff of Tannel Rd.
		contrast in mades to population resulted
Co	mments	and de la guillante de
CU	mments	South the Theory Condition of the other than the little
		<ul> <li>Backburg angene</li> </ul>
		the data will be contented in the data will be
		White itsel describes the dominant' leptherings externed for AA schiles there is searchile."

## Depressional Scoring Sheet: Slope Wetlands

AA Name: 12					Date	9/11/19		
Attribute 1: Buffer and Land		Comments						
Aquatic Area Abundance (D)		Alpha D	Numeric 3	3%	_			
Buffer	ett our	Chu Leeli	1		11-12			
Buffer submetric A:			73% buffer					
Percent of AA with Buffer	B	9			1 10/01	ounor		
Buffer submetric B:	D	3	A Specific		26m a	avg width		
Average Buffer Width		3	Less.					
Buffer submetric C:	Δ	6	ALL STON				-	
Buffer Condition	C	0	The states					
Raw Attribute Sc	ore = D	+[ C x (A	x B) <sup>1/2</sup> ] <sup>1/2</sup>	8.6	Final A	ttribute Score =	35.8	
		(do not	t round)	S	(Raw S	Score/24) x 100		
Attribute 2: Hydrology				Subject	the states in the states	A PLIKER		
<u>_</u>			Alpha	Numeric				
Water Source			B	9				
		_	X	12				
Hydroperiod			12	9	_			
Hydrologic Connectivity (all but			D					
Hydro Connectivity submetric A:	Alpha	Numeric	10.93					
Bank Height Ratio		1.154	1223		The State	NO 2229 DAL DELLOS		
Hydro Connectivity submetric B:	1	11 215	A REPORT		2. Percenting			
Persent Dewatered		-	Part is see . South	Stat (SLEPROURS				
Hydrologic Connectivity for Ch	anneled (	(avg. of snb.	metrics A-B		Debryning arcers fiel			
Raw Attribute Score = sum of numeric scor				30	and the second s	ttribute Score =	83.3	
Kaw Attribute Score - s	uniori	lumene	scores		(Raw S	Score/36) x 100		
Attribute 3: Physical Struct	ure							
			Alpha	Numeric				
Structural Patch Richness			C.	6				
Topographic Complexity			C	6				
Raw Attribute Score = s	um of t	umeric	scotes	12		ttribute Score =	50	
Kaw Attribute Score – s		Iumene	Scores		(Raw	Score/24) x 100		
Attribute 4: Biotic Structure	e							
Plant Community Composition	(submet	ric A is no	ot applicab	le for Non	-Channeled	meadows)		
	Alpha	Numeric		a when the state			1	
Plant Community submetric A:	A	12						
Number of plant layers	~		300751.82					
Plant Community submetric B:	B	9			8			
Number of Co-dominant species							_	
Plant Community submetric C: Percent Invasive species	D	3	Constant Constant					
			BRANCH DOWN	8				
Plant Comm. Composition (avg.	of submet	trics A-C o						
			Alpha	Numeric				
Horizontal Interspersion			C	6	1 L L			
Plant Life Forms Vertical	bintio	Structal	RC.	6	1.11			
Raw Attribute Score = s	20		Attribute Score = Score/36) x 100	55.6				
Overall AA Score (average of four final Attribute Scores)						56		

### **Aquatic Area Abundance Worksheet**

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	0				
South	0				
East	0				
West	14				
Average Percentage of Transect Length That Is an Aquatic Feature	3				

## 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.

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no buffer	er stranteen op i sweet soutente seel
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( +++	and the state state of the
	mund
	no buffer
primer seat	and there and the special are sticked for the

Line	Buffer Width (m)
A	52
В	32
C	21
D	11
E	29
F	19
G	20
Н	21
Average Buffer Width	26

## 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).		n nigu navat jë carde	isin () sin () Nyan
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).			

to acces for parts front are part give order 'in consultion grain provid Worksheet for Assessing Hydrologic Connectivity: Percent Dewatered for Slope Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Intact Hydrologic Connectivity	<ul> <li>No channel incision</li> <li>Vigor of plant species, especially hydrophytes</li> <li>Low or no cover of upland plant species</li> <li>No rill or gully development</li> <li>No arcas of bare soil</li> <li>No soil cracking</li> <li>No changes in soil structure or moisture content</li> <li>Surface water present on the wetland plain late into the summer season</li> <li>Groundwater emerging</li> <li>Moist peat soil</li> <li>Floating fens</li> <li>Evidence of regular inundation on floodplain slope wetlands (wrack etc.)</li> </ul>
Indicators of Degraded Hydrologic Connectivity (dewatering)	<ul> <li>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</li> <li>Stress or mortality of plants</li> <li>Presence of xeric plant species</li> <li>Development of rills or gullies on the wetland surface</li> <li>Areas of bare soil</li> <li>Areas of soil cracking</li> <li>Drying of peat</li> <li>Decrease in vigor of hydrophytes</li> <li>Changes in plant or animal species or communities</li> <li>Changes in soil structure or moisture content</li> <li>More than 5% cover in the AA of upland confer species (e.g. Douglas fir (<i>Pseudotsuga menziesii</i>), Lodgepole Pine (<i>Pinus contorta</i>), see special note)</li> <li>More than 5% cover in the AA of upland broadleaf tree species (e.g. tanoak (<i>Natholithocarpus densiflorus</i>), coast live oak (<i>Querus agrifolia</i>)</li> <li>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>)</li> <li>More than 5% cover in the AA of upland vines (e.g. raguest defined belix), Himalayan blackberry (<i>Rubus armeniacus</i>), field bindweed (<i>Convolvulus arvensis</i>)</li> <li>More than 5% cover in the AA of upland prasses (e.g. ripgut brome (<i>Bronus diandrus</i>), cheatgrass (<i>Bronus tectorum</i>), needlegrass (<i>Stipa pulcbra</i>)</li> <li>More than 5% cover in the AA of upland prasses (e.g. ragweed (<i>Ambrosia artemisijolia</i>), mustard (<i>Brassica rapa</i>), yellow star thistle (<i>Centaurea solstitialis</i>)</li> </ul>
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

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 17 below.

STRUCTURAL PATCH TYPE (circle for presence)	Slope Wetland			
Minimum Patch Size	3 m <sup>2</sup>	ų.,		
Abundant wrack or organic debris in channel, or across wetland plain	T			
Active fluvial channel(s)				
Animal mounds and burrows, sediment disturbance, or vole trails	1.			
Bank slumps or undercut banks in channels				
Beaver dams or lodges	11707	in inte		
Boulders or bedrock outcrop			2	
Cutoff channels or oxbows				
Filamentous macroalgae or algal mats	1	×		
Gravel, cobble, or sand	123	100		
Large woody debris				
Moss				
Non-vegetated flats or bare ground	1			
Pannes or pools on wetland surface				
Plant hummocks and/or tussocks				
Sediment mounds around the bases of shrubs or trees	11.0	2		
Sediment splays				
-Soil cracks	主			
Springs or upwelling groundwater				
Standing snags (at least 3 m tall)				
Submerged vegetation (in channels or open water)				
Swales				
Thatch	<u> </u>			
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)	5	-		

#### 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.

North to South Graggia Willows

Physical topographic complexity score

Vegetation roughness score

East to West crassland Berm Willows

8

## 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

(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	Invasive?	Short (<0.3 m)	Invasive
		English IVV	Y
	jA	ARENIN	V
and the second		AVXALA SKAD	1.
	1 C 7 C 10	the second s	
5 5	1	5	
Medium (0.3-1.9 m)	Invasive?	Tall (1.6-3.9 m)	Invasive
CUPERUS agnostes	N	Salix laboseles	N.
Bristly Detongue	V	Toyon	N
Phaparan gaugatica	0		
rnavaran ugusonna	7		
0			
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant	
Salix lapoesilis	N	species for all layers combined	0
inca bushus	V.	(enter here and see Table 21)	0
			1.21
		Percent Invasion (enter here and see Table 21)	1.27
I V WVY			

4 layers

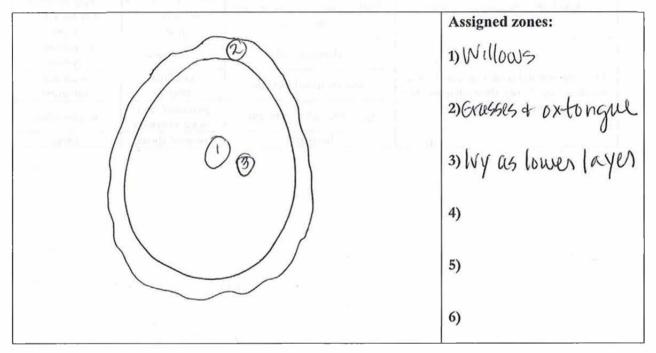
## Non-Channeled Wet Meadows Worksheet for Co-dominant Plant Species

Note: A dominant species represents ≥10% *relative* cover. Count species only once when calculating any Plant Community sub-metric. Invasive species are listed in Appendix IV of the User's Manual.

territ forst front forst	Co-dominant Species	Check if Invasive
		osan vi
		-160%
-ŵ-		
1		
12.00		in received
M		Sin24y D
ing Ma		
_		
		615716
	Cutter and the period index (	N. S. S. S.
150	PLS stilleT witchen west others	
	Total Number of Co-dominants	
	Total Number of Invasive Co-dominant species	
	Percent Invasive Species (round to nearest integer)	

#### **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,	/
nornworts)	
Coniferous Trees	
Deciduous Broadleaf Trees 🛛 🗸	
Evergreen Broadleaf Trees	
Ferns	
Brasses /	X
Ierbs/Forbs	
Lichens or Fungi	
edges/Rushes	
hrubs	
vines /	
Fotal Number of life forms	

## Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(	No)		in the second
If yes, was it a flood, fire, landslide, or other?	flood	nin a singl	fire	landsli	de other
If yes, then how severe is the disturbance?	likely to affect site more year		likely to aff site next 3 years		likely to affect site next 1-2 years
et milli Ma	depression	nal	vernal po	ol	vernal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confined r	fined riverine confined riverine		seasonal estuarine	
previous type?	perennial saline o	estuarine perennial non- saline estuarine we		wet meadow	
	lacustrine	3	seep or spr	r spring play	

S. Hestats & stratig in the

# 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)		A DESCRIPTION OF A DESC
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	1	
Flow diversions or unnatural inflows	and the second	d and an inclusion
Dams (reservoirs, detention basins, recharge basins)	They I The	
Flow obstructions (culverts, paved stream crossings)	1917 - C. 11	
Weir/drop structure, tide gates		
Dredged inlet/channel	,	and the set of the
Engineered channel (riprap, armored channel bank, bed)	V	
Dike/levees		- Parts
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	· · · · · · · · · · · · · · · · · · ·	
Comments	_	
enseries and the second se		
indiana		

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)	V	
Plowing/Discing (N/A for restoration areas) Resource extraction (sediment, gravel, oil and/or gas)	V	
Resource extraction (sediment, gravel, oil and/or gas)	1	THE WALLSON OF T
	1	
	V	and the state of the state of the
Jegetation management	-	in the second
Excessive sediment or organic debris from watershed	The second	Service of the servic
Excessive runoff from watershed	100	
Nutrient impaired (PS or Non-PS pollution)	a land	Locate and Looke Config
Heavy metal impaired (PS or Non-PS pollution)		me a met das de freije
Pesticides or trace organics impaired (PS or Non-PS pollution)	jara un	and example company
Bacteria and pathogens impaired (PS or Non-PS pollution)	BAR E	a line Lotte ton orthog
Frash or refuse	V	DI FRANCIA DA CAR
Comments	nal more	The station in possific

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	R SCHOLINS	Not y
Predation and habitat destruction by non-native vertebrates (e.g., Virginia opossum and domestic predators, such as feral pets)	185321865 -	
Tree cutting/sapling removal	1.0 cm	and stores while
Removal of woody debris	and the	and some some and
Treatment of non-native and nuisance plant species	2 miller F. G	mentor - an old prid
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)	and and and	den or analysis on t
Excessive organic debris in matrix (for vernal pools)	1	
Lack of vegetation management to conserve natural resources	V,	Construction of the second
Lack of treatment of invasive plants adjacent to AA or buffer		oni- on an and
Comments		and the second second
		West Section 1
East Matter and State	w transferred in the	Andrew Second on Advant

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	V	The second se
Military training/Air traffic	ALL DESTRICTION	
Dams (or other major flow regulation or disruption)	V	
Dryland farming	Continue 1	a un antremete se Triffic l
Intensive row-crop agriculture	I DOM TO	Archarden and Arch
Orchards/nurseries	Distances with	S. Ditama R. Conta MI
Commercial feedlots	WARE NO. NO.	Distance of the state of the
Dairies		No. of Concession, Name
Ranching (enclosed livestock grazing or horse paddock or feedlot)	,	and horses and a start of the
Transportation corridor	V	and a farmer of the second
Rangeland (livestock rangeland also managed for native vegetation)	6 - F - L	The state of the state of the
Sports fields and urban parklands (golf courses, soccer fields, etc.)	1 material	I construct to reaction of the
Passive recreation (bird-watching, hiking, etc.)	nie meże ni	In which we wanted
Active recreation (off-road vehicles, mountain biking, hunting, fishing)	- Spinsterni	and the second second
Physical resource extraction (rock, sediment, oil/gas)	V	1949 - 1949 - 1947
Biological resource extraction (aquaculture, commercial fisheries)		add10011007
Comments		

# **Basic Information Sheet: Perennial Estuarine Wetlands**

Assess	sment Area N	Jame: AA-1-	3		
Projec	t Name: C	HSR			
Assess	sment Area II	D #:			
Projec	t Site ID #:		Date	: 9/9/19	
Assess	ment Team I	Members for Th	is AA	1 1	
RJ,	Donna.M.	Marty L,	Melissa Mag	gio	
	,	0,	C.	0	to a second de la composición
	_				J
Cen	ter of AA:				
Lati	tude:		Longitude:	Datum	n:
Wet	land Sub-type	e:			
	Perennial	Saline	Perennial Non-saline		
AA	Category:				
Rest	toration M	litigation Im	pacted Ambient	Reference 7	Fraining
Oth	er: Pre-pro	yect			
			ge over the course of sessment be conduc	of the time spent in ted during low tide.	the field?
		high tide	low tid		te flooding
					0
Photo	Identification	Numbers and	Description:		
	Photo ID No.	Description	Latitude	Longitude	Datum
1		North			
2		South			<u> </u>
3		East			
4		West			
5			-		
6					
7					
8					
9					
10					

1

Site Location Description: hooks like locarles bottles & Cans i	noy an old a	unip. Not	3
evines i com a			
Comments:			
			theorem A.A.

the to be made a complete of the other states of the

4. A

2

-C) Jpha. C	Numeric 12 9 3	pp. 8-14) Alpha. D	Numeric 3	Comments 1% of lines cross an aqu area -100% buffer	Jatic
D C	12 9	-		area	uatic
D C	12 9	D	3	area	uatic
D C	12 9				
) ) (A x 1	12 9			-100% buffer	
) x (A x ]	9				
D x (A x I					
D x (A x I		33.7 7 20		avg width = 136m	-
(A x ]	3	The second s		Highly disturbed soils. C	
(A x ]	10	Sec.		[landfill with trash expos-	ed in
_		Participant -	A BEACH	areas	
	B) <sup>1/2</sup> ] <sup>1/2</sup>	ALC: CONTRACT	8.58	Final Attribute Score = (Raw Score/24) x 100	35.77
ite (p	p. 15-19)			of hybrid S filment for a must	idia seria
		Alpha.	Numeric 6	-	
			9		
		B			
		Ċ	6		1
Raw Attribute Score = sum of numeric			21	Final Attribute Score = (Raw Score/36) x 100	58.33
Attri	ibute (pp	. 20-25)			1
		Alpha.	Numeric	_	,
		C	_6		_
		C,	6		
ı of n	umeric s	cores	12	Final Attribute Score = (Raw Score/24) x 100	50
based	l on sub-r	netrics A	-C)		14
Alpha.	Numeric				
C	6			A second s	
D	3				
A	12				
nmun	ity Comp	osition	7		in the
				a service and the service of the ser	
Horizontal Interspersion					_
		D	3		
Vertical Biotic Structure Raw Attribute Score = sum of numeric scor				Final Attribute Score =	36.11
n of n	iumeric s	cores	13	(Raw Score/36) x 100	
	n of m (based Mpha. C D A amun perage	n of numeric s ttribute (pp. 2 (based on sub-r Mpha. Numeric C 6 D 3 A 12 numunity Comp perage of submetric	n of numeric scores ttribute (pp. 26-34) (based on sub-metrics A Mpha. Numeric C 6 D 3 A 12 munity Composition perage of submetrics A-C) D	Alpha.Numeric $C$ 6 $C$ 6 $C$ 6 $C$ 6 $C$ 12ttribute (pp. 26-34)(based on sub-metrics A-C)Mpha.Numeric $C$ 6 $D$ 3 $A$ 12 $A$ 12 $C$ $D$ $D$ 3 $D$ 3 $D$ 3 $D$ 3 $D$ 3 $D$ 3	Alpha.Numeric $C$ 6 $C$ 6 $C$ 6 $C$ 12Final Attribute Score = (Raw Score/24) x 100ttribute (pp. 26-34)(based on sub-metrics A-C)Mpha.Numeric $C$ 6 $D$ 3 $A$ 12 $D$ 3

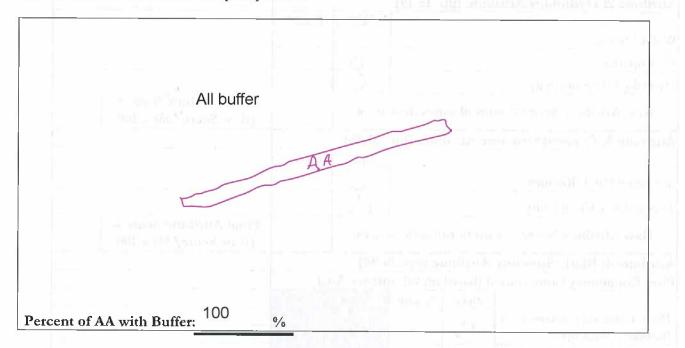
# Scoring Sheet: Perennial Estuarine Wetlands

Percentage of Transec an Aquatic Featu	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	10
South	Το
East	14
West	0
Average Percentage of Transect Length that is an Aquatic Feature	1

## Worksheet for Aquatic Area Abundance Metric for Estuarine 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.



Worksheet	for	calculating averag	ge buffer width of AA
-----------	-----	--------------------	-----------------------

Line	Buffer Width (m)
A	79
В	36
С	51
D	83
E	87
F	250
G G	250
H Keev Suren y	250
Average Buffer Width *Round to the nearest integer*	136

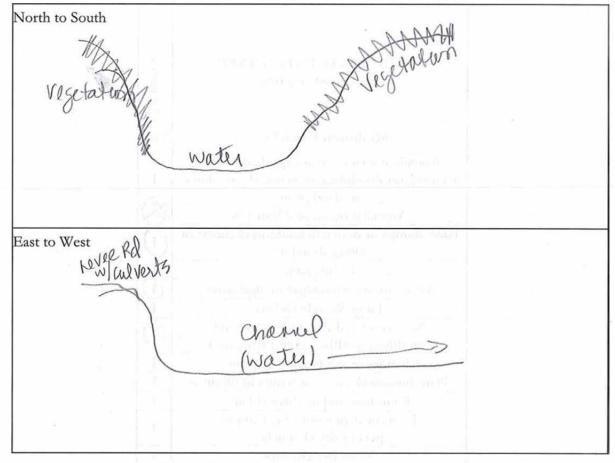
## Structural Patch Type Worksheet for Estuarine Wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in the worksheet below.

	-
STRUCTURAL PATCH TYPE (circle for presence)	Estuarine
Minimum Patch Size	3 m
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	1
Animal mounds and burrows	ØS
Bank slumps or undercut banks in channels or along shoreline	1
Debris jams	1
Filamentous macroalgae or algal mats	(1
Large Woody Debris	1
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	1
Pannes or pools on floodplain	1
Plant hummocks and/or sediment mounds	1
Point bars and in-channel bars	1
Pools or depressions in channels (wet or dry channels )	1
Secondary channels	1
Shellfish beds (living)	1
Soil cracks	1
Standing snags (at least 3 m tall)	1
Submerged vegetation	1
Total Possible	16
No. Observed Patch Types (enter here and use in Table 14 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 channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



### Plant Community Metric Worksheet: Co-dominant species richness (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	Invasive?	Short (<0.3 m)	Invasive?
eligh erigh	· · · · · ·		
Medium (0.3 – 0.75 m)	Invasive?	Tall (0.75 – 1.5 m)	Invasive?
PICKLEWEED	N	Real And And	
· · · · · · · · · · · · · · · · · · ·			
18			
			10.0 at 10.0 million
Very Tall (>1.5 m)	Invasive?	A CLONENC ASSAULTED STREET CLEAR AND AND A	Distance Const
0		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	1
		Percent Invasion *Round to the nearest whole number (integer)* (enter here and use in Table 18)	07.

aminiscovered from research from the Wild, Story

7

#### Horizontal Interspersion Complexity 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. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

Assigned zones: 1) Chanup 2) Mudflat 3) fickleweed 0 3 4) Pickleuve Channel cleweed 5) nuel 6)

Table 21: 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	lan	dslide	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			y to affect next 1-2 years
	depression	depressional vernal pool		ol		nal pool ystem
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	ed			easonal tuarine	
previous type?	perennial sali estuarine	ine	perennial n saline estua	wet meado		meadow
	lacustrine		seep or spr	ing		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)		5 - ST 10 - ST 10 - ST
Flow diversions or unnatural inflows	A 100 100 100	2
Dams (reservoirs, detention basins, recharge basins)	The second second	
Flow obstructions (culverts, paved stream crossings)	Sec. Today	a management of the second
Weir/drop structure, tide gates		and the second second second
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	1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	ALC: NOT OF THE REAL
Address status and status		
		March 1 (1997)
	191	industriation in
	A. (See a 14)	Number includes

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)		in the second second
Grading/ compaction (N/A for restoration areas)	And a second second second	
Plowing/Discing (N/A for restoration areas)	section with	1
Resource extraction (sediment, gravel, oil and/or gas)	in the second	
Vegetation management		Bude one of the
Excessive sediment or organic debris from watershed	and the state	REAL PROPERTY AND
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)	ad the second	
Heavy metal impaired (PS or Non-PS pollution)		a series and a series of
Pesticides or trace organics impaired (PS or Non-PS pollution)		and the second of the
Bacteria and pathogens impaired (PS or Non-PS pollution)		1
Trash or refuse		CHERRICAL CONTROL OF
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	as you'r ri 21	
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		1.2
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	All a second as a second of the	- Providence - I
Comments	1. N. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	CONTRACT OF STREET
	11.11-1	
	the second second	and the second of the
the second s		1.01010-000

Present	Significant negative effect on AA
Dance Statute	a 10
A la Li chron	
and the second se	1
and the second second	and the second second second
Company of the Party of the Par	and Reached
and some of the	BOLIACE ACCOMMENCE
2009U00	and the second second
A IN THE	
A. Landa Sana Sana	
	indian here
	Car really
	1.11.12
	Present

# **Basic Information Sheet: Depressional Wetlands**

Assessment Area Name:  -			
Project Name: CAHSR			
Assessment Area ID #:		alaha	and the state of the second
Project ID #:		Date: 99919	and the second state of the
Assessment Team Members	for This AA		
ML, DM, MM, RJV			
	artist provin	and provide an	a national de la constante de l
AA Category:	104	prized to to 696 -	CS have discussed a could
Pre-Restoration Po	ost-Restoration	Pre-Mitigation	Post-Mitigation
Pre-Impact D	st-Impact	Training	Ambient
□ Reference □ Ot	her: Pre-proj	ect	
Origin of Wetland (if know	/n):		
口 Natural system 文	Artificial system		-
Type of Management (if ka waterfowl/birds amphile water supply (agriculture)	oians □ general w		
Which best describes the t	ype of depression	nal wetland?	
□ freshwater marsh	□ alkaline mars	h □ brackish	marsh
other (specify): Story		*	
AA Encompasses:	4		Comeanai
Xentire wetla	and 🗆 po	ortion of the wetland	
Which best describes the h	ydrologic state o	of the wetland at the	time of assessment?
ponded/inundated	saturated	soil, but no surface v	water (dry)
What is the apparent hydro	ologic regime of	the wetland?	$\bigcirc$
Perennially flooded systems con- wetlands are defined as supp- years.) Temporarily flooded dep months of the year.	orting surface wate	er for 4-11 months o	f the year (in $> 5$ out of 10
perennially flooded	seasonally floo	ded (tempor	rarily flooded)

Does	the wetland	have a defined or have a defined or outlet at the same	n undefined <u>inlet</u> i	defined ful	undefined undefined
An in	distinct topogra		hat lacks obvious h	or indistinct? ooundaries between w lands in very low-grad	
Phot	o Identificati	on Numbers and 1 from edge of AA loo	Description:		(a Caregory)
	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North	A		
2		(to) East	1.11.11.11.11.11.11.11.11.11.11.11.11.1	mah(0, z	concruit. Al 12
3		(to) South			
4		(to) West		QUALITY & COLOUR	
5			Jersanja B	-0m6340	gleve launisch i
6					
7				the start of the second	THE REPORT OF
8	a chinate -a	and the property from	on semilating the second	Constitution of the	Whereaster made in
9 10			THE REAL PROPERTY OF		
ite I		cription and Land			
Comi	ments:				
-				. Sported of the map	

we are the factor of the second se

AA Name:	_			D	Pate: 9 9 9
Attribute 1: Buffer and Lan	dscape	Context	(pp. 8-1	5)	Comments
Aquatic Area Abundance Sc			Alpha. D	Numeri 3	6%
Buffer:					the second s
Buffer submetric A: Percent of AA with Buffer	Alpha.	Numeric 12			-75% buffer
Buffer submetric B: Average Buffer Width	A	12			201 avg width
Buffer submetric C: Buffer Condition	D	3			Soils highly disturbed. Old
Raw Attribute Score	e = D+[	C x (A x I	B) <sup>1/2</sup> ] <sup>1/2</sup>	9	Final Attribute Score = (Raw Score/24) x 10037.5
Attribute 2: Hydrology (pp	. 16-21)	inter la		1	Service and the late even by the
Water Source			Alpha.	Numeri 6	
Hydroperiod			D	3	
Hydrologic Connectivity			D	3	Ditch from road numers
Raw Attribute Score = s	um of n	umeric s	cores	12	Final Attribute Score = 33.33 (Raw Score/36) x 100
Attribute 3: Physical Struct	ture (pp	. 22-28)			
			Alpha.	Numeri	ic
Structural Patch Richness			D	3	
Topographic Complexity			D	3	
Raw Attribute Score = s	um of n	umeric s	cores	6	Final Attribute Score = (Raw Score/24) x 10025
Attribute 4: Biotic Structur					
Plant Community Compositi				4-C)	
	Alpha.	Numeric			No alla tra hacin Arrall
Plant Community submetric A: Number of plant layers	D	3			w/ black hand plastic new
Plant Community submetric B: Number of Co-dominant species	D	3			Holly I have a climaters
Plant Community submetric C: Percent Invasion	D	3			
Plant Commun (numeric		position I submetrics		3	
Horizontal Interspersion			D	3	
Vertical Biotic Structure			D	3	
Raw Attribute Score = s	um of 1	numeric s		9	Final Attribute Score = (Raw Score/36) x 100
<b>Overall AA Score</b> (avera	ge of fo	ur final A	ttribute !	Scores)	30

# Scoring Sheet: Depressional Wetlands

Percentage of Transect Aquatic Area of			
Segment Direction	Percentage of Transect Lengt That is an Aquatic Feature		
North	0		
South	3	- 11 (d. 14)	
East	23	21.4.6	
West	0		
Average Percentage of Transect Length That Is an Aquatic Feature	6	Maria	

#### 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.

NO 75 Percent of AA with Buffer: %

Line Line	Buffer Width (m)
Α	250
B	250
С	250
D	250
E (a constant of	245
F	250
G	63
Н	51
Average Buffer Width *Round to the nearest whole number (integer)*	201

Worksheet for calculating average buffer width of AA

5

## 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.

	nal
STRUCTURAL PATCH TYPE	sio
(circle for presence)	tes
	Depressiona
Minimum Patch Size	3 m <sup>2</sup>
Abundant wrack or organic debris in channel,	
on floodplain, or across depressional wetland	0
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	
Plant hummocks and/or sediment mounds	
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	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)	Ø

## 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 Plastic lined basin st Black plastic Intra basin East to West

### 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?
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Very Tall (>3.0 m)	Invasive?	Total number of an dominant	
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	
	1	Percent Invasion *Round to the nearest whole number (integer)*	
		(enter here and use in Table 19)	

No plants

## 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.

		ing i finnur mann minne	Assigned zones:
			1)
			2)
	plant	5	3)
	Plan		4)
			5)
Togethiogue annigue Manorodha			
			$(A) \rightarrow c c c$

Has a major disturbance occurred at this wetland?	Yes	No			
If yes, was it a flood, fire, landslide, or other?	flood	fire	andslide	other	
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affec site next 3-5 years	site	likely to affect site next 1-2 years	
	depressional	vernal pool		nal pool ystem	
Has this wetland been converted from another type? If yes, then what was the previous type?	non-confined riverine	confined riverine		ir-built tuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet	meadow	
	lacustrine	seep or spring	g	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	V		
Dams (reservoirs, detention basins, recharge basins)	$\checkmark$ ,		
Flow obstructions (culverts, paved stream crossings)	V		
Weir/drop structure, tide gates			
Dredged inlet/channel	10.0		
Engineered channel (riprap, armored channel bank, bed)			
Dike/levees			
Groundwater extraction			
Ditches (borrow, agricultural drainage, mosquito control, etc.)	1		
Actively managed hydrology	V		
Comments			
Detention basin			

PHYSI	CAL STRUCTU (WITHIN 50 M	Present	Significant negative effect on AA		
Filling or dumping areas)	g of sediment or s	V.			
Grading/ compac	tion (N/A for rea	storation areas)		$\checkmark$	
Plowing/Discing	(N/A for restora	tion areas)			
Resource extraction	on (sediment, grav	el, oil and/or gas)			
Vegetation manag	ement	riter and a second state	mander	Westing des	
Excessive sedimer	nt or organic debr	is from watershed		· · · · · · · · · · · · · · · · · · ·	
Excessive runoff		- 1 Inf	100 100 100	and the group of the	A DATE OF THE OWNER
Nutrient impaired	(PS or Non-PS p	ollution)		analysis (m	
Heavy metal impaired (PS or Non-PS pollution)				na san 'penuta	non sating
Pesticides or trace organics impaired (PS or Non-PS pollution)				1,04524	
Bacteria and patho	ogens impaired (P.	S or Non-PS polluti	on)	,	
Trash or refuse	had been a series	Alter Still	189	V	9 226 4
Comments		T Bi dzart		Condensis	
Old la	ndfull	ATTENA STORE			
lower haar to	D	1	_		
01114/3204	Manual American	second surface			
have built	fon Theory	fencilmon non			
shihaonis	hareneix	- dozale	international and a	0.000.000.000	(ci = - (ci = 1

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	2	
Excessive human visitation	$\checkmark$	
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)	$\checkmark$	
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	$\checkmark$	
Comments		

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

 $r \rightarrow S^{-1}$ 

# **Basic Information Sheet: Depressional Wetlands**

Assessment Area Na	ame: 15		
Project Name:		CAN TOTAL SPACE	
Assessment Area ID	)#:	at ta	ad full base of the little of
Project ID #:	6.e	Date: 9/11/19	lege berennen att red og
	Aembers for This AA		-
M. Lewis	D. Maniscalce	り	
	and see also and a should	د بالدينية الروا ب	mor fiske i e kysiolite
AA Category:	1990	Manade intel Docation (M	and the Climit Contact of the
Pre-Restoration	Post-Restoration	Pre-Mitigation	Post-Mitigation
Pre-Impact	□ Post-Impact	□ Training	Ambient
Reference	□ Other:		
Origin of Wetland	(if known): ∦ Artificial system	Destention	basin
□ water supply (agrid Which best descrift □ freshwater mat	□ amphibians □ general will culture) □ water supply (live coes the type of depression rsh □ alkaline marsh	estock) □ not manageo al wetland? n _ □ brackish m	d □ other:
Moner (speeny).	nother pe	0000	tane gang
AA Encompasses:			
n ent	tire wetland	rtion of the wetland	
Which best describ	pes the hydrologic state of	the wetland at the ti	me of assessment?
ponded/inu	indated saturated	soil, but no surface wa	ter (dry)
What is the appare	ent hydrologic regime of th	he wetland?	$\cup$
wetlands are defined	tems contain surface water y l as supporting surface water booded depressional wetlands j	r for 4-11 months of t	he year (in $> 5$ out of 10
perennially floode	ed seasonally flood	led (temporar	rily flooded

Does your wetland connect with the floodplain of a near (system subject to overbank flow, a dammed stream does not count)	rby stream?	yes no
Does the wetland have a defined on undefined <u>outlet</u> ? Does the wetland have a defined on undefined inlet?	(defined)	undefined
Are the inlet and outlet at the same location?	defined u yes	undefined
Is the topographic basin of the wetland (distinct pr	indistinct ?	or hand the
An <i>indistinct</i> topographic basin is one that lacks obvious boun Examples of such features are seasonal, depressional wetland		A .
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	3	(to) North	37.1095645	-122.395839	
2	2	(to) East	1	(Dilier	terrero-effettill
3	1	(to) South			
4	4	(to) West	V	V	
5	1 1 10 11	el a ferencia	Parning 201	adding the second	a-7. Land
6					
7				streaming its as much.	areas to salls
8	and the retrain	- and a summer	and the second	and the second states	by the section and
9	1				
10	Partition (1997)	THE DOCUMENT OF	L. P. Constant & March	amples is solar and	selfdres som s

Site Location Description and Land Use: Detention basin Imed w/ hard black plastic. Sail freatment facility.

**Comments:** 

Attribute 1: Buffer and Landscape Context (pp. 8-15)					ute: 9 11 19	
					Comments	
Aquatic Area Abundance Score (D)			Numeric 3	10%		
Buffer:		n melle		13	10 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-
	Alpha.	Numeric	al a fai		400/	
Buffer submetric A: Percent of AA with Buffer	С	6			40%	
Buffer submetric B: Average Buffer Width	С	6			└─106 avg buffer width	
Buffer submetric C: Buffer Condition	D	3				243
Raw Attribute Score	= D+[	C x (A x l	B) <sup>1/2</sup> ] <sup>1/2</sup>	7.24	Final Attribute Score = (Raw Score/24) x 100	30.18
Attribute 2: Hydrology (pp.	. 16-21)	A KL MARTIN	di din Sa	donal <u>ala</u>	and an addition and	na mad
all of shire of the state			Alpha.		and the second second of the	
Water Source		- Muisan	C	6	In second in the second him	MID:
Hydroperiod	1		Ċ	6		1
Hydrologic Connectivity			D	3		
Raw Attribute Score = st	um of r	numeric s	cores	15	Final Attribute Score = (Raw Score/36) x 100	41.67
Attribute 3: Physical Struct	ure (pp	. 22-28)			· · · ·	1
			Alpha.		-	
Structural Patch Richness			D	3		- AC 2
Topographic Complexity			D	3		1
Raw Attribute Score = st	um of r	numeric s	cores	6	Final Attribute Score = (Raw Score/24) x 100	25
Attribute 4: Biotic Structure	~~~					
Plant Community Composition				1-C)		_
DI IC mite al matrix A	Alpha	. Numeric			No Plants	_
Plant Community submetric A: Number of plant layers	P	3			No Plants	
Plant Community submetric B: Number of Co-dominant species	D	3			andred officers in the second	
Plant Community submetric C: Percent Invasion	D	3		-		
Plant Commun (numeric d		position N f submetrics		3		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			D	3		
Raw Attribute Score = s	um of 1	numeric s		9	Final Attribute Score = (Raw Score/36) x 100	25
Overall AA Score (average	ge of fo	ur final At	tribute	Scores)	30	

# 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	2.5			
South	0			
East	33			
West	3			
Average Percentage of Transect Length That Is an Aquatic Feature	10			

## 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.

$\sim$	BUFE	ER	ga spiriter 11 ° Jac (Jr. 1927) Jam Prinffelite Earl
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		My	an justagen i stador
2	AA	77	gerand it was soon a
The one washing with t			an de relatives de la segun de la tradición de Segun →
			non Contra Concha (
			lipseparent & suite presarys, " konse
			eta di 20 katijina seligin h
Percent of AA with Buffer: 40	%		A contraction of the second se
	1.870	8	And the first of the second seco

Line	Buffer Width (m)
Α	83 14
В	89
С	95
D	109
E (note a see al.	107
F	103
G	111
H	148
Average Buffer Width *Round to the nearest whole number (integer)*	106

Worksheet for calculating average buffet 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	$3 \text{ m}^2$
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	
Plant hummocks and/or sediment mounds	
Soil cracks	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	
Total Possible	17
No. Observed Patch Types (enter here and use in Table 15 below)	2

#### 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.

Black have allostic Grass North to South tece4 Black hard Rastic Busin East to West Allens Black Rlast Arcess Rd. Bladtaste Base

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

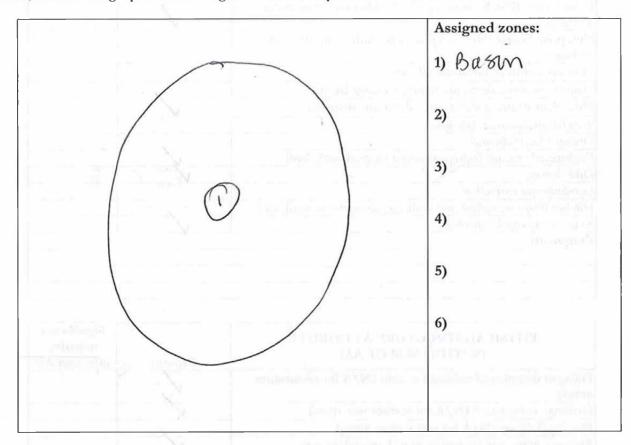
\* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
			1.0000
		120	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
		and a straight	•
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	1.1.4
		Percent Invasion *Round to the nearest whole number (integer)*	신
		(enter here and use in Table 19)	

NOPLANTS

#### 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.



Has a major disturbance occurred at this wetland?	Yes	No			
If yes, was it a flood, fire, landslide, or other?	flood	fire l	andslide	other	
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	site	likely to affect site next 1-2 years	
	depressional	vernal pool		nal pool ystem	
Has this wetland been converted from	non-confined riverine	confined riverine		r-built tuarine	
another type? If yes, then what was the previous type?	perennial saline estuarine	perennial non-saline estuarine	wet	meadow	
	lacustrine	seep or spring	s I	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)	$\checkmark$	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows	10 C	
Dams (reservoirs, detention basins, recharge basins)	,	
Flow obstructions (culverts, paved stream crossings)	V	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)	V	-
Dike/levees	V	
Groundwater extraction		h
Ditches (borrow, agricultural drainage, mosquito control, etc.)	111	
Actively managed hydrology	V	
Comments		

PHYS	ICAL STRUCTU (WITHIN 50 M		Present	Significant negative effect on AA	
Filling or dumpir areas)	ng of sediment or so	ration	1		
Grading/ compa	ction (N/A for res	toration areas)		V	
Plowing/Discing	(N/A for restorat	ion areas)		1	
Resource extracti	ion (sediment, grave	l, oil and/or gas)		V	
Vegetation mana	gement	militate transferration in the	-manufation	With brushing	
Excessive sedime	ent or organic debris	from watershed			1 - 1 W
Excessive runoff		- 199 Y	20. 1×11.1	The Celaiment	in Ban in min
Nutrient impaire	d (PS or Non-PS po	ollution)		meanwark 10.0	
	aired (PS or Non-PS		the shifted	net;produktered) is	THE REPORT OF T
Pesticides or trac	e organics impaired	(PS or Non-PS po	llution)	V422010	
	ogens impaired (PS	or Non-PS polluti	on)		
Trash or refuse		ு பின்று	2010	impessivating	li neg G
Comments		24" (A.5/)		PAGE TO BE	
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level haven				_	
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		H Juni	Provide the second of the second of the second s		test min no t

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	1	
Excessive human visitation	V	_
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 organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	V.	
Lack of treatment of invasive plants adjacent to AA or buffer	V	
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	1	
Industrial/commercial	$\checkmark$	
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	V	
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)	1	
Physical resource extraction (rock, sediment, oil/gas)	V	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

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# **Basic Information Sheet: Depressional Wetlands**

Assessment Area Na	11.0		
	-HSR		
Assessment Area ID	#:	- at. t.	N Contraction of the second of the
Project ID #:		Date: 9/11/1	9
Assessment Team M	embers for This AA		
D Maniscalo	, M. Lewis	for a first so that we are the month of the first so that is a set of	n de seconder en de la Maria La deservición de la Maria de la M La defensa de la Maria de l
AA Category:	580	nghu su'i has sadhar	White fourth and a second
Pre-Restoration	Post-Restoration	Pre-Mitigation	Post-Mitigation
A Pre-Impact	□ Post-Impact	Training	□ Ambient
	D Other:		No. No.
Origin of Wetland (	(if known):	Fill & road ~	ettand
□ water supply (agric Which best describ	ulture)	livestock) not manag	Alter Locasteric Dar edges
freshwater mars	sh	rsh 🗆 🗆 brackish	marsh
AA Encompasses:	ire wetland	portion of the wetland	
Which best describ	es the hydrologic state	e of the wetland at the	
ponded/inu	ndated saturat	ed soil, but no surface v	water dry 🕅
What is the apparent	nt hydrologic regime o	of the wetland?	
wetlands are defined		ater for 4-11 months of	<i>flooded</i> depressional f the year (in > 5 out of 10 r between 2 weeks and 4
perennially flooded	d seasonally flo	boded (tempor	rarily flooded

	the wetland		on undefined <u>out</u> on undefined <u>inle</u> ne location?	t? defined	undefined undefined
An <i>in</i> Exarr	<i>distinct</i> topographes of such 1	features are seaso	e that lacks obvious onal, depressional we	or indistinct ? boundaries between we etlands in very low-grad	
			nd Description: looking toward the cent	roid of AA	er og ottil An me og ottil An
	Photo ID	Description	Latitude	Longitude	Datum
1	No.	(to) North	37.688935	-182,397423	Constant in mility
2	4	(to) East	11000970	100,011700	
3	3	(to) South	+		
4	2	(to) West	V	V	the readers
5			my fease (	1 294 B (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Same harres 2 a
6	9.00 m				
7				stream fit means?	unite se seles
		and the second second second	a manufation of the	a so all the second at the	and the second second
8	and the Real of the State of States				
8 9	and a second s				
9 10	Location Des	cription and La	and Use:	to the SODA	Yh.
9 10 Site I	Location Des Location Des Location Des nents:	d + Bris	and Use: bane Lagoon	n to the sou	
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9 10 Site I AV&	nents:	d + Bris	bare Lagoon	erina seria serial seriality entri out seriality the tostest seriality the constant serial series (serial tostes) seriality outperfering seri- serial series (serial) serial	ngel andrea a computer and total desperate at the desperate desper

AA Name: 16 Da						ate: 9 11 19		
Attribute 1: Buffer and Lan	dscape	Context				Comments		
Aquatic Area Abundance Sc		na ngala. Mga s		Numeric 3	13%			
Buffer:			12233	AND STREET	1.5	deres 1		
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			-75%			
Buffer submetric B: Average Buffer Width	В	9			_134 a	avg width		
Buffer submetric C: Buffer Condition	C	6						
Raw Attribute Score	= D+[	C x (A x I	B) <sup>½</sup> ] <sup>½</sup>	10.9		Attribute Score = Score/24) x 100	45.4	
Attribute 2: Hydrology (pp	. 16-21)	nic - II	1 4 1 1	1	-	er ander teducer	100	
Water Source	ste altre	in grant in the	Alpha.	6		teritan oo Malaal ali oraanjaane ba	n orden 1. ger be	
Hydroperiod			B	9				
Hydrologic Connectivity			C.	6				
Raw Attribute Score = sum of numeric s			cores	21		Attribute Score = v Score/36) x 100	58.33	
<b>Attribute 3: Physical Struct</b>	ure (pp	. 22-28)						
1			Alpha.					
Structural Patch Richness			D	3			-	
Topographic Complexity		(	LX.	6				
Raw Attribute Score = s	um of n	umeric s	cores	9		Attribute Score = v Score/24) x 100	37.5	
Attribute 4: Biotic Structur	e (pp. 2	9-39)		1			n 1 - 1	
Plant Community Compositi				1-C)			_	
Bland Community subsection As	Alpha.	Numeric					-	
Plant Community submetric A: Number of plant layers	D	3	2. 190				- 1-	
Plant Community submetric B: Number of Co-dominant species	D	3			an a	lande nøder mede	4	
Plant Community submetric C: Percent Invasion	D	3						
Plant Commun (numeric		position I submetrics		3				
Horizontal Interspersion			C	6				
Vertical Biotic Structure			Ă	12				
Raw Attribute Score = s	um of r	numeric s	cores	21		Attribute Score = Score/36) x 100	58.33	
Overall AA Score (avera	ge of fo	ur final A	ttribute S	Scores)	50			

# Scoring Sheet: Depressional Wetlands

Percentage of Transect Aquatic Area			
Segment Direction	Percentage of Transect Length That is an Aquatic Feature		
North	0		
South	45		
East	8		
West			
Average Percentage of Transect Length That Is an Aquatic Feature	13		

#### 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.

75 Percent of AA with Buffer: %

Line	Buffer Width (m)
Α	6
В	85
С	88
D	92
E	107
F	190
G	250
Н	250
Average Buffer Width *Round to the nearest whole number (integer)*	134

Worksheet for calculating average buffer width of AA

Addation of a second second and a second secon

# 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	$3 \text{ m}^2$
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	3
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	e
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	
Plant hummocks and/or sediment mounds	
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	10
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)	14

#### 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 cattals East to West Catter la

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

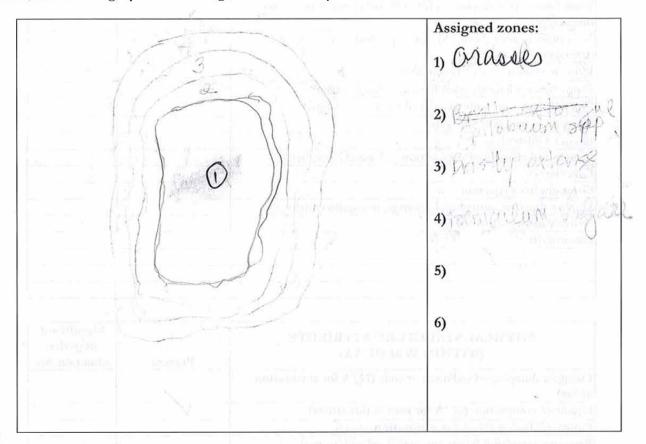
\* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		BASHY OXTONGED	
		Guilder Spil	
		Avena spp.	Y
×		holum perma	Y.
18 m		Cranadon Garbulum	Y
		Polymon aviablare	N.
Medium (0.5 – 1.5 m)	Invasive?	10 Tall (1.5 – 3.0 m)	Invasive?
Bristy withque		Casting spop	N
Catter Spo Aupho	61	Formenturi vulgare	9
Evenication palgare		···· ()	1.5
Bailobrium SPD 0	il	1	
1 1			
Very Tall (>3.0 m)	Invasive?		
		Total number of co-dominant	1
		species for all layers combined (enter here and use in Table 19)	4.
		Percent Invasion	75%
C		*Round to the nearest	500-
		whole number (integer)*	16
		(enter here and use in Table 19)	

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#### 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			-	
Has a major disturbance occurred at this wetland?	Yes	No	13,11505	
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affec site next 3-5 years	3-5 site next	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool		nal pool ystem
	non-confined riverine	confined riverine		r-built tuarine
	perennial saline estuarine	perennial non-saline estuarine	wet	meadow
	lacustrine	seep or sprin	g r	olaya

#### Vetland disturbances and conversions Worksheet

## 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)	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)	1 m	
Dike/levees	(1)	
Groundwater extraction	14 A A A A A A A A A A A A A A A A A A A	
Ditches (borrow, agricultural drainage, mosquito control, etc.)	_	
Actively managed hydrology		
Comments		

PHYS	ICAL STRUCTU (WITHIN 50 N		Present	Significant negative effect on AA	
Filling or dumpin areas)	g of sediment or se	ation	/		
Grading/ compac	ction (N/A for res	storation areas)		V	
Plowing/Discing	(N/A for restorat	tion areas)			
	on (sediment, grave				
Vegetation manag		Challed average Data	-terret later	Wenterland (11)	
	nt or organic debri	s from watershed			
Excessive runoff		2010/02/010	e ferencea de la compacta de la comp	NUMBER OF STREET	
Nutrient impaired	(PS or Non-PS pe		100000-000 DA		
	aired (PS or Non-P	10.0042	na cont bodilis	a week that the	
		(PS or Non-PS poll	ution)	- 4.5433Y	
		S or Non-PS pollutio			
Trash or refuse		all traffic	100	V	-bi -ro lid
Comments	a second second	and using 1		- SCOPPLINE	
ranad		(3.2) short			
loonhanse	17				
10/541-57	Total Transition	and merchanism	_		_
dust and	6 miliana	non confined			
i ligaret -	polipsida Información	n regit himmory	in meters	and mental de set es d	and the second second

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)		= - <u>_ 111</u> 1 +
Excessive organic debris in matrix (for vernal pools)	1	
Lack of vegetation management to conserve natural resources	11	
Lack of treatment of invasive plants adjacent to AA or buffer	$\checkmark$	_
Comments		

l

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial	V	
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	V	
Rangeland (livestock rangeland also managed for native vegetation)	1. A. A.	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, ishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		



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# **Basic Information Sheet: Perennial Estuarine Wetlands**

2. . .;

Assess	ment Area N	ame: AA-17			
	t Name: H				
	ment Area II	D#: 17			
Projec	t Site ID #:		Date	: 9/11/19	
ssessi	ment Team M	lembers for This	AA		
1	57 V				
	MCNA				
Cent	er of AA:				
Latit	ude: 37.6	76815 I	ongitude: - 17	2.389747 Datum	· NAD 95
Wetl	and Sub-type				
	Perennial	Saline Pe	erennial Non-salino		
AA (	Category:	-			
Rest	oration M	litigation Imp	acted Ambien	t Reference T	raining
Oth	er:				
				of the time spent in t ted during low tide.	he field?
		high tide	low tic	le	
hoto ]	Identification Photo ID	Numbers and Description	Description: Latitude	Longitude	Datum
	No.			8	0
1		North			
2		South			
3		East			
4		West			
5					
6					
7					
8					
9					
10					

1

Site Location Description: estriary corner dominated by pickleweed. Small init That connects to bay as there is open water just beyond An boundary. Comments: Some homeless evidence Itrush 1

AA Name: AA-17					Date: 9/11/19	]
Attribute 1: Buffer and Land	dscape (	Context (	рр. 8-14)		Comments	
	\ \		Alpha.	Numeric		_
Aquatic Area Abundance (D)			C	6	26%	
Buffer (based on sub-metrics				cidjusted AA		
Buffer submetric A:	Alpha.	Numeric				-
Percent of AA with Buffer	A	12			52m widt Ava	
Buffer submetric B: Average Buffer Width	D	3			0	-
Buffer submetric C: Buffer Condition	в	9		See 15	Some will veg and Some homeless Presence	-
Raw Attribute Score = D+[	C x (A x	B) <sup>1/2</sup> ] <sup>1/2</sup>	1	15,95	Final Attribute Score = (Raw Score/24) x 100	2
Attribute 2: Hydrology Attr	ibute (p	p. 15-19)				_
WH 0			Alpha. B	Numeric		
Water Source			B	4	lawled I was wash allowed by	a to wait unde
Hydroperiod				1	blocked off but inter ollows that	is to poss crowd
Hydrologic Connectivity			C	φ	Final Attribute Score =	S 1000
Raw Attribute Score = sum of numeric scores					(Raw Score/36) x 100	)
Attribute 3: Physical Struct	ure Attri	ibute (pp				-
0 ID. ID: I			Alpha. C	Numeric	5 types	
Structural Patch Richness			_	9	5,770	-
Topographic Complexity			B	1	Final Attribute Score =	_
Raw Attribute Score = s				15	(Raw Score/24) x 100	
Attribute 4: Biotic Structure		11 L	/	<u>()</u>		-
Plant Community Compositio	Alpha.	Numeric		-0)	2 layers	-
Plant Community submetric A: Number of plant layers		9				-
Plant Community submetric B. Number of Co-dominant species	B	9				-
Plant Community submetric C. Percent Invasion	B	9				-
		ity Comp		9		-
Horizontal Interspersion	ê.		C	lp	mainly picklewied dominated	
Vertical Biotic Structure			B	q	101 possibly a little less than 1/2 with	dinge Current
Raw Attribute Score = s	um of n	umeric s	cores	24	Final Attribute Score = (Raw Score/36) x 100	( control in
Overall AA Score (avera	ige of fo	ur final A	ttribute S	cores)	(0)	

# Scoring Sheet: Perennial Estuarine Wetlands

3 <sup>3</sup>

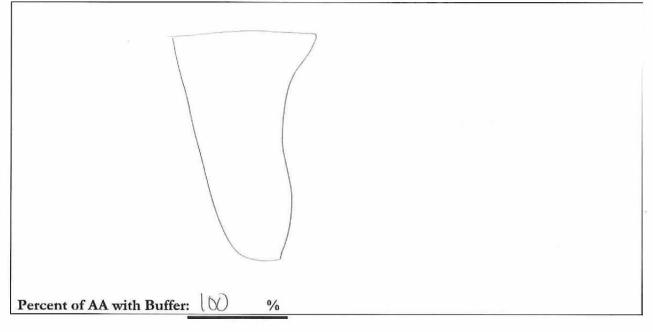
4.18

Percentage of Transect an Aquatic Featur	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	97
South	$O^{6}/s$
East	6
West	DTo
Average Percentage of Transect Length that is an Aquatic Feature	26

#### Worksheet for Aquatic Area Abundance Metric for Estuarine 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.



Line	Buffer Width (m)
A	-32
В	43.
С	293
D	42
Е	30
F	7
G	7
Н	250
Average Buffer Width	11
*Round to the nearest integer*	う生

#### Worksheet for calculating average buffer width of AA

## Structural Patch Type Worksheet for Estuarine Wetlands

Г

Circle each type of patch that is observed in the AA and enter the total number of observed patches in the worksheet below.

Minimum Patch Size		
	$3 \text{ m}^2$	
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	1	
Animal mounds and burrows	1	
Bank slumps or undercut banks in channels or along shoreline	1	
Debris jams	1	
Filamentous macroalgae or algal mats	1	1
Large Woody Debris	1	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	1	1
Pannes or pools on floodplain	1	3
Plant hummocks and/or sediment mounds	1	
Point bars and in-channel bars	1	
Pools or depressions in channels (wet or dry channels )	1	ß
Secondary channels	1	
Shellfish beds (living)	1	
Soil cracks	1	١
Standing snags (at least 3 m tall)	1	1
Submerged vegetation	1	
Total Possible	16	

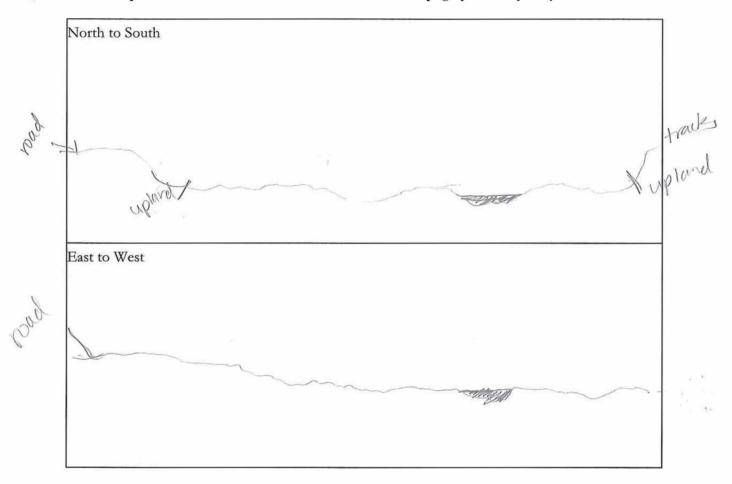
Grindelia stricta

a . F

4 - 1

## 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 channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



#### Plant Community Metric Worksheet: Co-dominant species richness (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	Invasive?	Short (<0.3 m)	Invasive?
		Sulcornia	
		calsolu soda	V
		Frankenia	
Medium (0.3 – 0.75 m)	Invasive?	Tall (0.75 – 1.5 m)	Invasive?
Grindelia Stricta Salicornia Sulsola Soda			
Salicornia			
Salsola soda	$\checkmark$		
Very Tall (>1.5 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 whole number (integer)*	25%
		(enter here and use in Table 18)	

Stayers

#### Horizontal Interspersion Complexity 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. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

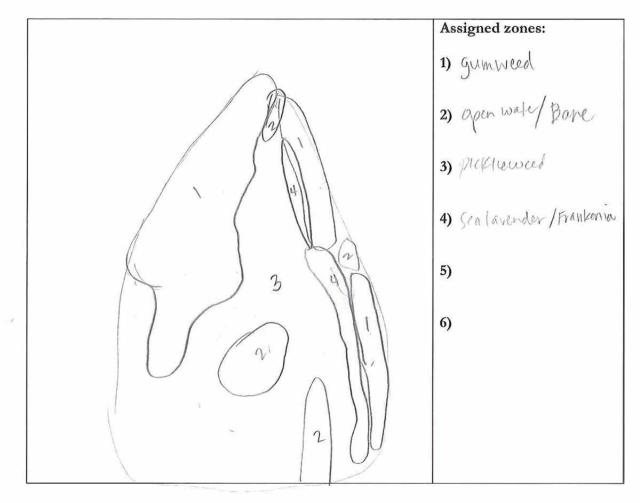


Table 21: Wetland disturbances and conversions.

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 affect site next 5 or more years	likely to aff site next 3 years		likely to affect site next 1-2 years	
	depressional	vernal po		rnal pool system	
Has this wetland been converted from another type? If yes, then what was the previous type?	non-confined riverine	confinec riverine		easonal stuarine	
	perennial saline estuarine	e perennial n saline estua	we	t meadow	
	lacustrine	seep or spr	ing	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	λ	
		к <sup>10</sup> қ.

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		
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		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

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

# featurbed railroad Company B&B B&B B&B

ī.

Assessment Area Name: AA\8
Project Name: MSR
Assessment Area ID #: 18
Project ID #: Date: 9/11/19
Assessment Team Members for This AA:
RJV
MCM
Average Bankfull Width: 2,3
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):
Upstream Point Latitude: 37, 642130 Longitude: -122, 413284
Downstream Point Latitude: 37. 641257 Longitude: - 122.413224
Wetland Sub-type:
Confined Non-confined
AA Category:
Restoration Mitigation Impacted Ambient Reference Training
Other:
Did the river/stream have flowing water at the time of the assessment? yes no
What is the 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			
3		Middle Right			
4		Downstream			-
5					
6					
7					
8					
9				<i>a</i> 1.	
10			-		

# Site Location Description:

**Comments:** 

\*

AA Name: 18				-	Date:
Attribute 1: Buffer and Land	dscape	Context	(pp. 11-	19)	Comments
	(T))		Alpha.	Numeric	
Stream Corridor Continuity	(D)		D	3	500 m UP I alom DS
Buffer:				12.3	
Buffer submetric A:	Alpha.	Numeric	8.6		50°/1
Percent of AA with Buffer	B	(C)	and have		
Buffer submetric B:		3			
Average Buffer Width	D	~			1
Buffer submetric C:	D	3	5. C.		HUMAN I TO TO TAKE
Buffer Condition	1	5			HIGHLY COMPACTED, TRAIN ROW
<b>Raw Attribute Score =</b> $D+[C \times (A$			x B) <sup>1/2</sup> ] <sup>1/2</sup>	6.95	Final Attribute Score = (Raw Score/24) x 10028.0
Attribute 2: Hydrology (pp.	. 20-26)			1	
			Alpha.	Numeric	
Water Source		_		9	the training i
Channel Stability			B		SOME AGGRADATION
Hydrologic Connectivity		A	12	B. LENT. PATIO	
Raw Attribute Score = sum of numeric			scores	27	Final Attribute Score = (Raw Score/36) x 100 75
Attribute 3: Physical Struct	ure (pp	. 27-33)		ř	
			Alpha.	Numeric	
Structural Patch Richness			D	3	1 PATCH
Topographic Complexity			D	3	SIMILE, EMPTHEN DITCH
Raw Attribute Score = st	um of n	umeric	scores	65	Final Attribute Score = (Raw Score/24) x 100 25
Attribute 4: Biotic Structure	e (pp. 3	4-41)		T	
Plant Community Composition	~ ~		o-metrics	A-C)	
	Alpha.	Numeric			
Plant Community submetric A:	D	3			D ?LANTS
Number of plant layers Plant Community submetric B:					
Number of Co-dominant species	2	3			O PLANTS
Plant Community submetric C:	2	2			
Percent Invasion	D	3			O PLATIS
Plant Commun	- ity Com	position	Metric	0	
(numeric	average o	f submetri	cs A-C)	3	
Horizontal Interspersion		D	3	D PLANTS	
Vertical Biotic Structure			P	3	O PLANSIS
Raw Attribute Score = s	Raw Attribute Score = sum of numeric s			9	Final Attribute Score = (Raw Score/36) x 100 25
Overall AA Score (average	ge of fo	ur final <i>I</i>	Attribute S	Scores)	38

# Scoring Sheet: Riverine Wetlands

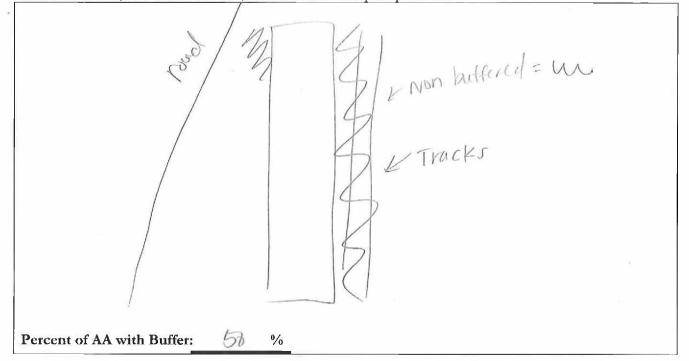
Lengths of Non-buffer S Distance of 500 m Ups	0	Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA		
Segment No.	Segment No.	Length (m)		
1	500×2	1	30×2	
2	1.50	2	8×2	
3		3	15×2	
4		4		
5		5		
Upstream Total Length	1000	Downstream Total Length	106	

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.

No stream US of AA



Line	Buffer Width (m)		
Α	5		
В	6		
С	6		
D	Le		
E	(g		
F	5		
G	(0		
Н	5		
Average Buffer Width *Round to the nearest integer*	6		

# 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.				
Indicators of Channel Equilibrium	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 vegetate 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.				
	□ 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. trash chocked				
	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.	3	2.3	1.7	
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).	.4	-40	o35	
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	- 8D	° 80	,70	
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.	15	3.6	20	
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	5	1,4	П,Ь	
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.			8,1	

# Structural Patch Type Worksheet for Riverine wetlands

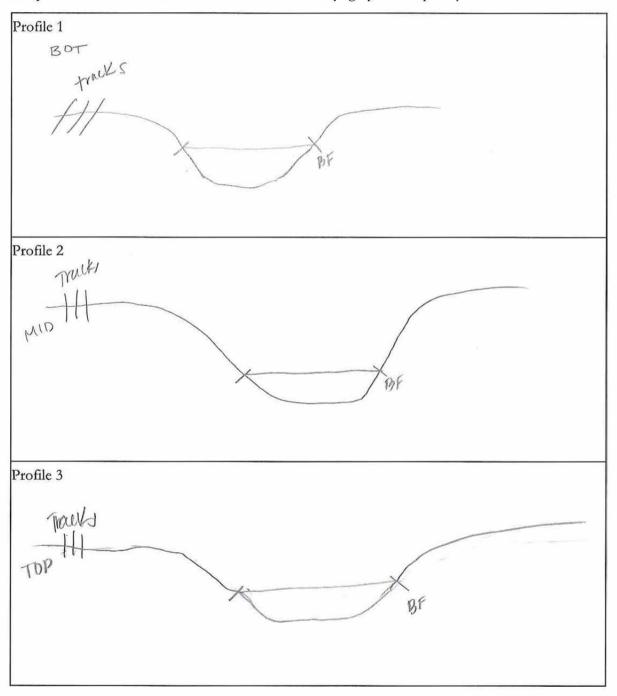
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" 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 <sup>2</sup>	3 m <sup>2</sup>
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)	ł	

### 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:

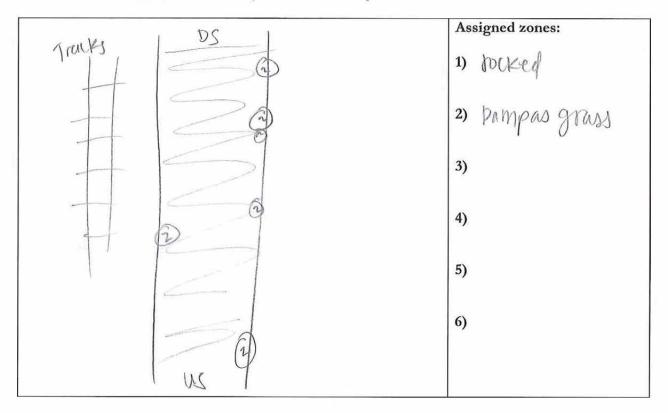
\* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m)	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)	0
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	11 - F

NO PLANTS

# 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	es No			2.3	
If yes, was it a flood, fire, landslide, or other?	flood	fire		landslide c		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
	depressional		vernal po	ol		nal pool system
Has this wetland been converted from another type? If yes, then what was the			confined riverine		seasonal estuarine	
previous type?	perennial saline estuarine		perennial n saline estua		wet	meadow
	lacustrine		seep or spr	ing		playa

# **Stressor Checklist Worksheet**

ï

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		
	a i lanana i a bilanaa	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

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)		T
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	U DI U	
Comments		2 N
		A
		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., <i>Virginia opassum</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 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	1	<b>I</b>

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial	1100 A	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

# **Basic Information Sheet: Riverine Wetlands**

Assessment Area Name: AA-19
Project Name: HSR
Assessment Area ID #: \9
Project ID #: Date: 9/11/19
Assessment Team Members for This AA:
RJV
McM
Average Bankfull Width: 2,09m
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):
Upstream Point Latitude: 37, 438159 Longitude: -122, 413029
Downstream Point Latitude: 37, 637304 Longitude: -122, 112972
Wetland Sub-type:
Confined Non-confined
AA Category:
Restoration Mitigation Impacted Ambient Reference Training
Other:
Did the river/stream have flowing water at the time of the assessment? yes
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			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
)					
10					

Site Location Description:

# **Comments:**

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	16 480	1	54 100	
2	- SD	2	1-20 20	
3	150	3	1	
4		4		
5		5		
Upstream Total Length	70480	Downstream Total Length	2201	

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.

51 Percent of AA with Buffer: %

### Worksheet for calculating average buffer width of AA

Line	Buffer Width (	m)
Α	7	
В	8	
С	11	
D	7	
Е	7	
F	7	
G	11	
н	9	
Average Buffer Width	8	
*Round to the nearest integer*		

AA Name:					Date:
Attribute 1: Buffer and Lan	dscape	Context	t (pp. 11-	19)	Comments
			Alpha.	Numeric	
Stream Corridor Continuity	(D)		C	6	
Buffer:					
Buffer submetric A:	Alpha.	Numeric			51%
Percent of AA with Buffer	B	9			
Buffer submetric B:		0			
Average Buffer Width	D	3	Man Se		8m avg width
Buffer submetric C:	D	3			
Buffer Condition	<i>y</i>	)	1992		COMRACTED SHLS. THATH RON
Raw Attribute Sco	ore = D-	+[ C x (A :	x B) <sup>1/2</sup> ] <sup>1/2</sup>	9,95	Final Attribute Score = (Raw Score/24) x 100
Attribute 2: Hydrology (pp	. 20-26)	_			
			Alpha.	Numeric	- 1
Water Source				Ý	
Channel Stability			B	9	SOME AGGRADATION
Hydrologic Connectivity			A	12	7.7 ENT. PATIO
Raw Attribute Score = sum of numeric			scores	27	Final Attribute Score = (Raw Score/36) x 100 75
Attribute 3: Physical Struct	ure (pp	. 27-33)			
			Alpha.	Numeric	
Structural Patch Richness			D	3	1 PATCH
Topographic Complexity			D	3	SIMPLE LO BERLYES, EBERTHEN P.T.
Raw Attribute Score = s	um of n	umeric	scores	6	Final Attribute Score = (Raw Score/24) x 100 25
Attribute 4: Biotic Structure	e (pp. 3	4-41)			
Plant Community Composition	on (base	d on sub	-metrics	A-C)	
	Alpha.	Numeric	Carles a		
Plant Community submetric A: Number of plant layers	C	φ			2 LA 1625
Plant Community submetric B: Number of Co-dominant species	D	3	in gain		3 (0-00115
Plant Community submetric C:	D	3			
Percent Invasion	9	1	12/16		46% INVASION
Plant Community Composition (numeric average of submetric				4	
Horizontal Interspersion			D	3	MINIMAL INTERSP.
Vertical Biotic Structure			2	3	
Raw Attribute Score = sum of numeric			scores	10	Final Attribute Score = 27, 7 (Raw Score/36) x 100
Overall AA Score (average	Overall AA Score (average of four final Attr				42

# Scoring Sheet: Riverine Wetlands

# Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
	<ul> <li>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.</li> </ul>
	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**

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.	1.7	17	1.9
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).	٥Y	04	64
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	. 8	· 8	,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.	3.5	3.5	J. J
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.05	2.05	2,16
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.				2.09

### Structural Patch Type Worksheet for Riverine wetlands

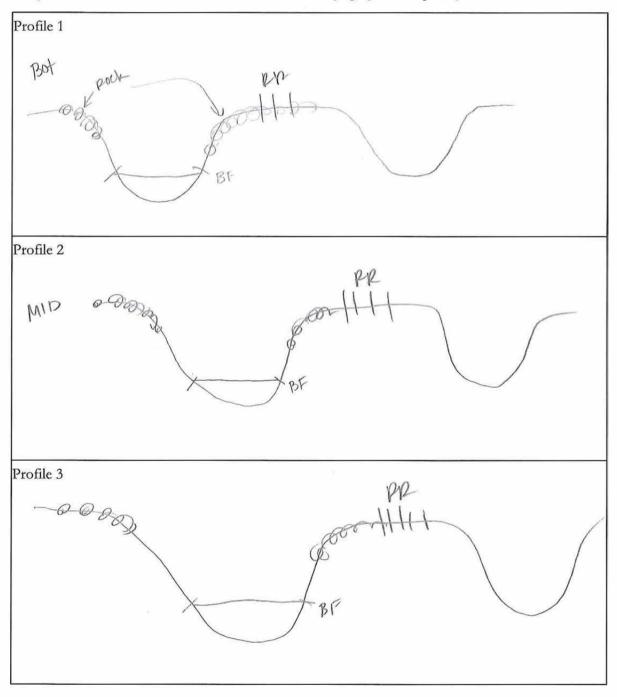
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" 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 <sup>2</sup>	3 m <sup>2</sup>
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
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)	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)

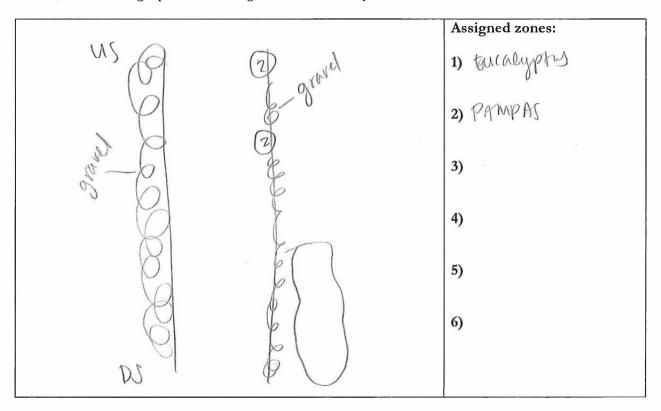
## Special Note:

\* 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)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Very Tall (>3.0 m) EMCalyptus sp .	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	1
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	100%

### 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?	his Yes No		as line	
If yes, was it a flood, fire, landslide, or other?	flood fire lar		landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affe site next 3-5 years		y to affect next 1-2 years
	depressional	vernal poo		rnal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confined riverine	confined riverine		easonal stuarine
previous type?	perennial saline estuarine	perennial no saline estuari	Wet	meadow
	lacustrine	seep or sprin	ng	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		
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		

# Stressor Checklist Worksheet

5 6 F 7

Present	Significant negative effect on AA
	-
	0
	Present

and and a second se Second second

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 apassum</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 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		
N 8		

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		1
Intensive row-crop agriculture	2	
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		1
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		· <b>I</b>
.6		

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# **Basic Information Sheet: Riverine Wetlands**

E LINE

Assessment Area Name: AA - 20				
Project Name: HSP				
Assessment Area ID #: 20				
Project ID #: Date: 9/11/19				
Assessment Team Members for This AA:				
RJV				
MCM				
Average Bankfull Width: 2,8m				
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):				
Upstream Point Latitude: 37, 638224 Longitude: -122, 413176				
Downstream Point Latitude: 37, 637300 Longitude: 122, 413154				
Wetland Sub-type:				
Confined Non-confined				
AA Category:				
Restoration Mitigation Impacted Ambient Reference Training				
Other: PRE-IMPRICI				
Did the river/stream have flowing water at the time of the assessment? 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>Peremial</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			
3		Middle Right			
4		Downstream			
5		5.			
6					
7					
8					
9					
10					

# Site Location Description:

**Comments:** 

AA Name:					Date:
Attribute 1: Buffer and Land	Context	(pp. 11-		Comments	
Stream Corridor Continuity (D)			Alpha.	Numeric	
			C	6	
Buffer:					
Buffer submetric A:	Alpha.	Numeric			
Percent of AA with Buffer	C	6			
Buffer submetric B: Average Buffer Width	D	3			
Buffer submetric C: Buffer Condition	D	3		in thirdige	COMPACTED SOUS, TRAIN ROW
Raw Attribute Sco	+[ C x (A :	x B) <sup>1/2</sup> ] <sup>1/2</sup>	9.57	Final Attribute Score = (Raw Score/24) x 100 $3\%$	
Attribute 2: Hydrology (pp.	20-26)			1	
			Alpha.	Numeric	4
Water Source			0	6	
Channel Stability			B	109	LITTLE AGGRAGATION
Hydrologic Connectivity			B	9	2,09 ENT. PATIO
Raw Attribute Score = st	um of n	umeric	scores	24	Final Attribute Score = (Raw Score/36) x 100Image: Constraint of the state of th
<b>Attribute 3: Physical Struct</b>	ure (pp	. 27-33)			
			Alpha.	Numeric	
Structural Patch Richness			2	3	4 PATOHES
Topographic Complexity			D	3	SIMPLE
Raw Attribute Score = s	um of n	umeric	scores	4	Final Attribute Score = (Raw Score/24) x 100
Attribute 4: Biotic Structure	e (pp. 3	4-41)		-	
Plant Community Composition	on (base	ed on sub	-metrics	A-C)	
	Alpha.	Numeric	14 2 3		
Plant Community submetric A:	Ø	3			1 PLANST LAYER
Plant Community submetric B: Number of Co-dominant species	Plant Community submetric B:		maria		1 co-porm
Plant Community submetric C: Percent Invasion					100 %0 INNERSION-
Plant Commun (numeric		position f submetri		3	
Horizontal Interspersion			2	3	MINIMAL INTERSP.
Vertical Biotic Structure		D	3	1 LAMER. SPARSE VEG.	
Raw Attribute Score = s	Raw Attribute Score = sum of numeric				Final Attribute Score = (Raw Score/36) x 100 25
Overall AA Score (average	ur final A	Attribute	Scores)	39	

# 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(p) 10	1	54
2	1,30	0 2	120
3	115301	3	
4		4	
5		5	
Upstream Total Length	17Wind	Downstream Total Length	174

45.0

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.

N. De (C. NO Wuther 40%% Percent of AA with Buffer:

### Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
Α	5
В	5
С	5
D	5
Е	5
F	5
G	5
Н	5
Average Buffer Width	T
*Round to the nearest integer*	う

# Worksheet for Assessing Channel Stability for Riverine Wetlands

I.

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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.			
	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 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.		2.7	2.8
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).	,035	-35	-35
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	.7	•7	•7
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	20	20
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	8,6	7.4	7,1
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.			ections.	7.7

#### Structural Patch Type Worksheet for Riverine wetlands

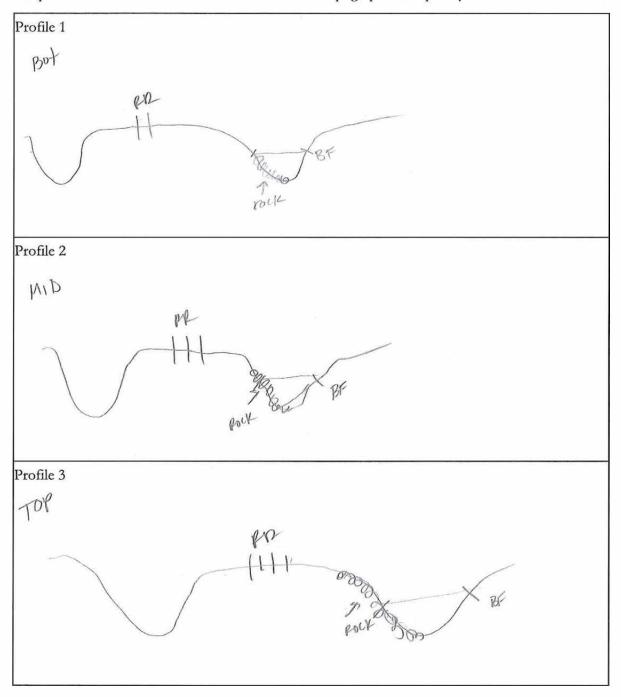
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" 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 <u>www.cramwetlands.org</u> 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 <sup>2</sup>	3 m <sup>2</sup>
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	( <b>1</b> )	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)	۱	

### 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)

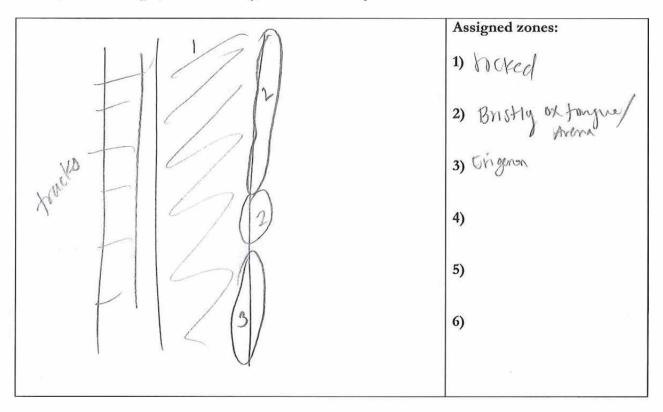
# Special Note:

\* 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.

Invasive?	Short (<0.5 m)	Invasive?
		120
Invasive?	Tall (1.5-3.0 m)	Invasive?
9	Avena S? Erigeron canodensis	N)
Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	3
	Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	2/3 66%
	Invasive?	Invasive?       Tall (1.5-3.0 m)         Y       Avena         Y       Total number of co-dominant species         Invasive?       Total number of co-dominant species         Invasive?       Total number of co-dominant species         Y       Percent Invasion         *Round to the nearest integer*

#### 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 affect site next 5 or more years	likely to affe site next 3- years		likely to affect site next 1-2 years	
	depressional	vernal poo	ol vernal pool		
Has this wetland been converted from another type? If yes, then what was the	non-confined riverine	confined riverine		easonal . stuarine	
previous type?	perennial saline estuarine	perennial no saline estuar	wei	méadow	
	lacustrine	seep or spri	ng	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 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		
2	0	

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)	đ	
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
	100.00 mm	

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

# **Basic Information Sheet: Riverine Wetlands**

Assessment Area Name: AA 21
Project Name: 1-15R
Assessment Area ID #: 2
Project ID #: Date: 9/11 19
Assessment Team Members for This AA:
PJV
MCM
Average Bankfull Width: 3.33
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): $M M$
Upstream Point Latitude: 37, 69556 Longitude: -122, 404928
Downstream Point Latitude: 371. (020 3355 Longitude: - 122. 405514
Wetland Sub-type:
Confined Non-confined
AA Category:
Restoration Mitigation Impacted Ambient Reference Training
Other:
Did the river/stream have flowing water at the time of the assessment? yes no
What is the 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			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
)					
10					

Site Location Description:

Comments:

.

AA Name:		-			Date:		
Attribute 1: Buffer and Lan	dscape	Context	(pp. 11-	19)	Comments		
		Alpha,	Numeric				
Stream Corridor Continuity		D	3				
Buffer;				AT STAT			
Buffer submetric A:	Alpha.	Numeric	1				
Percent of AA with Buffer	D	3			10%		
Buffer submetric B:	0	0	S. S.S.S.				
Average Buffer Width	D	3	Store and		14m avg width		
Buffer submetric C:	D	3					
Buffer Condition	1	/	1.5	T			
Raw Attribute Sco	ore = D-	+[Cx(A;	x B) <sup>1/2</sup> ] <sup>1/2</sup>		Final Attribute Score =		
	20.20				(Raw Score/24) x 100		
Attribute 2: Hydrology (pp	. 20-26)		Alpha.	Numeric			
Water Source			C	6			
Channel Stability			C	6			
Hydrologic Connectivity		B	9				
				21	Final Attribute Score =		
Raw Attribute Score = s	Raw Attribute Score = sum of numeric s				(Raw Score/36) x 100 58		
Attribute 3: Physical Struct	ure (pp	. 27-33)		-d.			
			Alpha.	Numeric			
Structural Patch Richness			D	3			
Topographic Complexity			D	3			
Raw Attribute Score = s	um of r	numeric	scores	4	Final Attribute Score = 25 (Raw Score/24) x 100		
Attribute 4: Biotic Structur	e (pp. 3	4-41)					
Plant Community Compositi			o-metrics	A-C)			
, <u> </u>	Alpha.	Numeric	1.5.6	S. Contraction			
Plant Community submetric A:	B	Ч					
Number of plant layers	15						
Plant Community submetric B:	$\mathcal{D}$	3	-				
Number of Co-dominant species Plant Community submetric C:							
Percent Invasion	D	3	1. 1. 1.				
Plant Commun	position	Metric	5				
		of submetri		5			
Horizontal Interspersion		C	(p 3				
Vertical Biotic Structure		to	3				
Raw Attribute Score = sum of numeric scores       1				Final Attribute Score = 38,9 (Raw Score/36) x 100			
<b>Overall AA Score</b> (avera	ge of fo	ur final /	Attribute	Scores)	37		

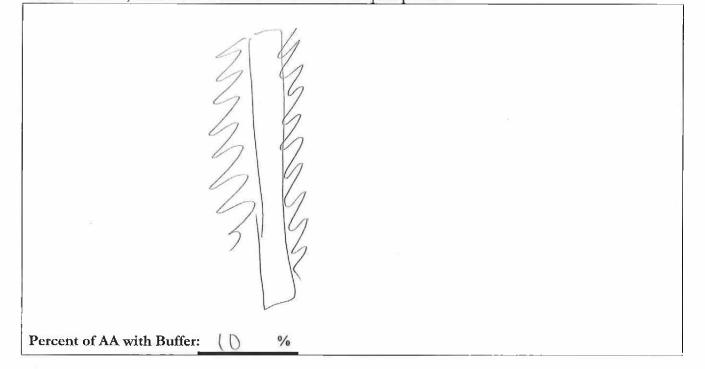
# Scoring Sheet: Riverine Wetlands

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 (m)		
1	486×2	1	395×2.		
2		2			
3		3			
4		4			
5		5			
Upstream Total Length	972	Downstream Total Length	790		

### 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.



### Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)		
Α	8		
В	7		
С	7		
D	7		
E	22		
F	20		
G	19		
н	19		
Average Buffer Width	14		
*Round to the nearest integer*			

# Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators						
Somercion	(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).						
3	□ 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**

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.		3.0	4,0	
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).		.6	06	
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.2	1.1	1.2	
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.	ちい	5.0	ND	
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.6	1,6	5	
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.				

black berry = no access to top + Mid pop confined

#### Structural Patch Type Worksheet for Riverine wetlands

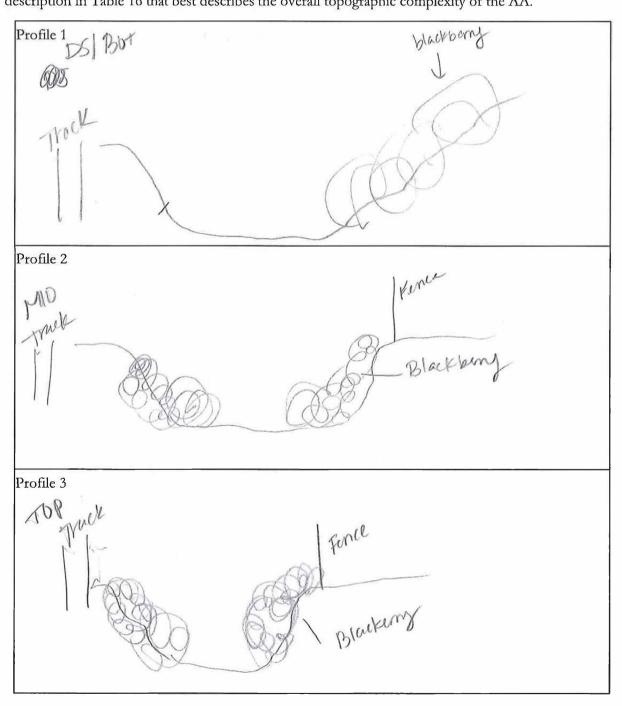
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1"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

<i>Putte Optic</i>		
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m <sup>2</sup>	3 m <sup>2</sup>
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	
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	1	1
(instead of broadly arcuate or mostly straight)		
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)		3

#### 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)

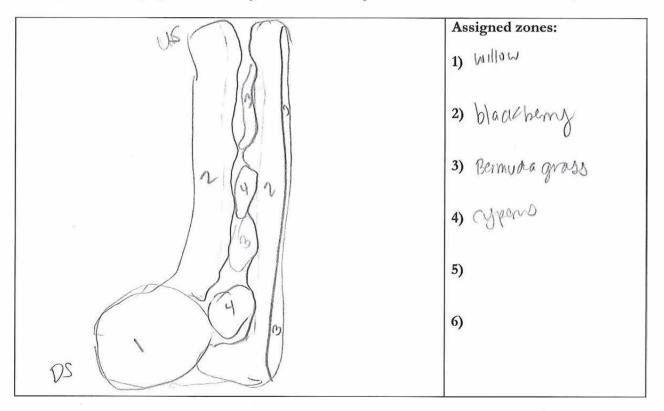
### Special Note:

\* 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?
		bermuda grass	9
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
		rubus armeniarus	9
Very Tall (>3.0 m) Sully (astolepts	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	3
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	1010,6

### 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	flood fire		other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	or site next 3		ly to affect e next 1-2 ycars
	depressiona	l vernal po		rnal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	d confine riverine		easonal stuarine
previous type?	perennial sali estuarine	ne perennial i saline estua	WP	t 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		

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)		2
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	*0	
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		
	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., <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 organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

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

\*

## **Basic Information Sheet: Riverine Wetlands**

1. 3.

1.

Assessment Area Name: AA - 2.2
Project Name: HSR
Assessment Area ID #: 22
Project ID #: Date: 9/11/19
Assessment Team Members for This AA:
Average Bankfull Width: 2,2m
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): VOOm
Upstream Point Latitude: 37,582313 Longitude: -122,350#334
Downstream Point Latitude: 37,581883 Longitude: -122,349336
Wetland Sub-type:
Confined Non-confined
AA Category:
Restoration Mitigation Impacted Ambient Reference Training
Other:
Did the river/stream have flowing water at the time of the assessment? yes no
What is the 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

1

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

Site Location Description:

**Comments:** 

A Name: 22				Date:	
Attribute 1: Buffer and Lan	dscape	Context	t (pp. 11-	19)	Comments
Stream Corridor Continuity (D)			Alpha,	Numeric	
			D	3	
Buffer:			100		
Buffer submetric A:	Alpha.	Numeric			50
Percent of AA with Buffer	3	009			
Buffer submetric B: Average Buffer Width	D	3			19m avg width
Buffer submetric C: Buffer Condition	С	6			dirt parting wit
Raw Attribute Sco	ore = D-	+[ C x (A :	x B) <sup>1/2</sup> ] <sup>1/2</sup>	6.50	Final Attribute Score = (Raw Score/24) x 10035.7
Attribute 2: Hydrology (pp	. 20-26)				
			Alpha.	Numeric	_
Water Source			C-	4	
Channel Stability	÷		C	6	
Hydrologic Connectivity			C	6	
Raw Attribute Score = sum of numeric scores		scores	18	Final Attribute Score = (Raw Score/36) x 100	
Attribute 3: Physical Struct	ure (pp	. 27-33)			
			Alpha.	Numeric	_
Structural Patch Richness		A	12		
Topographic Complexity		C	6		
Raw Attribute Score = s	um of r	umeric	scores	18	Final Attribute Score = (Raw Score/24) x 100 15,0
Attribute 4: Biotic Structur	е (рр. 3	4-41)			
Plant Community Compositi	on (base	ed on sub	o-metrics	A-C)	
	Alpha,	Numeric	1252		
Plant Community submetric A: Number of plant layers	A	12			
Plant Community submetric B: Number of Co-dominant species	C	6			
Plant Community submetric C: Percent Invasion	D	3			
Plant Commun (numeric	*	position		7	
Horizontal Interspersion		C	φ		
Vertical Biotic Structure			B	9	
Raw Attribute Score = s	um of 1	numeric	scores	22	Final Attribute Score = (1) (Raw Score/36) x 100
Overall AA Score (avera	ge of fo	ur final 1	Attribute	Scores)	65

# Scoring Sheet: Riverine Wetlands

Lengths of Non-buffer S Distance of 500 m Ups		Lengths of Non-buffer Se Distance of 500 m Downst	0
Segment No.	Length (m)	Segment No.	Length (m)
1	ALOIX2	1	150×2 =
2		2	
3		3	
4		4	
5		5	
Upstream Total Length	922	Downstream Total Length	300

### 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.

1 No buffer Percent of AA with Buffer: 50 %

### Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)		
A	16		
В	17		
C	23		
D	23		
E	24		
F	17		
G	15		
Н	17		
Average Buffer Width *Round to the nearest integer*	19		

### 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	□ 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.
	D 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	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.	2.1	21	17
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).	.45	.55	ور
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	,9	1,10	08
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.	3:5	3.D	3.2
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	5,29	1.43	1,88
6:	Calculate average entrenchment atio. 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.				1,5

#### 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.

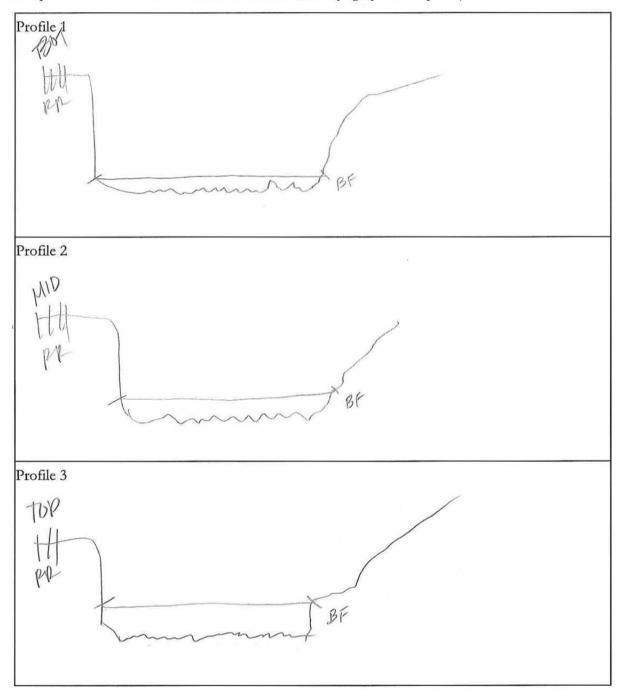
\*Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)	
Minimum Patch Size	3 m <sup>2</sup>	3 m <sup>2</sup>	
Abundant wrackline or organic debris in channel, on floodplain	1		Y
Bank slumps or undercut banks in channels or along shoreline	1		V
Cobbles and/or Boulders	1	1	V
Debris jams	1	1	$\checkmark$
Filamentous macroalgae or algal mats	1	1)	$\checkmark$
Large woody debris	1	(1)	V
Pannes or pools on floodplain	1	N/A	, <b>v</b>
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		$\checkmark$
Riffles or rapids (wet or dry channels)	1	(1)	$\checkmark$
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	1	1	
(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)		B	

### Worksheet for AA Topographic Complexity

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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)

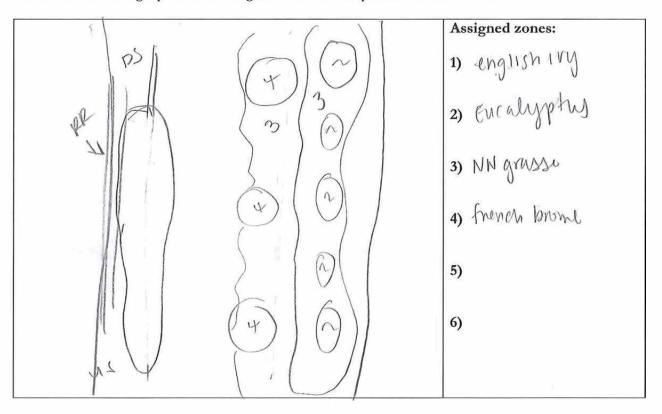
### Special Note:

\* 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?
		Bromus, diandmis	4
	7		
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Smilb grubs French broom genista mon	Y	english Lury	Y
Very Tall (>3.0 m) Eucalyptus	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)	100

### 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	flood fire lan		dslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	5 or site next 3-5		t likely to affect site next 1-2 years	
	depressional vernal poo		lool		nal pool ystem
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	d confine riverine	-		easonal tuarine
previous type?	perennial sali estuarine	-	perennial non- saline estuarine w		meadow
	lacustrine	seep or sp	ring	ng 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		
	×	

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		
P		н () Ха

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		
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	•	
		2

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		1
Orchards/nurscries		-
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: Riverine Wetlands**

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Assessment Area Name: AAZ3					
Project Name: HSR FJ					
Assessment Area ID #: AA23					
Project ID #: Date: 9/12/19					
Assessment Team Members for This AA:					
RUV MAL					
Average Bankfull Width: 2,33 m					
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): /00m					
Upstream Point Latitude: 37.55394 Longitude: -122,31015					
Downstream Point Latitude: 37,55306 Longitude: -/22,30975					
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? 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	Description	Latitude	Longitude	Datum
	No.			· · · · ·	
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7,					
8					
9			· · · · · · · · · · · · · · · · · · ·		
10					

# Site Location Description:

Comments:

AA Name: AA23					Date: 9/12/19	
Attribute 1: Buffer and Lan	dscape	Contex	t (pp. 11-	19)	Comments	
			Alpha.	Numeric		
Stream Corridor Continuity	Stream Corridor Continuity (D)				7/00m of Now-suffer U	SFDS
Buffer:						
Buffer submetric A:	Alpha.	Numeric	ist in the			
Percent of AA with Buffer B 9			1 Stand		50%	
Buffer submetric B: Average Buffer Width	D	3			AVA BUFFER = 5 m	
Buffer submetric C: Buffer Condition	Þ	3			Comported Barrel L	. [le_
Raw Attribute Sco	ore = D+	+[ C x (A :	x B) <sup>1/2</sup> ] <sup>1/2</sup>	6.949	Final Attribute Score = (Raw Score/24) x 100	28.95
Attribute 2: Hydrology (pp.	20-26)					
Water Source			Alpha.	Numeric 6	Mare than Zoo's deve	lugh
Channel Stability			K	9	EQUILIB. W/ MINOR AGO	
Hydrologic Connectivity			B	9	ER-1.7	
Raw Attribute Score = su	ım of n	umeric	scores	24	Final Attribute Score = (Raw Score/36) x 100	66.67
Attribute 3: Physical Struct	ure (pp.	. 27-33)				<u>.</u>
Structural Patch Richness			Alpha. D	Numeric 3	2 PATCHES	
Topographic Complexity			C	6	some barching	
Raw Attribute Score = su	ım of n	umeric	scores	9	Final Attribute Score = (Raw Score/24) x 100	37.5
Attribute 4: Biotic Structure	e (pp. 34	4-41)				
Plant Community Composition	on (base	d on sub	-metrics /	A-C)		
	Alpha.	Numeric	A Shar Fra			
Plant Community submetric A: Number of plant layers	C	6			2 agens	
Plant Community submetric B: Number of Co-dominant species	Ø	3			2 codoms	
Plant Community submetric C: Percent Invasion	3			100%		
Plant Communi (numeric d	-	•		4		
Horizontal Interspersion		Ŋ	3	MILANNAL PLANT ZOLE	S	
Vertical Biotic Structure		Ø	3	VERY LITTLE OVERLAP		
Raw Attribute Score = su	Raw Attribute Score = sum of numeric				Final Attribute Score = (Raw Score/36) x 100	27.78
Overall AA Score (average of four final Attribute Scores)				cores)	40	

# Scoring Sheet: Riverine Wetlands

1

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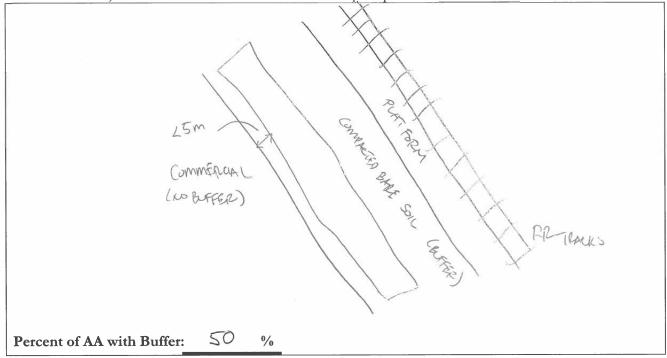
 $\langle \hat{\mathbf{r}} \rangle$ 

	Lengths of Non-buffer Segments For Distance of 500 m Upstream of AALengths of Non-buffer Segment Distance of 500 m Downstream of AA		
Segment No.	Length (m)	Segment No. Length (	
1	13	1	
2	337	2	
3		3	
4		4	
5		5	
Upstream Total Length	350	Downstream Total Length	475

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.



Worksheet for calculating average buffer width o	ot AA	1
--------------------------------------------------	-------	---

Line	Buffer Width (m)
Α	5m for all
В	
С	
D	
E	
F	
G	
H	
Average Buffer Width	5
*Round to the nearest integer*	

### Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)			
	<ul> <li>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.</li> </ul>			
	<ul> <li>Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.</li> </ul>			
	□ 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			
	<ul> <li>The larger bed material supports abundant mosses or periphyton.</li> <li>The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.</li> </ul>			
Indicators of	□ 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.			
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**

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.

	attempt should be made to place them at the top, middle, and bottom of the risk.				
	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.	2,7	-1,5	2.8
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).	0,18	Ø.16	Ø.73
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	Ø.36	0.32	0.46
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.	4,3	2,9	4.2
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.6	19	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 2		ections.	1,7

6

### Structural Patch Type Worksheet for Riverine wetlands

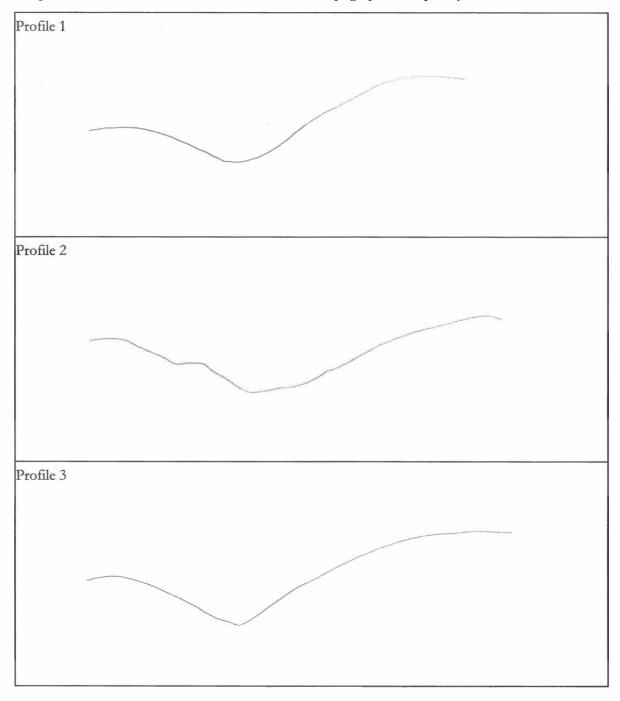
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1"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

	T	
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	$3 \text{ m}^2$	3 m <sup>2</sup>
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	
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)

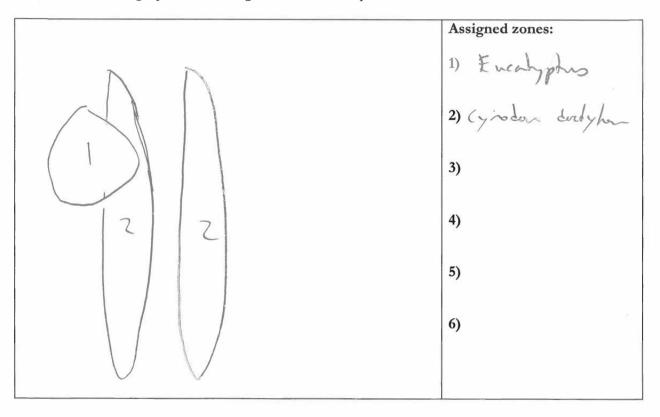
### Special Note:

\* 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?
		Cyrodun doctylion	7
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	
Eucolyptus sp.	Y	for all layers combined (enter here and use in Table 18)	2
	-	Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	160

#### 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	lan	dslide	other
If yes, then how severe is the disturbance?	likely to affe site next 5 c more years	or site next 3			y to affect next 1-2 years
	depressiona	l vernal po	ool		nal pool ystem
Has this wetland been converted from	non-confine	d confine	d	so	easonal
another type? If yes, then what was the	riverine	riverine	2	es	tuarine
previous type?	perennial sali estuarine	ne perennial r saline estua		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)	Y	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)	/	
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		-
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	4	
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)	7	
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	L	
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	1/	
Industrial/commercial	1	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	~	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
2		

## **Basic Information Sheet: Riverine Wetlands**

Assessment Area Name: AA 24			
Project Name: HSR FJ			
Assessment Area ID #: AA 2A			
Project ID #: Date: $9/12/10$			
Assessment Team Members for This AA:			
ROV., MAL			
Average Bankfull Width: 3,1 n			
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100 m			
Upstream Point Latitude: 37.55/100 Longitude: -122,30837			
Downstream Point Latitude: 37,55028 Longitude: -122,30783			
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? 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	Description	Latitude	Longitude	Datum
	No.				
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7	£				
8					
9					
10					

Site Location Description:

Comments:

AA Name:					Date:		
Attribute 1: Buffer and Lan	dscape	Contex	t (pp. 11-	19)	Comments		
			Alpha.	Numeric	(4)		
Stream Corridor Continuity (D)			D	3	7/00m Non-BAFFER		
Buffer:							
Buffer submetric A:	Alpha.	Numeric					
Percent of AA with Buffer	0	3			NO BUFFER		
Buffer submetric B:		2	Jula -				
Average Buffer Width	D	3					
Buffer submetric C: Buffer Condition	D	3					
Raw Attribute Sco	ore = D+	+[ C x (A :	к В) <sup>1/2</sup> ] <sup>1/2</sup>	6	Final Attribute Score = (Raw Score/24) x 100	25	
Attribute 2: Hydrology (pp	. 20-26)		(*)				
			Alpha.	Numeric			
Water Source			<u> </u>	6	DEVELOPED WATERSHED		
Channel Stability			A	12	LITTUE/NO BROSIDI, /AGURAO.		
Hydrologic Connectivity			D	3	1.1 EAT. RATIO		
Raw Attribute Score = sum of numeric s			scores	21	Final Attribute Score = (Raw Score/36) x 100	58.33	
Attribute 3: Physical Struct	ure (pp.	. 27-33)					
			Alpha.	Numeric			
Structural Patch Richness			D	3	3 PATCHES		
Topographic Complexity			7	3	CONCRETE V-DITCH		
Raw Attribute Score = su	Raw Attribute Score = sum of numeric s			6	Final Attribute Score = (Raw Score/24) x 100	25	
Attribute 4: Biotic Structure	e (pp. 34	4-41)					
Plant Community Composition	on (base	d on sub	-metrics /	1-C)			
	Alpha.	Numeric			2		
Plant Community submetric A: Number of plant layers	C	6			L LAYER		
Plant Community submetric B:	С	6			6 co-Doms		
Number of Co-dominant species Plant Community submetric C:					50%		
Percent Invasion	D	3			<u> </u>		
Plant Communi (numeric d	position I submetric		5				
Horizontal Interspersion			D	3	MINIMA INTRASORRESION		
Vertical Biotic Structure			D	3	LITTLE OVERLAP		
Raw Attribute Score = sum of numeric s			cores	1(	Final Attribute Score = (Raw Score/36) x 100	30,56	
Overall AA Score (average of four final Attribute Scores)				35			

# Scoring Sheet: Riverine Wetlands

Lengths of Non-buffer S Distance of 500 m Ups	0	Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA		
Segment No.	Length (m)	Segment No.	Length (m)	
1	440m	1	31	
2		2		
3		3		
4		4		
5		5		
Upstream Total Length	440m	Downstream Total Length	31_	

### 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.

NO BLAFFER

%

Percent of AA with Buffer: ()

Worksheet for calculating average buffer width of AA

6 6	
Line	Buffer Width (m)
Α	
В	
С	
D	
E	
F	
G	
Н	/
Average Buffer Width	Ø
*Round to the nearest integer*	U

### Worksheet for Assessing Channel Stability for Riverine Wetlands

1

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	b 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.						
50	□ The channel bed appears scoured to bedrock or dense clay.						
3	Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).						
5	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						

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### **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.

attempt should be made to place them at the top, middle, and bottom of the AA.						
Steps Replicate Cross-sections				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.		N	3,9	
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).	ι.	65.	,42	
3:	Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	~		.84	
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.	ų	• 4	<b>9</b> .4	
5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).		~	1.1	
6:	Calculate average entrenchment ratio.	$\sim$ 1 ( algorithtic the atterage results for Ntep 5 for all 5 replicate cross-sections 1				

CONCRETE V-DITAL

#### Structural Patch Type Worksheet for Riverine wetlands

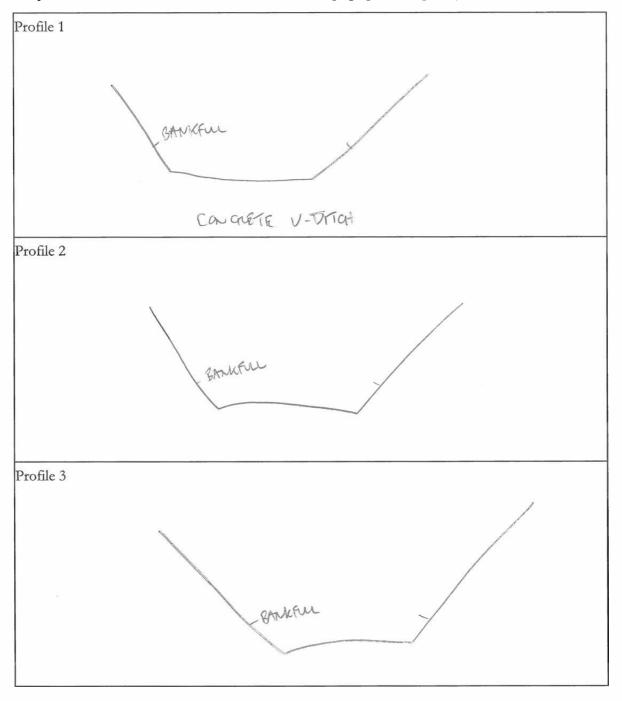
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" 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 <sup>2</sup>	3 m <sup>2</sup>
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	$(\mathbf{i})$
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
Plant hummocks and/or sediment mounds	1	0
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)		3

#### 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)

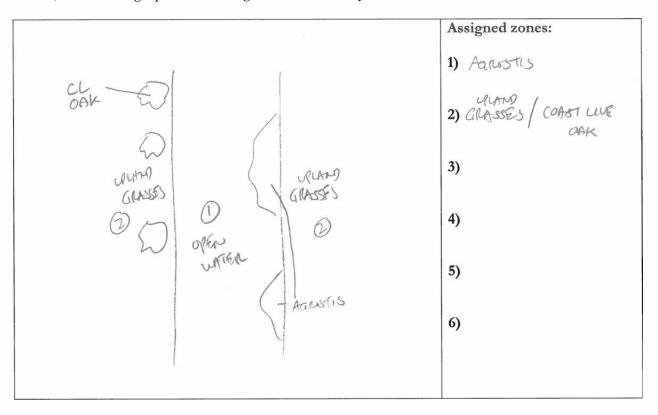
## Special Note:

\* 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?
		Ayera SP.	У
		Lactures service	N
		Ox-tomere	Y
		DITTRICHIA OPAVEDINS(Stink mont)	Y
		AuBOSTIS CAPILIARIS (Bert gross)	N
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
		Queveus ognibolia	N
Very Tall (>3.0 m)	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	6
		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		No			
If yes, was it a flood, fire, landslide, or other?	flood		fire	landslide othe		other
	likely to affe		likely to aff		-	y to affect
If yes, then how severe is the disturbance?	site next 5 o	or	site next 3	-5	site	next 1-2
~~>	more year	s	years			years
	depression	al	vernal po	പ	ver	nal pool
	depression	ai		01	s	ystem
Has this wetland been converted from	non-confine	ed	confined	ł	se	easonal
another type? If yes, then what was the	riverine		riverine		es	tuarine
previous type?	perennial sal	ine	perennial n	.on-	wet	meadow
12	estuarine		saline estua	rine	wei	meadow
	lacustrine		seep or spi	ring		playa

# Stressor Checklist Worksheet

2 1 2 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)		X
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)		X
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)	X	
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	×	
Excessive sediment or organic debris from watershed	~~~~	X
Excessive runoff from watershed		X
Nutrient impaired (PS or Non-PS pollution)		X
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)		$\lambda$
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., <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	X	
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	2	
	1	

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	8	$\times$
Industrial/commercial		X
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.)	X	
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**

Assessment Area Name: AA25
Project Name: HSA FJ
Assessment Area ID #: AAZ5
Project ID #: Date: 9/12/19
Assessment Team Members for This AA
RUV MAL
AA Category:
Pre-Restoration Post-Restoration Pre-Mitigation Post-Mitigation
Pre-Impact Dost-Impact Data Training Data Ambient
□ Reference □ Other:
Origin of Wetland (if known):
🗆 Natural system 🖬 Artificial system
Type of Management (if known):
□ waterfowl/birds □ amphibians □ general wildlife □ sediment □ water quality □ stormwater
$\Box$ water supply (agriculture) $\Box$ water supply (livestock) $\Box$ not managed $\Box$ other:
Which best describes the type of depressional wetland?
🗭 freshwater marsh 🛛 🗆 alkaline marsh 🗆 brackish marsh
□ other (specify):
AA Encompasses:
$\swarrow$ entire wetland $\Box$ portion of the 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.
perennially flooded seasonally flooded temporarily flooded

Does	the wetland	have a defined on have a defined on outlet at the same	undefined inlet?	? defined defined up yes (	undefined undefined	
An <i>in</i>	Is the topographic basin of the wetland distinct or indistinct ? An <i>indistinct</i> 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.					
		on Numbers and In from edge of AA loo	-	id of AA		
	Photo ID No.	Description	Latitude	Longitude	Datum	
1		(to) North				
2		(to) East				
2		(to) South				
2						
		(to) West				
3		(to) West				
3 4 5 6		(to) West				
3 4 5 6 7		(to) West				
3 4 5 6 7 8		(to) West				
3 4 5 6 7		(to) West				

Comments:

AA Name: AA 25					Da	ite: 9/12/10	
Attribute 1: Buffer and Landscape Context				5)		/ Comments	
Aquatic Area Abundance So	ore (D)		Alpha.	Nume	eric		
-			D	3		<1 % AQUATIC IN TRAD.	SPOTS
Buffer:	A 1 - 1	NT					
Buffer submetric A:	Alpha.	Numeric	1				
Percent of AA with Buffer $\mathcal{D}$ 3					No BUFFER		
Buffer submetric B: Average Buffer Width	D	3					
Buffer submetric C: Buffer Condition	P	3				No buffer	
Raw Attribute Score	= D+[	C x (A x I	B) <sup>1/2</sup> ] <sup>1/2</sup>	6		Final Attribute Score = (Raw Score/24) x 100	25
Attribute 2: Hydrology (pp	. 16-21)						
			Alpha.	Nume	eric	HIGHLY BEVELOPED WATER	SHED
Water Source			C	6		The second second second	
Hydroperiod			A	12		NO CONTINUED STRUTURE	2:
Hydrologic Connectivity			D	3		LITTLE/NO TRANSITION AR	ZEAS
Raw Attribute Score = su	um of n	umeric so	cores	21		Final Attribute Score = (Raw Score/36) x 100	<del>3</del> 8,33
Attribute 3: Physical Struct	ure (pp.	. 22-28)		•			
			Alpha.	Nume	eric	2 patches	
Structural Patch Richness			D	3			
Topographic Complexity			C	6		MINOR TOPO	
Raw Attribute Score = su	im of n	umeric so	cores	9		Final Attribute Score = (Raw Score/24) x 100	37,50
Attribute 4: Biotic Structure	e (pp. 29	9-39)					
Plant Community Composition	<u>`</u>		netrics A	-C)			
Dlant Committee al la de	Alpha.	Numeric				9 14 200	
Plant Community submetric A: Number of plant layers	B	9				3 LAYERS	
Plant Community submetric B: Number of Co-dominant species	D	3				5 60-00ms	
Plant Community submetric C:						25%	
Percent Invasion	C	6	14900				
Plant Communi (numeric a	· .	oosition M submetrics 2		6			
Horizontal Interspersion			Ć	6		MINIMAL	
Vertical Biotic Structure			$\overline{\Omega}$	3		Method 1 - No entrin	went
Raw Attribute Score = su	ım of nı	umeric sc	ores	15		Final Attribute Score = (Raw Score/36) x 100	41.67
Overall AA Score (averag	ribute So	cores)		41			

# Scoring Sheet: Depressional Wetlands

x

Percentage of Transect Lines that Contains Aquatic Area of Any Kind					
Segment Direction	Percentage of Transect Length				
_	That is an Aquatic Feature				
North	1				
South	6				
East					
West	0				
Average Percentage of Transect	0.5				
Length That Is an Aquatic Feature	· []				

# 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.

	NO BUFFETZ
Percent of AA with Buffer:	0/0

Line	Buffer Width (m)
Α	1
В	
С	
D	
E	Į.
F	
G	/
Н	1
Average Buffer Width *Round to the nearest whole number (integer)*	

Worksheet for calculating average buffer width of AA

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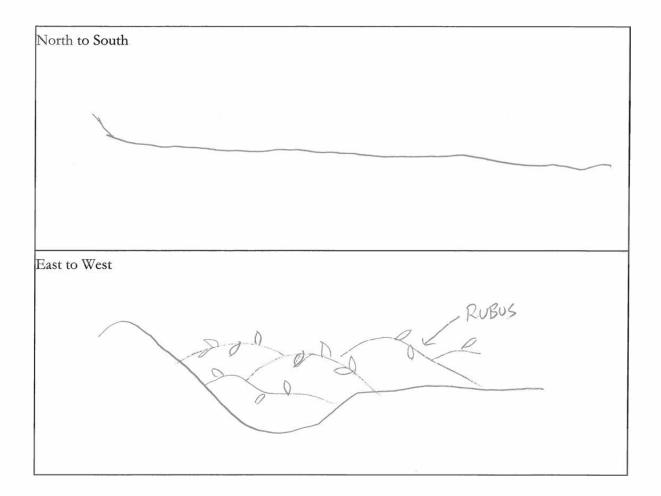
# Structural Patch Type Worksheet for Depressional Wetlands

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	$3 \mathrm{m}^2$
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	1
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	1
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	
Plant hummocks and/or sediment mounds	
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)	2

#### 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.



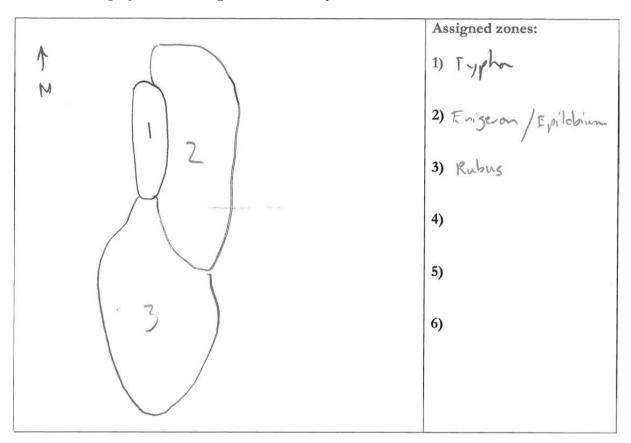
# Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% *relative* cover)

\* 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?
		¥	
		· · · · · · · · · · · · · · · · · · ·	
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Rubus armeniacus	Y	Evigeron canadonsi's	N
	/	Typha sp.	N
		Epilobium brochy carpun	Ŋ
Very Tall (>3.0 m)	Invasive?		
Very Tall (>3.0 m) Rubus armeniacus	У	Total number of co-dominant species for all layers combined (enter here and use in Table 19)	5
		Percent Invasion	
		*Round to the nearest	- 01
		whole number (integer)*	25%
		(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	Vears		site	to affect next 1-2 years
	depressiona	l vernal po	ool		nal pool ystem
Has this wetland been converted from	non-confine riverine	d confine riverine			r-built tuarine
another type? If yes, then what was the previous type? POSSIBLY USED TO BE A CHARACL. DISTURBANCE DUE TO CONSTRUCTION	perennial saline estuarine	perennia non-salir estuarin	ne	wet	meadow
DISTURGENCE DUE TO CONSTRUCTION	lacustrine	seep or spi	ring	1	olaya

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# 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		X
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)	X	
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
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)		×
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., <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	X	
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		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		X
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.)		
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: AAZG
Project Name: HSR FJ
Assessment Area ID #: AA 26
Project ID #: Date: $A = \alpha/12/201G$
Assessment Team Members for This AA:
RUV, MAL
Average Bankfull Width:
61
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): $100$ m
Upstream Point Latitude: 37. 42459 Longitude: -122. 13477
Downstream Point Latitude: 37. 42402 Longitude: -122. 13388
Wetland Sub-type:
Confined Non-confined
AA Category:
Restoration Mitigation Impacted Ambient Reference Training
Other: PFE-IMPACY
Did the river/stream have flowing water at the time of the assessment? (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	Description	Latitude	Longitude	Datum
	No.				
1		Upstream			
2		Middle Left			
3		Middle Right			_
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description: Concrete Thed channel, west adjust of FK Summended by residential.

Comments:

AA Name: AA26					Date:	
Attribute 1: Buffer and Lan	dscape	Contex	t (pp. 11-	19)	Comments	
Stream Corridor Continuity	$(\mathbf{D})$		Alpha.	Numeric		
	(D)		B	9		
Buffer:				122-117	BUFFER ON ONE SIDE ON	u./
Buffer submetric A:	Alpha.	Numeric				1
Percent of AA with Buffer	B	9	Sec. 18		50 % OFFER	
Buffer submetric B:		2			6m AVG BAFF2	
Average Buffer Width	D	3				
Buffer submetric C:	N	3			Compreted Saus, Little	IND VEG.
Buffer Condition						
Raw Attribute Sco	ore = D-	+[ C x (A :	x B) <sup>1/2</sup> ] <sup>1/2</sup>	12,95	Final Attribute Score = (Raw Score/24) x 100	53,95
Attribute 2: Hydrology (pp.	. 20-26)					
			Alpha.	Numeric	DEVELOPED UNTIERSME	
Water Source			C	6		
Channel Stability			A	12	CONCRETE CHANNEL, STAB	ILE
Hydrologic Connectivity			$\mathcal{D}$	3	ENT. RATIO = 1	
Raw Attribute Score = sum of numeric		scores	21	Final Attribute Score = (Raw Score/36) x 100	38.33	
Attribute 3: Physical Structure (pp. 27-33)						
		Alpha.	Numeric			
Structural Patch Richness			$\mathcal{C}$	6	9 patches	
Topographic Complexity			$\mathcal{O}$	3	y patches concrete clanel	
Raw Attribute Score = su	ım of n	umeric s	scores	9	Final Attribute Score = (Raw Score/24) x 100	37,50
Attribute 4: Biotic Structure	e (pp. 34	4-41)		·		
Plant Community Compositio	on (based	d on sub	-metrics I	1-C)		
	Alpha.	Numeric				
Plant Community submetric A: Number of plant layers	(	6			2 LAYERS	
Plant Community submetric B:					5 co-Doms	
Number of Co-dominant species	С	6				
Plant Community submetric C:	C	,			40 % INVASIVE	
Percent Invasion		6				
Plant Communi	ty Comp	position I	Metric	1		
(numeric d	average of	submetric.	s A-C)	6		
Horizontal Interspersion			Ø	3	MINIMAL ZONES	
Vertical Biotic Structure			6	3	VERY LITTLE ONELAP	
Raw Attribute Score = su	ım of nı	umeric s	scores	12	Final Attribute Score = (Raw Score/36) x 100	33.33
Overall AA Score (average of four final Attribute Se				cores)	46	

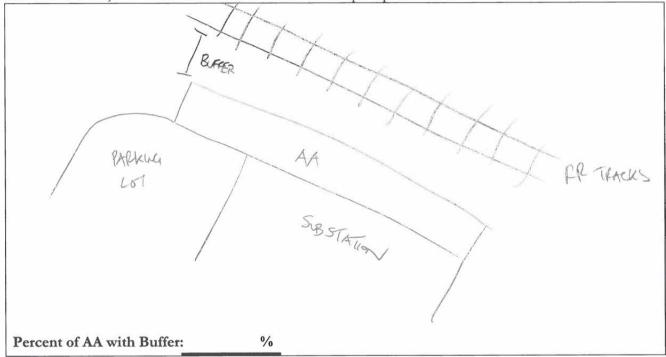
# Scoring Sheet: Riverine Wetlands

	Lengths of Non-buffer Segments For Distance of 500 m Upstream of AALengths of Non-buffer Segments For Distance of 500 m Downstream of A		
Segment No.	Length (m)	) Segment No. Leng	
1	35	1	160
2	50	2	20
3		3	
4		4	
5		5	
Upstream Total Length	85	Downstream Total Length	120

#### 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.



Worksheet for	calculating average	buffer width of AA
---------------	---------------------	--------------------

Line	Buffer Width (m)
A	6
В	6
С	7
D	6
E	6
F	6
G	5
Н	6
Average Buffer Width	10
*Round to the nearest integer*	Ŕ

# Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators			
	<ul> <li>(check all existing conditions)</li> <li>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.</li> </ul>			
	<ul> <li>Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.</li> </ul>			
	□ 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).			
<i></i>	□ 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**

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.

	attempt should be made to place them at the top, middle, and bottom of the MA.						
		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. Estimate or measure the distance between the right and left bankfull contours.	6.1	6,1	6,1	
1	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.				-Probably Im
	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.		6.1	6.	
	5:	Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).		l	(	
	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.	(	

) Unable to versure. Condrete boxed channel

6

#### Structural Patch Type Worksheet for Riverine wetlands

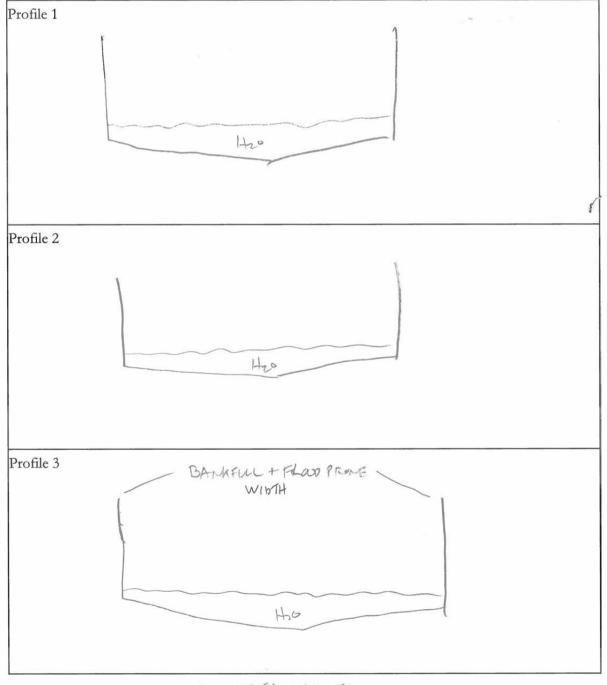
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or nonconfined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1"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

		T
STRUCTURAL PATCH TYPE (circle for presence)	Riverine (Non-confined)	Riverine (Confined)
Minimum Patch Size	3 m <sup>2</sup>	3 m <sup>2</sup>
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	Y
Filamentous macroalgae or algal mats	1	P
Large woody debris	1	1
Pannes or pools on floodplain	1	N/A
Plant hummocks and/or sediment mounds	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)		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.



CONCRETE CHANNEL

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

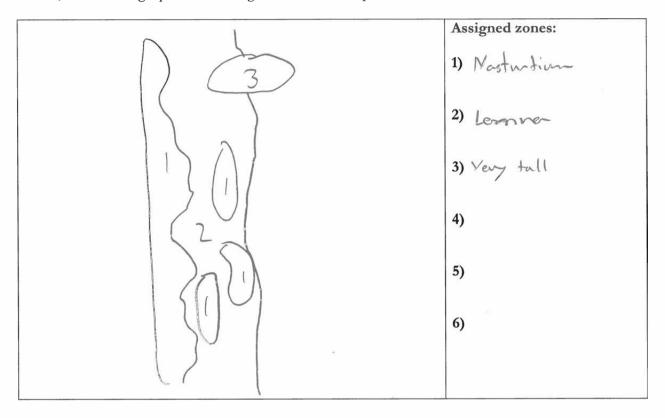
## Special Note:

\* 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?
Lemma sp.	N		
Nasturtium officiavale	Ň		
			*
Medium (0.5-1.5 m)	Invasive?	Tall (1.5-3.0 m)	Invasive?
Very Tall (>3.0 m) Borchan's ritularis	Invasive?	Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
Cotomoster franchettii Hedera helix	×,	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

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 affe site next 5 c more years	or site next 3		ely to affect te next 1-2 years
	depressiona	al vernal po	ool v	ernal pool system
Has this wetland been converted from another type? If yes, then what was the	non-confine riverine	ed confine riverine		seasonal estuarine
previous type? NO	perennial sali estuarine	ine perennial r saline estua	337	et 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)	1	
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)	$\checkmark$	×
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	· · · · · · · · · · · · · · · · · · ·	
Comments		

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

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

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	$\checkmark$	
Industrial/commercial		
Military training/Air traffic	5	
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		1 ×
	-	· *

# **Basic Information Sheet: Depressional Wetlands**

Q.

Assessment Area Na	me: $\mathcal{A}$	ter and the second second	and an eliment of the
Project Name: (A)	HOK		
Assessment Area ID Project ID #:	#:	Date: 9/10/14	7
Project ID #:			
Assessment Team M	embers for This AA		
RJ, DM	n - Salan Indiana (Seconda) 1975 - Al Abada - Kara	Alaman Managaran Sarah Mangaharan Sarah	All and a state of the second s
AA Category:	(us)	alexon and Davies	Physics the physics of the
Pre-Restoration	Dest-Restoration	D Pre-Mitigation	Dest-Mitigation
Pre-Impact	D Post-Impact	Training	□ Ambient
□ Reference	□ Other:		1001 1 1
Origin of Wetland (	if known):		
□ Natural system	Artificial system	Along RR.	rack
	ulture)  water supply (lives the type of depression with the second seco	nal wetland?	Signation Control of
AA Encompasses:			siteannis?
<b>X</b> enti	re wetland $\Box p$	ortion of the wetland	
Which best describ	es the hydrologic state of	of the wetland at the	time of assessment?
🗆 ponded/inu	ndated X saturated	d soil, but no surface v	water 🕅 dry
What is the apparent	nt hydrologic regime of	the wetland?	
Perennially flooded syste wetlands are defined	ems contain surface water	year-round, <i>seasonally j</i> eer for 4-11 months of	f the year (in $> 5$ out of 10
□ perennially flooded	d 🎽 seasonally floc	oded 🗌 tempor	rarily flooded

Does	the wetland		n undefined <u>outle</u> n undefined <u>inlet</u> ? e location?	- ACLE BAY	∦ undefined ∦ undefined ∦ no
An <i>in</i>	distinct topogra	aphic basin is one		or [] indistinct? ooundaries between w lands in very low-grad	
		ion Numbers and a from edge of AA loo	Description:	id of AA	integrated has
	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East		and O to	in hetierani
3		(to) South		1944	
4		(to) West	and the second	17	
5		1.1.216-1	191 (%, 1970) (# H	of the A	short kenamin sa
67				Trender d'H1 materne	marks in some
8					
9			and an an array of the second s		CLS INSPECTOR INCLE / IN
10	- realized	Report Distances of the	Storen and Address	entra communati	신 점액 기가 다
		cription and Lan			
	1			transtansi naren heinakoakoa	

AA Name: 27		ate: 9/10/19				
Attribute 1: Buffer and Lan	dscape	Context	(pp. 8-1	5)	Comments	
			Numeric		1	
Aquatic Area Abundance So	core (D)		D	3	7%	
Buffer:	1113		aelentin	Witten Buch		1
Buffer submetric A:	Alpha.	Numeric			50% buffer	
Percent of AA with Buffer	B	9			Terror (	
	9		-		119	-
Buffer submetric B: Average Buffer Width	C	6			118 m Ava	
Buffer submetric C: Buffer Condition	C	6	間。			
Raw Attribute Score	e = D+[	C x (A x l	B) <sup>1/2</sup> ] <sup>1/2</sup>	9.64	Final Attribute Score = 40.17 (Raw Score/24) x 100	·
Attribute 2: Hydrology (pp	. 16-21)	no washi	onde mar	e e la la la	a sulun news labbana survey	1 + 1
			Alpha.	Numeric	RR track-conceaded Soil + rock	0.01
Water Source			B	9	Soil + rock	ani.
Hydroperiod			A	12		1
· ·			N	3		1
Hydrologic Connectivity Raw Attribute Score = s	um of n	umeric s	cores	24	Final Attribute Score = $66.67$	
A		22 20)	_		(Raw Score/36) x 100 00.07	-
Attribute 3: Physical Struct	ure (pp.	. 42-20)	A 1-1	NI		-
			Alpha.	Numeric		
Structural Patch Richness			Ċ	6		-
Topographic Complexity			B	9		
Raw Attribute Score = s	um of n	umeric s	cores	15	Final Attribute Score = (Raw Score/24) x 100 62.5	
Attribute 4: Biotic Structur	e (pp. 29	9-39)				1
Plant Community Compositi			netrics A	1-C)		1
		Numeric		TO IS HERE		
Plant Community submetric A: Number of plant layers	C	6			2 layer	-
Plant Community submetric B: Number of Co-dominant species	Plant Community submetric B: D 3		all parties		4 spp	-
Plant Community submetric C:	n	2			50 %	1
Percent Invasion	J	3				
Plant Commun		position N submetrics.		4		
Horizontal Interspersion		D	3		1	
Vertical Biotic Structure			Ď	3	Typha only areas ag entrain	ince
Raw Attribute Score = s	um of n	umeric se		10	Final Attribute Score = 27 78	-
0 11 4 4 0 /	c.c.				(Raw Score/ 56) x 100	
Uverall AA Score (avera	Overall AA Score (average of four final A				49	

# Scoring Sheet: Depressional Wetlands

1

Percentage of Transect Lines that Contains Aquatic Area of Any Kind				
Segment Direction	Percentage of Transect Length That is an Aquatic Feature			
North	18			
South	0			
East	2			
West	8			
Average Percentage of Transect Length That Is an Aquatic Feature	7			

## 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: 50 %

Line	Buffer Width (m)
Α	118
В	118
С	118
D	18
e <b>E</b> entreaction	116
F	119
G	119
Н	119
Average Buffer Width *Round to the nearest whole number (integer)*	118

# Worksheet for calculating average buffer width of AA

Leveland, in the level number of a single of a standard set of a standa

# 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.

THE R	
STRUCTURAL PATCH TYPE (circle for presence)	Depressional
Minimum Patch Size	3 m <sup>2</sup>
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	/
Animal mounds and burrows	V
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	V
Concentric or parallel high water marks	,
Filamentous macroalgae or algal mats	V
Islands (mostly above high-water)	
Large woody debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	$\checkmark$
Open water	
Plant hummocks and/or sediment mounds	1
Soil cracks	V
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)	6

## 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 East to West placed rock RRack Vegetated area channe small

## 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?
Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
Helmin-thothera echiodees Brassica nigra	У У	Typha spp	N
Typha spp Bolloschonus meridinuus	N N		
Very Tall (>3.0 m)	Invasive?		
All A	24.1	Total number of co-dominant species for all layers combined (enter here and use in Table 19)	4
		Percent Invasion *Round to the nearest whole number (integer)* (enter here and use in Table 19)	50%

#### 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) Typha 2) Bare 3) Oxtongue/nuistand 4) Biolboshenus Ø 3 Bristly extensel 5) 4 2 6)

#### 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	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affe site next 3- years	5 site	y to affect next 1-2 years
	depressional	depressional vernal pool		nal pool ystem
Has this wetland been converted from	non-confined riverine			ar-built tuarine
another type? If yes, then what was the previous type?	perennial saline estuarine	perennial non-saline wet mea estuarine		meadow
	lacustrine	seep or sprin	ng	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		194	
Dams (reservoirs, detention basins, recharge basins)	255		
Flow obstructions (culverts, paved stream crossings)	81 1	- 1	
Weir/drop structure, tide gates	5	1	
Dredged inlet/channel	- X2 L		
Engineered channel (riprap, armored channel bank, bed)	6.65		
Dike/levees	100		
Groundwater extraction			
Ditches (borrow, agricultural drainage, mosquito control, etc.)	(3) - (-4)	21	
Actively managed hydrology	0.1		
Comments		2	

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PHYSI	ICAL STRUCTUR (WITHIN 50 M			Present	Significant negative effect on AA
Filling or dumpin areas)	g of sediment or soil	ls (N/A for resto	ration	- 1	27 J
Grading/ compac	tion (N/A for resto	oration areas)			4
Plowing/Discing	(N/A for restoratio	on areas)			-
Resource extraction	on (sediment, gravel,	, oil and/or gas)			
Vegetation manag	gement	adoureaus mis	Appended.	Werkerst dist	
Excessive sedime	nt or organic debris	from watershed	6.510		
Excessive runoff		and the	THE PERSON N	A COLUMN THE OWNER OF	Contraction of the second second
Nutrient impaired	l (PS or Non-PS pol	lution)		Database of the	
Heavy metal impa	aired (PS or Non-PS	20.2144	HILL OWN ARAMA I	a state and a state	
	e organics impaired (			· INdu	
Bacteria and path	ogens impaired (PS of	or Non-PS polluti	on)		
Trash or refuse	a family	540k shot in		Have were an	of several la
Comments		ne é bem		Supaliant	8
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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., <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	1.C	
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		2.5

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

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