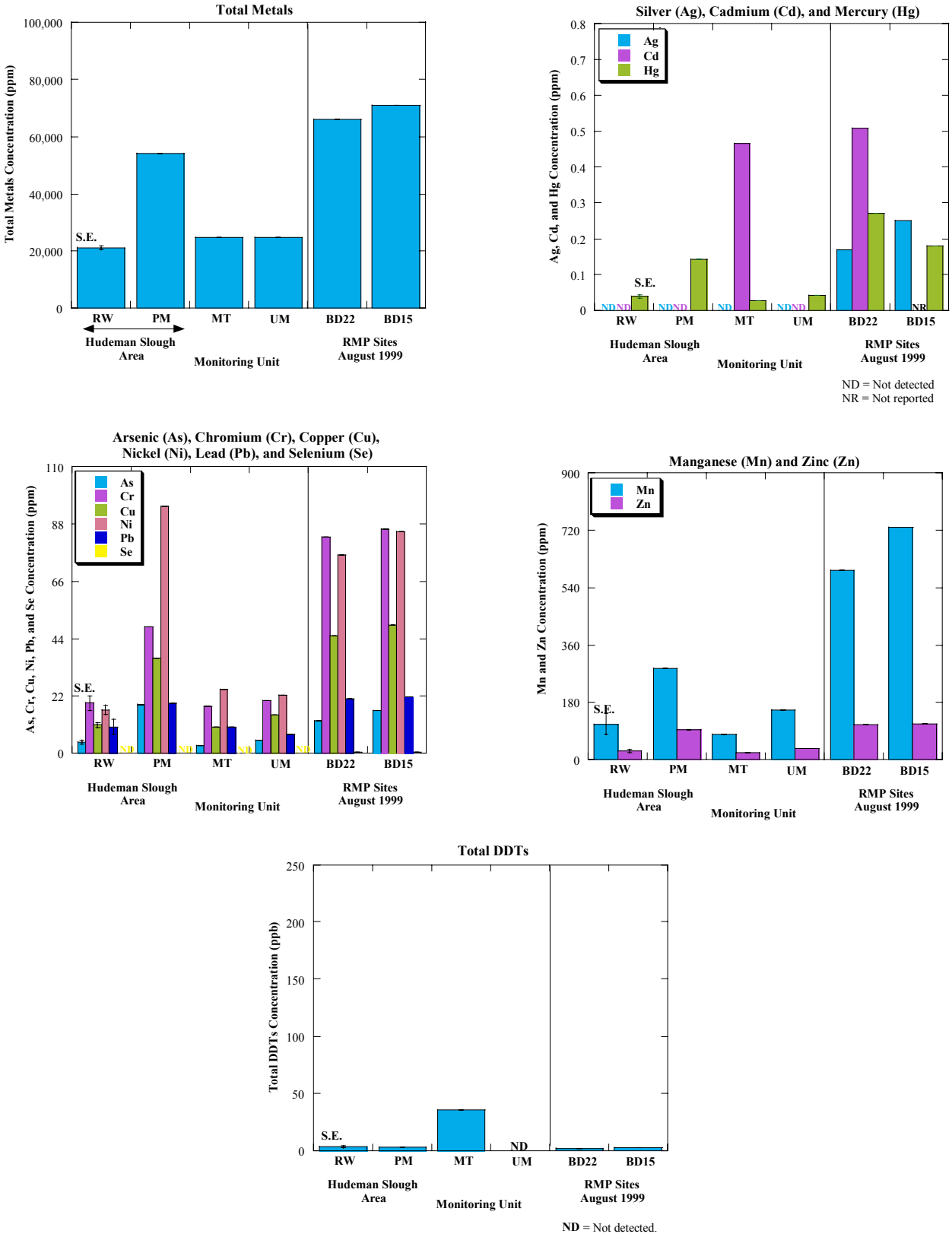
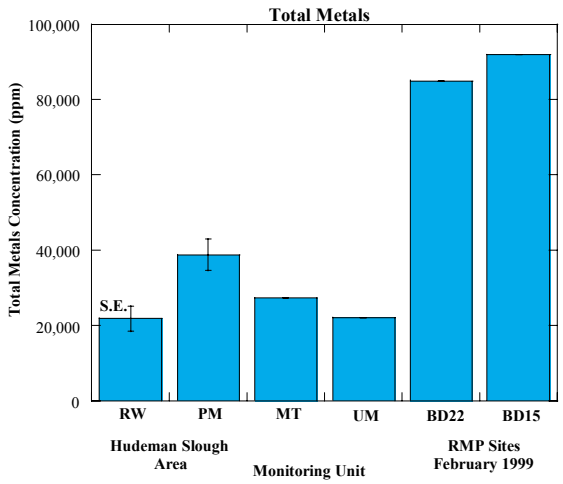
APPENDICES

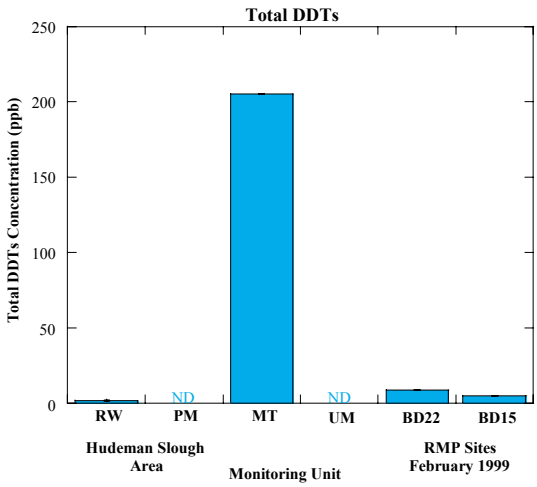
Appendix A

Hudeman Slough Enhancement Wetlands Case Study
Sediment Contaminant Data Summary for August 1999, February 2000, and January 2001

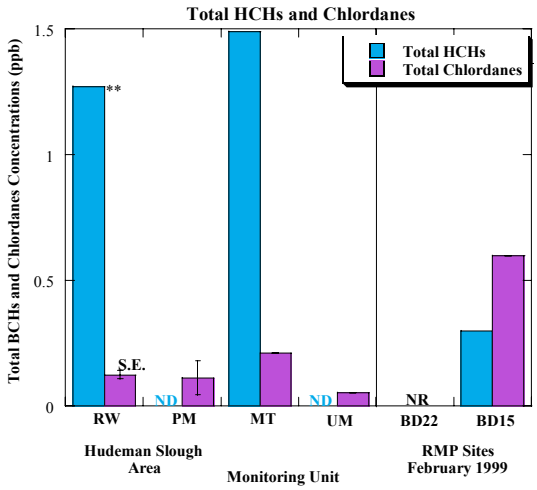


Appendix A, Figure A-1. Concentrations of contaminants in sediment of Hudeman Slough Enhancement Wetlands Case Study monitoring units during August 1999 sampling period. Bars indicate standard error of the mean for sampling locations within monitoring units, when multiple sampling locations were present.



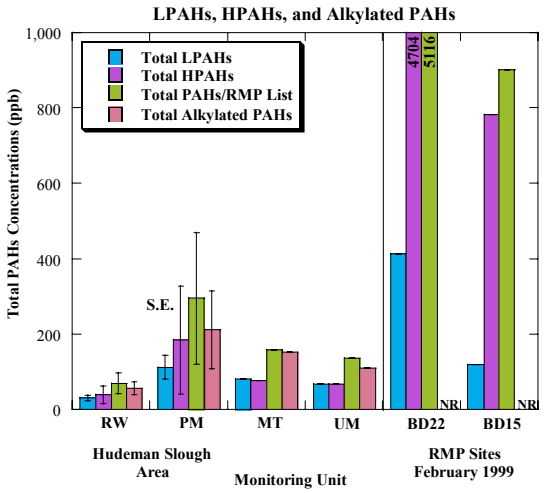


ND = Not detected

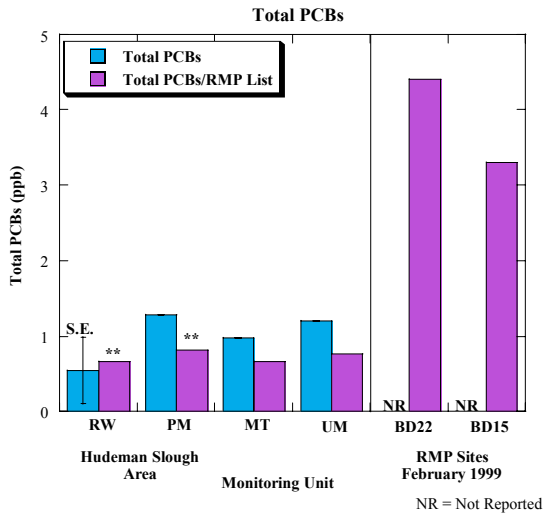


** Standard Error is not displayed for HCHs, because HCHs were only above detection limits in one of the three Reclaimed Water monitoring units.

ND = Not detected
NR = Not reported



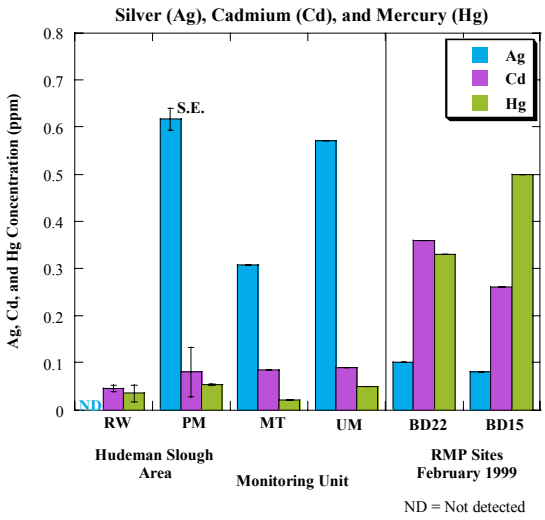
NR = Not Reported

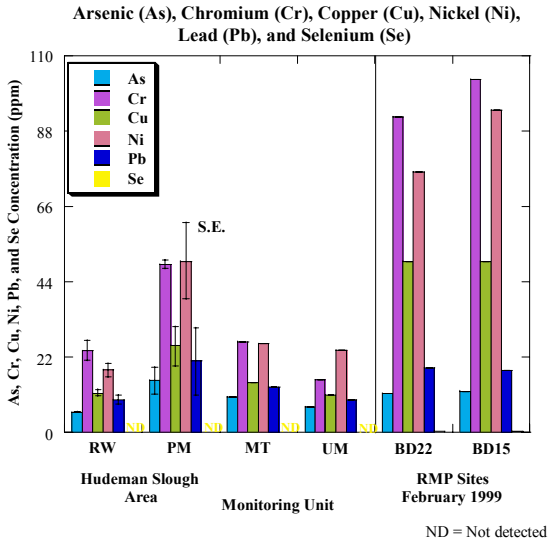


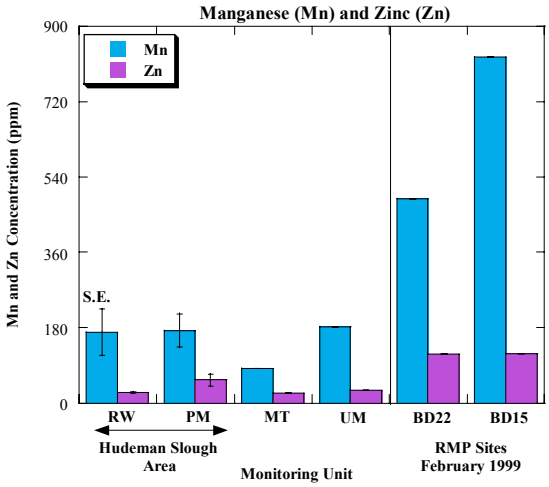
NR = Not Reported

** Standard Error is not displayed for PCBs/RMP, because PCBs on this list were only above detection limits in one of the three Reclaimed Water monitoring units.

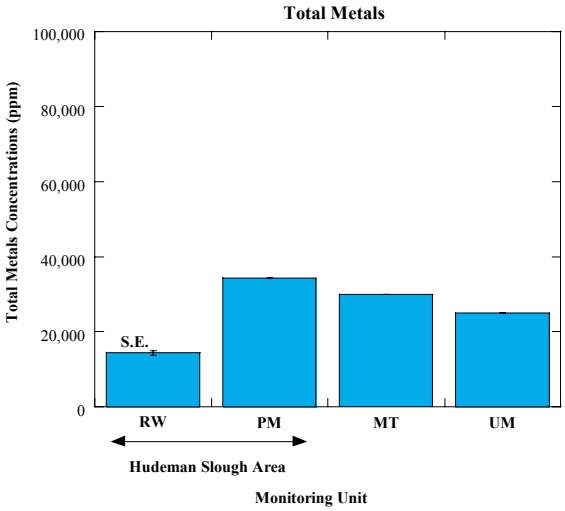
Appendix A, Figure A-2. Concentrations of contaminants in sediment of Hudeman Slough Enhancement Wetlands Case Study monitoring units during February 2000 sampling period. Bars indicate standard error of the mean for sampling locations within monitoring units, when multiple sampling locations were present.

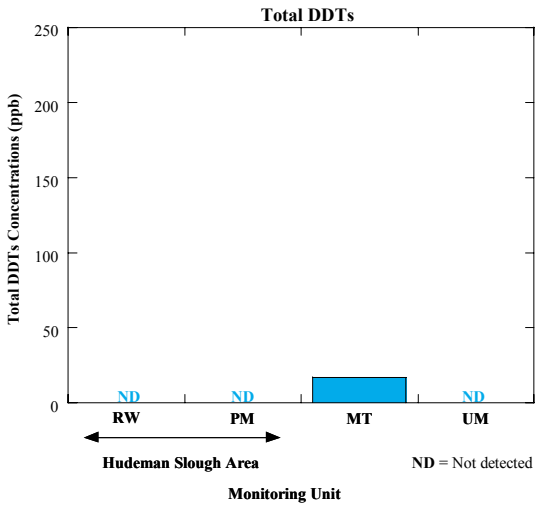


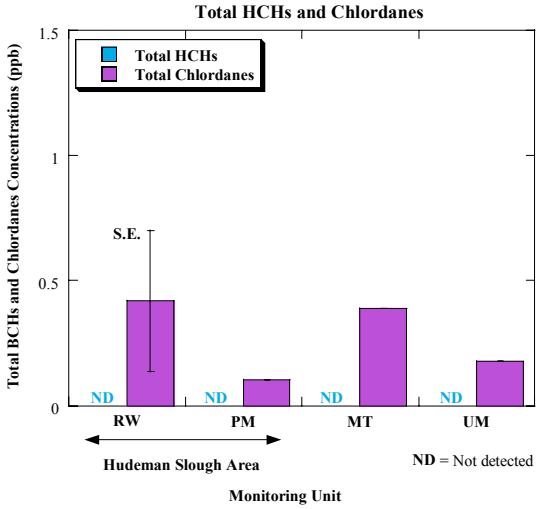


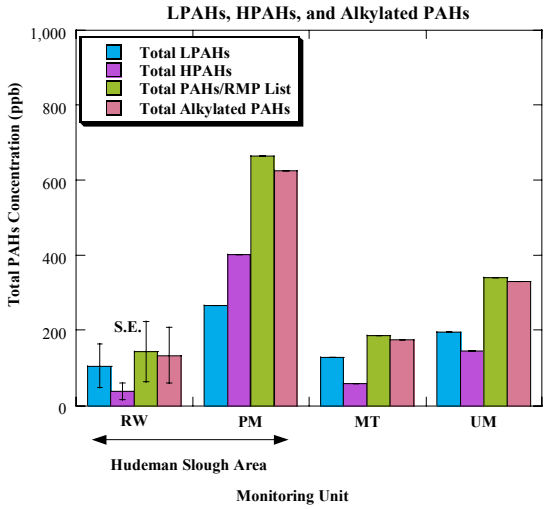


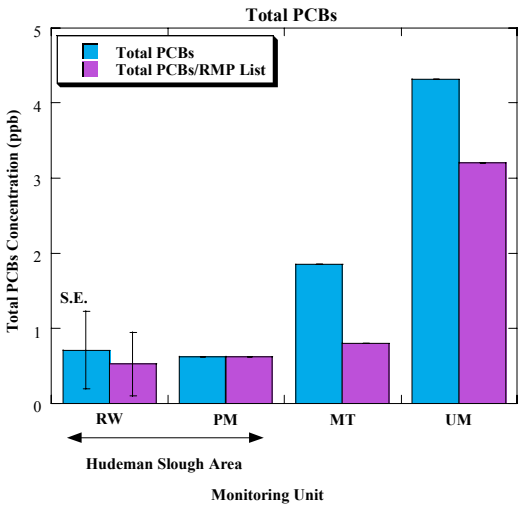
Appendix A, Figure A-3. Concentrations of individual metals in sediments of Hudeman Slough Enhancement Wetlands Case Study monitoring units during February 2000 sampling period. Bars indicate standard error of the mean for sampling locations within monitoring units, when mulitple sampling locations were present.



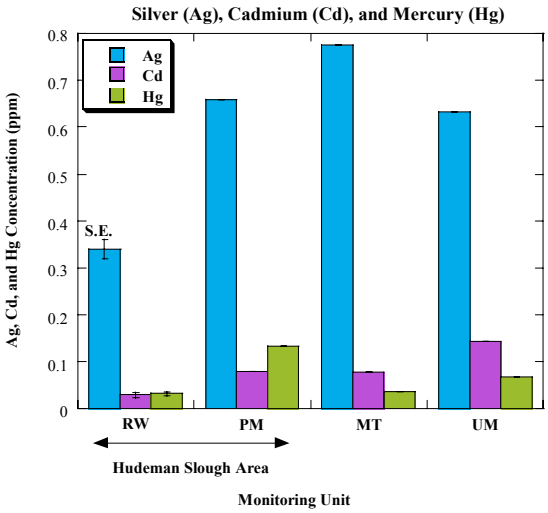


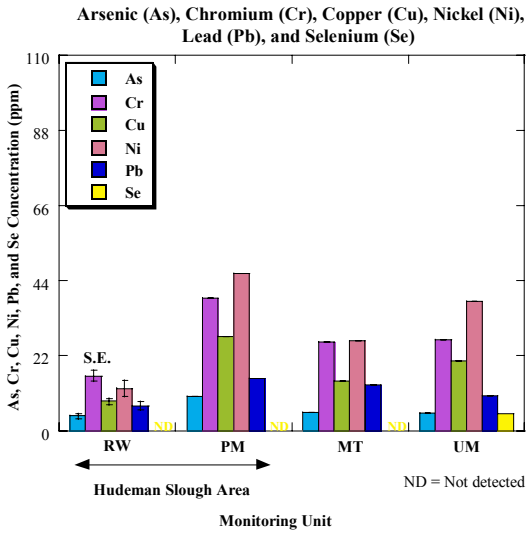


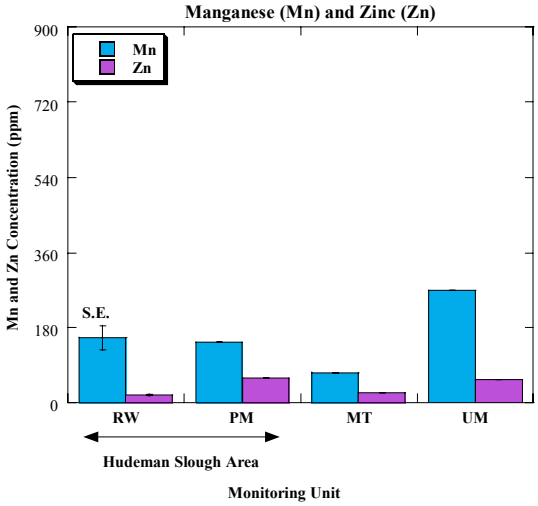




Appendix A, Figure A-4. Concentrations of contaminants in sediment of Hudeman Slough Enhancement Wetlands Case Study monitoring units during January 2001 sampling period. Bars indicate standard error of the mean for sampling locations within monitoring units, when multiple sampling locations were present.







Appendix A, Figure A-5. Concentrations of individual metals in sediments of Hudeman Slough Enhancement Wetlands Case Study monitoring units during January 2001 sampling period. Bars indicate standard error of the mean for sampling locations within monitoring units, when multiple sampling locations were present.

Appendix B

Hudeman Slough Enhancement Wetlands Case Study
List of Plant Species Observed

APPENDIX B. List of plant species observed in all Hudeman Slough Enhancement Wetlands Case Study monitoring units during study period.

Species are listed by family. Species that were common within vegetation transects are denoted with a checkmark. Other species were either uncommon or observed principally in upland areas that were not sampled. The potential tolerance of species to various salinity regimes is denoted under Salt Status. This list should not be considered to be a complete inventory of all species present.

Scientific Name[1]	Common Name[1]	Common[2]	Salt Status[3]
AZOLLACEAE			
Azolla filiculoides			G
AIZOACEAE			
Sesuvium verrucosum	western sea-purslane	√	BM
ASTERACEAE			
Baccharis pilularis	coyote brush		G
Centaurea solstitialis	yellow star thistle		G
Cotula coronopifolia	brass-buttons	√	BM
Gnaphalium palustre	cudweed	√	G
Gnaphalium stramineum	cudweed	√	G
Grindelia stricta	gumplant		SM
Hypochaeris glabra	smooth cat's-ear		G
Hypochaeris radicata	rough cat's-ear		G
Lactuca serriola	prickly lettuce	√	G
Picris echioides	bristly ox-tongue	√	G
Senecio hydrophilus	groundsel		BM
Sonchus asper ssp. *asper*	prickly sow thistle	√	G
Wyethia angustifolia	mules ears		G
Xanthium strumarium	cocklebur	√	G
BORAGINACEAE			
Plagiobothrys bracteatus	popcornflower		G
BRASSICACEAE			
Brassica nigra	black mustard		G
Lepidium campestre	cow-cress		G
Lepidium latifolium	peppergrass	√	BM
Raphanus raphanistrum	jointed charlock	√	G
Raphanus sativus	wild radish	√	G
CALLITRICHACEAE			
Callitriche marginata	water-starwort		G
CARYOPHYLLACEAE			
Calandrina ciliata	red maids		G
Spergula arvensis ssp. *arvensis*	starwort		G
CHENOPODIACEAE			
Atriplex triangularis	spearscale	√	SM
Salicornia virginica	pickleweed	√	SM
CONVOLVULACEAE			
Convolvulus arvensis	bindweed		G
CRASSULACEAE			
Crassula aquatica			G
ELATINACEAE			
Elatine brachysperma	waterwort		G
FABACEAE			
Lathyrus jepsonii var. *jepsonii*	Delta tule pea		BM
Lotus corniculatus	birdfoot trefoil	√	BM
Medicago polymorpha	California bur-clover		G
Thermopsis macrophylla	false lupine		G
Trifolium dubium	little hop clover		G
Trifolium fragiferum	strawberry clover		G
Vicia hirsuta	vetch		G

APPENDIX B. List of plant species observed in all Hudeman Slough Enhancement Wetlands Case Study monitoring units during study period.

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Scientific Name[1]	Common Name[1]	Common[2]	Salt Status[3]
Vicia sativa ssp. *sativa*	spring vetch		G
FRANKENIACEAE			
Frankenia salina	alkali heath	√	SM
GERANIACEAE			
Erodium botrys	storksbill		G
Geranium dissectum	geranium		G
LYTHRACEAE			
Lythrum hyssopifolium	loosestrife	√	BM
ONAGRACEAE			
Epilobium pygmaeum	willow herb	√	G
PLANTAGINACEAE			
Plantago lanceolata	English plantain		G
POLYGONACEAE			
Polygonum arenastrum	common knotweed	√	BM
Polygonum persicaria	lady's thumb		G
Polygonum punctatum	knotweed	√	G
Rumex conglomeratus	Dock	√	G
Rumex crispus	curly dock	√	BM/G
Rumex maritimus	golden dock	√	BM
RANUNCULACEAE			
Ranunculus aquatilus	buttercup		G
ROSACEAE			
Rosa californica	California rose		G
SCROPHULARIACEAE			
Bellardia trixago			G
Castilleja attenuata	valley tassels		G
Castilleja exserta	purple owl's clover		G
Triphysaria versicolor ssp. *faucibarbata*			G
Parentucellia viscosa			G
ALISMATACEAE			
Alisma plantago-aquatica	water plantain	√	G
CYPERACEAE			
Cyperus eragrostis	nutsedge		G
Eleocharis macrostachya	spikerush	√	G
Scirpus acutus var. *occidentalis*			G
Scirpus americanus			SM
Scirpus maritimus		√	BM
JUNCACEAE			
Juncus lesueurii	rush	√	BM
LEMNACEAE			
Lemna sp.			G
JUNCAGINACEAE			
Lilaea scilloides	flowering-quillwort		G
POACAEAE			
Agrostis avenacea	bent grass	√	BM
Aira carophyllea	silver European hairgrass		G
Bromus hordaceus	Brome	√	G
Bromus diandrus	ripgut grass	√	G
Crypsis schoenoides	swamp grass	√	G

APPENDIX B. List of plant species observed in all Hudeman Slough Enhancement Wetlands Case Study monitoring units during study period.

Species are listed by family. Species that were common within vegetation transects are denoted with a checkmark. Other species were either uncommon or observed principally in upland areas that were not sampled. The potential tolerance of species to various salinity regimes is denoted under Salt Status. This list should not be considered to be a complete inventory of all species present.

Scientific Name[1]	Common Name[1]	Common[2]	Salt Status[3]
Dactylis glomerata	orchard grass		G
Distichlis spicata	saltgrass	√	SM
Echinochloa crus-galli	barnyard grass	√	G
Festuca rubra	red fescue		G/BM
Glyceria occidentalis	western manna grass		G
Holcus lanatus	velvet grass	√	G
Hordeum brachyantherum	barley	√	G
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	√	BM/G
Hordeum murinum var. *leporinum*	barley		G
Lolium multiflorum	Italian ryegrass	√	BM
Phalaris aquatica	Harding grass		G
Pleuropogon californicus	semaphore grass	√	G
Polypogon monspeliensis	annual beard grass	√	BM
Spartina foliosa	California cord grass		SM
Vulpia bromoides		√	G
Vulpia myuros		√	G
Vulpia octoflora		√	G
TYPHACEAE			
Typha sp.	cattail	√	G

[1] Nomenclature follows: J.C. Hickman, ed. 1993. The Jepson Manual. University of California Press, Berkeley, Calif.

[2] Species that were common within vegetation transects in monitoring units are denoted with a checkmark. Other species were either uncommon or observed principally in upland areas that were not sampled.

[3] Salt status refers to species' presumed tolerance for various salinity regimes. Some species may be primarily adapted to freshwater or glycophytic conditions, but are believed to have ecotypes capable of subsisting within higher salinity areas.

SM = Salt marsh or species capable of tolerating high salinity conditions >20 ppt;
BM = Brackish marsh species or species capable of tolerating salinities between approximately 2 to 20 ppt; and
G = Glycophytic species or species that are not capable of tolerating salinity. These species can occur either in freshwater marsh areas or grasslands.

Appendix C

Hudeman Slough Enhancement Wetlands Case Study
List of Avian Species Observed

Appendix C. Avian species observed during Hudeman Slough Enhancement Wetlands Case Study, September 1999 through August 2001.

SPECIES	Open Water				Flooded Wetlands				TOTAL No. Individuals Observed
	Reclaimed Water		Seasonal Ponds		Reclaimed Water		Reclaimed+ Muted Tidal	Muted Tidal	
	OF2	MU3-9	MU3-10	DFG-13	MU1	MU3-8	OF1	DFG-15	
Landbirds									
American crow					1				1
American goldfinch	2	3	7	2	2		4		20
American kestrel	3	2	1	2	4				12
American pipit		6			27	3		14	50
American robin			1						1
Anna's hummingbird							1		1
barn owl							1		1
barn swallow	3	43	28	4	156	54	12	31	331
Bewick's wren							2		2
brown-headed cowbird	1								1
black phoebe	16	11	3	1	15	7	4	1	58
Brewer's blackbird	74	30	21		251	24	2	4	406
cliff swallow	32	94	42	2	114	89	26	49	448
common raven						1			1
common yellowthroat							6		6
European starling	33		10	9	10			3	65
golden-crowned sparrow							1		1
house finch	59	11	27		19	6	20	23	165
horned lark	1				13	10			24
house wren							3		3
lesser goldfinch	3				7		4		14
loggerhead shrike	7		2	1			2		12
marsh wren	2	7			3	2	65	1	80
mourning dove	5	8	7				2		22
northern flicker							1		1
northern harrier	7	6			17	11	10		51
northern mockingbird	4								4
purple finch							3		3
ring-necked pheasant			4	1			1		6
red-tailed hawk	1	3			1				5
red-winged blackbird	690	533	255		1243	1225	353	13	4312
Say's phoebe		2			1	3	1	1	8
savanna sparrow	9	13	5	4	23	38	47	6	145
song sparrow	23	7	5	29	93	56	264	4	481
tree swallow		5		4	103	121	1	10	244
turkey vulture	1	2	2		5		1		11
unknown blackbird						25			25
unknown swallow					4	4	5	2	15
unknown wren							2		2
violet-green swallow	40	1	4	45	46	5		55	196
white-crowned sparrow	43		12	22	3	3	17	4	104
western kingbird		1		1					2
western meadowlark	14	20	32	6	27	6	7	3	115
white-tailed kite	3	1	1	4	4	1	13		27
yellow-rumped warbler							1	2	3
Subtotal Landbirds	**1076**	**809**	**469**	**137**	**2192**	**1694**	**882**	**226**	**7485**

Appendix C. Avian species observed during Hudeman Slough Enhancement Wetlands Case Study, September 1999 through August 2001.

SPECIES	Open Water				Flooded Wetlands				TOTAL No. Individuals Observed
	Reclaimed Water		Seasonal Ponds		Reclaimed Water		Reclaimed+ Muted Tidal	Muted Tidal	
	OF2	MU3-9	MU3-10	DFG-13	MU1	MU3-8	OF1	DFG-15	
Waterbirds									
Sweepers/Surface Feeders									
American avocet					34	8	5	145	192
black-necked stilt	7	14			31	5	18	46	121
Subtotal	**7**	**14**	**0**	**0**	**65**	**13**	**23**	**191**	**313**
Shallow Probers									
common snipe	17	10	3		3			1	34
dunlin								1	1
killdeer	16	35	22	1	69	44	1	57	245
least sandpiper		31			74	233		86	424
pectoral sandpiper								2	2
semipalmated plover								1	1
semipalmated sandpiper						5			5
western sandpiper		76			48	424		232	780
Subtotal	**33**	**152**	**25**	**1**	**194**	**706**	**1**	**380**	**1492**
Deep Probers									
greater yellowlegs	6	11	3	1	8	6		69	104
long-billed curlew					1			2	3
long-billed dowitcher					21	17			38
lesser yellowlegs						4		4	8
marbled godwit					1	3			4
short-billed dowitcher						17			17
unknown dowitcher		10	1		51	56			118
unknown yellowlegs				2	3	21			26
willet		1		1	3		1	13	19
Subtotal	**6**	**22**	**4**	**4**	**88**	**124**	**1**	**88**	**337**
Diving									
bufflehead		2			22	1			25
canvasback					1				1
common goldeneye					2				2
eared grebe						1		1	2
greater scaup				2					2
pied-billed grebe		5			12	2		1	20
redhead					5				5
ruddy duck					189	55			244
unknown goldeneye					2				2
unknown scaup					2				2
western grebe						3			3
Subtotal	**0**	**7**	**0**	**2**	**235**	**62**	**0**	**2**	**308**
Dabblers									
American coot		246			258	313	40		857
American wigeon		1		2	133	15		1	152
blue-winged teal	1								1
cinnamon teal	37	75		11	74	15	2	6	220
gadwall	2	92		2	61	37		15	209
green-winged teal					33	44			77
mallard	30	110	2		257	136	4	6	545
northern pintail					225	11			236
northern shoveler		6			101	179		16	302
Subtotal	**70**	**530**	**2**	**15**	**1142**	**750**	**46**	**44**	**2599**

Appendix C. Avian species observed during Hudeman Slough Enhancement Wetlands Case Study, September 1999 through August 2001.

SPECIES	Open Water				Flooded Wetlands				TOTAL No. Individuals Observed
	Reclaimed Water		Seasonal Ponds		Reclaimed Water		Reclaimed+ Muted Tidal	Muted Tidal	
	OF2	MU3-9	MU3-10	DFG-13	MU1	MU3-8	OF1	DFG-15	
Piscivores									
black-crowned night heron					12	1			13
double-crested cormorant					9	2			11
elegant tern								1	1
Forester's tern								2	2
great blue heron		1			6	1			8
great egret		2			12	2	1		17
snowy egret	3	2		1	20	2	1	5	34
Subtotal	**3**	**5**	**0**	**1**	**59**	**8**	**2**	**8**	**86**
Others									
American bittern							1		1
Canada goose	1	6			149	4		2	162
California gull					1				1
greater white-fronted goose					14				14
herring gull					3			1	4
ring-billed gull						17		1	18
unknown gull						2			2
unknown duck	5	3							8
Virginia rail							2		2
Subtotal	**6**	**9**	**0**	**0**	**167**	**23**	**3**	**4**	**212**
Subtotal Waterbirds	**125**	**739**	**31**	**23**	**1950**	**1686**	**76**	**717**	**5347**
TOTAL BIRDS	**1201**	**1548**	**500**	**160**	**4142**	**3380**	**958**	**943**	**12832**