



**TABLE B1**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES  
FOR 19 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER														
		113	117	118	123	128	129	130	132	1018	1053	1061	PEM-1	PEM-2	PEM-3	PEM-4
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>																
Slope (percent)		2	1	2	2	1	2-3	3-4	1-2/8	3	1	2	1	2	2	2
Aspect (degrees)		067	180	014/ 136	125	279	004	346	352	310	250	274/ 320	006	125	153	055
Topography		Bot	Lower	Bot	Bot	Bot	Bot	Bot	Bot/Toe	FloTer	Swale	Bot	Swale	BotBnk	Bot	Bot
Configuration		V	S	Und	V	V	V	V	V	V(S)	V	V	V	Und	V	Und
<b>GROUND COVER</b>																
Bare Ground		2	42	8	35	4	14	10	4		40	2	10	10	24	40
Rock		0.3														
Litter		89	54	83	61	88	80	83	89	94	52	94	85	75	70	54
Lichens		0.3			0.3						0.3					
Moss		0.3		0.3	0.3	0.3	1		0.3		0.3					
Water														10		
Basal Vegetation		9	4	9	4	8	5	7	7	6	8	4	5	5	6	6
<b>VEGETATION STRUCTURE (non-stratified cover)</b>																
Total Vegetation		93	49	90	63	80	90	87	88	87	74	86	80	70	61	80
Perennial Graminoids		90	40	60	58	78	52	80	84	86	73	85	50	61	59	75
Annual Graminoids				0.3												0.3
Perennial Forbs		10	1	44	10	7	62	21	10	1	3	2	1	4	4	5
Annual/Biennial Forbs		0.3	16	5	1	2	1	12	4	2	1	0.3	1	0.3	0.3	0.3
Shrubs						1						0.3	21	5		0.3
Trees													14	2	2	2

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STARK COUNTY, NORTH DAKOTA, 2006-2007

CLASS\SPECIES	INDICATOR STATUS Reed (1997)	PLOT NUMBER														
		113	117	118	123	128	129	130	132	1018	1053	1061	PEM-1	PEM-2	PEM-3	PEM-4
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>																
<b>(Cool Season-C)</b>																
XAgrohordeum macounii	FAC					10										
Agropyron smithii	FACU	1		0.3		6								1		
Agropyron trachycaulum	FAC	0.3		1		2	0.3					0.3				
Carex aquatilis	OBL												54		65	
Carex brevior	FACU								2							
Carex gravida	NI								4							
Carex laeviconica	OBL			18	58	30				82	73	36	43		1	
Carex lanuginosa	OBL						7									
Carex praegracilis	FACW	30						22								
Eleocharis xyridiformis	OBL			35			9	9	0.3		1		0.3		0.3	
Elymus canadensis	FACU												1			
Hordeum jubatum	FACW	10		0.3		40		5	1		3		9	1	48	1
Juncus balticus	FACW	1						7								
Poa glaucifolia	FAC	1						1	0.3							
Poa juncifolia	FACU		1													
Puccinellia cusickii	OBL		39													
Puccinellia nuttalliana	OBL			0.3				14	1							
Scirpus maritimus	OBL															
Scirpus validus	OBL							6							0.3	
<b>TOTAL NPG(C)</b>		<b>43.3</b>	<b>40.0</b>	<b>54.9</b>	<b>58.0</b>	<b>88.0</b>	<b>16.3</b>	<b>64.0</b>	<b>2.6</b>	<b>88.0</b>	<b>77.0</b>	<b>36.0</b>	<b>52.3</b>	<b>56.3</b>	<b>50.0</b>	<b>66.6</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>																
<b>(Warm Season-W)</b>																
Distichlis spicata	FACW	2						4	3							
Panicum virgatum	FAC	0.3														
Spartina pectinata	FACW	60		9		3	40	30	74			52		4		10
<b>TOTAL NPG(W)</b>		<b>62.3</b>	<b>0.0</b>	<b>9.0</b>	<b>0.0</b>	<b>3.0</b>	<b>40.0</b>	<b>34.0</b>	<b>77.0</b>	<b>0.0</b>	<b>0.0</b>	<b>52.0</b>	<b>0.0</b>	<b>4.0</b>	<b>0.0</b>	<b>10.0</b>

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FOR 19 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER														
		113	117	118	123	128	129	130	132	1018	1053	1061	PEM-1	PEM-2	PEM-3	PEM-4
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>																
Agropyron cristatum	NI								1						0.3	
Agropyron repens	FAC										4					
Bromus inermis	FACU					4			16		0.3			1		
Poa palustris	FACW															0.3
Poa pratensis	FACU	2		1					1				2	12		
<b>TOTAL IPG</b>		<b>2.0</b>	<b>0.0</b>	<b>1.0</b>	<b>0.0</b>	<b>4.0</b>	<b>0.0</b>	<b>0.0</b>	<b>18.0</b>	<b>0.0</b>	<b>0.0</b>	<b>4.3</b>	<b>0.0</b>	<b>2.0</b>	<b>13.3</b>	<b>0.3</b>
<b>NATIVE ANNUAL GRAMINOIDS (NAG)</b>																
Beckmannia syzigachne	OBL			0.3												
<b>TOTAL NAG</b>		<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>INTRODUCED ANNUAL GRAMINOIDS (IAG)</b>																
Avena fatua	NI															
Echinochloa muricata	OBL															0.3
<b>TOTAL IAG</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>																
Alisma triviale	OBL			0.3												
Artemisia ludoviciana	FACU															0.3
Asclepias speciosa	FAC			0.3					1							
Aster commutatus	FACU												0.3			
Aster pansus	FAC	8				0.3		9	3				0.3			
Aster simplex	FACW						0.3				1		0.3			1
Cirsium flodmanii	FAC	0.3				0.3										
Geum aleppicum	FACU															
Glycyrrhiza lepidota	FACU					0.3		6	0.3							
Helianthus maximiliani	FACU	0.3		1	0.3			1	0.3							
Iva axillaris	FACU							0.3								
Lysimachia ciliata	FACW															
Mentha arvensis	FACW			0.3									0.3			
Osmorhiza longistylis	FACU															
Polygonum amphibium	OBL			40	9	3	62			0.3						
Ranunculus cymbalaria	OBL															
Ranunculus macounii	OBL												0.3			
Ratibida columnifera	NI	0.3														

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	INDICATOR STATUS Reed (1997)	PLOT NUMBER														
		113	117	118	123	128	129	130	132	1018	1053	1061	PEM-1	PEM-2	PEM-3	PEM-4
Rorippa sinuata	FACW					0.3					0.3		0.3			
Rumex mexicanus	FACW			2	0.3	2				0.3	3		0.3		3	0.3
Sagittaria cuneata	OBL			0.3												0.3
Solidago gigantea	FACW															
Solidago mollis	NI	0.3														
Thalictrum dasycarpum	FAC															
Typha angustifolia	OBL															
<b>TOTAL NPF</b>		<b>9.2</b>	<b>0.0</b>	<b>44.2</b>	<b>9.6</b>	<b>6.2</b>	<b>62.3</b>	<b>16.3</b>	<b>4.6</b>	<b>0.6</b>	<b>3.3</b>	<b>1.0</b>	<b>0.6</b>	<b>1.5</b>	<b>3.0</b>	<b>1.9</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>																
Cirsium arvense	FACU							0.3				1		2	0.3	
Convolvulus arvensis	NI				0.3	0.3				1			0.3	0.3		
Euphorbia esula	NI								5			0.3		0.3	0.3	
Medicago sativa	NI	0.3	1			0.3										
Plantago major	FAC															
Rumex crispus	FACW	0.3		1		0.3				0.3			0.3	0.3	0.3	3
Sonchus arvensis	FAC							8								
Taraxacum officinale	FACU	1		0.3												
<b>TOTAL IPF</b>		<b>1.6</b>	<b>1.0</b>	<b>1.3</b>	<b>0.3</b>	<b>0.9</b>	<b>0.0</b>	<b>8.3</b>	<b>5.3</b>	<b>1.0</b>	<b>0.0</b>	<b>1.3</b>	<b>0.6</b>	<b>2.9</b>	<b>0.9</b>	<b>3.0</b>
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>																
Amaranthus retroflexus	FACU				0.3								0.3			
Ambrosia artemisiifolia	FACU								2	0.3	0.3					
Ambrosia trifida	FAC							0.3							0.3	
Artemisia biennis	FAC														0.3	
Atriplex subspicata	NI							1		0.3			0.3	0.3		
Chenopodium glaucum	FACW							0.3								
Chenopodium leptophyllum	UPL				0.3											
Grindelia squarrosa	UPL	0.3	3			1						0.3			0.3	
Helianthus annuus	FACU														0.3	
Helianthus petiolaris	NI									0.3						
Polygonum arenastrum	NI					1					1				0.3	0.3
Polygonum aviculare	FACU													0.3		

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	INDICATOR STATUS Reed (1997)	PLOT NUMBER														
		113	117	118	123	128	129	130	132	1018	1053	1061	PEM-1	PEM-2	PEM-3	PEM-4
Polygonum lapathifolium	OBL			5												0.3
Polygonum ramosissimum	FACU					0.3		1		0.3		0.3	1			
Solanum rostratum	NI				1											
Suaeda depressa	FACW							7	0.3							
Xanthium strumarium	FAC			0.3							0.3		0.3			0.3
<b>TOTAL NAF</b>		<b>0.3</b>	<b>3.0</b>	<b>5.3</b>	<b>1.6</b>	<b>2.3</b>	<b>0.0</b>	<b>9.6</b>	<b>2.3</b>	<b>1.2</b>	<b>1.9</b>	<b>0.3</b>	<b>1.6</b>	<b>0.9</b>	<b>1.5</b>	<b>0.9</b>
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>																
Atriplex heterosperma	NI		1				1	2	1							
Chenopodium album	FAC						0.3			1		0.3		0.3		
Kochia scoparia	FAC													0.3		
Lactuca serriola	FACU					0.3	0.3	0.3	0.3				0.3			0.3
Malva rotundifolia	NI				0.3											
Medicago lupulina	FACU	0.3														
Melilotus officinalis	FACU-		12			0.3									0.3	
Polygonum persicaria	FACW															
Salsola iberica	FACU-		0.3													
Thlaspi arvense	FACU								0.3	0.3		0.3				
<b>TOTAL IAF</b>		<b>0.3</b>	<b>13.3</b>	<b>0.0</b>	<b>0.3</b>	<b>0.6</b>	<b>1.6</b>	<b>2.3</b>	<b>1.6</b>	<b>1.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.9</b>	<b>0.3</b>
<b>NATIVE SHRUBS</b>																
Amelanchier humilis	NI												0.3			
Ribes odoratum	FACU												0.3			
Rosa woodsii	FACU					0.3						2	1		0.3	
Salix lutea	FACW															
Symphoricarpos occidentalis	NI					1					0.3	20	4		0.3	
<b>TOTAL NATIVE SHRUBS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>22.0</b>	<b>5.6</b>	<b>0.0</b>	<b>0.6</b>
<b>NATIVE TREES</b>																
Fraxinus pennsylvanica	FAC											14	2	2		
Salix amygdaloides	FACW															1
Ulmus americana	FAC												0.3			1
<b>TOTAL NATIVE TREES</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>14.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.0</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>119.0</b>	<b>57.3</b>	<b>116.0</b>	<b>69.8</b>	<b>106.3</b>	<b>120.2</b>	<b>134.5</b>	<b>111.4</b>	<b>92.1</b>	<b>82.2</b>	<b>95.2</b>	<b>91.7</b>	<b>75.8</b>	<b>71.6</b>	<b>85.9</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>																
All species method (WESTECH)		95.13	69.81	97.76	96.42	85.79	99.75	93.38	76.48	91.10	98.05	97.69	73.94	84.04	77.51	98.25
Prevalence Index Method (U.S.ACE 2006)		2.18	1.99	1.20	1.12	2.10	1.37	2.08	2.51	1.31	1.15	1.71	2.22	1.65	2.48	1.28
Dominant species method (U.S.ACE 2006)		100	50	100	100	75	100	100	33	100	100	100	75	50	50	100

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	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=19
		PEM-5	PEM-6	PEM-7	PEM-8	
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>						
Slope (percent)		2	3	2	2	
Aspect (degrees)		097	010	112	112	
Topography		Bot/Bnk	Bot/Bnk	Bot	Bot	
Configuration		Und	Und	V	V	
<b>GROUND COVER</b>						
Bare Ground		24	23	27	35	<b>18.63</b>
Rock					0.3	<b>0.03</b>
Litter		70	71	60	51	<b>73.84</b>
Lichens						<b>0.05</b>
Moss				5	9	<b>0.88</b>
Water						<b>0.53</b>
Basal Vegetation		6	6	8	5	<b>6.21</b>
<b>VEGETATION STRUCTURE (non-stratified cover)</b>						
Total Vegetation		85	82	75	84	<b>79.16</b>
Perennial Graminoids		62	75	65	58	<b>67.95</b>
Annual Graminoids		1			2	<b>0.19</b>
Perennial Forbs		8	5	9	12	<b>11.53</b>
Annual/Biennial Forbs		0.3	0.3	0.3	4	<b>2.71</b>
Shrubs				0.3	5	<b>1.73</b>
Trees		30	5	2	12	<b>3.63</b>

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	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=19
		PEM-5	PEM-6	PEM-7	PEM-8	
<b>CLASS\SPECIES</b>						
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>						
<b>(Cool Season-C)</b>						
XAgrohordeum macounii	FAC					0.53
Agropyron smithii	FACU					0.44
Agropyron trachycaulum	FAC					0.21
Carex aquatilis	OBL	62	65	62	55	19.11
Carex brevior	FACU					0.11
Carex gravida	NI					0.21
Carex laeviconica	OBL		10			18.47
Carex lanuginosa	OBL					0.37
Carex praegracilis	FACW					2.74
Eleocharis xyridiformis	OBL			0.3	0.3	2.92
Elymus canadensis	FACU	0.3		1	1	0.17
Hordeum jubatum	FACW				0.3	6.24
Juncus balticus	FACW					0.42
Poa glaucifolia	FAC					0.12
Poa juncifolia	FACU					0.05
Puccinellia cusickii	OBL					2.05
Puccinellia nuttalliana	OBL					0.81
Scirpus maritimus	OBL	0.3			0.3	0.03
Scirpus validus	OBL					0.33
<b>TOTAL NPG(C)</b>		<b>62.6</b>	<b>75.0</b>	<b>63.3</b>	<b>56.9</b>	<b>55.32</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>						
<b>(Warm Season-W)</b>						
Distichlis spicata	FACW					0.47
Panicum virgatum	FAC					0.02
Spartina pectinata	FACW					14.84
<b>TOTAL NPG(W)</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>15.33</b>



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	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=19
		PEM-5	PEM-6	PEM-7	PEM-8	
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>						
Agropyron cristatum	NI					0.07
Agropyron repens	FAC					0.21
Bromus inermis	FACU					1.12
Poa palustris	FACW				0.3	0.03
Poa pratensis	FACU		3	4	3	1.47
<b>TOTAL IPG</b>		<b>0.0</b>	<b>3.0</b>	<b>4.0</b>	<b>3.3</b>	<b>2.91</b>
<b>NATIVE ANNUAL GRAMINOIDS (NAG)</b>						
Beckmannia syzigachne	OBL				0.3	0.03
<b>TOTAL NAG</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.03</b>
<b>INTRODUCED ANNUAL GRAMINOIDS (IAG)</b>						
Avena fatua	NI	0.3				0.02
Echinochloa muricata	OBL	1			2	0.17
<b>TOTAL IAG</b>		<b>1.3</b>	<b>0.0</b>	<b>0.0</b>	<b>2.0</b>	<b>0.19</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>						
Alisma triviale	OBL					0.02
Artemisia ludoviciana	FACU					0.02
Asclepias speciosa	FAC			0.3		0.08
Aster commutatus	FACU					0.02
Aster pansus	FAC			0.3		1.10
Aster simplex	FACW	6	1	3	0.3	0.68
Cirsium flodmanii	FAC					0.03
Geum aleppicum	FACU	0.3		0.3		0.03
Glycyrrhiza lepidota	FACU					0.35
Helianthus maximilianii	FACU					0.15
Iva axillaris	FACU					0.02
Lysimachia ciliata	FACW	1			0.3	0.07
Mentha arvensis	FACW		0.3	0.3	0.3	0.08
Osmorhiza longistylis	FACU	0.3				0.02
Polygonum amphibium	OBL					6.02
Ranunculus cymbalaria	OBL				0.3	0.02
Ranunculus macounii	OBL					0.02
Ratibida columnifera	NI					0.02

**TABLE B1**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES  
FOR 19 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=19
		PEM-5	PEM-6	PEM-7	PEM-8	
Rorippa sinuata	FACW					0.05
Rumex mexicanus	FACW	0.3	1	1	5	0.97
Sagittaria cuneata	OBL	0.3	1		2	0.21
Solidago gigantea	FACW	0.3	0.3			0.03
Solidago mollis	NI					0.02
Thalictrum dasycarpum	FAC	0.3				0.02
Typha angustifolia	OBL	0.3			0.3	0.03
<b>TOTAL NPF</b>		<b>9.1</b>	<b>3.6</b>	<b>5.2</b>	<b>8.5</b>	<b>10.04</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>						
Cirsium arvense	FACU				0.3	0.21
Convolvulus arvensis	NI					0.12
Euphorbia esula	NI	0.3			0.3	0.34
Medicago sativa	NI					0.08
Plantago major	FAC	0.3	0.3	0.3	1	0.10
Rumex crispus	FACW	0.3	2	4	3	0.79
Sonchus arvensis	FAC		0.3			0.44
Taraxacum officinale	FACU	0.3				0.08
<b>TOTAL IPF</b>		<b>1.2</b>	<b>2.6</b>	<b>4.3</b>	<b>4.6</b>	<b>2.16</b>
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>						
Amaranthus retroflexus	FACU					0.03
Ambrosia artemisiifolia	FACU					0.14
Ambrosia trifida	FAC					0.03
Artemisia biennis	FAC	0.3	0.3		1	0.10
Atriplex subspicata	NI	0.3				0.12
Chenopodium glaucum	FACW				0.3	0.03
Chenopodium leptophyllum	UPL					0.02
Grindelia squarrosa	UPL					0.26
Helianthus annuus	FACU					0.02
Helianthus petiolaris	NI					0.02
Polygonum arenastrum	NI				1	0.19
Polygonum aviculare	FACU					0.02

**TABLE B1**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES  
FOR 19 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=19
		PEM-5	PEM-6	PEM-7	PEM-8	
Polygonum lapathifolium	OBL				0.3	0.29
Polygonum ramosissimum	FACU					0.15
Solanum rostratum	NI					0.05
Suaeda depressa	FACW					0.38
Xanthium strumarium	FAC					0.06
<b>TOTAL NAF</b>		<b>0.6</b>	<b>0.3</b>	<b>0.0</b>	<b>2.6</b>	<b>1.91</b>
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>						
Atriplex heterosperma	NI	0.3				0.28
Chenopodium album	FAC		0.3			0.12
Kochia scoparia	FAC					0.02
Lactuca serriola	FACU				0.3	0.11
Malva rotundifolia	NI	0.3				0.03
Medicago lupulina	FACU	0.3				0.03
Melilotus officinalis	FACU-				0.3	0.68
Polygonum persicaria	FACW		0.3	0.3	2	0.14
Salsola iberica	FACU-					0.02
Thlaspi arvense	FACU					0.05
<b>TOTAL IAF</b>		<b>0.9</b>	<b>0.6</b>	<b>0.3</b>	<b>2.6</b>	<b>1.46</b>
<b>NATIVE SHRUBS</b>						
Amelanchier humilis	NI					0.02
Ribes odoratum	FACU					0.02
Rosa woodsii	FACU			0.3		0.21
Salix lutea	FACW				3	0.16
Symphoricarpos occidentalis	NI				2	1.45
<b>TOTAL NATIVE SHRUBS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>5.0</b>	<b>1.85</b>
<b>NATIVE TREES</b>						
Fraxinus pennsylvanica	FAC	30	5	2	12	3.53
Salix amygdaloides	FACW					0.05
Ulmus americana	FAC					0.07
<b>TOTAL NATIVE TREES</b>		<b>30.0</b>	<b>5.0</b>	<b>2.0</b>	<b>12.0</b>	<b>3.65</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>105.7</b>	<b>90.1</b>	<b>79.4</b>	<b>97.8</b>	<b>94.84</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>						
All species method (WESTECH)		97.73	96.67	92.95	91.62	
Prevalence Index Method (U.S.ACE 2006)		1.74	1.29	1.39	1.69	
Dominant species method (U.S.ACE 2006)		100	100	100	100	

**TABLE B2**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
10 MESIC EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER										Mean Cover n=10
		73	74	75	119	121	122	125	1032	1050	1052	
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>												
Slope (percent)		2-3	2-4	2-4	1	2	2	3	2-3	0-1	1	
Aspect (degrees)		050	042	045	128	124	110	125	338	190	300	
Topography		lowTer	Ter	Ter	Bot	Ter	Ter	Bot	FloTer	Ter	Ter	
Configuration		S	S	S	S(V)	S	X	Und	S	S	Und	
<b>GROUND COVER</b>												
Bare Ground		3	5	6	0.3	0.3	10	2	1	45	15	<b>8.76</b>
Rock												<b>0.00</b>
Litter		90	91	88	91	91	84	92	93	46	77	<b>84.30</b>
Lichens							0.3	0.3		0.3	0.3	<b>0.12</b>
Moss					0.3	0.3	0.3	0.3		0.3	0.3	<b>0.18</b>
Water												<b>0.00</b>
Basal Vegetation		7	4	6	9	8	6	6	6	9	8	<b>6.90</b>
<b>VEGETATION STRUCTURE (non-stratified cover)</b>												
Total Vegetation		74	68	78	95	80	68	87	83	75	72	<b>78.00</b>
Perennial Graminoids		70	62	75	91	80	66	77	82	74	70	<b>74.70</b>
Annual Graminoids												<b>0.00</b>
Perennial Forbs		4	3	4	9	1	5	5	0.3	3	7	<b>4.13</b>
Annual/Biennial Forbs		5	12	5	2	0.3	0.3	0.3	0.3	1	2	<b>2.82</b>
Shrubs		2		3			0.3	19	0.3		7	<b>3.16</b>
Trees												<b>0.00</b>

**TABLE B2**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
10 MESIC EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER										Mean Cover n=10
		73	74	75	119	121	122	125	1032	1050	1052	
<b>CLASS\SPECIES</b>												
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>												
<b>(Cool Season-C)</b>												
Agropyron dasystachyum	FAC				0.3							<b>0.03</b>
Agropyron smithii	FACU	38	26	28	25		5	1	2	40	30	<b>19.50</b>
Agropyron trachycaulum	FAC				15		5					<b>2.00</b>
Carex eleocharis	NI			7			0.3				15	<b>2.23</b>
Carex laeviconica	OBL				2	1		3		7		<b>1.30</b>
Hordeum jubatum	FACW									0.3		<b>0.03</b>
Stipa comata	NI						0.3				20	<b>2.03</b>
Stipa viridula	NI	3		8					1	10	8	<b>3.00</b>
<b>TOTAL NPG(C)</b>		<b>41.0</b>	<b>26.0</b>	<b>43.0</b>	<b>42.3</b>	<b>1.0</b>	<b>10.6</b>	<b>4.0</b>	<b>3.0</b>	<b>57.3</b>	<b>73.0</b>	<b>30.12</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>												
<b>(Warm Season-W)</b>												
Bouteloua gracilis	NI			0.3			12				1	<b>1.33</b>
Buchloe dactyloides	FACU-									1		<b>0.10</b>
<b>TOTAL NPG(W)</b>		<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>12.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.43</b>
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>												
Agropyron cristatum	NI	8	32	6		20	40	40	4			<b>15.00</b>
Bromus inermis	FACU				26	68	1	8	10	0.3	6	<b>11.93</b>
Poa pratensis	FACU	40	16	45	50	4	10	30	74	30	20	<b>31.90</b>
<b>TOTAL IPG</b>		<b>48.0</b>	<b>48.0</b>	<b>51.0</b>	<b>76.0</b>	<b>92.0</b>	<b>51.0</b>	<b>78.0</b>	<b>88.0</b>	<b>30.3</b>	<b>26.0</b>	<b>58.83</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>												
Achillea millefolium	FACU	2			0.3						0.3	<b>0.26</b>
Antennaria parvifolia	NI										0.3	<b>0.03</b>
Artemisia frigida	NI						0.3				1	<b>0.13</b>
Artemisia ludoviciana	FACU				2	0.3	1	1		0.3	2	<b>0.66</b>
Aster commutatus	FACU	0.3	0.3								0.3	<b>0.09</b>
Aster pansus	FAC				0.3	0.3		0.3				<b>0.09</b>
Astragalus agrestis	FACU				0.3							<b>0.03</b>
Gaura coccinea	NI										0.3	<b>0.03</b>

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**TABLE B2**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
10 MESIC EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER										Mean Cover n=10	
		73	74	75	119	121	122	125	1032	1050	1052		
<i>Helianthus maximiliani</i>	FACU				5			0.3					<b>0.53</b>
<i>Lithospermum incisum</i>	NI										0.3		<b>0.03</b>
<i>Polygonum amphibium</i>	OBL							0.3					<b>0.03</b>
<i>Rumex mexicanus</i>	FACW							0.3					<b>0.03</b>
<i>Solidago mollis</i>	NI			1			1	0.3					<b>0.23</b>
<i>Solidago rigida</i>	FACU-										0.3		<b>0.03</b>
<i>Sphaeralcea coccinea</i>	NI						0.3						<b>0.03</b>
<b>TOTAL NPF</b>		<b>2.3</b>	<b>0.3</b>	<b>1.0</b>	<b>7.9</b>	<b>0.6</b>	<b>2.6</b>	<b>2.5</b>	<b>0.0</b>	<b>0.3</b>	<b>4.8</b>		<b>2.23</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>													
<i>Convolvulus arvensis</i>	NI		0.3		1					0.3	0.3		<b>0.19</b>
<i>Euphorbia esula</i>	NI							1	0.3				<b>0.13</b>
<i>Medicago sativa</i>	NI		0.3	0.3			3	2					<b>0.56</b>
<i>Rumex crispus</i>	FACW				0.3	0.3		0.3					<b>0.09</b>
<i>Rumex domesticus</i>	FACW+		0.3	0.3									<b>0.06</b>
<i>Taraxacum officinale</i>	FACU	2	2	3	0.3					3	3		<b>1.33</b>
<b>TOTAL IPF</b>		<b>2.0</b>	<b>2.9</b>	<b>3.6</b>	<b>1.6</b>	<b>0.3</b>	<b>3.0</b>	<b>3.3</b>	<b>0.3</b>	<b>3.3</b>	<b>3.3</b>		<b>2.36</b>
<b>FERNS AND ALLIES (F&amp;A)</b>													
<i>Equisetum laevigatum</i>	FAC										0.3		<b>0.03</b>
<b>TOTAL F&amp;A</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>		<b>0.03</b>
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>													
<i>Amaranthus retroflexus</i>	FACU		0.3										<b>0.03</b>
<i>Ambrosia artemisiifolia</i>	FACU									0.3			<b>0.03</b>
<i>Ambrosia trifida</i>	FAC				2								<b>0.20</b>
<i>Atriplex subspicata</i>	NI		0.3							0.3	0.3		<b>0.09</b>
<i>Chenopodium leptophyllum</i>	UPL							0.3					<b>0.03</b>
<i>Conyza canadensis</i>	FACU		0.3								0.3		<b>0.06</b>
<i>Grindelia squarrosa</i>	UPL	0.3		0.3						0.3	2		<b>0.29</b>
<i>Iva xanthifolia</i>	FACU	0.3	3							0.3			<b>0.36</b>
<i>Polygonum arenastrum</i>	NI	1	1					0.3		0.3			<b>0.26</b>
<b>TOTAL NAF</b>		<b>1.6</b>	<b>4.9</b>	<b>0.3</b>	<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.6</b>	<b>0.0</b>	<b>1.5</b>	<b>2.6</b>		<b>1.35</b>

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**TABLE B2**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
10 MESIC EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER										Mean Cover n=10
		73	74	75	119	121	122	125	1032	1050	1052	
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>												
Atriplex heterosperma	NI			0.3		0.3						<b>0.06</b>
Chenopodium album	FAC	0.3	1	0.3			0.3					<b>0.19</b>
Descurainia sophia	NI	3	3	3					0.3		0.3	<b>0.96</b>
Kochia scoparia	FAC	0.3	1	1							0.3	<b>0.26</b>
Malva rotundifolia	NI		1									<b>0.10</b>
Medicago lupulina	FACU			0.3						0.3		<b>0.06</b>
Melilotus officinalis	FACU-				0.3					0.3		<b>0.06</b>
Polygonum convolvulus	FAC		0.3									<b>0.03</b>
Sisymbrium loeselii	NI		1						0.3			<b>0.13</b>
Thlaspi arvense	FACU		0.3									<b>0.03</b>
Tragopogon dubius	NI		0.3									<b>0.03</b>
<b>TOTAL IAF</b>		<b>3.6</b>	<b>7.9</b>	<b>4.9</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.0</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>1.91</b>
<b>NATIVE SHRUBS</b>												
Rosa arkansana	NI			2			0.3	1			0.3	<b>0.36</b>
Symphoricarpos occidentalis	NI	2		1				18	0.3		7	<b>2.83</b>
<b>TOTAL NATIVE SHRUBS</b>		<b>2.0</b>	<b>0.0</b>	<b>3.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>19.0</b>	<b>0.3</b>	<b>0.0</b>	<b>7.3</b>	<b>3.19</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>100.5</b>	<b>90.0</b>	<b>107.1</b>	<b>130.1</b>	<b>94.2</b>	<b>79.8</b>	<b>107.4</b>	<b>92.2</b>	<b>94.3</b>	<b>118.9</b>	<b>101.45</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>												
All species method (WESTECH)		0.60	3.22	1.77	15.30	2.02	6.64	3.91	0.00	8.06	0.76	
Prevalence Index Method (U.S.ACE 2006)		3.97	3.98	3.91	3.82	3.96	4.09	3.90	3.99	3.67	3.96	
Dominant species method (U.S.ACE 2006)		0	0	0	25	0	20	0	0	25	0	

**TABLE B3**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
9 SALINE EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER									Mean Cover n=9
		1	32	33	36	38	41	42	52	53	
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>											
Slope (percent)		4	1	4	5	3	3	15	0	5	
Aspect (degrees)		055	306	330-050	054	007	210	180	026	355	
Topography		Toe	Swale	Bot	Lower	Mid	Mid	Lower	Swale	Bot	
Configuration		S	S	V	S	S	Und	V	S	Und	
<b>GROUND COVER</b>											
Bare Ground		15	77	25	67	78	67	28	74	40	<b>52.33</b>
Rock					1	0.3	0.3		0.3	0.3	<b>0.24</b>
Litter		80	20	70	28	19	30	68	23	54	<b>43.56</b>
Lichens		0.3				1		1		0.3	<b>0.29</b>
Moss								0.3			<b>0.03</b>
Water											<b>0.00</b>
Basal Vegetation		5	3	5	4	2	3	3	3	6	<b>3.78</b>
<b>VEGETATION STRUCTURE (non-stratified cover)</b>											
Total Vegetation		58	43	58	37	24	31	38	31	70	<b>43.33</b>
Perennial Graminoids		51	10	58	28	18	29	31	23	70	<b>35.33</b>
Annual Graminoids											
Perennial Forbs		7	0.3	0.3	9	4	5	5	3	1	<b>3.84</b>
Annual/Biennial Forbs		4	35	0.3	0.3	3	0.3	4	0.3	0.3	<b>5.28</b>
Shrubs									5		<b>0.56</b>
Trees											



TABLE B3

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
 9 SALINE EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
 STARK COUNTY, NORTH DAKOTA, 2006-2007

CLASS\SPECIES	INDICATOR STATUS Reed (1997)	PLOT NUMBER									Mean Cover n=9	
		1	32	33	36	38	41	42	52	53		
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b> (Cool Season-C)												
XAgrohordeum macounii	FAC		0.3									0.03
Agropyron smithii	FACU							1				0.11
Agropyron trachycaulum	FAC					5						0.56
Carex eleocharis	NI						0.3					0.03
Eleocharis xyridiformis	OBL			0.3								0.03
Hordeum jubatum	FACW	1	0.3	20		3						2.70
Juncus balticus	FACW									1		0.11
Koeleria pyramidata	NI					0.3		1				0.14
Poa glaucifolia	FAC	1		13							13	3.00
Poa juncifolia	FACU		0.3			1						0.14
Poa sandbergii	FACU					0.3		3				0.37
Puccinellia nuttalliana	OBL	6	2	13	10	4			17	20		8.00
Scirpus americanus	OBL										0.3	0.03
Scirpus maritimus	OBL			0.3								0.03
Stipa viridula	NI						0.3					0.03
<b>TOTAL NPG(C)</b>		<b>8.0</b>	<b>2.9</b>	<b>46.6</b>	<b>10.0</b>	<b>13.6</b>	<b>0.6</b>	<b>5.0</b>	<b>17.0</b>	<b>34.3</b>		<b>15.33</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b> (Warm Season-W)												
Bouteloua gracilis	NI						0.3	2				0.26
Buchloe dactyloides	FACU-	0.3					3	12				1.70
Distichlis spicata	FACW	35	8	15	13	2	15	10	4	40		15.78
Schedonnardus paniculatus	NI				1		0.3					0.14
Spartina pectinata	FACW		0.3									0.03
<b>TOTAL NPG(W)</b>		<b>35.3</b>	<b>8.3</b>	<b>15.0</b>	<b>14.0</b>	<b>2.0</b>	<b>18.6</b>	<b>24.0</b>	<b>4.0</b>	<b>40.0</b>		<b>17.91</b>
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>												
Agropyron cristatum	NI	5		0.3	4	2	10	2	3	0.3		2.96
Bromus inermis	FACU	2			1		2	1		0.3		0.70
Poa pratensis	FACU	3				0.3						0.37
<b>TOTAL IPG</b>		<b>10.0</b>	<b>0.0</b>	<b>0.3</b>	<b>5.0</b>	<b>2.3</b>	<b>12.0</b>	<b>3.0</b>	<b>3.0</b>	<b>0.6</b>		<b>4.02</b>

SHSH-1001/063-2212A

TABLE B3

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
 9 SALINE EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
 STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER									Mean Cover n=9
		1	32	33	36	38	41	42	52	53	
<b>NATIVE PERENNIAL FORBS (NPF)</b>											
Achillea millefolium	FACU	0.3		0.3				0.3			<b>0.10</b>
Artemisia frigida	NI	0.3				1	1	0.3			<b>0.29</b>
Artemisia ludoviciana	FACU						0.3	0.3			<b>0.07</b>
Aster commutatus	FACU						0.3	2			<b>0.26</b>
Aster pansus	FAC	5	0.3		0.3						<b>0.62</b>
Astragalus bisulcatus	NI	0.3			0.3						<b>0.07</b>
Astragalus missouriensis	NI						0.3				<b>0.03</b>
Cirsium undulatum	FAC							0.3			<b>0.03</b>
Eriogonum pauciflorum	NI					2					<b>0.22</b>
Gutierrezia sarothrae	NI	1			5	0.3	3	2	0.3		<b>1.29</b>
Iva axillaris	FACU				4				3	1	<b>0.89</b>
Opuntia polyacantha	NI				0.3	0.3		0.3			<b>0.10</b>
Psoralea argophylla	NI							0.3			<b>0.03</b>
Ratibida columnifera	NI	0.3					0.3				<b>0.07</b>
Sphaeralcea coccinea	NI	0.3									<b>0.03</b>
<b>TOTAL NPF</b>		<b>7.5</b>	<b>0.3</b>	<b>0.3</b>	<b>9.9</b>	<b>3.6</b>	<b>5.2</b>	<b>5.8</b>	<b>3.3</b>	<b>1.0</b>	<b>4.10</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>											
Medicago sativa	NI						0.3	0.3			<b>0.07</b>
Taraxacum officinale	FACU	1				1				0.3	<b>0.26</b>
<b>TOTAL IPF</b>		<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>0.3</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>	<b>0.32</b>
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>											
Atriplex subspicata	NI		0.3								<b>0.03</b>
Grindelia squarrosa	UPL	4	1		0.3	0.3	0.3	4	0.3	0.3	<b>1.17</b>
Polygonum arenastrum	NI			0.3		0.3					<b>0.07</b>
Suaeda depressa	FACW		32	0.3						0.3	<b>3.62</b>
<b>TOTAL NAF</b>		<b>4.0</b>	<b>33.3</b>	<b>0.6</b>	<b>0.3</b>	<b>0.6</b>	<b>0.3</b>	<b>4.0</b>	<b>0.3</b>	<b>0.6</b>	<b>4.89</b>

TABLE B3

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
 9 SALINE EMERGENT SAMPLE SITES – WETLAND STUDY AREA  
 STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER									Mean Cover n=9
		1	32	33	36	38	41	42	52	53	
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>											
Atriplex heterosperma	NI		0.3								0.03
Kochia scoparia	FAC		2	0.3		3	0.3				0.62
<b>TOTAL IAF</b>		<b>0.0</b>	<b>2.3</b>	<b>0.3</b>	<b>0.0</b>	<b>3.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.66</b>
<b>NATIVE SHRUBS</b>											
Atriplex nuttallii	NI								5		0.56
<b>TOTAL NATIVE SHRUBS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>5.0</b>	<b>0.0</b>	<b>0.56</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>65.8</b>	<b>47.1</b>	<b>63.1</b>	<b>39.2</b>	<b>26.1</b>	<b>37.3</b>	<b>42.1</b>	<b>32.6</b>	<b>76.8</b>	<b>47.79</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>											
All species method (WESTECH)		72.95	97.24	98.57	59.44	65.13	41.02	24.47	64.42	97.14	
Prevalence Index Method (U.S.ACE 2006)		2.62	2.10	2.02	2.73	2.96	3.29	3.72	2.36	1.97	
Dominant species method (U.S.ACE 2006)		75	100	100	67	100	25	25	40	100	

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER															
	STATUS	61	62	63	64	65	66	67	68	69	70	71	77	78	79	80	
	Reed (1997)																
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>																	
Slope (percent)		3	2	0-1	0	2-3	2	15	1	1	1	1	0-1	0-1	3-4	3-4	
Aspect (degrees)		037	331	0	0	152	060	010	113	113	108	325	0	0	061/ 328	062/ 313	
Topography		Ter	Ter	Ter	Ben	Ter	Ben	L	Ben	Ben	Ben	Ter	Ter	Ter	Ter	Ter/Bnk	
Configuration		S	Und	S	S	S	S	X	S	S	S	S	S	S	S	S(V)	
<b>GROUND COVER</b>																	
Bare Ground		5	7	8	2	0.3	6	30	7	21	12	20	8	25	5	38	
Rock								0.3					0.3				
Litter		88	88	86	92	94	88	64	88	75	83	75	86	69	89	54	
Lichens				0.3	0.3	0.3	0.3	2	0.3	0.3	0.3	0.3	0.3	1		3	
Moss		2	0.3			1	2	0.3	0.3	0.3	0.3				0.3		
Water																	
Basal Vegetation		5	5	6	6	4	4	3	4	3	4	5	6	5	6	5	
<b>VEGETATION STRUCTURE (non-stratified cover)</b>																	
Total Vegetation		65	70	70	85	70	83	56	72	57	60	64	54	65	78	60	
Perennial Graminoids		23	33	60	75	64	60	51	51	49	54	58	62	60	74	58	
Annual Graminoids						0.3			0.3								
Perennial Forbs		10	12	19	0.3	0.3	6	9	5	4	3	3	0.3	7	2	3	
Annual/Biennial Forbs				2	0.3	3	1	4	2	3	1	0.3	0.3	3	4	3	
Shrubs		44	39	15	23	22	37	5	24	5	5	9	4	8	6	7	
Trees		0.3															

TABLE B4

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

CLASS\SPECIES	INDICATOR	PLOT NUMBER														
	STATUS	61	62	63	64	65	66	67	68	69	70	71	77	78	79	80
	Reed (1997)															
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>																
<b>(Cool Season-C)</b>																
Agropyron dasystachyum	FAC					12	4									
Agropyron smithii	FACU	1	8	6	15	24	14	9	26	21	27	15	18	15	58	26
Agropyron trachycaulum	FAC	2	0.3													
Calamagrostis montanensis	NI			0.3												
Carex brevior	FACU	10	9											0.3		
Carex eleocharis	NI			5	3	0.3	4		3	3		2	2	0.3	1	1
Carex filifolia	NI						0.3	5								
Carex heliophila	NI			2			1				2			1		
Carex laeviconica	OBL	0.3														
Carex lanuginosa	OBL															
Carex praegracilis	FACW															
Eleocharis xyridiformis	OBL															
Elymus canadensis	FACU															
Hordeum jubatum	FACW															
Juncus balticus	FACW															
Koeleria pyramidata	NI					3	3	7	1			0.3		0.3	1	4
Poa glaucifolia	FAC															
Poa juncifolia	FACU					0.3										
Poa sandbergii	FACU					2		3				2	1	0.3		0.3
Stipa comata	NI			1		4	10	0.3				2	0.3	0.3		
Stipa viridula	NI	5	3	18	15	3	8	0.3	7	4	6	5	6	7	4	4
<b>TOTAL NPG(C)</b>		<b>18.3</b>	<b>20.3</b>	<b>32.3</b>	<b>33.0</b>	<b>48.6</b>	<b>44.3</b>	<b>24.6</b>	<b>37.0</b>	<b>28.0</b>	<b>35.0</b>	<b>26.3</b>	<b>27.3</b>	<b>24.5</b>	<b>64.0</b>	<b>35.3</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>																
<b>(Warm Season-W)</b>																
Bouteloua gracilis	NI			7		22	14	18		2	1	20	40	30	0.3	20
Buchloe dactyloides	FACU-											1				2
Calamovilfa longifolia	NI			0.3												
Distichlis spicata	FACW							15								
Muhlenbergia cuspidata	NI							0.3								
Spartina pectinata	FACW															
<b>TOTAL NPG(W)</b>		<b>0.0</b>	<b>0.0</b>	<b>7.3</b>	<b>0.0</b>	<b>22.0</b>	<b>14.0</b>	<b>33.3</b>	<b>0.0</b>	<b>2.0</b>	<b>1.0</b>	<b>21.0</b>	<b>40.0</b>	<b>30.0</b>	<b>0.3</b>	<b>22.0</b>

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER														
	STATUS	61	62	63	64	65	66	67	68	69	70	71	77	78	79	80
	Reed (1997)															
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>																
Agropyron cristatum	NI		0.3	0.3		3					2		2	3		
Bromus inermis	FACU		1						4		3		1			
Poa compressa	FACU											0.3				
Poa pratensis	FACU	7	14	35	50	7	10		14	22	18	18	5	15	18	16
<b>TOTAL IPG</b>		<b>7.0</b>	<b>15.3</b>	<b>35.3</b>	<b>50.0</b>	<b>10.0</b>	<b>10.0</b>	<b>0.0</b>	<b>18.0</b>	<b>22.0</b>	<b>23.0</b>	<b>18.3</b>	<b>8.0</b>	<b>18.0</b>	<b>18.0</b>	<b>16.0</b>
<b>NATIVE ANNUAL GRAMINOIDS (NAG)</b>																
Festuca octoflora	FACU					0.3			0.3							
<b>TOTAL NAG</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>																
Achillea millefolium	FACU	1	0.3	1	0.3		4	0.3	0.3	1	1	2	0.3	3		0.3
Artemisia frigida	NI						1	3		0.3		0.3		0.3		
Artemisia ludoviciana	FACU	4	1	16	0.3				4	2	1			2	2	1
Asclepias speciosa	FAC															
Aster commutatus	FACU			1				0.3	0.3			0.3		0.3		0.3
Aster pansus	FAC	0.3	0.3						0.3							
Aster simplex	FACW		0.3													
Astragalus adsurgens	NI							0.3								
Cirsium flodmanii	FAC	0.3	0.3	0.3					0.3	1	0.3					
Comandra umbellata	NI							0.3								
Erysimum inconspicuum	NI					0.3										
Glycyrrhiza lepidota	FACU															
Gutierrezia sarothrae	NI							3								1
Haplopappus spinulosus	NI						0.3	0.3								
Helianthus maximilianii	FACU															
Linum perenne	NI	0.3						0.3								
Lithospermum incisum	NI													0.3		

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER														
	STATUS	61	62	63	64	65	66	67	68	69	70	71	77	78	79	80
	Reed (1997)															
Monarda fistulosa	UPL	3	10													
Opuntia fragilis	NI										0.3			0.3		
Penstemon albidus	NI							0.3								
Phlox hoodii	NI							0.3								
Potentilla pensylvanica	NI													0.3		
Psoralea argophylla	NI			0.3		0.3	0.3	0.3						1		0.3
Ratibida columnifera	NI			0.3			1	0.3	0.3	0.3				0.3		0.3
Solidago canadensis	FACU															
Solidago gigantea	FACW															
Solidago missouriensis	NI	0.3	0.3	0.3				1			0.3			0.3		0.3
Solidago mollis	NI															
Solidago rigida	FACU-							0.3								
Sphaeralcea coccinea	NI						0.3					0.3				0.3
Toxicodendron rydbergii	FACU	0.3														
Vicia americana	FAC															
<b>TOTAL NPF</b>		<b>9.5</b>	<b>12.5</b>	<b>19.2</b>	<b>0.6</b>	<b>0.6</b>	<b>6.9</b>	<b>10.3</b>	<b>5.5</b>	<b>4.6</b>	<b>2.6</b>	<b>3.2</b>	<b>0.3</b>	<b>8.1</b>	<b>2.0</b>	<b>3.8</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>																
Cirsium arvense	FACU															
Euphorbia esula	NI															0.3
Medicago sativa	NI			0.3												
Rumex crispus	FACW	0.3														
Taraxacum officinale	FACU															
<b>TOTAL IPF</b>		<b>0.3</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>
<b>FERNS AND ALLIES (F&amp;A)</b>																
Equisetum laevigatum	FAC			0.3												
<b>TOTAL F&amp;A</b>		<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER															
	STATUS	61	62	63	64	65	66	67	68	69	70	71	77	78	79	80	
	Reed (1997)																
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>																	
Ambrosia trifida	FAC																
Chenopodium glaucum	FACW																
Chenopodium leptophyllum	UPL										0.3			0.3			
Collomia linearis	FACU			0.3			0.3										
Conyza canadensis	FACU													0.3			
Grindelia squarrosa	UPL			1			0.3	4	2	3	0.3	0.3	0.3	2		1	
Hedeoma hispidum	NI					0.3											
Iva xanthifolia	FACU										1						
Linum rigidum	NI					0.3		0.3									
Oenothera villosa	FACU																
Orthocarpus luteus	FACU					0.3	0.3										0.3
Plantago patagonica	UPL					1	0.3	0.3									
Polygonum arenastrum	NI																
Polygonum ramosissimum	FACU																
<b>TOTAL NAF</b>		<b>0.0</b>	<b>0.0</b>	<b>1.3</b>	<b>0.0</b>	<b>1.9</b>	<b>1.2</b>	<b>4.6</b>	<b>2.0</b>	<b>3.0</b>	<b>1.3</b>	<b>0.6</b>	<b>0.3</b>	<b>2.6</b>	<b>0.0</b>	<b>1.3</b>	
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>																	
Atriplex heterosperma	NI																
Chenopodium album	FAC								0.3		0.3						
Descurainia sophia	NI			1	0.3	1	0.3				0.3	0.3	0.3	1		0.3	
Draba nemorosa	NI					0.3											
Kochia scoparia	FAC																0.3
Medicago lupulina	FACU					0.3									4	2	
Melilotus officinalis	FACU-							0.3	0.3								
Thlaspi arvense	FACU																
Tragopogon dubius	NI						0.3										
<b>TOTAL IAF</b>		<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>0.3</b>	<b>1.6</b>	<b>0.6</b>	<b>0.3</b>	<b>0.6</b>	<b>0.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.3</b>	<b>1.0</b>	<b>4.0</b>	<b>2.6</b>	



**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER														
	STATUS	61	62	63	64	65	66	67	68	69	70	71	77	78	79	80
	Reed (1997)															
<b>NATIVE SHRUBS</b>																
Artemisia cana	FACU	0.3		15		22	37	5	24	5	5	9	4	7	6	7
Crataegus rotundifolia	NI	0.3	0.3													
Prunus americana	UPL	0.3														
Ribes setosum	FACU	0.3	0.3													
Rosa arkansana	NI															0.3
Rosa woodsii	FACU	2														
Symphoricarpos occidentalis	NI	40	38	0.3	23				0.3		0.3			1		0.3
<b>TOTAL NATIVE SHRUBS</b>		<b>43.2</b>	<b>38.6</b>	<b>15.3</b>	<b>23.0</b>	<b>22.0</b>	<b>37.0</b>	<b>5.0</b>	<b>24.3</b>	<b>5.0</b>	<b>5.3</b>	<b>9.0</b>	<b>4.0</b>	<b>8.0</b>	<b>6.0</b>	<b>7.6</b>
<b>NATIVE TREES</b>																
Fraxinus pennsylvanica	FAC															
Ulmus americana	FAC	0.3														
<b>TOTAL NATIVE TREES</b>		<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>78.6</b>	<b>86.7</b>	<b>112.3</b>	<b>106.9</b>	<b>107.0</b>	<b>114.0</b>	<b>78.1</b>	<b>87.7</b>	<b>64.6</b>	<b>68.8</b>	<b>78.7</b>	<b>80.2</b>	<b>92.2</b>	<b>94.3</b>	<b>88.9</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>																
All species method (WESTECH)		4.83	1.73	0.53	0.00	11.21	3.51	19.21	1.03	1.55	0.87	0.00	0.00	0.00	0.00	0.34
Prevalence Index Method (U.S.ACE 2006)		3.92	4.06	3.91	3.86	4.09	4.03	4.04	3.93	4.00	3.93	4.21	4.43	4.30	3.96	4.21
Dominant species method (U.S. ACE 2006)		0	0	0	0	20	0	17	0	0	0	0	0	0	0	0

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER									Mean
	STATUS	81	82	83	120	131	1060	1062	1063	1066	Cover
	Reed (1997)										n=24
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>											
Slope (percent)		4	2-3	2-3	2	3-6/ 60-90	2	2	2	2	
Aspect (degrees)		342/ 058	326	180	104	012	300	289	029	352	
Topography		Ter	Ter	Ter	Ter	Bot	Bot	lowTer	lowTer	lowTer	
Configuration		S	S(V)	S-V	Und	V	Und	S	S	Und	
<b>GROUND COVER</b>											
Bare Ground		10	2	12	0.3	6	2	2	5	4	<b>9.90</b>
Rock											<b>0.03</b>
Litter		83	90	80	91	85	93	93	90	90	<b>83.92</b>
Lichens		0.3	0.3								<b>0.39</b>
Moss				1	0.3	1					<b>0.38</b>
Water											<b>0.00</b>
Basal Vegetation		7	8	7	9	8	5	5	5	6	<b>5.46</b>
<b>VEGETATION STRUCTURE (non-stratified cover)</b>											
Total Vegetation		72	84	94	82	92	76	81	88	88	<b>73.58</b>
Perennial Graminoids		70	79	88	75	72	42	38	24	23	<b>55.96</b>
Annual Graminoids											<b>0.03</b>
Perennial Forbs		2	9	17	3	25	8	7	25	17	<b>8.20</b>
Annual/Biennial Forbs		2	1	5	0.3	11					<b>1.93</b>
Shrubs		3	14	19	21	32	38	45	55	56	<b>22.33</b>
Trees									0.3	0.3	<b>0.04</b>

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER									Mean
	STATUS	81	82	83	120	131	1060	1062	1063	1066	Cover
	Reed (1997)										n=24
<b>CLASS/SPECIES</b>											
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>											
<b>(Cool Season-C)</b>											
Agropyron dasystachyum	FAC										0.67
Agropyron smithii	FACU	22	28	11			0.3	5			14.55
Agropyron trachycaulum	FAC			14		1					0.72
Calamagrostis montanensis	NI		0.3								0.03
Carex brevior	FACU			0.3							0.82
Carex eleocharis	NI	5	2								1.32
Carex filifolia	NI										0.22
Carex heliophila	NI										0.25
Carex laeviconica	OBL				2						0.10
Carex lanuginosa	OBL					2					0.08
Carex praegracilis	FACW					9					0.38
Eleocharis xyridiformis	OBL					8					0.33
Elymus canadensis	FACU					0.3					0.01
Hordeum jubatum	FACW					0.3					0.01
Juncus balticus	FACW								0.3		0.01
Koeleria pyramidata	NI	1	4								1.03
Poa glaucifolia	FAC					0.3					0.01
Poa juncifolia	FACU										0.01
Poa sandbergii	FACU	1									0.40
Stipa comata	NI	18	4						0.3		1.68
Stipa viridula	NI	3	15	2				4			4.97
<b>TOTAL NPG(C)</b>		<b>50.0</b>	<b>53.3</b>	<b>27.3</b>	<b>2.0</b>	<b>20.9</b>	<b>0.3</b>	<b>9.3</b>	<b>0.3</b>	<b>0.0</b>	<b>27.59</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>											
<b>(Warm Season-W)</b>											
Bouteloua gracilis	NI	28	32	3							9.89
Buchloe dactyloides	FACU-			1							0.17
Calamovilfa longifolia	NI							0.3		0.3	0.04
Distichlis spicata	FACW										0.63
Muhlenbergia cuspidata	NI										0.01
Spartina pectinata	FACW					16					0.67
<b>TOTAL NPG(W)</b>		<b>28.0</b>	<b>32.0</b>	<b>4.0</b>	<b>0.0</b>	<b>16.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>	<b>11.40</b>

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER									Mean
	STATUS	81	82	83	120	131	1060	1062	1063	1066	Cover
	Reed (1997)										n=24
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>											
Agropyron cristatum	NI			0.3	66	26					4.29
Bromus inermis	FACU			28	5	18	42	6	3		4.63
Poa compressa	FACU										0.01
Poa pratensis	FACU	12	20	56	7	8		25	21	23	17.54
<b>TOTAL IPG</b>		<b>12.0</b>	<b>20.0</b>	<b>84.3</b>	<b>78.0</b>	<b>52.0</b>	<b>42.0</b>	<b>31.0</b>	<b>24.0</b>	<b>23.0</b>	<b>26.47</b>
<b>NATIVE ANNUAL GRAMINOIDS (NAG)</b>											
Festuca octoflora	FACU										0.03
<b>TOTAL NAG</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.03</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>											
Achillea millefolium	FACU		3	2		0.3				0.3	0.85
Artemisia frigida	NI		0.3	0.3							0.23
Artemisia ludoviciana	FACU	1	5	7	0.3	0.3	0.3	1		14	2.59
Asclepias speciosa	FAC					2					0.08
Aster commutatus	FACU			3							0.23
Aster pansus	FAC				0.3	4			0.3	0.3	0.24
Aster simplex	FACW					6					0.26
Astragalus adsurgens	NI										0.01
Cirsium flodmanii	FAC			3							0.23
Comandra umbellata	NI										0.01
Erysimum inconspicuum	NI	0.3	0.3	0.3							0.05
Glycyrrhiza lepidota	FACU					0.3			0.3		0.03
Gutierrezia sarothrae	NI										0.17
Haplopappus spinulosus	NI										0.03
Helianthus maximiliani	FACU					14			0.3		0.60
Linum perenne	NI										0.03
Lithospermum incisum	NI										0.01

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER									Mean
	STATUS	81	82	83	120	131	1060	1062	1063	1066	Cover
	Reed (1997)										n=24
Monarda fistulosa	UPL									3	0.67
Opuntia fragilis	NI										0.03
Penstemon albidus	NI										0.01
Phlox hoodii	NI										0.01
Potentilla pensylvanica	NI										0.01
Psoralea argophylla	NI	1	1								0.19
Ratibida columnifera	NI		0.3	1							0.17
Solidago canadensis	FACU				2	0.3					0.10
Solidago gigantea	FACW								0.3		0.01
Solidago missouriensis	NI							1		0.3	0.17
Solidago mollis	NI									0.3	0.01
Solidago rigida	FACU-					0.3					0.03
Sphaeralcea coccinea	NI										0.04
Toxicodendron rydbergii	FACU										0.01
Vicia americana	FAC						0.3	0.3			0.03
<b>TOTAL NPF</b>		<b>2.3</b>	<b>9.9</b>	<b>16.6</b>	<b>2.6</b>	<b>27.5</b>	<b>0.6</b>	<b>2.3</b>	<b>1.2</b>	<b>18.2</b>	<b>7.12</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>											
Cirsium arvense	FACU			0.3			8				0.35
Euphorbia esula	NI							5	25		1.26
Medicago sativa	NI				0.3						0.03
Rumex crispus	FACW					0.3					0.03
Taraxacum officinale	FACU			0.3	0.3						0.03
<b>TOTAL IPF</b>		<b>0.0</b>	<b>0.0</b>	<b>0.6</b>	<b>0.6</b>	<b>0.3</b>	<b>8.0</b>	<b>5.0</b>	<b>25.0</b>	<b>0.0</b>	<b>1.68</b>
<b>FERNS AND ALLIES (F&amp;A)</b>											
Equisetum laevigatum	FAC										0.01
<b>TOTAL F&amp;A</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.01</b>

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER									Mean
	STATUS	81	82	83	120	131	1060	1062	1063	1066	Cover
	Reed (1997)										n=24
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>											
Ambrosia trifida	FAC				0.3	0.3					0.03
Chenopodium glaucum	FACW					1					0.04
Chenopodium leptophyllum	UPL										0.03
Collomia linearis	FACU		0.3								0.04
Conyza canadensis	FACU										0.01
Grindelia squarrosa	UPL		0.3	5							0.81
Hedeoma hispidum	NI										0.01
Iva xanthifolia	FACU										0.04
Linum rigidum	NI										0.03
Oenothera villosa	FACU					0.3					0.01
Orthocarpus luteus	FACU										0.04
Plantago patagonica	UPL	0.3									0.08
Polygonum arenastrum	NI				0.3						0.01
Polygonum ramosissimum	FACU					1					0.04
<b>TOTAL NAF</b>		<b>0.3</b>	<b>0.6</b>	<b>5.0</b>	<b>0.6</b>	<b>2.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.22</b>
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>											
Atriplex heterosperma	NI					8					0.33
Chenopodium album	FAC										0.03
Descurainia sophia	NI	2	1								0.33
Draba nemorosa	NI										0.01
Kochia scoparia	FAC					0.3					0.03
Medicago lupulina	FACU										0.26
Melilotus officinalis	FACU-			0.3							0.04
Thlaspi arvense	FACU					0.3					0.01
Tragopogon dubius	NI			0.3							0.03
<b>TOTAL IAF</b>		<b>2.0</b>	<b>1.0</b>	<b>0.6</b>	<b>0.0</b>	<b>8.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.06</b>

**TABLE B4**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
24 SCRUB/SHRUB SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR	PLOT NUMBER									Mean
	STATUS	81	82	83	120	131	1060	1062	1063	1066	Cover
	Reed (1997)										n=24
<b>NATIVE SHRUBS</b>											
Artemisia cana	FACU	3	14				2	4	0.3	0.3	7.08
Crataegus rotundifolia	NI										0.03
Prunus americana	UPL										0.01
Ribes setosum	FACU										0.03
Rosa arkansana	NI				1						0.05
Rosa woodsii	FACU			1		4		0.3	3	3	0.55
Symphoricarpos occidentalis	NI		0.3	18	20	30	36	42	52	54	14.81
<b>TOTAL NATIVE SHRUBS</b>		<b>3.0</b>	<b>14.3</b>	<b>19.0</b>	<b>21.0</b>	<b>34.0</b>	<b>38.0</b>	<b>46.3</b>	<b>55.3</b>	<b>57.3</b>	<b>22.56</b>
<b>NATIVE TREES</b>											
Fraxinus pennsylvanica	FAC							0.3	0.3		0.03
Ulmus americana	FAC										0.01
<b>TOTAL NATIVE TREES</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.3</b>	<b>0.04</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>97.6</b>	<b>131.1</b>	<b>157.4</b>	<b>104.8</b>	<b>161.9</b>	<b>88.9</b>	<b>94.2</b>	<b>106.1</b>	<b>99.1</b>	<b>99.17</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>											
All species method (WESTECH)		0.00	0.00	10.80	2.48	36.13	0.34	0.32	1.13	0.61	
Prevalence Index Method (U.S.ACE 2006)		4.27	4.14	3.93	3.94	3.31	4.00	3.96	3.98	4.03	
Dominant species method (U.S. ACE 2006)		0	0	17	0	30	0	0	0	0	

**TABLE B5**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER																	
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>																			
Slope (percent)		1-3	3-5/ 40-80	2-8/ 40-50	2-3	2-3	2-3	2-3	1-2	2-3	1-2	1-2	2-3	2	2-3	2-3/ 25-30	4/ 25	0-2/ 20-80	
Aspect (degrees)		037	322/ 044	277/ 190	330	064	077	075	140	047	058	038	030	304	033	320/ 040	052	330/ 055	
Topography		FloTer	Bot/ Bnk	Ter/ Bnk	FloTer	FloTer	FloTer	FloTer	Ter	lowTer	FloTer	FloTer	FloTer	FloTer	Bot	Ter/ Bot	Bot/ Bnk	Bot/ Bnk	
Configuration		S	V(Und)	V	S	S(V)	S	S	S	S(V)	S	S	S	S	S(V)	V	V	V	
<b>GROUND COVER</b>																			
Bare Ground		5	7	0.3			0.3	0.3	4	10	0.3	3	2	1	1	8	1	8	
Rock																			
Litter		88	83	92	93	94	93	91	89	83	93	86	90	91	91	80	92	85	
Lichens										0.3			0.3						
Moss			3	0.3	0.3	0.3	1	1	0.3	0.3		3	0.3	0.3	0.3	0.3	0.3	0.3	
Water																4			
Basal Vegetation		7	7	7	7	6	6	8	7	6	7	8	7	8	8	8	7	7	
<b>VEGETATION STRUCTURE (non-stratified cover)</b>																			
Total Vegetation		82	95	94	92	94	95	94	94	95	92	95	94	94	95	93	96	90	
Perennial Graminoids		78	88	84	70	82	60	88	89	84	82	88	68	54	58	74	42	33	
Annual Graminoids			0.3																
Perennial Forbs		0.3	3	1		1	2	11	4	3	0.3	5	8	7	7	9	3	15	
Annual/Biennial Forbs		7	0.3	0.3	45		40		0.3	0.3		0.3	13	2	15	0.3	20	0.3	
Shrubs		0.3	0.3	0.3					0.3	0.3	0.3	12	0.3	37	56	40	31	47	52
Trees		16	58	60	15	42	66	18	26	63	19	30	48	66	66	42	68	38	



TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

CLASS\SPECIES	INDICATOR STATUS Reed (1997)	PLOT NUMBER																
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>																		
<b>(Cool Season-C)</b>																		
XAgrohordeum macounii	FAC									0.3								
Agropyron smithii	FACU										1	9				3		8
Agropyron trachycaulum	FAC									1						2		4
Calamagrostis montanensis	NI										0.3					0.3		
Carex aquatilis	OBL		8													9		6
Carex brevior	FACU			0.3				0.3				0.3	1	2	0.3			3
Carex eleocharis	NI										2	3						
Carex gravida	NI												4	3	5			0.3
Carex laeviconica	OBL												19	20	10			
Carex sprengellii	FACU											0.3						
Eleocharis xyridiformis	OBL																	
Elymus canadensis	FACU															0.3		
Elymus virginicus	FAC		1				0.3					16	9	11	2	7		2
Hordeum jubatum	FACW																	
Poa sandbergii	FACU															0.3		
Scirpus microcarpus	OBL																	
Scirpus validus	OBL																	0.3
Stipa comata	NI											1				1		
Stipa viridula	NI								1	0.3			4			5		1
<b>TOTAL NPG(C)</b>		<b>0.0</b>	<b>9.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.3</b>	<b>1.0</b>	<b>1.6</b>	<b>0.0</b>	<b>4.3</b>	<b>32.6</b>	<b>33.0</b>	<b>36.0</b>	<b>38.2</b>	<b>7.0</b>	<b>24.6</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>																		
<b>(Warm Season-W)</b>																		
Bouteloua gracilis	NI															5		
Buchloe dactyloides	FACU-											14	8			4		
Muhlenbergia racemosa	FACW														0.3			0.3
Spartina pectinata	FACW															1		2
<b>TOTAL NPG(W)</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>14.0</b>	<b>8.0</b>	<b>0.0</b>	<b>0.3</b>	<b>10.0</b>	<b>0.0</b>	<b>2.3</b>

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER																
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>																		
Agropyron cristatum	NI	0.3		0.3			1		9		1	3			0.3		0.3	
Agropyron repens	FAC															2		
Bromus inermis	FACU	56	54	58	70	82	56	54	52	48	46	34	3	4	1	10	30	1
Poa palustris	FACW		1											2	0.3			
Poa pratensis	FACU	40	58	54			5	56	54	56	54	56	38	28	32	38	8	9
<b>TOTAL IPG</b>		<b>96.3</b>	<b>113.0</b>	<b>112.3</b>	<b>70.0</b>	<b>82.0</b>	<b>62.0</b>	<b>110.0</b>	<b>115.0</b>	<b>104.0</b>	<b>101.0</b>	<b>93.0</b>	<b>41.0</b>	<b>32.0</b>	<b>35.0</b>	<b>48.6</b>	<b>40.0</b>	<b>10.3</b>
<b>INTRODUCED ANNUAL GRAMINOIDS (IAG)</b>																		
Avena sativa	NI																	
Echinochloa muricata	OBL		0.3															
<b>TOTAL IAG</b>		<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>																		
Achillea millefolium	FACU								0.3				0.3					0.3
Agrimonia striata	FACU													0.3				
Apocynum cannabinum	FAC																	
Artemisia frigida	NI														0.3			
Artemisia ludoviciana	FACU											5			4		4	
Asclepias speciosa	FAC									1								0.3
Aster commutatus	FACU																	0.3
Aster laevis	NI														0.3			
Aster simplex	FACW		0.3												0.3			2
Cicuta maculata	NI																	0.3
Cirsium flodmanii	FAC												1		0.3			0.3
Cynoglossum boreale	NI													0.3		0.3		
Geum aleppicum	FACU											0.3	1	1				0.3
Glycyrrhiza lepidota	FACU																	
Helianthus maximiliani	FACU																	
Helianthus tuberosus	FACU																	
Lactuca oblongifolia	FACU					0.3								0.3			0.3	
Lysimachia ciliata	FACW		1															0.3
Mentha arvensis	FACW														0.3			0.3
Mirabilis nyctaginea	UPL	0.3																

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER																
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
Monarda fistulosa	UPL													0.3	1		0.3	
Osmorhiza longistylis	FACU																	
Plantago eriopoda	FAC													0.3				
Polygonum amphibium	OBL														0.3			
Potamogeton pectinatus	OBL														1			
Psoralea argophylla	NI											0.3						
Ranunculus cymbalaria	OBL		0.3															
Ratibida columnifera	NI								0.3			0.3			1		0.3	
Rumex mexicanus	FACW																	
Sagittaria cuneata	OBL														0.3		1	
Smilacina stellata	FACU															0.3		
Solidago gigantea	FACW																4	
Solidago rigida	FACU-																	
Thalictrum dasycarpum	FAC		0.3	0.3						0.3		0.3	0.3	1	0.3	0.3	1	
Thalictrum venulosum	NI												0.3					
Urtica dioica	FACW					0.3	2										2	
Viola pratincola	FAC		0.3															
<b>TOTAL NPF</b>		<b>0.3</b>	<b>2.2</b>	<b>0.3</b>	<b>0.0</b>	<b>0.6</b>	<b>2.0</b>	<b>0.0</b>	<b>0.3</b>	<b>1.6</b>	<b>0.0</b>	<b>0.0</b>	<b>7.5</b>	<b>1.9</b>	<b>3.2</b>	<b>9.4</b>	<b>3.2</b>	<b>15.0</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>																		
Artemisia absinthium	NI															0.3		
Cirsium arvense	FACU			0.3		1		2	0.3					0.3		0.3		
Euphorbia esula	NI	0.3	0.3	0.3					1	0.3	0.3		0.3				0.3	
Hesperis matronalis	NI																	
Medicago sativa	NI							0.3										
Nepeta cataria	FACU													0.3				
Plantago major	FAC		0.3															
Rumex crispus	FACW									0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3
Rumex domesticus	FACW+	0.3																
Rumex patienta	NI						0.3											
Taraxacum officinale	FACU	0.3	0.3	0.3				8	4	1		5	1	5	4		0.3	0.3
<b>TOTAL IPF</b>		<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.0</b>	<b>1.0</b>	<b>0.3</b>	<b>11.3</b>	<b>4.6</b>	<b>1.6</b>	<b>0.3</b>	<b>5.3</b>	<b>1.3</b>	<b>5.6</b>	<b>4.6</b>	<b>1.2</b>	<b>0.6</b>	<b>0.6</b>

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER																
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>																		
Amaranthus retroflexus	FACU				0.3													
Ambrosia artemisiifolia	FACU											0.3						
Ambrosia trifida	FAC																	
Artemisia biennis	FAC		0.3															
Atriplex subspicata	NI	3			22		30					11	1	13		18		
Chenopodium fremontii	FACU						0.3											
Chenopodium gigantospermum	NI				0.3		0.3											
Chenopodium glaucum	FACW		0.3															
Conyza canadensis	FACU															0.3		
Echinocystis lobata	FAC																	
Galium aparine	FACU												0.3	0.3		0.3		
Grindelia squarrosa	UPL	0.3							0.3	0.3			1					
Hackelia deflexa	FACW												0.3					
Helianthus petiolaris	NI																	
Parietaria pennsylvanica	FACU																	
Polygonum arenastrum	NI																	
Polygonum lapathifolium	OBL															0.3		
Polygonum ramosissimum	FACU																	
Rorippa palustris	OBL																	
Xanthium strumarium	FAC																	
<b>TOTAL NAF</b>		<b>3.3</b>	<b>0.6</b>	<b>0.0</b>	<b>22.6</b>	<b>0.0</b>	<b>30.6</b>	<b>0.0</b>	<b>0.3</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>12.3</b>	<b>1.6</b>	<b>13.3</b>	<b>0.6</b>	<b>18.3</b>	<b>0.0</b>
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>																		
Arctium minus	NI	1					7						0.3	2		2	0.3	
Atriplex heterosperma	NI				0.3													
Camelina microcarpa	NI								0.3									
Chenopodium album	FAC	0.3			24													
Descurainia sophia	NI				0.3						0.3					0.3		
Kochia scoparia	FAC		0.3		2													
Lactuca serriola	FACU																	
Malva rotundifolia	NI		0.3															
Medicago lupulina	FACU											1	0.3					
Melilotus officinalis	FACU-		0.3										0.3					

**TABLE B5**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER																
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
Polygonum convolvulus	FAC						0.3										0.3	
Polygonum persicaria	FACW		0.3													0.3		
Silene noctiflora	NI						0.3											
Sisymbrium loeselii	NI	3		0.3			3		0.3									
Thlaspi arvense	FACU	0.3					0.3								0.3			
Tragopogon dubius	NI			0.3														
<b>TOTAL IAF</b>		<b>4.6</b>	<b>1.2</b>	<b>0.6</b>	<b>26.6</b>	<b>0.0</b>	<b>10.9</b>	<b>0.0</b>	<b>0.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>1.0</b>	<b>0.9</b>	<b>2.3</b>	<b>0.6</b>	<b>2.3</b>	<b>0.3</b>
<b>NATIVE SHRUBS</b>																		
Cornus stolonifera	FACW																	
Crataegus rotundifolia	NI																	2
Humulus lupulus	FACU												0.3		0.3	0.3		
Parthenocissus vitacea	FACU																0.3	
Prunus americana	UPL													4	0.3			
Prunus virginiana	FACU-								0.3		0.3			0.3	1	1	0.3	
Ribes americanum	FACW																	
Ribes odoratum	FACU																	0.3
Ribes setosum	FACU		0.3	0.3				0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3
Rosa woodsii	FACU											1	0.3		2	3	15	
Salix exigua	FACW+																	
Salix lutea	FACW														4			
Shepherdia argentea	NI																	
Smilax herbacea	FAC							0.3							0.3	0.3		
Symphoricarpos occidentalis	NI	0.3	0.3	0.3				0.3	0.3		12	0.3	36	56	38	26	44	40
<b>TOTAL NATIVE SHRUBS</b>		<b>0.3</b>	<b>0.6</b>	<b>0.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.9</b>	<b>0.6</b>	<b>0.6</b>	<b>12.3</b>	<b>0.6</b>	<b>37.3</b>	<b>56.9</b>	<b>42.9</b>	<b>34.2</b>	<b>48.9</b>	<b>57.9</b>
<b>INTRODUCED SHRUBS</b>																		
Lonicera tatarica	FACU															0.3	3	0.3
<b>TOTAL INTRODUCED SHRUBS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>3.0</b>	<b>0.3</b>

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER																
		93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
<b>NATIVE TREES</b>																		
Acer negundo	FAC	3	8	4	1	26	26	17	14			13	8	23		28	20	1
Fraxinus pennsylvanica	FAC	13	54	58	14	20	50	3	18	62	15	17	36	52	65	26	58	14
Populus deltoides	FAC										6							
Salix amygdaloides	FACW								5									1
Ulmus americana	FAC									2		16	0.3	2	0.3			24
<b>TOTAL NATIVE TREES</b>		<b>16.0</b>	<b>62.0</b>	<b>62.0</b>	<b>15.0</b>	<b>46.0</b>	<b>76.0</b>	<b>20.0</b>	<b>32.0</b>	<b>67.0</b>	<b>23.0</b>	<b>30.0</b>	<b>60.0</b>	<b>75.3</b>	<b>67.0</b>	<b>54.3</b>	<b>78.0</b>	<b>40.0</b>
<b>INTRODUCED TREES</b>																		
Elaeagnus angustifolia	FAC-									0.3								
<b>TOTAL INTRODUCED TREES</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>121.7</b>	<b>189.8</b>	<b>177.0</b>	<b>134.2</b>	<b>129.6</b>	<b>182.1</b>	<b>142.5</b>	<b>154.4</b>	<b>177.0</b>	<b>136.6</b>	<b>147.5</b>	<b>201.0</b>	<b>207.2</b>	<b>204.6</b>	<b>197.4</b>	<b>201.3</b>	<b>151.3</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>																		
All species method (WESTECH)		16.9	40.0	35.2	47.2	35.7	63.6	14.2	20.7	39.5	17.1	20.3	44.1	50.9	57.3	43.9	54.6	44.1
Prevalence Index Method (U.S.ACE 2006)		3.83	3.50	3.65	3.53	3.64	3.35	3.86	3.79	3.57	3.83	3.80	3.54	3.30	3.24	3.32	3.44	3.39
Dominant species method (U.S.ACE 2006)		50	50	33	50	67	40	25	50	33	40	40	38	67	50	57	43	43

**TABLE B5**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER														Mean Cover n=32	
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029		1030
<b>SITE PARAMETERS* (See Appendix B Cover Page)</b>																	
Slope (percent)	2	0-2	1-2/ 60-80	2	2-3	2-3/ 15-55	0-15/ 80-100	0-15/ 80-90	3-10	4-10	0-2/ 10-100	2	2-3	2-3	2-6/ 40-80		
Aspect (degrees)	330	306	060	306	005	050/ 340	043/ 314	104/ 014	035	132	042	172	106	050	135/ 045		
Topography	Bot	Bot	Bot/ Bnk	Ter/Toe	Bot/Ter	Ter/ Bnk	Bot/ Bnk	Bot/ Bnk	lowTer	lowTer	Bot/ Bnk	Bot	FloTer	FloTer	Ter/ Bnk		
Configuration	S(V)	S(V)	V/S	S	S/V	V(S)	V	V	Und	V	Und	S(V)	S(V)	S	Und/V		
<b>GROUND COVER</b>																	
Bare Ground		4	3	8		3	2	6	8		1	12	0.3		5	1	<b>3.27</b>
Rock																	<b>0.00</b>
Litter		88	88	84	94	90	94	78	80	92	93	81	91	94	88	92	<b>88.78</b>
Lichens			0.3														<b>0.03</b>
Moss		0.3	0.3	0.3		0.3		0.3		0.3	0.3		0.3	0.3		0.3	<b>0.45</b>
Water							8	5									<b>0.53</b>
Basal Vegetation		8	8	8	6	7	4	8	7	8	6	7	8	6	7	7	<b>7.06</b>
<b>VEGETATION STRUCTURE (non-stratified cover)</b>																	
Total Vegetation		95	94	88	88	97	95	88	85	94	96	85	91	88	91	88	<b>92.09</b>
Perennial Graminoids		80	60	74	86	55	43	80	78	89	82	78	82	85	88	82	<b>73.88</b>
Annual Graminoids							4	0.3									<b>0.14</b>
Perennial Forbs		3	14	18		13	1	16	5	0.3	11	2	1	0.3	4	4	<b>5.38</b>
Annual/Biennial Forbs		1	1	4	4	23	11		0.3	0.3	10	1	5		0.3	0.3	<b>6.42</b>
Shrubs		45	63	30		18	52	7	13	35	16	1	2	10	2	4	<b>17.97</b>
Trees		36	14	13	6	72	78	62	56	38	63	32	58	20	14	31	<b>41.69</b>

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

CLASS/SPECIES	INDICATOR STATUS Reed (1997)	PLOT NUMBER															Mean Cover n=32
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029	1030	
<b>NATIVE PERENNIAL GRAMINOIDS (NPG)</b>																	
<b>(Cool Season-C)</b>																	
XAgrohordeum macounii	FAC																0.01
Agropyron smithii	FACU		24	28							5						2.44
Agropyron trachycaulum	FAC	6		10				0.3									0.73
Calamagrostis montanensis	NI																0.02
Carex aquatilis	OBL							3								1	0.84
Carex brevior	FACU																0.23
Carex eleocharis	NI																0.16
Carex gravida	NI	2															0.45
Carex laeviconica	OBL																1.53
Carex sprengei	FACU																0.01
Eleocharis xyridiformis	OBL			1													0.03
Elymus canadensis	FACU			3													0.10
Elymus virginicus	FAC		2								1						1.60
Hordeum jubatum	FACW		20	2													0.69
Poa sandbergii	FACU																0.01
Scirpus microcarpus	OBL							1									0.03
Scirpus validus	OBL																0.01
Stipa comata	NI																0.06
Stipa viridula	NI	0.3		7							4						0.71
<b>TOTAL NPG(C)</b>		<b>8.3</b>	<b>46.0</b>	<b>51.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>4.3</b>	<b>0.0</b>	<b>1.0</b>	<b>9.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>9.65</b>
<b>NATIVE PERENNIAL GRAMINOIDS</b>																	
<b>(Warm Season-W)</b>																	
Bouteloua gracilis	NI											1					0.19
Buchloe dactyloides	FACU-																0.81
Muhlenbergia racemosa	FACW																0.02
Spartina pectinata	FACW			0.3				8	0.3								0.36
<b>TOTAL NPG(W)</b>		<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>8.0</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.38</b>



TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER															Mean Cover n=32
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029	1030	
<b>INTRODUCED PERENNIAL GRAMINOIDS (IPG)</b>																	
Agropyron cristatum	NI	0.3				1			2		16	28		1		1.98	
Agropyron repens	FAC		8													0.31	
Bromus inermis	FACU	35		26	86	54	43	76	74	88	80	41	58	76	52	54	46.94
Poa palustris	FACW		1					2	1		0.3				0.3	0.25	
Poa pratensis	FACU	54	12	18							4	28	14	16	58	48	26.19
<b>TOTAL IPG</b>		<b>89.3</b>	<b>21.0</b>	<b>44.0</b>	<b>86.0</b>	<b>55.0</b>	<b>43.0</b>	<b>78.0</b>	<b>75.0</b>	<b>90.0</b>	<b>84.3</b>	<b>85.0</b>	<b>100.0</b>	<b>92.0</b>	<b>111.0</b>	<b>102.3</b>	<b>75.67</b>
<b>INTRODUCED ANNUAL GRAMINOIDS (IAG)</b>																	
Avena sativa	NI						4										0.13
Echinochloa muricata	OBL						0.3	0.3									0.03
<b>TOTAL IAG</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>4.3</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.15</b>
<b>NATIVE PERENNIAL FORBS (NPF)</b>																	
Achillea millefolium	FACU	0.3		0.3													0.05
Agrimonia striata	FACU																0.01
Apocynum cannabinum	FAC								0.3		0.3					0.3	0.03
Artemisia frigida	NI																0.01
Artemisia ludoviciana	FACU	2		4													0.59
Asclepias speciosa	FAC																0.04
Aster commutatus	FACU			2													0.07
Aster laevis	NI																0.01
Aster simplex	FACW		0.3	2				1	1		0.3					0.3	0.23
Cicuta maculata	NI																0.01
Cirsium flodmanii	FAC	0.3															0.06
Cynoglossum boreale	NI										1						0.05
Geum aleppicum	FACU										1						0.11
Glycyrrhiza lepidota	FACU	0.3	4														0.13
Helianthus maximiliani	FACU		4	6													0.31
Helianthus tuberosus	FACU							0.3									0.01
Lactuca oblongifolia	FACU								0.3		0.3						0.05
Lysimachia ciliata	FACW															0.3	0.05
Mentha arvensis	FACW										0.3					0.3	0.04
Mirabilis nyctaginea	UPL																0.01

**TABLE B5**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER															Mean Cover n=32
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029	1030	
Monarda fistulosa	UPL	1															0.08
Osmorhiza longistylis	FACU					0.3											0.01
Plantago eriopoda	FAC																0.01
Polygonum amphibium	OBL						1										0.04
Potamogeton pectinatus	OBL																0.03
Psoralea argophylla	NI																0.01
Ranunculus cymbalaria	OBL																0.01
Ratibida columnifera	NI			1													0.09
Rumex mexicanus	FACW		1	3					0.3								0.13
Sagittaria cuneata	OBL																0.04
Smilacina stellata	FACU					0.3	0.3				0.3						0.04
Solidago gigantea	FACW		3					1			0.3						0.26
Solidago rigida	FACU-	0.3															0.01
Thalictrum dasycarpum	FAC	0.3				0.3		0.3			4						0.28
Thalictrum venulosum	NI																0.01
Urtica dioica	FACW					2	0.3				1						0.24
Viola pratincola	FAC										0.3					0.3	0.03
<b>TOTAL NPF</b>		<b>4.5</b>	<b>12.3</b>	<b>18.3</b>	<b>0.0</b>	<b>2.9</b>	<b>1.6</b>	<b>2.6</b>	<b>1.9</b>	<b>0.0</b>	<b>9.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.5</b>	<b>3.19</b>
<b>INTRODUCED PERENNIAL FORBS (IPF)</b>																	
Artemisia absinthium	NI																0.01
Cirsium arvense	FACU		0.3	0.3		10		14	2		2						1.03
Euphorbia esula	NI		0.3	1		0.3			0.3	0.3		0.3	1	0.3	1	3	0.34
Hesperis matronalis	NI											0.3				0.3	0.02
Medicago sativa	NI										0.3	0.3	0.3				0.04
Nepeta cataria	FACU																0.01
Plantago major	FAC																0.01
Rumex crispus	FACW		2	0.3							0.3						0.16
Rumex domesticus	FACW+																0.01
Rumex patienta	NI																0.01
Taraxacum officinale	FACU										0.3	2	0.3		3	0.3	1.11
<b>TOTAL IPF</b>		<b>0.0</b>	<b>2.6</b>	<b>1.6</b>	<b>0.0</b>	<b>10.3</b>	<b>0.0</b>	<b>14.0</b>	<b>2.3</b>	<b>0.3</b>	<b>2.9</b>	<b>2.6</b>	<b>1.9</b>	<b>0.3</b>	<b>4.0</b>	<b>3.6</b>	<b>2.73</b>

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER															Mean Cover n=32
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029	1030	
<b>NATIVE ANNUAL/BIENNIAL FORBS (NAF)</b>																	
Amaranthus retroflexus	FACU											0.3					0.02
Ambrosia artemisiifolia	FACU																0.01
Ambrosia trifida	FAC						0.3										0.01
Artemisia biennis	FAC			0.3													0.02
Atriplex subspicata	NI	1			4		3			0.3	0.3		2				3.39
Chenopodium fremontii	FACU																0.01
Chenopodium gigantospermum	NI													0.3			0.03
Chenopodium glaucum	FACW																0.01
Conyza canadensis	FACU																0.01
Echinocystis lobata	FAC		0.3														0.01
Galium aparine	FACU						0.3				2						0.10
Grindelia squarrosa	UPL			3								1					0.18
Hackelia deflexa	FACW																0.01
Helianthus petiolaris	NI						0.3										0.01
Parietaria pensylvanica	FACU					0.3											0.01
Polygonum arenastrum	NI		0.3														0.01
Polygonum lapathifolium	OBL																0.01
Polygonum ramosissimum	FACU						0.3										0.01
Rorippa palustris	OBL											0.3					0.01
Xanthium strumarium	FAC		1	1													0.06
<b>TOTAL NAF</b>		<b>1.0</b>	<b>1.6</b>	<b>4.3</b>	<b>4.0</b>	<b>0.3</b>	<b>4.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>2.3</b>	<b>1.3</b>	<b>2.3</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>3.93</b>
<b>INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)</b>																	
Arctium minus	NI					23	0.3				8						1.37
Atriplex heterosperma	NI																0.01
Camelina microcarpa	NI																0.01
Chenopodium album	FAC				0.3		5						0.3		0.3		0.94
Descurainia sophia	NI												2				0.09
Kochia scoparia	FAC						1										0.10
Lactuca serriola	FACU						0.3				0.3						0.02
Malva rotundifolia	NI																0.01
Medicago lupulina	FACU						0.3										0.05
Melilotus officinalis	FACU-			0.3													0.03

**TABLE B5**

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER															Mean Cover n=32
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029	1030	
Polygonum convolvulus	FAC																0.02
Polygonum persicaria	FACW								0.3							0.3	0.04
Silene noctiflora	NI																0.01
Sisymbrium loeselii	NI											0.3			0.3		0.23
Thlaspi arvense	FACU						0.3										0.04
Tragopogon dubius	NI											0.3					0.02
<b>TOTAL IAF</b>		<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>0.3</b>	<b>23.0</b>	<b>7.2</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>	<b>8.3</b>	<b>0.6</b>	<b>2.3</b>	<b>0.0</b>	<b>0.6</b>	<b>0.3</b>	<b>2.98</b>
<b>NATIVE SHRUBS</b>																	
Cornus stolonifera	FACW							1	0.3								0.04
Crataegus rotundifolia	NI	4												1			0.22
Humulus lupulus	FACU					0.3	0.3	0.3			1						0.09
Parthenocissus vitacea	FACU																0.01
Prunus americana	UPL																0.13
Prunus virginiana	FACU-					18	52			0.3		0.3		0.3		0.3	2.33
Ribes americanum	FACW		0.3						0.3								0.02
Ribes odoratum	FACU									4							0.13
Ribes setosum	FACU	0.3					0.3		0.3	0.3	0.3		1		0.3	0.3	0.21
Rosa woodsii	FACU	3	9	9						0.3							1.33
Salix exigua	FACW+		0.3														0.01
Salix lutea	FACW		4														0.25
Shepherdia argentea	NI		42	5					0.3								1.48
Smilax herbacea	FAC																0.03
Symphoricarpos occidentalis	NI	42	23	18			0.3	5	12	32	15	1	1	9	2	4	13.07
<b>TOTAL NATIVE SHRUBS</b>		<b>49.3</b>	<b>78.6</b>	<b>32.0</b>	<b>0.0</b>	<b>18.3</b>	<b>52.9</b>	<b>6.9</b>	<b>12.9</b>	<b>36.6</b>	<b>16.3</b>	<b>1.3</b>	<b>2.0</b>	<b>10.3</b>	<b>2.3</b>	<b>4.6</b>	<b>19.34</b>
<b>INTRODUCED SHRUBS</b>																	
Lonicera tatarica	FACU	0.3										1					0.15
<b>TOTAL INTRODUCED SHRUBS</b>		<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.15</b>

TABLE B5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR  
32 RIPARIAN WOODLAND SAMPLE SITES – WETLAND STUDY AREA  
STARK COUNTY, NORTH DAKOTA, 2006-2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER															Mean Cover n=32
		110	111	112	127	1017	1019	1021	1022	1023	1024	1025	1027	1028	1029	1030	
<b>NATIVE TREES</b>																	
Acer negundo	FAC				1	22	4	42	48	1	38	18	34	2	8	3	12.91
Fraxinus pennsylvanica	FAC	10	14	13	5	36	70	30	16	37	30	16	29	13	6	28	29.00
Populus deltoides	FAC																0.19
Salix amygdaloides	FACW										2						0.25
Ulmus americana	FAC	28				27	8		0.3					5			3.53
<b>TOTAL NATIVE TREES</b>		<b>38.0</b>	<b>14.0</b>	<b>13.0</b>	<b>6.0</b>	<b>85.0</b>	<b>82.0</b>	<b>72.0</b>	<b>64.3</b>	<b>38.0</b>	<b>70.0</b>	<b>34.0</b>	<b>63.0</b>	<b>20.0</b>	<b>14.0</b>	<b>31.0</b>	<b>45.87</b>
<b>INTRODUCED TREES</b>																	
Elaeagnus angustifolia	FAC-																0.01
<b>TOTAL INTRODUCED TREES</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.01</b>
<b>TOTAL VEGETATION (Stratified)</b>		<b>190.7</b>	<b>176.1</b>	<b>164.8</b>	<b>96.3</b>	<b>194.8</b>	<b>195.2</b>	<b>181.8</b>	<b>161.3</b>	<b>165.2</b>	<b>195.2</b>	<b>134.8</b>	<b>171.5</b>	<b>122.6</b>	<b>132.2</b>	<b>144.3</b>	<b>165.06</b>
<b>PERCENT HYDROPHYTIC VEGETATION</b>																	
All species method (WESTECH)		26.0	32.5	20.0	10.7	56.6	47.7	47.2	44.7	23.2	44.3	25.4	38.1	17.1	10.8	23.6	
Prevalence Index Method (U.S.ACE 2006)		3.74	3.26	3.69	3.89	3.42	3.51	3.45	3.48	3.77	3.53	3.73	3.62	3.83	3.89	3.74	
Dominant species method (U.S.ACE 2006)		50	38	25	67	43	60	50	50	25	40	40	40	40	50	25	