

Midwest Mixed Emergent Deep Marsh

Site Characteristics: This highly productive deep freshwater marsh community is found in glacial potholes, river valleys, ponds, lake plains, marshes, ditches, streams, shorelines, and streambanks. Soils are characterized by accumulations of organic matter over deposits of fine silt and clay, or loams, sandy loams, or coarse sand. These marshes have hydric soils and are semi-permanently flooded with water levels ranging from 15 centimeters to more than 1 m for a significant part of the growing season. Soils that support this community can be mineral or organic but are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper portion of the soil profile.

Vegetation Characteristics: This deepwater emergent marsh community is dominated by perennial, coarse-leaved graminoid vegetation (60-100% cover). Vegetative diversity and density are highly variable in response to water depth, water chemistry, and natural forces. The degree of substrate aggradation affects the continuity of vegetation coverage (complete or patchy). This community can be highly dynamic from one season to the next, and species composition and density are very dependent on water regime and sometimes the mineral content of water and soil. A typical example of this marsh contains a mosaic of emergents, submergents, and floating-leaved plants interspersed with areas of open water. Quite often the vegetation arranges itself in belts (wetland zonation), with a particular species or range of species occupying specific depths from the shoreline to deep open water. Marshes may display small areas of open water with as little as 30% vegetation cover. Occurrences may contain extensive areas of open water, but vegetation covers at least 3% of the surface typically in the form of floating-leaved plants. Broadleaf Cattail, Narrowleaf Cattail, and Hard-stemmed Bulrush dominate this dynamic ecosystem. Sedges are also common (e.g., Knobbed Hop Sedge and Southern Lake Sedge), and a diverse assemblage of grasses, floating-leaved aquatics, and submerged aquatics are present. Water Sedge, Northwest Territory Sedge, Woolly Sedge, and bulrushes such as Threesquare. Broad-leaved herbs may account for 10-25% cover of species such as Marsh Fern, Swamp Milkweed, Spotted touch-me-not, Common Arrowhead, Mad-dog Skullcap, Common Bur-reed, and Blue Vervain. Floating aquatics such as Duckweed may predominate in deeper zones.

Range: 222M, 251B, 251C

Conservation Status: G4 – Apparently Secure



Management Considerations: Many of the presettlement occurrences of this community have been drained and converted to cropland or destroyed by siltation, which greatly accelerates the natural successional process from shallow inundation to moist soil. Seasonal flooding during winter and spring or flooding during heavy rains help maintain these marshes by causing water exchange which replenishes freshwater and circulates nutrients and organic debris. Although, excessive inputs can greatly accelerate natural successional processes which are responsible for the conversion of wetlands to terrestrial habitats. Purple Loosestrife is an aggressive exotic species that threatens this community. Cattails often occur in pure stands, and can colonize areas recently exposed by either natural or human causes. Cattails

Iowa NRCS Plant Community Description

This community description is a compilation of the Community Association and it's over-riding Community Alliance descriptions as provided by NatureServe (www.natureserve.org/explorer). Where necessary, community descriptions were adapted as recommended by Iowa plant community experts.

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species are prolific seed producers, spreading rapidly to become the early colonizers of wet mineral soil and will persist under wet conditions. Roots and lower stems of cattails are well-adapted to prolonged submergence, but periods of draw-down are required for seed germination to occur. These are important wetland communities for many species of birds and waterfowl.

MIDWEST MIXED EMERGENT DEEP MARSH						
SCIENTIFIC NAME	COMMON NAME	STRATA	FUNCTIONAL GROUP	IA CofC	SEEDS/LB	STATE STATUS
<i>Asclepias incarnata</i>	Swamp milkweed	Herbaceous Layer	P-FORB	4	76800	
<i>Carex aquatilis</i>	Water sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	7	795776	
<i>Carex hyalinolepis</i>	Southern lake sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	5		
<i>Carex lupuliformis</i>	Knobbed hop sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	10		SC
<i>Carex pellita</i>	Wooly sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	4	448000	
<i>Carex rostrata</i>	Northwest Territory sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	8	160000	
<i>Carex spp.</i>	True Sedges	Herbaceous Layer	SEDGE, COOL SEASON			
<i>Eleocharis spp.</i>	Spikerush	Herbaceous Layer	SEDGE, COOL SEASON			
<i>Epilobium ciliatum</i>	Northern willow herb	Herbaceous Layer	P-FORB	3	960000	
<i>Glyceria spp.</i>	Mannagrass	Herbaceous Layer	P-GRASS, COOL SEASON			
<i>Hibiscus laevis</i>	Halberd-leaved rose mallow	Herbaceous Layer	P-FORB	6	44800	
<i>Impatiens capensis</i>	Spotted touch-me-not	Herbaceous Layer	A-FORB	3	64000	
<i>Juncus spp.</i>	True Rush	Herbaceous Layer	P-SEDGE, COOL SEASON			
<i>Lemna minor</i>	Duckweed	Floating-Leaved	A-FORB	3		
<i>Mentha arvensis</i>	Wild mint	Herbaceous Layer	P-FORB	4	4800000	
<i>Nelumbo lutea</i>	American lotus	Floating-Leaved	P-FORB	5		
<i>Phragmites australis</i>	Giant Reed	Herbaceous Layer	P-GRASS, COOL SEASON	0		
<i>Polygonum amphibium emersum</i>	Water smartweed	Herbaceous Layer	P-FORB	3	125000	
<i>Sagittaria latifolia</i>	Common arrowhead	Herbaceous Layer	P-FORB	4	128000	
<i>Schoenoplectus acutus</i>	Hard-stemmed bulrush	Herbaceous Layer, Dominant	P-SEDGE, COOL SEASON	4	206400	
<i>Schoenoplectus americanus/pungens</i>	Threesquare	Herbaceous Layer	P-SEDGE, COOL SEASON	7	192000	
<i>Scutellaria lateriflora</i>	Mad-dog skullcap	Herbaceous Layer	P-FORB	6	2720000	
<i>Sparganium eurycarpum</i>	Common bur reed	Herbaceous Layer	P-FORB	6	8000	

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SCIENTIFIC NAME	COMMON NAME	STRATA	FUNCTIONAL GROUP	IA CofC	SEEDS/ LB	STATE STATUS
<i>Thelypteris palustris</i>	Marsh fern	Herbaceous Layer	FERN	6		
<i>Typha angustifolia</i>	Narrow-leaved cattail	Herbaceous Layer, Dominant	P-FORB	1	2267962	
<i>Typha latifolia</i>	Common cattail	Herbaceous Layer, Dominant	P-FORB	1	7559873	
<i>Verbena hastata</i>	Blue vervain	Herbaceous Layer	P-FORB	3	1488000	

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SCIENTIFIC NAME	COMMON NAME	SEEDS PER LB	SEEDS PER FT ²	% OF MIX	COST PER LB	COST PER FT ²	LBS PER ACRE	CC	FUNCTIONAL GROUP
<i>Alisma subcordatum</i>	Water plantain	825,000	1.55	3.9%		\$0.0000	0.08	3	P-FORB
<i>Amorpha fruticosa</i>	Indigo bush, false indigo	59,200	0.31	0.8%		\$0.0000	0.23	5	SUB-SHRUB, LEGUME
<i>Asclepias incarnata</i>	Swamp milkweed	76,800	0.25	0.6%		\$0.0000	0.14	4	P-FORB
<i>Bidens cernua</i>	Nodding bur marigold	336,000	1.30	3.3%		\$0.0000	0.17	2	A-FORB
<i>Bidens frondosa</i>	Beggar-ticks	80,000	0.30	0.8%		\$0.0000	0.16	3	A-FORB
<i>Calamagrostis canadensis</i>	Bluejoint	4,480,000	1.07	2.7%		\$0.0000	0.01	5	P-GRASS, COOL SEASON
<i>Carex atherodes</i>	Hairy-leaved lake sedge	464,000	0.40	1.0%		\$0.0000	0.04	8	P-SEDGE, COOL SEASON
<i>Carex comosa</i>	Bristly sedge	480,000	1.00	2.5%		\$0.0000	0.09	6	P-SEDGE, COOL SEASON
<i>Carex hystericina</i>	Porcupine sedge	480,000	1.00	2.5%		\$0.0000	0.09	5	P-SEDGE, COOL SEASON
<i>Carex lacustris</i>	Common lake sedge	512,000	0.25	0.6%		\$0.0000	0.02	7	P-SEDGE, COOL SEASON
<i>Carex lupulina</i>	Common hop sedge	52,800	0.15	0.4%		\$0.0000	0.12	6	P-SEDGE, COOL SEASON
<i>Carex pellita</i>	Wooly sedge	448,000	0.25	0.6%		\$0.0000	0.02	4	P-SEDGE, COOL SEASON
<i>Carex scoparia</i>	Lance-fruited oval sedge	1,344,000	1.00	2.5%		\$0.0000	0.03	5	P-SEDGE, COOL SEASON
<i>Carex stipata</i>	Common fox sedge	544,000	1.00	2.5%		\$0.0000	0.08	5	P-SEDGE, COOL SEASON
<i>Carex stricta</i>	Common tussock sedge	848,000	0.25	0.6%		\$0.0000	0.01	6	P-SEDGE, COOL SEASON
<i>Carex tribuloides</i>	Awl-fruited oval sedge	1,920,000	1.00	2.5%		\$0.0000	0.02	3	P-SEDGE, COOL SEASON
<i>Carex trichocarpa</i>	Hairy-fruited lake sedge	288,000	0.17	0.4%		\$0.0000	0.03	8	P-SEDGE, COOL SEASON
<i>Carex vesicaria</i>	Tufted lake sedge	192,000	0.20	0.5%		\$0.0000	0.05	7	P-SEDGE, COOL SEASON
<i>Carex vulpinoidea</i>	Brown fox sedge	1,600,000	1.00	2.5%		\$0.0000	0.03	3	P-SEDGE, COOL SEASON
<i>Eleocharis acicularis</i>	Needle spikerush	1,120,000	1.00	2.5%		\$0.0000	0.04	3	P-SEDGE, COOL SEASON
<i>Eleocharis obtusa</i>	Blunt spikerush	1,600,000	1.00	2.5%		\$0.0000	0.03	3	A-SEDGE, COOL SEASON
<i>Eleocharis palustris</i>	Marsh spikerush	816,000	0.75	1.9%		\$0.0000	0.04	6	P-SEDGE, COOL SEASON
<i>Epilobium ciliatum</i>	Northern willow herb	960,000	1.55	3.9%		\$0.0000	0.07	3	P-FORB
<i>Eupatorium perfoliatum</i>	Boneset	2,560,000	1.55	3.9%		\$0.0000	0.03	6	P-FORB
<i>Glyceria grandis</i>	American manna grass	1,280,000	1.00	2.5%		\$0.0000	0.03	6	P-GRASS, COOL SEASON
<i>Glyceria striata</i>	Fowl manna grass	2,560,000	1.00	2.5%		\$0.0000	0.02	5	P-GRASS, COOL SEASON
<i>Helenium autumnale</i>	Sneezeweed	2,080,000	1.55	3.9%		\$0.0000	0.03	4	P-FORB
<i>Impatiens capensis</i>	Spotted touch-me-not	64,000	0.04	0.1%		\$0.0000	0.03	3	A-FORB
<i>Iris shrevei</i>	Blue flag	16,000	0.07	0.2%		\$0.0000	0.19	6	P-FORB
<i>Juncus arcticus littoralis</i>	Bog rush	3,000,000	1.00	2.5%		\$0.0000	0.01	6	P-SEDGE, COOL SEASON
<i>Juncus dudleyi</i>	Dudley's rush	51,200,000	1.00	2.5%		\$0.0000	0.00	2	P-SEDGE, COOL SEASON
<i>Juncus nodosus</i>	Joint rush	29,616,000	1.00	2.5%		\$0.0000	0.00	4	P-SEDGE, COOL SEASON
<i>Juncus torreyi</i>	Torrey's rush	25,600,000	1.00	2.5%		\$0.0000	0.00	3	P-SEDGE, COOL SEASON
<i>Leersia oryzoides</i>	Rice cut-grass	544,000	1.00	2.5%		\$0.0000	0.08	2	P-GRASS, COOL SEASON
<i>Lycopus americanus</i>	Water horehound	2,080,000	1.55	3.9%		\$0.0000	0.03	4	P-FORB
<i>Mentha arvensis</i>	Wild mint	4,800,000	1.55	3.9%		\$0.0000	0.01	4	P-FORB
<i>Mimulus ringens</i>	Monkey flower	36,800,000	1.55	3.9%		\$0.0000	0.00	3	P-FORB
<i>Pedicularis lanceolata</i>	Swamp lousewort	704,000	1.55	3.9%		\$0.0000	0.10	7	P-FORB, HEMIPARASITE
<i>Penthorum sedoides</i>	Ditch stonecrop	20,800,000	1.55	3.9%		\$0.0000	0.00	3	P-FORB
<i>Polygonum pensylvanicum laevigatum</i>	Pinkweed	208,000	1.00	2.5%		\$0.0000	0.21	0	A-FORB
<i>Polygonum punctatum</i>	Water smartweed	124,800	0.20	0.5%		\$0.0000	0.07	4	A-FORB
<i>Pontederia cordata</i>	Pickereel-weed	4,992	0.03	0.1%		\$0.0000	0.26	7	P-FORB
<i>Rumex orbiculatus</i>	Great water dock	240,000	1.20	3.0%		\$0.0000	0.22	7	P-FORB
<i>Sagittaria latifolia</i>	Common arrowhead	128,000	0.38	1.0%		\$0.0000	0.13	4	P-FORB
<i>Schoenoplectus acutus</i>	Hard-stemmed bulrush	206,400	0.40	1.0%		\$0.0000	0.08	4	P-SEDGE, COOL SEASON
<i>Schoenoplectus fluviatilis</i>	River bulrush	68,800	0.11	0.3%		\$0.0000	0.07	5	P-SEDGE, COOL SEASON
<i>Schoenoplectus tabernaemontani</i>	Soft-stemmed bulrush	496,000	1.00	2.5%		\$0.0000	0.09	3	P-SEDGE, COOL SEASON
<i>Scutellaria lateriflora</i>	Mad-dog skullcap	2,720,000	0.90	2.3%		\$0.0000	0.01	6	P-FORB
<i>Sparganium eurycarpum</i>	Common bur reed	8,000	0.07	0.2%		\$0.0000	0.38	6	P-FORB
				0.0%		#DIV/0!	#DIV/0!		
Graminoid Species	27	Vine Species	0	PLS Seeds/ft ²	40.0	Cost/ft ²	\$0.00	Floristic Quality Index	32.0
Forbs & Sub-shrubs	22	Tree Species	0	PLS lbs/acre*	3.7	Cost/acre	\$0	Mix Conservatism	4.6
Shrub Species	0	Total Species	49			Cost/lb	\$0.00	Simpson's Evenness	72%
Forb & Sub-shrub Seed/ft ²	20.00	Graminoid Seed/ft ²	20.00	Shrub Seed/ft ²	0.00	Vine Seed/ft ²	0.00	Tree Seed/ft ²	0.00

* PLS seeding rate must be converted to a bulk seeding rate

Mixed Emergent Deep Marsh

If cell is in red criteria not met. If cell is in orange recommendation not met.		
Percent of Mix	Exceeded the 20% of mix maximum for seeds/ft ²	
Number of Graminoid Species	Minimum of 10 graminoid species not met	
Number of Forbs & Sub-shrubs	Minimum of 20 forb and sub-shrub species not met	
Total Number of Species	Minimum of 30 species not met	
PLS Seeds/ft ²	Minimum of 40 seeds/ft ² not met	
Graminoid Seed/ft ²	Minimum 20 seeds/ft ² of graminoids not met	
Forb & Sub-shrub Seed/ft ²	Minimum 20 seeds/ft ² of forbs and sub-shrubs not met	
Floristic Quality Index (FQI)	Floristic quality index is below the required 20.0 minimum.	
Mix Conservatism (CC)	Coefficient of Conservatism is below the required 3.0 minimum.	
Simpson's Evenness	Evenness (balance) of the mix is below the recommended 70%	
Conservatism Guilds:		
Early Successional	Does not fall within the recommended range of 15-33%	
Mid-Successional	Does not fall within the recommended range of 45-65%	
Late Successional	Does not fall within the recommended range of 15-33%	

Evenness Calculation		
Sum of Squares		0.03
Simpson's Evenness:		0.72

Conservatism Guilds	Species	Seed/ft ² % mix
EARLY SUCCESSIONAL (0-3)	16	42.1%
MID SUCCESSIONAL (4-7)	31	56.5%
LATE SUCCESSIONAL (8-10)	2	1.4%
	49	100.0%

Seeding Plan

Page 1 of 2

Name _____
Prepared by _____
Type of Seeding: **Mixed Emergent Deep Marsh** Acres _____

Date _____
Tract No. _____
Field No. _____
Contract No. _____

Seeding Mix Summary

Graminoids	Scientific Name	Common Name	Seeds/Ft ²	PLS Lbs / Total PLS	
				Acre	lb
1	Calamagrostis canadensis	Bluejoint	1.07	0.01	0.000
2	Carex atherodes	Hairy-leaved lake sedge	0.40	0.04	0.000
3	Carex comosa	Bristly sedge	1.00	0.09	0.000
4	Carex hystericina	Porcupine sedge	1.00	0.09	0.000
5	Carex lacustris	Common lake sedge	0.25	0.02	0.000
6	Carex lupulina	Common hop sedge	0.15	0.12	0.000
7	Carex pellita	Wooly sedge	0.25	0.02	0.000
8	Carex scoparia	Lance-fruited oval sedge	1.00	0.03	0.000
9	Carex stipata	Common fox sedge	1.00	0.08	0.000
10	Carex stricta	Common tussock sedge	0.25	0.01	0.000
11	Carex tribuloides	Awl-fruited oval sedge	1.00	0.02	0.000
12	Carex trichocarpa	Hairy-fruited lake sedge	0.17	0.03	0.000
13	Carex vesicaria	Tufted lake sedge	0.20	0.05	0.000
14	Carex vulpinoidea	Brown fox sedge	1.00	0.03	0.000
15	Eleocharis acicularis	Needle spikerush	1.00	0.04	0.000
16	Eleocharis obtusa	Blunt spikerush	1.00	0.03	0.000
17	Eleocharis palustris	Marsh spikerush	0.75	0.04	0.000
18	Glyceria grandis	American manna grass	1.00	0.03	0.000
19	Glyceria striata	Fowl manna grass	1.00	0.02	0.000
20	Juncus arcticus littoralis	Bog rush	1.00	0.01	0.000
21	Juncus dudleyi	Dudley's rush	1.00	0.001	0.000
22	Juncus nodosus	Joint rush	1.00	0.001	0.000
23	Juncus torreyi	Torrey's rush	1.00	0.002	0.000
24	Leersia oryzoides	Rice cut-grass	1.00	0.08	0.000
25	Schoenoplectus acutus	Hard-stemmed bulrush	0.40	0.08	0.000
26	Schoenoplectus fluviatilis	River bulrush	0.11	0.07	0.000
27	Schoenoplectus tabernaemontani	Soft-stemmed bulrush	1.00	0.09	0.000
28					0.000
SUBTOTAL GRAMINOIDS			20.00	1.14	0.000

Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft ²	PLS Lbs / Total PLS	
				Acre	lb
1	Alisma subcordatum	Water plantain	1.55	0.08	0.000
2	Amorpha fruticosa	Indigo bush, false indigo	0.31	0.23	0.000
3	Asclepias incarnata	Swamp milkweed	0.25	0.14	0.000
4	Bidens cernua	Nodding bur marigold	1.30	0.17	0.000
5	Bidens frondosa	Beggar-ticks	0.30	0.16	0.000
6	Epilobium ciliatum	Northern willow herb	1.55	0.07	0.000
7	Eupatorium perfoliatum	Boneset	1.55	0.03	0.000
8	Helenium autumnale	Sneezeweed	1.55	0.03	0.000
9	Impatiens capensis	Spotted touch-me-not	0.04	0.03	0.000
10	Iris shrevei	Blue flag	0.07	0.19	0.000
11	Lycopus americanus	Water horehound	1.55	0.03	0.000
12	Mentha arvensis	Wild mint	1.55	0.01	0.000
13	Mimulus ringens	Monkey flower	1.55	0.002	0.000
14	Pedicularis lanceolata	Swamp lousewort	1.55	0.10	0.000
15	Penthorum sedoides	Ditch stonecrop	1.55	0.003	0.000
16	Polygonum pensylvanicum laevigatum	Pinkweed	1.00	0.21	0.000
17	Polygonum punctatum	Water smartweed	0.20	0.07	0.000
18	Pontederia cordata	Pickereel-weed	0.03	0.26	0.000
19	Rumex orbiculatus	Great water dock	1.20	0.22	0.000
20	Sagittaria latifolia	Common arrowhead	0.38	0.13	0.000
21	Scutellaria lateriflora	Mad-dog skullcap	0.90	0.01	0.000
22	Sparganium eurycarpum	Common bur reed	0.07	0.38	0.000
23					0.000
24					0.000
25					0.000
26					0.000
27					0.000
28					0.000
29					0.000
30					0.000
SUBTOTAL FORBS			20.00	2.56	0.000

* Required dominant and co-dominant species in bold

TOTAL 40.00 3.70 0.000

SEEDING MIX FLORISTIC QUALITY VALUES

Average Coefficient of Conservatism	4.6
Floristic Quality Index	32.0

Fertilizer & Lime	General Soil Test	Total Needed lbs
Lime (ECCE) (Actual Lime)	2000	0
Nitrogen	30	0
Phosphate (P205)	30	0
Potash (K20)	40	0

Additional Seeding Criteria:

Do not apply fertilizer. Frost seeding dates Feb. 1st - March 15th.Spring seeding dates are April 15th to July 1st. Dormant Seeding dates November 15th to freeze up.

Seeding was completed by _____ according to the above requirements.
(Date)

(Producer's Signature)

(Date)

Field Office

Certified by

(NRCS Representative)

When seeding is completed, return seeding plan to the Natural Resources Conservation Services.

For state cost-share projects, attach receipts for seed, fertilizer, lime and mulch.

For Federal cost-share, return receipts to Farm Service Agency.