

Arrowhead – Rice Cutgrass Marsh

Site Characteristics: This arrowhead marsh type is found within larger floodplains such as the upper Mississippi River and its larger tributaries. Stands occur in semipermanently flooded wetlands

Vegetation Characteristics: These wetlands are dominated by Common Arrowhead and/or Rice Cutgrass. In examples of this type, Rice Cutgrass typically occurs in more shallow areas or where the water recedes enough to allow it to establish, but not inhibit, Common Arrowhead. Other emergent aquatic species such as Pondweed species and Coon's Tail may also be present. Although this type can occur naturally, many examples along major waterways can be impacted by dams and/or impoundments. Examples of this community may become monotypic stands of either Common Arrowhead or Rice Cutgrass, especially in areas above dams along major rivers where the environment can be more lacustrine in nature.

Range:

Conservation Status: Not Ranked

Management Considerations: areas of monotypic or nearly monotypic stands may be caused by dams or impoundments. Separating natural occurrences from semi-natural ones may be difficult, especially on rivers that have been permanently altered due to dams.

Iowa NRCS Plant Community Description

This community description is a compilation of the Community Association and its 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.

3/18/2009

ARROWHEAD - RICE CUTGRASS MARSH

SCIENTIFIC NAME	COMMON NAME	STRATA	FUNCTIONAL GROUP	IA CofC	SEED S/LB	STATE STATUS
Ceratophyllum demersum	Coon's tail, hornwort	Submergent	P-FORB	0	165000	
Elodea canadensis	Common waterweed	Submergent	P-FORB	10		
Leersia oryzoides	Rice cut-grass	Herbaceous Layer, Dominant	P-GRASS, COOL SEASON	2	544000	
POTAMOGETON CRISPUS	Curly pondweed	Floating-Leaved	P-FORB	*		
Potamogeton foliosus	Leafy pondweed	Floating-Leaved	P-FORB	7		
Potamogeton spp	Pondweed	Floating-Leaved	P-FORB			
Sagittaria latifolia	Common arrowhead	Herbaceous Layer, Dominant	P-FORB	4	128000	
Sparganium eurycarpum	Common bur reed	Herbaceous Layer	P-FORB	6	8000	

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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-SEDEGE, COOL SEASON
<i>Carex comosa</i>	Bristly sedge	480,000	1.00	2.5%		\$0.0000	0.09	6	P-SEDEGE, COOL SEASON
<i>Carex hystericina</i>	Porcupine sedge	480,000	1.00	2.5%		\$0.0000	0.09	5	P-SEDEGE, COOL SEASON
<i>Carex lacustris</i>	Common lake sedge	512,000	0.25	0.6%		\$0.0000	0.02	7	P-SEDEGE, COOL SEASON
<i>Carex lupulina</i>	Common hop sedge	52,800	0.15	0.4%		\$0.0000	0.12	6	P-SEDEGE, COOL SEASON
<i>Carex pellita</i>	Woolly sedge	448,000	0.25	0.6%		\$0.0000	0.02	4	P-SEDEGE, COOL SEASON
<i>Carex scoparia</i>	Lance-fruited oval sedge	1,344,000	1.00	2.5%		\$0.0000	0.03	5	P-SEDEGE, COOL SEASON
<i>Carex stipata</i>	Common fox sedge	544,000	1.00	2.5%		\$0.0000	0.08	5	P-SEDEGE, COOL SEASON
<i>Carex stricta</i>	Common tussock sedge	848,000	0.25	0.6%		\$0.0000	0.01	6	P-SEDEGE, COOL SEASON
<i>Carex tribuloides</i>	Awl-fruited oval sedge	1,920,000	1.00	2.5%		\$0.0000	0.02	3	P-SEDEGE, COOL SEASON
<i>Carex trichocarpa</i>	Hairy-fruited lake sedge	288,000	0.17	0.4%		\$0.0000	0.03	8	P-SEDEGE, COOL SEASON
<i>Carex vesicaria</i>	Tufted lake sedge	192,000	0.20	0.5%		\$0.0000	0.05	7	P-SEDEGE, COOL SEASON
<i>Carex vulpinoidea</i>	Brown fox sedge	1,600,000	1.00	2.5%		\$0.0000	0.03	3	P-SEDEGE, COOL SEASON
<i>Eleocharis acicularis</i>	Needle spikerush	1,120,000	1.00	2.5%		\$0.0000	0.04	3	P-SEDEGE, COOL SEASON
<i>Eleocharis obtusa</i>	Blunt spikerush	1,600,000	1.00	2.5%		\$0.0000	0.03	3	A-SEDEGE, COOL SEASON
Eleocharis palustris	Marsh spikerush	816,000	0.75	1.9%		\$0.0000	0.04	6	P-SEDEGE, 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
Juncus arcticus littoralis	Bog rush	3,000,000	1.00	2.5%		\$0.0000	0.01	6	P-SEDEGE, COOL SEASON
Juncus dudleyi	Dudley's rush	51,200,000	1.00	2.5%		\$0.0000	0.00	2	P-SEDEGE, COOL SEASON
Juncus nodosus	Joint rush	29,616,000	1.00	2.5%		\$0.0000	0.00	4	P-SEDEGE, COOL SEASON
Juncus torreyi	Torrey's rush	25,600,000	1.00	2.5%		\$0.0000	0.00	3	P-SEDEGE, COOL SEASON
Leersia oryzoides	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
Polygonum pensylvanicum laevigatum	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
Pontederia cordata	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
Sagittaria latifolia	Common arrowhead	128,000	0.38	1.0%		\$0.0000	0.13	4	P-FORB
Schoenoplectus acutus	Hard-stemmed bulrush	206,400	0.40	1.0%		\$0.0000	0.08	4	P-SEDEGE, COOL SEASON
Schoenoplectus fluviatilis	River bulrush	68,800	0.11	0.3%		\$0.0000	0.07	5	P-SEDEGE, COOL SEASON
Schoenoplectus tabernaemontani	Soft-stemmed bulrush	496,000	1.00	2.5%		\$0.0000	0.09	3	P-SEDEGE, COOL SEASON
<i>Scutellaria lateriflora</i>	Mad-dog skullcap	2,720,000	0.90	2.3%		\$0.0000	0.01	6	P-FORB
Sparganium eurycarpum	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/ft²	40.0	Cost/ft²	\$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/ft²	20.00	Graminoid Seed/ft²	20.00	Shrub Seed/ft²	0.00	Vine Seed/ft²	0.00	Tree Seed/ft²	0.00

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

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/ft2
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/ft2	Minimum of 40 seeds/ft ² not met
Graminoid Seed/ft²	Minimum 20 seeds/ft ² of graminoids not met
Forb & Sub-shrub Seed/ft²	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%

Functional Group	Seed/ft ² % mix	Species
A-FORB	7.1%	5
A-GRASS, COOL SEASON	0.0%	0
A-GRASS, WARM SEASON	0.0%	0
A-SEDGE, COOL SEASON	2.5%	1
A-SEDGE, WARM SEASON	0.0%	0
B-FORB	0.0%	0
FERN	0.0%	0
HEMIPARASITE	3.9%	1
H-VINE	0.0%	0
LEGUME	0.8%	1
PARASITIC	0.0%	0
P-FORB	42.1%	16
P-GRASS, COOL SEASON	10.2%	4
P-GRASS, WARM SEASON	0.0%	0
P-SEDGE, COOL SEASON	37.3%	22
P-SEDGE, WARM SEASON	0.0%	0
SHRUB	0.0%	0
SUB-SHRUB	0.8%	1
TREE	0.0%	0
W-VINE	0.0%	0
Number of Functional Groups	8	

Seeding Plan

Page 1 of 2

Name _____
Prepared by _____
Type of Seeding: **Arrowhead - Rice Cutgrass Marsh**

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

Acres

Seeding Mix Summary

Graminoids	Scientific Name	Common Name	Seeds/Ft2	PLS Lbs / Total PLS	
				Acres	lb
1	<i>Calamagrostis canadensis</i>	Bluejoint	1.07	0.01	
2	<i>Carex atherodes</i>	Hairy-leaved lake sedge	0.40	0.04	
3	<i>Carex comosa</i>	Bristly sedge	1.00	0.09	
4	<i>Carex hystericina</i>	Porcupine sedge	1.00	0.09	
5	<i>Carex lacustris</i>	Common lake sedge	0.25	0.02	
6	<i>Carex lupulina</i>	Common hop sedge	0.15	0.12	
7	<i>Carex pellita</i>	Wooly sedge	0.25	0.02	
8	<i>Carex scoparia</i>	Lance-fruited oval sedge	1.00	0.03	
9	<i>Carex stipata</i>	Common fox sedge	1.00	0.08	
10	<i>Carex stricta</i>	Common tussock sedge	0.25	0.01	
11	<i>Carex tribuloides</i>	Awl-fruited oval sedge	1.00	0.02	
12	<i>Carex trichocarpa</i>	Hairy-fruited lake sedge	0.17	0.03	
13	<i>Carex vesicaria</i>	Tufted lake sedge	0.20	0.05	
14	<i>Carex vulpinoidea</i>	Brown fox sedge	1.00	0.03	
15	<i>Eleocharis acicularis</i>	Needle spikerush	1.00	0.04	
16	<i>Eleocharis obtusa</i>	Blunt spikerush	1.00	0.03	
17	<i>Eleocharis palustris</i>	Marsh spikerush	0.75	0.04	
18	<i>Glyceria grandis</i>	American manna grass	1.00	0.03	
19	<i>Glyceria striata</i>	Fowl manna grass	1.00	0.02	
20	<i>Juncus arcticus littoralis</i>	Bog rush	1.00	0.01	
21	<i>Juncus dudleyi</i>	Dudley's rush	1.00	0.001	
22	<i>Juncus nodosus</i>	Joint rush	1.00	0.001	
23	<i>Juncus torreyi</i>	Torrey's rush	1.00	0.002	
24	<i>Leersia oryzoides</i>	Rice cut-grass	1.00	0.08	
25	<i>Schoenoplectus acutus</i>	Hard-stemmed bulrush	0.40	0.08	
26	<i>Schoenoplectus fluviatilis</i>	River bulrush	0.11	0.07	
27	<i>Schoenoplectus tabernaemontani</i>	Soft-stemmed bulrush	1.00	0.09	
28					
SUBTOTAL GRAMINOIDS			20.00	1.14	

Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft2	PLS Lbs / Total PLS	
				Acres	lb
1	<i>Alisma subcordatum</i>	Water plantain	1.55	0.08	
2	<i>Amorpha fruticosa</i>	Indigo bush, false indigo	0.31	0.23	
3	<i>Asclepias incarnata</i>	Swamp milkweed	0.25	0.14	
4	<i>Bidens cernua</i>	Nodding bur marigold	1.30	0.17	
5	<i>Bidens frondosa</i>	Beggar-ticks	0.30	0.16	
6	<i>Epilobium ciliatum</i>	Northern willow herb	1.55	0.07	
7	<i>Eupatorium perfoliatum</i>	Boneset	1.55	0.03	
8	<i>Helenium autumnale</i>	Sneezeweed	1.55	0.03	
9	<i>Impatiens capensis</i>	Spotted touch-me-not	0.04	0.03	
10	<i>Iris shrevei</i>	Blue flag	0.07	0.19	
11	<i>Lycopus americanus</i>	Water horehound	1.55	0.03	
12	<i>Mentha arvensis</i>	Wild mint	1.55	0.01	
13	<i>Mimulus ringens</i>	Monkey flower	1.55	0.002	
14	<i>Pedicularis lanceolata</i>	Swamp lousewort	1.55	0.10	
15	<i>Penthorum sedoides</i>	Ditch stonewort	1.55	0.003	
16	<i>Polygonum pensylvanicum laevigatum</i>	Pinkweed	1.00	0.21	
17	<i>Polygonum punctatum</i>	Water smartweed	0.20	0.07	
18	<i>Pontederia cordata</i>	Pickerel-weed	0.03	0.26	
19	<i>Rumex orbiculatus</i>	Great water dock	1.20	0.22	
20	<i>Sagittaria latifolia</i>	Common arrowhead	0.38	0.13	
21	<i>Scutellaria lateriflora</i>	Mad-dog skullcap	0.90	0.01	
22	<i>Sparganium eurycarpum</i>	Common bur reed	0.07	0.38	
23					
24					
25					
26					
27					
28					
29					
30					
SUBTOTAL FORBS			20.00	2.56	

* Required dominant and co-dominant species in bold

TOTAL	40.00	3.70
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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 _____ (Date) _____ according to the above requirements.

 (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.