



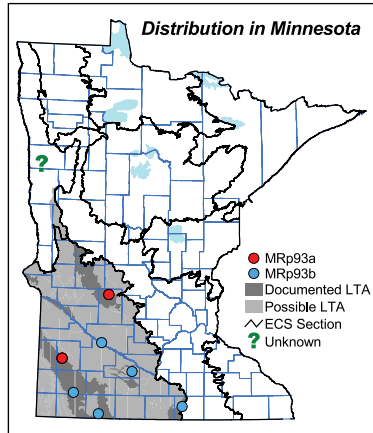
Prairie Bulrush-Arrowhead Marsh

Emergent marsh communities typically dominated by bulrushes, bur reeds, arrowheads, or spikerushes. Present along lakeshores and stream borders.

Vegetation Structure & Composition

Description is based on summary of field survey records and vascular plant data from 13 plots (relevés)

- **Floating-leaved and submergent aquatic plant** cover is variable, with water smartweed (*Polygonum amphibium* var. *stipulaceum*), common coontail (*Ceratophyllum demersum*), flat-stemmed pondweed (*Potamogeton zosteriformis*), straight-leaved pondweed (*P. strictifolius*), whorled water milfoil (*Myriophyllum verticillatum*), sago pondweed (*Stuckenia pectinata*), and flexuous naiad (*Najas flexilis*) often present in areas of deeper water in the community.
- **Graminoid** cover is variable, often consisting of dense, clonal, single-species patches interspersed with areas of open water. Common species include red-stalked spikerush (*Eleocharis palustris*), river bulrush (*Scirpus fluviatilis*), hardstem bulrush (*S. acutus*), slender bulrush (*S. heterochaetus*), and rice cut grass (*Leersia oryzoides*).
- **Forb** cover is variable, but species diversity is generally low. Typical species include broad-leaved arrowhead (*Sagittaria latifolia*), giant bur reed (*Sparganium eurycarpum*), bur marigold and beggarticks (*Bidens* spp.), and swamp milkweed (*Asclepias incarnata*).
- **Shrubs** are absent.
- **Notes:** MRp93 and other shallow-water wetlands throughout much of the state, especially in agricultural regions, have been invaded by dense stands of the non-native species narrow-leaved cattail (*Typha angustifolia*) and hybrid cattail (*T. x glauca*). Invasion and dominance of marshes by non-native cattail species is likely related to alterations in wetland hydrology, commonly from ditching, drain tiling and impoundments, and from nutrient-rich and silt-laden runoff from agricultural fields.



Landscape Setting & Soils

MRp93 occurs in shallow water (typically 20–40in [50–100cm] deep) in ponds, along wave-washed and protected lakeshores, and along stream borders. Substrates are usually mineral soil. MRp93 appears to occur on permanently flooded sites, but sediments may be intermittently exposed during periods of low water.

Natural History

MRp93 develops in settings where standing water is present most of the year, providing conditions favorable to hydrophytic plants. The community is most common along shorelines where exposure to waves hinders accumulation of peat and formation of floating mats. Variation in vegetation composition within the class is likely due to variation in water level, substrate, and exposure to wave action. In marsh settings with strong variation in water depth, substrate, and exposure to wave action, MRp93 may be present in distinct zones with other marsh community classes. MRp93 often grades into wet meadow and open-water aquatic communities.

Similar Native Plant Community Classes

- **MRp83 Prairie Mixed Cattail Marsh**

MRp83 can be similar to MRp93 but is usually dominated by cattails or a mixture of



cattails with sedges (*Carex* spp.), bulrushes (*Scirpus* spp.), and grasses, while MRp93 is usually dominated by bulrushes (*Scirpus* spp.), bur reeds (*Sparganium* spp.), spikerushes (*Eleocharis* spp.), or arrowheads (*Sagittaria* spp.). In addition, MRp93 is more likely to have abundant submergent aquatic species. MRp83 is usually present in shallower water than MRp93 or on floating mats, and is typically not as exposed to wave action as MRp93.

MRp93 Indicator Species	(freq%)		MRp83 Indicator Species	(freq%)	
	MRp93	MRp83		MRp93	MRp83
Sago pondweed (<i>Stuckenia pectinata</i>)	31	-	Water horsetail (<i>Equisetum fluviatile</i>)	-	20
Rice cut grass (<i>Leersia oryzoides</i>)	31	-	Common reed grass (<i>Phragmites australis</i>)	-	20
Flexuous naiad (<i>Najas flexilis</i>)	23	-	Slough sedge (<i>Carex atherodes</i>)	-	20
Mad dog skullcap (<i>Scutellaria lateriflora</i>)	23	-	Bluejoint (<i>Calamagrostis canadensis</i>)	-	10
Richardson's pondweed (<i>Potamogeton richardsonii</i>)	23	-	Narrow reedgrass (<i>Calamagrostis stricta</i>)	-	10
Straight-leaved pondweed (<i>Potamogeton strictifolius</i>)	38	5	Cattails (<i>Typha</i> spp.)	8	95
Red-stalked spikerush (<i>Eleocharis palustris</i>)	54	10	Common bladderwort (<i>Utricularia vulgaris</i>)	8	50
River bulrush (<i>Scirpus fluviatilis</i>)	54	15	Lake sedge (<i>Carex lacustris</i>)	8	30

• MRn93 Northern Bulrush-Spikerush Marsh

MRn93 is very similar to MRp93, but by convention the range of MRn93 is limited to the Eastern Broadleaf Forest and Laurentian Mixed Forest provinces, and the range of MRp93 is limited to the Prairie Parkland Province. There are too few records available to identify species differences between the two classes. Collection of additional data and further analysis may result in revision of the floristic and geographic relationships between the two classes

Native Plant Community Types in Class

Few vegetation plots are available for MRp93, but field observations indicate that the class can be divided into three community types based on dominant species. These community types are often present together in visible zones within the same wetland. Further sampling will likely result in refinement in the definition of these community types and may lead to changes in concepts or type names.

• MRp93a Bulrush Marsh (Prairie)

Emergent marshes typically dominated by bulrushes (*Scirpus* spp.). Spikerushes (*Eleocharis* spp.) and tall forbs such as bur reeds and arrowheads may be present but have sparse cover. Description is based on summary of vegetation data from 7 plots.

• MRp93b Spikerush - Bur Reed Marsh (Prairie)

Emergent marshes dominated by a mixture of forbs and graminoids. Bulrushes (*Scirpus* spp.) may be present and even abundant, but spikerushes (*Eleocharis* spp.) and forbs, particularly bur reeds, make up at least 25% cover. Description is based on summary of vegetation data from 6 plots.

• MRp93c Arrowhead Marsh (Prairie)

Emergent marshes dominated by arrowheads. No plot data are available for MRp93c, and recognition of the community type is based on field observations; collection of plot data will likely lead to refinement in the concept of the community type.



photo by R. P. Dana MN DNR

Big Stone County, MN



MRP93 Prairie Bulrush-Arrowhead Marsh — Species Frequency & Cover

	freq%	cover		freq%	cover
Grasses & Sedges					
Red-stalked spikerush (<i>Eleocharis palustris</i>)	54	●●●	Fries pondweed (<i>Potamogeton friesii</i>)	8	●
River bulrush (<i>Scirpus fluviatilis</i>)	54	●●●●	Sea naid (<i>Najas marina</i>)	8	●
Hardstem or Slender bulrush (<i>Scirpus acutus</i> or <i>S. heterochaetus</i>)	38	●●●●	Southern naid (<i>Najas guadalupensis</i>)	8	●
Rice cut grass (<i>Leersia oryzoides</i>)	31	●	Common bladderwort (<i>Utricularia vulgaris</i>)	8	●
Beaked sedge (<i>Carex utriculata</i>)	23	●	Emergent Forbs		
Fen wiregrass sedge (<i>Carex lasiocarpa</i>)	23	●	Broad-leaved arrowhead (<i>Sagittaria latifolia</i>)	54	●●●
Soft stem bulrush (<i>Scirpus validus</i>)	23	●●	Giant bur reed (<i>Spartanium eurycarpum</i>)	38	●●●●
Woolly sedge (<i>Carex pellita</i>)	15	●●	Bur marigold and Beggarticks (<i>Bidens</i> spp.)	38	●●
Tall manna grass (<i>Glyceria grandis</i>)	15	●●	Water parsnip (<i>Sium suave</i>)	31	●
Prairie cordgrass (<i>Spartina pectinata</i>)	8	●●●●●	Swamp milkweed (<i>Asclepias incarnata</i>)	31	●
Lake sedge (<i>Carex lasustis</i>)	8	●●●●●	Northern bugleweed (<i>Lycopus uniflorus</i>)	23	●
Hayden's sedge (<i>Carex haydenii</i>)	8	●	Mad dog skulicap (<i>Scutellaria lateriflora</i>)	23	●
Pointed broom sedge (<i>Carex scoparia</i>)	8	●	Heart-leaved water plantain (<i>Alisma subcordatum</i>)	15	●
American slough grass (<i>Beckmannia syzigachne</i>)	8	●	Tufted loosestrife (<i>Lysimachia thysiflora</i>)	15	●
Whiteloop (<i>Scolochloa festucacea</i>)	8	●	Marsh skulicap (<i>Scutellaria galericulata</i>)	15	●
Ovoid spikerush (<i>Eleocharis ovata</i>)	8	●	Common water plantain (<i>Alisma triviale</i>)	15	●
Sartwell's sedge (<i>Carex sartwellii</i>)	8	●	Red-stemmed aster (<i>Aster puniceus</i>)	15	●
Floating-Leaved & Submergent Forbs					
Water smartweed (<i>Polygonum amphibium</i>)	69	●●●	Golden dock (<i>Rumex maritimus</i>)	15	●
Common coontail (<i>Ceratophyllum demersum</i>)	38	●●	Spotted water hemlock (<i>Cicuta maculata</i>)	15	●
Flat-stemmed pondweed (<i>Potamogeton zosteriflorus</i>)	38	●●	Touch-me-not (<i>Impatiens</i> spp.)	8	●
Whorled water milfoil (<i>Myriophyllum verticillatum</i>)	38	●●	Hedge bindweed (<i>Calystegia sepium</i>)	8	●
Straight-leaved pondweed (<i>Potamogeton strickfolius</i>)	38	●●	Southern blue flag (<i>Iris virginica</i>)	8	●
Star-duckweed (<i>Lemna trisulcata</i>)	31	●	Common mint (<i>Mentha arvensis</i>)	8	●
Sago pondweed (<i>Stuckenia pectinata</i>)	31	●●●	Small or Three-cleft bedstraw (<i>Galium tinctorium</i> or <i>G. tinctorum</i>)	8	●
Richardson's pondweed (<i>Potamogeton richardsonii</i>)	23	●●	Curl-leaved bugleweed (<i>Lycopus americanus</i>)	8	●
Flexuous naid (<i>Najas flexilis</i>)	23	●●	American, Purple-leaved, or Northern willow-herb*	8	●
Lesser-duckweed (<i>Lemna minor</i>)	23	●●	Bulb-bearing water hemlock (<i>Cicuta bulbifera</i>)	8	●
Illinois pondweed (<i>Potamogeton illinoensis</i>)	15	●	Woundwort (<i>Stachys palustris</i>)	8	●
Greater duckweed (<i>Spirodela polytriza</i>)	8	●	Great water dock (<i>Rumex orbiculatus</i>)	8	●
Leaty pondweed (<i>Potamogeton foliosus</i>)	8	●	Sessile-fruited arrowhead (<i>Sagittaria rigida</i>)	8	●
Robbins' pondweed (<i>Potamogeton robbinsii</i>)	8	●	Arrow-leaved leathurnb (<i>Polygonum sagittatum</i>)	8	●
Very small pondweed (<i>Potamogeton pusillus</i>)	8	●	Dotted smartweed (<i>Polygonum punctatum</i>)	8	●
Grass-leaved pondweed (<i>Potamogeton gramineus</i>)	8	●	Hybrid loosestrife (<i>Lysimachia hybrida</i>)	8	●
			Mild waterpepper (<i>Polygonum hydropiperoides</i>)	8	●
			Sweet flag (<i>Acorus calamus</i>)	8	●

*American, Purple-leaved, or Northern willow-herb (*Epilobium ciliatum*, *E. coloratum*, or *E. glandulosum*)