

Agricultural Wetland Evaluation Tool

BWSR Technical Guidance Version 1.0, June 26, 2013

This wetland functional assessment tool was developed for use in evaluating agricultural wetlands; to aid in assessing both potential sites for agricultural bank eligibility and individual wetlands for potential use of the Ag Bank for mitigation. It is based on the latest version of the Minnesota Routine Assessment Method (MnRAM) for evaluating wetland functions, a BWSR-approved wetland functional assessment. This tool is intended to **supplement the BWSR Guidance “Protection of Wetlands Previously Restored via Conservation Easements” and the BWSR-NRCS Interagency MOU for Administration and Use of the MN Ag Wetland Bank (June 26, 2013).** It may also provide utility in evaluating other agricultural-related wetland impacts and replacement.

Identify Plant Communities Using Key

Refer to latest version of MnRAM & MnRAM Guidance for more information. Sketch plant community locations on aerial photograph and complete table at end of plant community quality key.

Go to upper canopy to key out wetland plant community(-ities) within the evaluation area using the following key. Evaluate only each contiguous type that comprises at least 10% of the vegetated wetland area; the exception is a shallow, open water community in which any fringe emergent communities must be evaluated. Be sure to sample shallow, open water areas for submergent vegetation.

- 1A. Mature trees (dbh of 6 inches or more) are present and form closed stands (more than 17 trees per acre; more than a 50 percent canopy cover) on wet, lowland soils (usually floodplains and ancient lake basins).
 - 2A. Hardwood trees are dominant (>50% areal coverage or basal area of the tree stratum); usually alluvial, peaty/mucky, or poorly drained mineral soils.
 - 3A. Silver maple, American elm, river birch, green ash, black willow, box elder and/or eastern cottonwood are dominant; **growing on alluvial soils associated with riverine systems**FLOODPLAIN FOREST
 - 3B. Black ash, green ash, American elm, eastern cottonwood, black willow, box elder, yellow birch, silver maple, quaking aspen and/or red maple are dominant; northern white cedar may be subdominant; growing on poorly-drained mineral or peat/muck soils, often associated with ancient **lake basins**.....HARDWOOD SWAMP
 - 2B. Coniferous trees are dominant (>50% areal coverage or basal area of the tree stratum); soils usually peaty.
 - 4A. Tamarack and/or black spruce are dominant; growing on a continuous sphagnum moss mat and acid, peat **soils**.....CONIFEROUS BOG
 - 4B. Northern white cedar and/or tamarack are dominant; continuous sphagnum moss mat absent; usually growing on **neutral to alkaline peat/muck soils**.....CONIFEROUS SWAMP
- 1B. Mature trees are absent or, if present, form open, sparse stands; other woody plants, if present, are shrubs or saplings and pole-size trees (dbh less than 6 inches) less than 20 feet high and growing on wet, lowland, or poorly -drained soils, or in ground-water seepage areas.
 - 5A. Community dominated (>50% areal coverage) by woody shrubs.
 - 6A. Low, woody shrubs usually less than 3 feet high; sphagnum moss mat layer may or may not be present.
 - 7A. Shrubs are ericaceous and evergreen growing on a sphagnum moss mat layer; peat soils are acidic...OPEN BOG
 - 7B. Shrubs are deciduous, mostly shrubby cinquefoil, often growing on sloping sites with a spring-fed supply of internally flowing, calcareous waters; other calciphiles are also dominant; sphagnum moss mat layer absent; muck/poorly -**drained mineral soils are alkaline**.....CALCAREOUS FEN

6B. Tall, woody deciduous shrubs usually greater than 3 feet high; sphagnum moss mat layer absent: SHRUB SWAMPS.

8A. Speckled alder is dominant; usually on acidic soils in and north of the vegetation tension zone (a map of the tension zone is on page 9 of Eggers and Reed [1997]).ALDER THICKET

8B. Willows, red-osier dogwood, silky dogwood, meadowsweet and/or steplebush are dominant on neutral to alkaline poorly drained muck/mineral soils; found north and south of the vegetation tension zone. NOTE: Non-native buckthorns (*Rhamnus cathartica* and *R. frangula*) may occur as dominant shrubs or small trees in disturbed shrub-carrs.....SHRUB-CARR

5B. Community dominated (>50% areal coverage) by herbaceous plants.

9A. Essentially closed communities, usually with more than 50 percent cover.

10A. Sphagnum moss mat on acid peat soils; leatherleaf, pitcher plants, certain sedges, and other herbaceous species **tolerant of low nutrient conditions may be present**.....OPEN BOG

10B. Sphagnum moss mat absent; dominant vegetation consists of sedges (Cyperaceae), grasses (Gramineae), cattails, giant bur-reed, arrowheads, forbs and/or calciphiles. Soils are usually neutral to alkaline, poorly-drained mineral soils and mucks.

11A. Over 50 percent of the cover dominance contributed by the sedge family, cattails, giant bur-reed, arrowheads, wild rice, and/or giant reed grass (*Phragmites*).

12A. Herbaceous emergent plants growing on saturated soils to areas covered by standing water up to 6 inches in depth throughout most of the growing season.

13A. Major cover dominance by the sedges (primarily genus *Carex*) typically on saturated soils with, at most, short periods of inundation. Canada blue-joint grass may be a subdominant. Lake sedges (*Carex lacustris*, *C. utriculata*) and slough sedge (*Carex atherodes*) can also be dominants in shallow marshes – **see 13B. below**.....SEDGE MEADOW

13B. Major cover dominance by cattails, bulrushes, water plantain, *Phragmites*, arrowheads, slough sedge and/or lake sedges typically on soils that are inundated by up to 6 in. of water for a significant portion of most growing seasonsSHALLOW MARSH

12B. Herbaceous submergent, floating-leaved, floating and emergent plants growing in areas covered by **standing water greater than 6 inches in depth throughout most of the growing season**.....DEEP MARSH

11B. Over 50 percent of the cover dominance contributed by grasses (except wild rice and *Phragmites*), forbs and/or calciphiles.

14A. Spring-fed supply of internally flowing, calcareous waters, often sloping sites; calciphiles such as sterile sedge, wild timothy, Grass-of-Parnassus and lesser fringed gentian are dominant.CALCAREOUS FEN

14B. Water source(s) variable; calciphiles not dominant.

15A. Dominated by native prairie grasses (e.g., big bluestem, prairie cordgrass, Canada blue-joint **grass**) usually with characteristic wet prairie forbs (e.g., Riddell's goldenrod, gayfeather, mountain mint)...WET TO WET- MESIC PRAIRIE

15B. Dominated by other grass species (e.g., reed canary grass, redtop) and/or generalist forbs (e.g., giant goldenrod, giant sunflower, swamp aster, marsh aster, wild mint)...FRESH (WET) MEADOW

9B. Essentially open communities, either flats or basins usually with less than 50 percent vegetative cover during the early portion of the growing season, or shallow open water with submergent, floating and/or floating-leaved aquatic vegetation.

16A. Areas of shallow, open water (< 6.6 feet in depth) dominated by submergent, floating and/or floating-leaved aquatic vegetation SHALLOW, OPEN WATER

16B. Shallow depressions or flats including vernal pools; standing water may be present for a few weeks each year, but are dry for much of the growing season; often cultivated or dominated by annuals such as smartweeds and wild millet; when not cultivated, perennial vegetation may be present (see Table 4 on page 15)...SEASONALLY FLOODED BASIN

Identify Quality Ranking for Each Plant Community Identified

Enter quality ranking of each community in the table at the end of this section. Choose the “best fit” category.

SHALLOW, OPEN WATER COMMUNITIES

High Quality: Aquatic bed communities with greater than 10 percent coverage of the open water area and dominated by 3 or more species of native aquatic plants such as pondweeds, water lilies, bladderworts, wild celery, duckweed, water crowfoots, native milfoils, etc.; or communities with low diversity but high integrity as given in additional guidance (e.g., beds of wild celery). Eurasian water milfoil and/or curly leaf pondweed, if present, cumulatively comprise less than 20 percent cover of the aquatic bed community.

Medium Quality: Aquatic bed communities with greater than 10 percent coverage of the open water area and dominated by 1 or 2 species of native aquatic plants; and/or Eurasian water milfoil and/or curly leaf pondweed cumulatively comprise 20 to 50 percent cover of the aquatic bed community.

Low Quality: Aquatic vegetation absent or coverage is less than 10 percent of the open water area; or, Eurasian water milfoil and/or curly leaf pondweed cumulatively comprise greater than 50 percent cover of the aquatic bed community.

SHALLOW MARSHES

High Quality: Three or more native aquatic plants (e.g., bur-reeds, bulrushes, arrowheads, duckweeds, cattails, sweet flag, pondweeds) are dominants; or, communities with low diversity but high integrity as described in guidance (e.g., stands of arrowhead, lake sedges). Cattails, if present, comprise less than 40 percent cover. Purple loosestrife absent or comprises less than 20 percent cover.

Medium Quality: At least 2 species of native aquatic plants are dominants; and/or purple loosestrife comprises 20 to 50 percent cover; and/or cattails comprise 40 to 85 percent cover.

Low Quality: Dominated by 1 native aquatic species; and/or purple loosestrife comprise more than 50 percent cover; and/or cattail comprises more than 85 percent cover.

DEEP MARSHES

High Quality: Three or more species of native aquatic plants (e.g., bur-reeds, bulrushes, arrowheads, duckweeds, cattails, sweet flag, pondweeds) are dominants; or communities with low diversity but high integrity as described in guidance (e.g., stands of bulrushes, wild rice, lotus, arrowheads). Cattails, if present, comprise less than 40 percent cover. Purple loosestrife and/or Eurasian water milfoil absent or cumulatively comprise less than 20 percent cover.

Medium Quality: Dominated by 2 species of native aquatic plants; and/or purple loosestrife and/or Eurasian water milfoil, cumulatively comprise 20 to 50 percent cover; and/or cattail comprises 40 to 85 percent cover.

Low Quality: Dominated by 1 native aquatic species; and/or purple loosestrife and/or Eurasian water milfoil cumulatively comprise more than 50 percent cover; and/or cattail comprises more than 85 percent cover.

SEDGE MEADOWS

High Quality: Stands dominated solely by sedges (e.g., wiregrass sedge, hummock sedge, lake sedge, woolgrass [*Carex lasiocarpa*, *C. stricta*, *C. lacustris*, *Scirpus cyperinus*, respectively]) including nearly monotypic stands; or stands with a mixture of sedge dominants and dominant or subdominant native forbs/ferns/grasses/rushes (e.g., Canada blue-joint grass, joe-pye weed, giant sunflower). Reed canary grass, purple loosestrife, stinging nettle and/or other invasive species (Table 1) are absent or cumulatively comprise less than 20 percent cover in the herbaceous stratum. Non-native buckthorns, if present, comprise less than 10 percent cover within the sedge meadow community.

Medium Quality: Stands of sedges where the invasive species listed above cumulatively comprise 20 to 40 percent cover in the herbaceous stratum; and/or non-native buckthorns comprise 10 to 30 percent cover within the sedge meadow community.

Low Quality: Invasive herbaceous species listed above cumulatively comprise 40 to 50 percent cover; and/or non-native buckthorns comprise 30 to 50 percent cover within the sedge meadow community.

[Note: Stands with less than 50 percent cover by sedges key out to wet meadows. Stands with greater than 50 percent cover by buckthorn shrubs key out to shrub-carrs.]

WET MEADOWS

High Quality: Composed of 10 or more species of native/non-invasive grasses, sedges, ferns, rushes and/or forbs. Reed canary grass, purple loosestrife, stinging nettle and/or other invasive species (Table 1), if present, cumulatively comprise less than 20 percent cover. Non-native buckthorns absent or comprise less than 10 percent cover within the wet meadow community.

Medium Quality: Community composed of 5 to 9 species of native grasses, sedges, rushes, ferns and/or forbs; and/or invasive herbaceous species listed above cumulatively comprise 20 to 50 percent cover; and/or non-native buckthorns, comprise 10 to 30 percent cover within the wet meadow community.

Low Quality: Composed of 4 or fewer species of native grasses, sedges, rushes, ferns and/or forbs; and/or invasive herbaceous species listed above cumulatively comprise more than 50 percent cover; and/or non-native buckthorns comprise 30 to 50 percent cover within the wet meadow community. For example, this rating includes the nearly monotypic stands of reed canary grass that are commonly encountered.

[Note: Greater than 50 percent cover by buckthorn shrubs key out to shrub-carrs]

WET to WET-MESIC PRAIRIES

High Quality: Community composed of native grasses (e.g., prairie cord-grass, switchgrass, Canada blue-joint grass), sedges, and forbs characteristic of wet to wet-mesic prairies. Reed canary grass, purple loosestrife, quack grass, Canada thistle and/or other invasive species (Table 1) are absent or cumulatively comprise less than 20 percent cover. Non-native buckthorns absent or comprise less than 10 percent cover within in the prairie community.

Medium Quality: Invasive species listed above cumulatively comprise 20 to 50 percent cover in the herbaceous stratum; and/or non-native buckthorns comprise 10 to 30 percent cover within the prairie community.

Low Quality: Invasive species listed above cumulatively comprise more than 50 percent cover in the herbaceous stratum; and/or non-native buckthorns comprise 30 to 50 percent cover within the prairie community.

CALCAREOUS FENS

Due to their uniqueness, rarity, and disproportionate number of threatened and special concern plant species, **calcareous fen communities are rated as “exceptional” for vegetative diversity/integrity.**

OPEN BOGS

High Quality: Composed of the characteristic assemblage of sphagnum mosses, sedges and heath family shrubs, often with carnivorous plants and various orchid species. Cattails, quaking aspen, non-native buckthorns, reed canary grass, stinging nettle and/or other invasive species (Table 1) are absent or comprise less than 20 percent cover in each stratum (e.g., bryophyte, herbaceous, shrub).

Medium Quality: Invasive species listed above comprise 20 to 50 percent cover in one or more strata.

Low Quality: Invasive species listed above comprise greater than 50 percent cover in one or more strata. Dieback of sphagnum mosses due to flooding, nutrient loading, salt spray, sediment input, etc., can be an indicator.

CONIFEROUS BOGS

High Quality: Stands of tamarack and/or black spruce with the characteristic assemblage of sphagnum mosses, sedges and heath family shrubs. Cattails, quaking aspen, non-native buckthorns, stinging nettle, reed canary grass, and/or other invasive species (Table 1) comprise less than 20 percent cover in any stratum (e.g., bryophyte, herbaceous, shrub, tree).

Medium Quality: Stands of tamarack and/or black spruce invaded by cattail, quaking aspen, non-native buckthorns, stinging nettle and other invasive species (Table 1) that comprise 20 to 50 percent cover in one or more strata.

Low Quality: Non-native buckthorns, quaking aspen, stinging nettle, cattail and/or other invasive species (Table 1) cumulatively comprise more than 50 percent cover in one or more strata. Also includes stands where greater than 50 percent of the black spruce and tamarack are dead (due to impoundment, drainage, salt spray, etc.).

SHRUB-CARRS

High Quality: Dominated by native shrubs (e.g., dogwoods, willows) with a herbaceous stratum composed of five or more species of native grasses, sedges, rushes, ferns and/or forbs. Non-native buckthorns, non-native honeysuckles, box elder and/or other invasive woody species (Table 1), cumulatively comprise less than 20 percent cover of the shrub stratum. Reed canary grass and other invasive herbaceous species comprise less than 20 percent cover of the herbaceous stratum.

Medium Quality: Invasive species listed above comprise 20 to 50 percent cover in any one stratum (shrub or herbaceous or both); and/or the herbaceous stratum has 4 or fewer species of native grasses, sedges, rushes, ferns or forbs.

Low Quality: Invasive species listed above comprise more than 50 percent cover in any one stratum (shrub or herbaceous or both).

ALDER THICKETS

High Quality: Stands of speckled alder with less than 20 percent cumulative cover by non-native buckthorns, non-native honeysuckles, box elder and/or other invasive woody species (Table 1). Herbaceous stratum composed of 5 or more species of native grasses, sedges, rushes, ferns and forbs. Reed canary grass, if present, comprises less than 20 percent cover.

Medium Quality: Invasive species listed above cumulatively comprise 20 to 40 percent cover of the shrub stratum; and/or the herbaceous stratum has 4 or fewer native herbaceous species; and/or herbaceous stratum has 20 to 50 percent cover of reed canary grass or other invasive species.

Low Quality: Forty to 50 percent cover of the shrub stratum consists of invasive woody species listed above (Table 1); and/or reed canary grass comprises more than 50 percent cover of the herbaceous stratum.

[Note: Stands with more than 50 percent cover by buckthorns, key out to shrub-carrs.]

HARDWOOD SWAMPS and CONIFEROUS SWAMPS

High Quality: Tree/sapling/shrub strata each have less than 20 percent cover of box elder, non-native buckthorns, non-native honeysuckles, eastern cottonwood, quaking aspen (see note below regarding aspen) and/or other invasive species (Table1). Herbaceous stratum composed of 5 or more species of native grasses, sedges, rushes, ferns and/or forbs, and reed canary grass comprises less than 20 percent cover. Another factor is the common presence of seedlings/saplings of the characteristic tree species, which indicates regeneration of the stand, as opposed to observing abundant seedlings/saplings of invasive woody species. NOTE: aspen parkland in northern Minnesota is a special case. Stands of quaking aspen with a ground layer of native prairie species should be rated by a separate method specific to aspen parklands.

Medium Quality: Invasive species listed above comprise 20 to 50 percent cover in one or more strata, and/or the herbaceous stratum has 4 or fewer species of native grasses, sedges, rushes, ferns and forbs. This rating also includes early successional forests of quaking aspen with an under story of characteristic tree species of swamps (e.g., green ash, black ash, red maple, balsam poplar, northern white cedar.).

Low Quality: Invasive species listed above comprise more than 50 percent cover in one or more strata (e.g., tree, sapling, shrub, herbaceous). Typically, few to no indications of regeneration of the characteristic tree species are present.

FLOODPLAIN FORESTS

High Quality: Tree stratum with less than 20 percent cumulative cover by box elder, crack willow, weeping willow or white willow. Herbaceous stratum, if present, composed of native forbs, ferns, sedges and grasses characteristic of floodplain forests (e.g., wood nettle, jewelweed, Virginia rye, cut-leaf coneflower) with less than 20 percent cover by reed canary grass.

Medium Quality: Invasive species listed above comprise 20 to 50 percent cover in one or more strata.

Low Quality: Invasive species listed above comprise greater than 50 percent cover in one or more strata. Also include stands where greater than 50 percent of the trees are dead.

SEASONALLY FLOODED BASINS

High Quality: Dominated by native/non-invasive species (examples in Table 4) with less than 20 percent cover in any one stratum by non-native and/or invasive species (e.g., common buckthorn, reed canary grass, Canada thistle, yellow foxtail, barnyard grass, common ragweed, stinging nettle, quack grass – see Table 1). Typically located within an area of permanent vegetative cover (e.g., forest, prairie, non-agricultural settings) undisturbed or minimally disturbed by artificial drainage, haying, grazing, plowing, stormwater input, or other disturbances.

Medium Quality: Invasive species listed above comprise 20-50 percent cover in one or more strata. Typically located in areas that are partially drained, infrequently cropped, lightly grazed, subject to some stormwater input, etc.

Low Quality: Invasive species listed above comprise greater than 50 percent cover in one or more strata. Typically located in frequently cropped agricultural fields, heavily grazed, or subjected to substantial inputs of stormwater, or other adverse disturbances.

Plant Community Type	Proportion of Wetland Area	Quality (High, Med, Low)

Answer the Following Questions:

Refer to latest version of MnRAM & MnRAM Guidance for more information. Question numbers correspond to those in MnRAM text version 3.0 for easy reference, however, the wording of some questions has been modified for ease of use and clarity for this assessment. Enter answers into spreadsheet to calculate functional rankings for vegetation, downstream water quality, floodwater attenuation and characteristic wildlife habitat functions. If other functions need assessment, you must use the full version of MnRAM on the BWSR website.

INSTRUCTIONS: For sites with multiple wetlands, if wetland characteristics are reasonably similar, then answer questions based on average wetland conditions. For large sites where wetland characteristics are significantly variable, answer questions separately for each wetland or similar groups of wetlands, and determine average rating for each function. Select the answer that *best fits* the wetland area being evaluated.

12. For depressional wetlands, describe the wetland outlet characteristics **as they relate to the wetland's ability to** detain runoff and/or store floodwater.
- A = High ability to detain relatively large amounts of water. No outlet or a small, restricted outlet above the elevation of the wetland boundary (e.g. 2 or more feet).
 - B = Moderate ability to detain large amounts of water. Large outlet (swale, channel, weir, tile, etc.) with outflow elevation above the wetland boundary (e.g. 0-2 feet) or restricted outlet at the outflow elevation of the wetland boundary.
 - C = Low ability to detain large amounts of water. Outlet with outflow elevation below the wetland boundary with **either a high capacity surface outlet (swale, channel, weir, pipe >18 inch diameter, etc...) or a subsurface outlet (drain tile) with a surface inlet.**
 - N/A = Not applicable for floodplain, slope, lacustrine, riverine, and extensive peatland/flat wetlands.
13. Describe the wetland surface and subsurface outlet characteristics as it relates to the wetland hydrologic regime:
- A = Natural outlet condition or a constructed outlet at the historic outflow elevation; no evidence of subsurface drainage (drain tile).
 - B = Constructed outlet at or below the wetland boundary elevation and/or moderate indications of subsurface drainage.
 - C = Excavated or enlarged outlet constructed below the wetland boundary elevation, outlet removes most/all long-term and temporary storage, and/or strong indications of subsurface drainage.
14. Describe the dominant land use and condition of the immediate upland drainage area of the wetland. If the immediate upland drainage is not evident, then within 500 feet.
- A = Watershed conditions essentially unaltered; e.g. idle lands, lands in hay or forests or low intensity grazing.
 - B = Watershed conditions somewhat modified; e.g. moderate intensity grazing or haying; conventional till with residue management on moderate slopes, no-till on steep slopes.
 - C = Watershed conditions highly modified; e.g. intensive agriculture or grazing with a high amount of bare ground, no residue management on moderate or steep slopes.

15. Describe the conditions of the soil within the wetland:

- A = There are no signs or only minor evidence of recent disturbance or alteration to the wetland soils; idle land, hayed or moderately grazed. Minimal compaction, rutting, trampling, or excavation damage to wetland.
- B = Moderate evidence of disturbance or alteration to the wetland soils. Portions of the wetland tilled or heavily grazed most years. Some compaction, rutting, trampling, or excavation in wetland is evident.
- C = Evidence of significant disturbance or alteration to the wetland soils. Wetland receives conventional tillage most years; or otherwise significantly impacted (e.g., fill, sediment deposits, cleared, excavated). Severe compaction, rutting, trampling, or excavation damage to wetland.

16. Estimate the proportion of the wetland that is vegetated (e.g. not open water or bare ground). _____%

17. Describe the vegetation characteristics as they relate to the ability to slow water flow during surface flooding:

- A = High ability to slow flows. Dense areas of vegetation with rigid stems (e.g. brush, trees, seedlings, stout grasses/sedges, etc.) where potential floodwater path is at or below the height of the vegetation.
- B = Moderate ability to slow flows. Dense areas of vegetation with rigid stems (e.g. brush, trees, seedlings, stout grasses/sedges, etc.) where potential floodwater path is 2 to 3 times the height of the vegetation.
- C = Low ability to slow flows. Primarily flexible turf grass, crops, unvegetated, or other supple vegetative cover
- N/A = Not applicable if wetland is isolated and not potentially subject to flow-through surface flooding.

18. Describe the extent of sediment delivery to the wetland from unnatural sources including agriculture:

- A = No evidence of sediment delivery to wetland.
- B = Minor evidence of accelerated sediment delivery in the form of deltas, sediment fans
- C = Major sediment delivery evidenced by buried detritus and/or vegetation along outer edge of temporary wetland (wet meadow) zone. Recent deltas, sediment plumes, etc. in areas of concentrated flow or sedimentation raising bottom elevation of wetland.

19. Describe the predominant upland soils within the wetland's immediate drainage area that influence flow to the wetland:

- A = Clays or shallow to bedrock (Hydrologic soil groups C, D, A/D, B/D, C/D)
- B = Silts or loams (Hydrologic soil group B)
- C = Sands (Hydrologic soil group A)

20. Describe the general water quality and quantity characteristics of hydrologic discharge into the wetland:

- A = Receives significant volumes of low quality, untreated/undetained runoff (e.g. feedlot waste, concentrated agricultural runoff) in relation to the wetland size.
- B = Receives moderate volumes of low quality, untreated/undetained runoff (e.g. feedlot waste, concentrated agricultural runoff) in relation to wetland size or runoff receives some treatment (e.g. sediment removal) and detention.
- C = Receives little to no low quality runoff that is untreated/undetained or runoff is treated and detained to high standards similar to natural conditions.

21. Describe the proportion of wetlands within the DNR minor watershed (5-digit HUC from DNR minor watershed mapping) and the opportunity for contributing to floodwater detention:

A = Wetlands make up less than 10% of the minor watershed area.

B = Wetlands make up 10-20% of the minor watershed.

C = Wetlands make up more than 20% of the minor watershed.

22. Describe the functional level of the wetland in retarding or altering flows based on the surface flow characteristics through the wetland:

A = High ability to alter surface flows—no channels present

B = Moderate ability to alter surface flows—channels present, but not connected, or meandering channels

C = Low ability to alter surface flows—channels connecting inlet to outlet

23. Average width (over the entire perimeter) of the naturalized buffer (unmanicured) within 500' of wetland:

A. <25 ft

B. 25-50 ft

C. 50-300 feet

D. >300 ft

TO SCORE THE NEXT THREE QUESTIONS, consider a 50-foot ring around the wetland. Provide an estimated percentage (minimum 10%) of each category, round to the nearest 10%. Total should equal 100%.

24. Adjacent Area Management: average condition of vegetative cover for water quality.

___% Full vegetative cover

___% Vegetative cover, but mowed or lightly grazed

___% Bare soil, cropped, heavily grazed, or impervious surface.

25. Adjacent Area Diversity & Structure

___% Native non-invasive vegetation

___% Mixed native and non-native vegetation of moderate density OR dense non-native cover (including hay crops).

___% Sparse vegetation, dense nonnative or invasive vegetation, row crops, or impervious surfaces.

26. Adjacent Upland Slope

___% gentle slopes, 0-6%

___% moderate slopes, >6-12%

___% steep slopes, >12%

27. Describe the proximity of the first significant water resource (e.g. lake, stream, river, water supply source, etc.) down-gradient of the wetland:

A = Isolated wetland or wetland with one or more resources within 0.5 mile downstream.

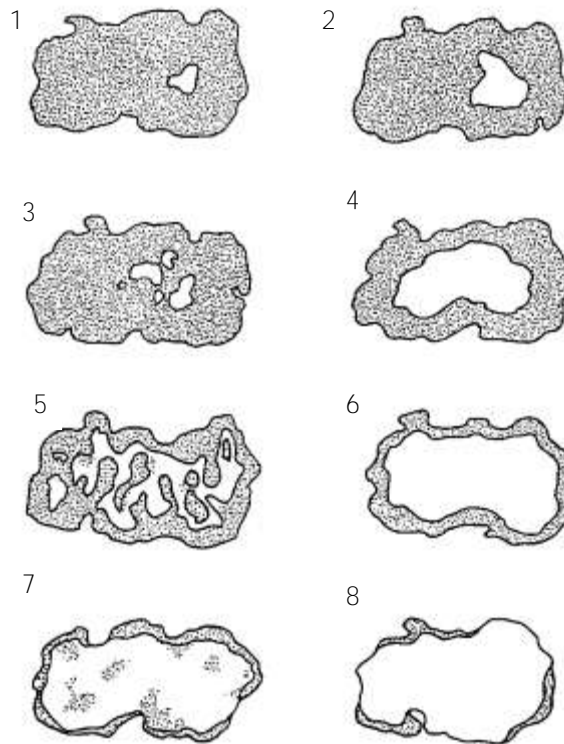
B = One or more resources within 0.5 to 2 miles downstream.

C = No significant resources are located within 2 miles downstream.

37. For deep and shallow marshes or shallow open water wetland types select the cover category that best illustrates the interspersions of open water and vegetation within the wetland (See Interspersion Diagram).

Enter the cover category based on the diagram: _____

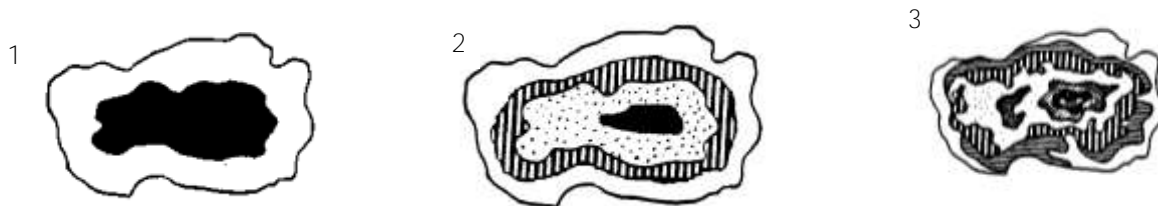
N/A = Not applicable for wetland types 1, 2, 6, 7, 8.



38. For wetlands having more than one vegetative community indicate the interspersions category that best fits the wetland.

Category = _____.

N/A = Only one vegetative community is present.



39. A healthy wetland will have detritus (vegetative litter) in several stages of decomposition. Describe the wetland condition:

A = The presence of litter layer in various stages of decomposition.

B = Some litter with apparent bare spots, or dense litter mat (e.g., reed canary grass mat).

C = No litter layer.

N/A = Deep marshes, shallow open water and bog communities.

40. Describe the relative interspersion of various wetlands in the vicinity of the assessment wetland:

A = The wetland occurs in a complex of wetlands of various types within 0.5 miles of the assessment wetland is the only wetland within a 2 mile radius.

B = Other wetlands of the same plant community as the assessment wetland are present within 0.5 miles, but not in a complex of various types as in answer A.

C = No other wetlands are present within 0.5 miles of the assessment wetland but are present within 2 miles.

41. Describe barriers present between the wetland and other wildlife habitats (woodland, creeks, greenways, lakes, other wetlands, etc.):

A = No barriers or minimal barriers present (e.g. low traffic roads, rural housing/farmsteads, hayland, low grazing intensity pasture, golf courses, utility easements, railroads).

B = Moderate barriers present (e.g. roads with moderate traffic; moderately dense residential housing, row cropping).

C = Large barriers present (e.g. high traffic roads, high-density residential housing, industrial and commercial development).

Special Features

Is the wetland part of, or directly adjacent to, an area of special natural resource interest?

Check those that apply:

- a. DNR-designated trout streams or trout lakes.
- b. Calcareous fen
- c. DNR-designated scientific and natural area
- d. Rare natural community (refer to MnDNR County Biological Survey/Natural Heritage)
- e. High priority wetland, environmentally sensitive area identified in a local water management plan.
- f. Public park, forest, trail or recreation area.
- g. State or Federal fish and wildlife refuges and fish and wildlife management areas.
- h. Archeological or historic site as designated by the State Historic Preservation Office
- i. Established and persistent populations of federal or state listed endangered or threatened plant species or species of concern naturally occurring in or using the wetland.
- j. Local Shoreland Management Plan area . :
- k. State Coastal Zone or Shoreland Management Plan area.
- l. Shoreland area identified in a zoning ordinance .
- m. Floodplain area identified in a zoning ordinance or map.
- n. Designated Wellhead or Sourcewater Protection Area
- o. Sensitive ground-water area
- p. State or Federal designated wild and scenic river (see MN Rule Chapter 7050);
- q. State or Federal designated wilderness area.

Determine Functional Rating for the Following Functions:

Enter the data into the web tool on the BWSR website to calculate the ranking. For the web-calculator, go to:
<http://www.bwsr.state.mn.us/wetlands/index.html>

Function	Rating (exceptional, high, med, or low)
Vegetative Diversity/Integrity	
Floodwater Attenuation	
Downstream Water Quality Protection	
Maintenance of Characteristic Wildlife Habitat	