

INSTRUCTIONS FOR COMPLETING THE MITIGATION SITE SCORING SHEET

May 18, 2009

Scoring can be separated by areas with different wetland types, different areas or cells of one project, or different observers. Some parts of the scoring can be scored the same across all areas, while other parts of the scoring can be scored separately. At the end, combine these area scores to get one final score for the site, based on square footage of each area. At sites where one area within the site is restoration/creation and another area is enhancement, the enhancement should be given less weight (based on the credits given in the mitigation worksheet) when determining the final site score.

Sites should be visited during the growing season (between May 1 and September 31 for forested and scrub-shrub systems and between June 15 and September 31 for emergent systems), preferably during a period with normal precipitation and groundwater levels.

If the planned wetland type has shifted into an adjacent area, score the site based on the percentage of proposed and actual wetland area by wetland type rather than the actual footprint of where it is supposed to be. For example, a beaver dam turns the forested wetland into open water but results in intermingled upland areas turning into forested wetland, score the new forested wetlands. This assumes the new wetland area will continue to be a wetland.

V. Vegetation

1. What is the % cover by native wetland plant species (SAV is not acceptable vegetation)?

Estimate the percentage of the planned vegetated area of the site that is vegetated (% cover) by native wetland plant species (combining all strata layers) and multiply by 0.1. Determination of native and non-native species will be based on the NRCS Plants Database (<http://plants.usda.gov/>) nativity classification. An exception is *Phragmites australis*, which will be treated as an introduced species unless identified as the native genotype in the field. Percent cover will be the relative vegetative cover, with a maximum of 100%, as seen from above the vegetation. The 100% cover total may include some unvegetated areas.

2. What is the % cover by non-native plant species?

Estimate the percentage of the planned vegetated area of the site that is vegetated (% relative cover) by non-native plant species and award points as follows: <5% = 5 pts; 5-10% = 4 pts; 10-15% = 3 pts; >15% = 0 pts. Note: This does NOT take into account indicator status (native Upland and Facultative Upland species are acceptable).

3. Diversity (richness and evenness combined) of planned wetland type.

Estimate the percentage of the planned vegetated area of the site that is vegetated (relative % cover) by native wetland plant species as in 1, but using only species in the planned wetland type, **except when noted below**. Award base points for each native wetland species (with at least 5% relative cover) in the planned wetland type

up to a maximum of five points. Subtract from the base points if any of the following circumstances occur, subtracting the maximum number of points. If one species has greater than 80% relative cover, subtract 4 points from the number of base points. If one species has greater than 70% relative cover, subtract 3 points from the number of base points. If one species has greater than 60% relative cover, subtract 2 points from the number of base points. If one species has greater than 50% relative cover, subtract 1 point from the number of base points. Woody species must be at least 10 inches tall before they should be considered. **Note: When scoring a planned emergent system, woody species may be included. However, when scoring a planned forested/scrub-shrub system, emergent species should not be included. This is because forested wetland mitigation projects generally take longer to establish and have more difficulty in becoming established than emergent wetland mitigation projects.**

4. Plant density of planned wetland type.

For a planned forested or scrub-shrub wetland, award points for native trees and/or shrubs (OBL, FACW, FAC) with the following spacing:

<u>POINTS</u>	<u>DENSITY</u>	<u>SPACING</u>
5 points	≥600/ac	8.5 feet
4 points	500-599/ac	8.5 feet-9.2 feet
3 points	400-499/ac	9.2 feet-10.4 feet
2 points	300-399/ac	10.4 feet-12.0 feet
1 point	200-299/ac	12.0 feet-14.8 feet

For a planned emergent wetland, estimate the percentage of the planned vegetated area of the site that is vegetated (% cover) by native emergent wetland (OBL, FACW, FAC; SAV is not acceptable vegetation) plant species and multiply by 0.05. Woody species must be at least 10 inches tall before they should be considered.

5. Achieve expected growth of species based on age (take into account stress on vegetation).

Score cannot exceed V4. This score is largely to evaluate the future sustainability of the system. If the growth of the wetland species is high, it is likely the vegetative community will be sustainable. The expected growth of species is based on the growth rates described on NRCS Plants Database (<http://plants.usda.gov/>).

Additionally, we are taking data on growth rates within the mitigation sites. This will allow us to make more accurate estimates in the future of expected plant growth in mitigation sites for different species. Woody species must be at least 10 inches tall before they should be considered.

S. Soil

How much of the planned vegetated area has soil that may be limiting vegetative growth/establishment (due to too much clay, gravel, glauconite, or very low organic matter, etc.) or has erosion problems? Soils at sites with consistently dense vegetative cover are NOT considered to be limiting. Vegetated upland soils can get full credit.

H. Hydrology

1. How much of the planned vegetated area has wetland hydrology (i.e., not upland but open water is acceptable)?

Estimate the percentage of the planned vegetated area of the site that has wetland hydrology and multiply by 0.1.

2. How much of the planned vegetated area has wetland hydrology but is un-vegetated open water (submerged aquatic vegetation is not acceptable vegetation)?

Score for H2 cannot exceed the score for H1. Estimate the percentage of the planned vegetated area of the site that is un-vegetated open water and multiply by 0.1, then subtract from 10.

3. How much of the planned vegetated area has wetland hydrology but is too wet (submerged aquatic vegetation is not acceptable vegetation) or too dry to support the planned wetland vegetative type?

Score for H3 cannot exceed the score for H1. Estimate the percentage of the planned vegetated area of the site that has wetland hydrology but is too wet or too dry to support the planned wetland vegetative type and multiply by 0.1, then subtract from 10.

F. Wetland Functional Gains. *Score cannot exceed $H1 \times 2$. $H1/10 \times$ functional score = wetland functional score.* Ex: If the score for H1 is 5, the functional score can only be 10 total. If the functional score would have been 16, the wetland functional score should be 8. For each box checked, give that function a score of UP TO ten points. For more details on assessing these functions, refer to the FUGRO functional assessment model.

1. Biological Functions

a. Providing habitat

i. Rare, threatened, or endangered wildlife or plants

Does the site contains any species that were purposely introduced or naturally colonized that are listed on the Department of Natural Resources' list of endangered or threatened species, or species in need of conservation?

ii. Forest interior dwelling birds

Will the site become part of a forest that is at least 50 contiguous acres with 10 or more acres of "forest interior" habitat (i.e., forest greater than 300 feet from the nearest forest edge), which is assumed (although inadequately) if there is an unobstructed point within the forest where a person cannot see out to any edge of the forest?

iii. Other non-wetland dependent wildlife

Sites with higher diversity provide more habitat. Sites with other nearby habitat also provide better maintenance of wildlife communities than sites surrounded by impervious surface.

iv. Reptiles and amphibians

Does the site have emergent vegetation, depressions that could be amphibian breeding habitat, and/or rocks or logs in open water for basking habitat?

v. Other wetland dependent wildlife

Larger sites with higher diversity provide more habitat. Sites with other nearby wetlands also provide better maintenance of wildlife communities than sites surrounded by impervious surfaces.

vi. Fish and other aquatic wildlife

Does the wetland have inundation for periods long enough to provide aquatic habitat? Sites connected with streams, rivers, and ponds may have higher functioning.

b. Furnishing organic material to the aquatic food web

Is there is a stream/waterway running through/adjacent to the wetland in which the wetland will likely contribute leaves or other detritus?

2. Water Quality Functions

a. Filtering sediments, pollutants and excess nutrients

For this function, there must be a pollutant/sediment source (e.g. surrounding uplands that will provide pollutants, a connected stream channel that overflows, etc.). The wetland should be densely vegetated and slow the velocity of the water (with longer storage times being better) to intercept the most pollutants.

b. Reducing erosion

Does this site have vegetation along a streambank or pond edge with an elevation difference of more than 6 inches?

3. Hydrologic Functions

a. Headwater wetland - storing, slowing, or reducing floodwater flow

Is the site hydrologically connected and have a relatively flat topography and depressions that store *surface runoff* (ephemeral or no distinct inlet) but do not receive overbank flooding?

b. Floodplain wetland - storing, slowing, or reducing floodwater flow

Is the site hydrologically connected and have a relatively flat topography and depressions that store water from *overbank flooding*? Sites with no or restricted outlets have the highest capacity for water storage.

c. Discharging groundwater

Is there groundwater exiting the wetland? Large wetlands adjacent to streams/lakes may serve a critical role in maintaining the hydroperiod of those waters. Other indicators are perennial seeps or springs and/or no inlet but a perennial outlet.

d. Recharging groundwater

Is the surface water infiltrating through the wetland soils into the ground water? The site should be hydrologically connected but not permanently inundated.

4. Human Values

a. Providing recreational opportunities

Is the site known to be used for recreation (e.g., sites with trails)?

b. Providing harvestable natural resources

Is the site known to be used for harvesting timber, fish, or furbearing mammals?

c. Providing educational opportunities

Is the site known to be used by groups for environmental education (e.g., school and park sites with trails and interpretive signs)?

d. Providing aesthetic qualities

Is the site not degraded and visible to multiple people (not including the landowner)?

e. Representing a rare ecotype within the watershed

Does the site include a rare ecotype (e.g., a peatland)?

f. Having historic properties

Does the site include historic properties (e.g., an old mill pond)?

BONUS. Rare Species Bonus

Document if the area is vegetated with rare plants or inhabited by rare animals. Use the DNR list of endangered, threatened, and watch list species, as well as local distribution information. Award UP TO 10 bonus points if the site has habitat for rare plants or animals. If the site creates potential habitat for rare plants or animals that inhabit adjacent land, award UP TO 5 bonus points.

Example 1. A site (planned to be emergent) contains 50% *Leersia* wetland, 20% *Phragmites* wetland, 20% open water with submerged aquatic vegetation, and 10% unvegetated upland with poor clay soil (100% total relative cover). The functions provided by the site include providing amphibian habitat, filtering water, and storing floodwater.

<u>CATEGORY</u>	<u>MAX. SCORE</u>	<u>AREA 1</u>
V1	10	5.00
V2	5	0.00
V3	5	1.00
V4	5	2.50
V5	5	1.00
VEGETATION SUBSCORE	30	9.50
S	20	18.00
SOIL SUBSCORE	20	18.00
H1	10	9.00
H2	10	8.00
H3	10	7.00
HYDROLOGY SUBSCORE	30	24.00
F	20	15.00
FUNCTION SUBSCORE	20	15.00
TOTAL	100	66.50
BONUS	10	0.00
AREA SCORE	110	66.50

Example 2. A site contains five distinct areas. These areas are scored separately, then given a combined site score. Area #4 is an enhancement area, so is given less credit when determining the total site score. The area's "portion of the total site credit" is multiplied by the "area score" to determine the "area subscore". Then all the area scores are added to determine the site total score

Area #	Area score	Size of area (sf)	Credit (sf)	Portion of total credit	Subscore
1	90	2000	2000	.02	1.8
2	95	3000	3000	.03	2.9
3	30	10000	10000	.10	3

4 (enhancement)	100	30000	15000	.15	15
5	90	70000	70000	.70	63
Site Total		115000	100000	1.0	85.7

For the programmatic sites studied as part of this grant, we will use the protocol from the 1987 Corps of Engineers Wetland Delineation Manual. The complete document and the Routine Wetland Determination Data Form (Appendix B) can be downloaded at <http://el.erd.c.usace.army.mil/elpubs/pdf/wlman87.pdf>. A summary is as follows:

SITES LARGER THAN FIVE ACRES IN SIZE: Establish the baseline length of the project site. Determine the required number and position of transects. Sample observation points along the transects by choosing representative locations within each distinct plant community type. For these observation points, use a 5-ft radius plot for herbs and saplings/shrubs and a 30-ft radius plot for trees and woody vines. Within these plots, estimate the percent cover of the dominant species for each stratum. Determine the wetland indicator status of the top 50% cover of the plant species. Note presence of hydric soil indicators and observe hydrology indicators for each observation point.

SITES EQUAL TO OR LESS THAN FIVE ACRES IN SIZE: Identify the plant community types at the site and sketch these on a base map. Select representative observation points in each plant community type and note these locations on the base map. Estimate the percent cover of the dominant plant species in each vegetative stratum. Determine the wetland indicator status of the top 50% cover of the plant species. Note presence of hydric soil indicators and observe hydrology indicators for each observation point.

Wetland indicator status is based on the 1988 National List of Plant Species That Occur in Wetlands. Once this list is updated and approved, the newest version will be used.