

Site: W-7	Rater(s): Dixon/Mitch	Date: 11/6/2018
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3	3
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☒ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

2	5
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11	16
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

12	28
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

28
subtotal this page

Site: W-7	Rater(s): Dixon/Mitch	Date: 11/6/2018
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28

subtotal first page

5	33
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max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check **all** that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☒ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

8	41
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max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score **all** present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 1 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersions.

Select **only one**.

- ☐ High (5)
- ☐ Moderately high(4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score **all** present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 1 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

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End of Quantitative Rating. Complete Categorization Worksheets.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

Name:	Dixon/Mitch	
Date:	11/6/2018	
Affiliation:	Smart Services, Inc.	
Address:	88 W. Church Street, Newark, OH 43055	
Phone Number:	740.345.4700	
e-mail address:	kdixon@smartservices-inc.com	
Name of Wetland:	W-8	
Vegetation Communit(ies):	Scrub-Shrub	
HGM Class(es):	Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.		
See Attached		
Lat/Long or UTM Coordinate	Lat:38°54'55.84"N Long: 84° 2'21.09"W	
USGS Quad Name	Bethel	
County	Clermont	
Township	Tate	
Section and Subsection		
Hydrologic Unit Code	050902021201	
Site Visit		
National Wetland Inventory Map		
Ohio Wetland Inventory Map		
Soil Survey		
Delineation report/map		

Name of Wetland: W-8		
Wetland Size (acres, hectares):		23.0 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. <div style="text-align: center; height: 400px;">See attached</div>		
Comments, Narrative Discussion, Justification of Category Changes: <div style="text-align: center; height: 250px;">Score fell into transitional zone (30-34.9) and was moved up to category 2</div>		
Final score : 32		Category: 2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	X	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: W-8	Rater(s): Dixon/Mitch	Date: 11/6/2018
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4	4
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☒ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

4	8
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11	19
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

8	27
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input checked="" type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

27
subtotal this page

Site: W-8	Rater(s): Dixon/Mitch	Date: 11/6/2018
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27

subtotal first page

0

27

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check **all** that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5

32

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score **all** present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 2 Shrub
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersions.

Select **only one**.

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☒ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score **all** present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

32

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input checked="" type="radio"/> NO	If yes, Category 1.
	Question 6. Bogs	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 7. Fens	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	4	
	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	5	
	TOTAL SCORE	32	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

Name:	Dixon/Mitch	
Date:	11/6/2018	
Affiliation:	Smart Services, Inc.	
Address:	88 W. Church Street, Newark, OH 43055	
Phone Number:	740.345.4700	
e-mail address:	kdixon@smartservices-inc.com	
Name of Wetland:	W-9	
Vegetation Communit(ies):	Emergent	
HGM Class(es):	Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.		
See Attached		
Lat/Long or UTM Coordinate	Lat: 38°55'9.06"N Long: 84° 2'36.27"W	
USGS Quad Name	Bethel	
County	Clermont	
Township	Tate	
Section and Subsection		
Hydrologic Unit Code	050902021201	
Site Visit		
National Wetland Inventory Map		
Ohio Wetland Inventory Map		
Soil Survey		
Delineation report/map		

Name of Wetland: W-9	
Wetland Size (acres, hectares):	0.5 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. <div style="text-align: center; padding: 50px;">See attached maps in WOUS report</div>	
Comments, Narrative Discussion, Justification of Category Changes: <div style="text-align: center; padding: 50px;">Wetland is adjacent to 0.3 acre farm pond.</div>	
Final score : 18	Category: 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	X	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: W-9	Rater(s): Dixon/Mitch	Date: 11/6/2018
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2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1	3
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

8	11
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

3	14
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☒ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input checked="" type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

14
subtotal this page

Site: W-9	Rater(s): Dixon/Mitch	Date: 11/6/2018
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14

subtotal first page

0	14
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max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check **all** that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4	18
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max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score **all** present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 1 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersions.

Select **only one**.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score **all** present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks
- ☐ 1 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	4	
	TOTAL SCORE	18	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

Name: Dixon/Mitch	
Date: 11/6/2018	
Affiliation: Smart Services, Inc.	
Address: 88 W. Church Street, Newark, OH 43055	
Phone Number: 740.345.4700	
e-mail address: kdixon@smartservices-inc.com	
Name of Wetland: 1	
Vegetation Communit(ies): Emergent	
HGM Class(es): Riverine	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
See Attached	
Lat/Long or UTM Coordinate	Lat:38°54'50.12"N Long:84° 2'26.75"W
USGS Quad Name	Bethel
County	Clermont
Township	Tate
Section and Subsection	
Hydrologic Unit Code	050902021201
Site Visit	
National Wetland Inventory Map	
Ohio Wetland Inventory Map	
Soil Survey	
Delineation report/map	

Name of Wetland: W-10		
Wetland Size (acres, hectares):		0.2 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. <div style="text-align: center; height: 400px;">See attached</div>		
Comments, Narrative Discussion, Justification of Category Changes: <div style="text-align: center; height: 250px;">Linear emergent wetland between stream and swale</div>		
Final score : 25		Category: 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	X	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: W-10	Rater(s): Dixon/Mitch	Date: 11/6/2018
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1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1	2
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11	13
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☐ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☒ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

7	20
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☒ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input checked="" type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

20
subtotal this page

Site: W-10	Rater(s): Dixon/Mitch	Date: 11/6/2018
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20

subtotal first page

0

20

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check **all** that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5

25

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score **all** present using 0 to 3 scale.

- 0

 Aquatic bed
- 1

 Emergent
- 1

 Shrub
- 0

 Forest
- 0

 Mudflats
- 1

 Open water
- Other _____

6b. horizontal (plan view) Interspersions.

Select **only one**.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- X

 Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- X

 Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score **all** present using 0 to 3 scale.

- 0

 Vegetated hummocks/tussocks
- 1

 Coarse woody debris >15cm (6in)
- 0

 Standing dead >25cm (10in) dbh
- 0

 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

25

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input checked="" type="radio"/> NO	If yes, Category 1.
	Question 6. Bogs	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 7. Fens	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <input checked="" type="radio"/> NO	If yes, Category 3
Quantitative Rating	Question 11. Relict Wet Prairies	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Metric 1. Size	1	
	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	5	
	TOTAL SCORE	25	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.



Primary Headwater Habitat Evaluation Form

60

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **Clermont/Brown County**SITE NUMBER **St-A**RIVER BASIN **Little Miami**DRAINAGE AREA (mi²) **0.20**LENGTH OF STREAM REACH (ft) **200**LAT. **38.91890**LONG. **-84.04180**RIVER CODE **305**

RIVER MILE

DATE **10/30/18**SCORER **KD/BM**COMMENTS **Stream near pond**

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="10%"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="20%"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="70%"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0%"/>

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**

(A)

Substrate Percentage
Check

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**TOTAL NUMBER OF SUBSTRATE TYPES: **3**HHEI
Metric
PointsSubstrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth
Max = 30

25

COMMENTS **MAXIMUM POOL DEPTH (centimeters): 15**

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

Bankfull
Width
Max=30

20

COMMENTS **AVERAGE BANKFULL WIDTH (meters): 1.50**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check *ONLY* one box):

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Poplar Creek Distance from Evaluated Stream: 0.72
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ EWH Name: _____ Distance from Evaluated Stream: _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bethel NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Clermont

☒ Township / City: Tate

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/19/2018 Quantity: 0.09

Photograph Information: _____

Elevated Turbidity? (Y/N): ☒ Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): ☒ (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

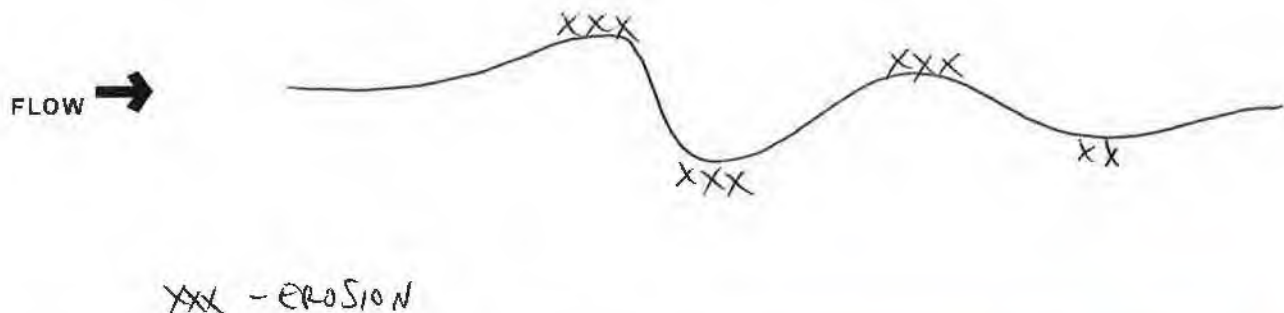
Performed? (Y/N): ☒ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): ☒ Voucher? (Y/N): ☒ Salamanders Observed? (Y/N): ☒ Voucher? (Y/N): ☒
Frogs or Tadpoles Observed? (Y/N): ☒ Voucher? (Y/N): ☒ Aquatic Macroinvertebrates Observed? (Y/N): ☒ Voucher? (Y/N): ☒

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

65**HHEI Score (sum of metrics 1, 2, 3) :**SITE NAME/LOCATION **Clermont/Brown County**SITE NUMBER **St-B**RIVER BASIN **Little Miami**DRAINAGE AREA (mi²) **0.13**LENGTH OF STREAM REACH (ft) **200**LAT. **38.92800**LONG. **-84.03400**RIVER CODE **305**

RIVER MILE

DATE **10/30/18**SCORER **KD/BM**COMMENTS **Woodlot****NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="20%"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="20%"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="60%"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0%"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**

(A)

Substrate Percentage Check

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**TOTAL NUMBER OF SUBSTRATE TYPES: **3****HHEI Metric Points**

Substrate Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input checked="" type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth Max = 30

30COMMENTS MAXIMUM POOL DEPTH (centimeters): **28**

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

Bankfull Width Max=30

20COMMENTS AVERAGE BANKFULL WIDTH (meters): **2.00****This information must also be completed****RIPARIAN ZONE AND FLOODPLAIN QUALITY**

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check *ONLY* one box):

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Poplar Creek Distance from Evaluated Stream 2.60
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bethel NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Clarmont ☐ Township / City: Tate

MISCELLANEOUS

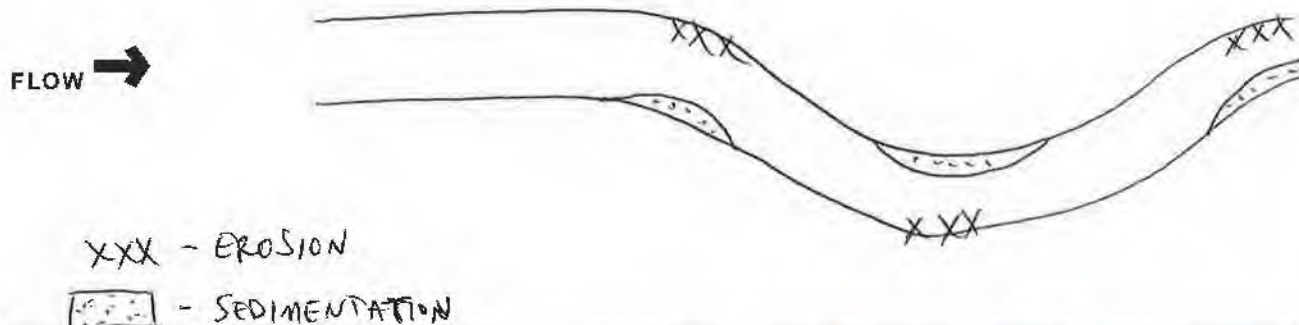
Base Flow Conditions? (Y/N): Y ☐ Date of last precipitation: 10/26/18 Quantity: 0.15
Photograph Information: _____
Elevated Turbidity? (Y/N): N ☐ Canopy (% open): 10%
Were samples collected for water chemistry? (Y/N): N ☐ (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____
Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N ☐ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N): N ☐ Voucher? (Y/N): N ☐ Salamanders Observed? (Y/N): N ☐ Voucher? (Y/N): N ☐
Frogs or Tadpoles Observed? (Y/N): N ☐ Voucher? (Y/N): N ☐ Aquatic Macroinvertebrates Observed? (Y/N): N ☐ Voucher? (Y/N): N ☐
Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



This foregoing document was electronically filed with the Public Utilities

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12/14/2018 11:33:30 AM

in

Case No(s). 18-1546-EL-BGN

Summary: Application Appendix G (Part 4 of 5) electronically filed by Mr. Michael J. Settineri
on behalf of Nestlewood Solar I LLC