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| KY-WRAM Rating Form Version 3.0 | <h1 style="text-align: center;">Kentucky Wetland Rapid Assessment Method (KY-WRAM)</h1> <p style="text-align: center;">Kentucky Division of Water</p> |
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Instructions:

The Kentucky Wetland Rapid Assessment Method is intended for use as a tool for functional assessment. The method supplements, but does not replace information used in the existing regulatory process for wetlands, such as delineation. It is intended for use on all types of wetland in Kentucky. This is a rapid assessment method with combined field and office prep time (GIS) of no more than 8 hours. This method does not replace quantitative assessments such as Indices of Biotic Integrity.

The Rater is *STRONGLY URGED* to read the Guidance Manual for using the Kentucky Wetland Rapid Assessment Method (KY-WRAM) for further elaboration and discussion of the questions below prior to using the rating forms. It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the KY-WRAM 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 the Scoring Boundary section in the Guidance Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

The KY-WRAM was developed by a Technical Working Group of state and federal agencies and Eastern Kentucky University. This method is modeled off of the Ohio Rapid Assessment Method (ORAM) with modifications influenced by North Carolina and Michigan's wetland rapid assessment methods.

The total score has been shown to be consistent year round; however, the ideal timeframe for use of this method is during the plant growing season when plant species can be reliably identified. It should be noted that the individual metrics may be scored differently between the seasons because certain metrics are easier to evaluate during the growing season (e.g., highly-invasive plant species coverage, special wetlands, vegetation components) and non-growing season (e.g., substrate/soil disturbance, hydrology).

Although the form may be filled out in a linear manner it is expected that the Rater will make note of wetland characteristics throughout the entire field evaluation. For example, alterations to the hydrology, substrate, or habitat, plant species encountered, and the amount of microtopography features present. This is an important step in evaluating the method properly.

Background Information

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| Name of wetland: |
| Date of evaluation: |
| Lat/Long coordinates: (decimal degrees) |
| County: |
| USACE/WQC Project ID: |
| Precipitation within the last 48 hours? Circle: Yes No |

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| Evaluator name: |
| Phone number: |
| Email: |
| Evaluator affiliation and address: |

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| <p>Attachments: Complete and check (v) each box</p> <ul style="list-style-type: none"> <input type="checkbox"/> Attach map of wetland location. Use county road map or USGS 7.5 minute topographic map with location indicated. <input type="checkbox"/> Attach color photographs of wetland including landscape shot of entire wetland (if possible), vegetation components, habitat types, hydrologic features, and other relevant site features. <input type="checkbox"/> Attach prints of satellite imagery used for buffer and connectivity metrics. This should include multiple prints at appropriate scales. Prints should include labeled marks of the following: site location, Wetland Assessment Area, plant communities within the wetland, streams, 100 year floodplains, ponds, patches of open water, relevant upland features, and location of modification to wetland. Also include north arrow and scale of each print. |
| <p>Wetland Sketch (include north arrow, hydrologic features, plant communities and other habitat features)</p> |
| <p>Actual Wetland Size (indicate units):</p> |
| <p>Wetland Type (indicate NWI & HGM classifications):</p> |

Background Information (continued)

Narrative Discussion: List any additional site information or features that may be relevant to evaluation of the wetland. See Guidance Manual for the types of information that should be included here. Scoring comments should be placed on page 13.

Narrative Rating

1. U.S. Fish and Wildlife Service (USFWS) Critical Habitat

- Is any part of the wetland located within the same HUC-12 watershed designated as Critical Habitat? (see Narrative Discussion) Yes No
- Does any federal (G1/G2) or state-listed T/E plant or animal species (S or S2) occur within the wetland's HUC-12 watershed? (see Narrative Discussion) Yes No
- Does any S3 (state species of concern) species occur within the wetland's HUC-12 watershed? (see Narrative Discussion) Yes No

2. Rare Wetland Community Type

- Does the wetland include a KSNPC rare wetland community? Yes No
- If YES, list the community type, the size of the rare community, and the percent of the wetland area.

3. Scenic, Recreational, and Cultural Value

- Does the wetland have scenic, recreational, or cultural value? (see Narrative Discussion) Yes No

Comments:

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| Site: | Rater(s): | Date: |
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Metric 1. Wetland Size and Distribution – Maximum 9 points.

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| 1a. Wetland Size – Maximum 6 points. | | | Score |
| Using GIS, estimate the size of the wetland (i.e., Wetland Assessment Area). Select one size class. | | | |
| Sources/assumptions for size estimate (list): | ≥ 50 acres | 6 pts | |
| | 25 acres to <50 acres | 5 pts | |
| Actual Wetland Size Estimate: _____ acres | 10 acres to <25 acres | 4 pts | |
| | 3 acres to <10 acres | 3 pts | |
| Wetland area proposed to be impacted: _____ % | 0.3 acre to <3 acres | 2 pts | |
| | 0.1 to 0.3 acre | 1 pts | |
| | < 0.1 acre | 0 pts | |

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| 1b. Wetland Scarcity – Maximum 3 points. | | | Score |
| Use USFWS National Wetlands Inventory (NWI) maps, aerial imagery, and other information to estimate percentage of wetland area remaining within a 2-mile radius from the wetland’s center (use ArcGIS or by visual estimate). For this submetric, areas of open water within lakes, streams, rivers, and ponds (PUBX), etc. should be excluded. Select the most appropriate category below. | | | |
| 0 to 5% of surrounding 2-mile radius is wetland | | 3 pts | |
| 6 to 20% of surrounding 2-mile radius is wetland | | 2 pts | |
| >20% of surrounding 2-mile radius is wetland | | 1 pt | |

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| Metric 1 Total: add 1a & 1b (9 points max.) | |
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| Wetland Size Estimate + Metric to English Conversion | | | | | | | |
|---|---------|-------------------|------------|-------------------|------------|----------------|-----------|
| acres | hectare | feet ² | ft on side | yard ² | yd on side | m ² | m on side |
| 50 | 20.2 | 2,177,983 | 1,476 | 241,998 | 492 | 202,000 | 449 |
| 25 | 10.1 | 1,088,992 | 1,044 | 120,999 | 348 | 101,000 | 318 |
| 10 | 4.1 | 435,596 | 660 | 48,340 | 220 | 41,000 | 203 |
| 3 | 1.2 | 130,679 | 362 | 14,520 | 121 | 12,000 | 110 |
| 0.3 | 0.12 | 13,067 | 114 | 1,452 | 38 | 1,200 | 35 |
| 0.1 | 0.04 | 4,356 | 66 | 484 | 22 | 400 | 20 |

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| Site: | Rater(s): | Date: |
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Metric 2. Buffers and Intensity of Surrounding Land Use – Maximum 12 points.

****Use color maps for all metric 2 sub-metrics.**

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| 2a. Average Buffer Width around the Wetland’s Perimeter – Maximum 4 points. | | | |
| Draw the cardinal and ordinal lines from the centroid of the wetland and calculate average buffer width. Select only one score. | | | |
| Buffers Include: | Non-Buffers Include: | | |
| <input type="checkbox"/> shrubland, forest of any age, natural grassland, natural rock outcrops and cobble bars <input type="checkbox"/> abandoned row crop field (vegetated & naturalizing) <input type="checkbox"/> hay field (non-row crop) <input type="checkbox"/> lightly managed forest (selectively logged) <input type="checkbox"/> lightly managed parkland <input type="checkbox"/> other wetland, lake, or river <input type="checkbox"/> Single-track dirt roads (non-motorized vehicle trails that are not sources of sediment) | <input type="checkbox"/> lawns, golf courses, manicured parkland <input type="checkbox"/> residential, commercial, industrial <input type="checkbox"/> roadways (including shoulders), parking lots <input type="checkbox"/> railroad tracks/beds <input type="checkbox"/> active agriculture: row crop field <input type="checkbox"/> conservation tillage, grazed pasture, utility right-of ways <input type="checkbox"/> clear-cutting or heavily managed forest, mining, construction activity <input type="checkbox"/> gravel or double-track dirt roads (includes ATV trails) | | Score |
| Wide Buffer Width: 150 feet around the perimeter | | 4 pts | |
| Medium Buffer Width: 75 to <150 feet around the perimeter | | 3 pts | |
| Narrow Buffer Width: 25 to <75 feet around the perimeter | | 2 pts | |
| Very Narrow Buffer Width: 0 (no buffer) to <25 feet around the perimeter | | 0 pts | |

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| 2b. Intensity of Surrounding Land Use within 1,000 feet of the Wetland – Maximum 4 points. | | | |
| If a land use type is not listed, use the examples below to determine the category. Write in additional land use types here and indicate the land use category you assigned: | | | |
| Land Use Category | Estimate the percent coverage <u>comprised by each of the four categories</u> of land use below. Sum the points from all dominant land use categories (i.e., dominant is ≥25% total per category) and then average the score. | | |
| | Land Use Types: | Estimate % of each category here ↓ | Score |
| Very Low: | <input type="checkbox"/> mature growth forest <input type="checkbox"/> other wetland, lake, stream, river <input type="checkbox"/> shrubland/young forest <input type="checkbox"/> old field <input type="checkbox"/> hay field (non-row crop) <input type="checkbox"/> single track and two track dirt roads <input type="checkbox"/> lightly managed parkland <input type="checkbox"/> one-lane paved road | | 4 pts |
| Low: | <input type="checkbox"/> residential & lawns <input type="checkbox"/> conservation tillage <input type="checkbox"/> manicured parkland <input type="checkbox"/> recent logging and clear-cut (<5 years) <input type="checkbox"/> golf course <input type="checkbox"/> two-lane road <input type="checkbox"/> grazed pasture <input type="checkbox"/> railroad <input type="checkbox"/> utility right-of-way <input type="checkbox"/> man-made lake | | 2 pts |
| Moderately High: | <input type="checkbox"/> commercial, industrial <input type="checkbox"/> multi-lane paved roadway <input type="checkbox"/> high-density residential <input type="checkbox"/> construction activity <input type="checkbox"/> heavily grazed pasture <input type="checkbox"/> parking lot <input type="checkbox"/> row crop field <input type="checkbox"/> hazardous areas (mining, landfills, brownfields, etc.) | | 1 pts |
| High: | | | 0 pts |

For scores ending in 0.5, round up

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| 2c. Connectivity to Other Natural Areas – Maximum 4 points. | | | |
| Use GIS with field adjustment if necessary. Evaluate the wetland’s connectivity to habitat patches in the greater landscape either contiguously or via a corridor (≥ 30 ft wide) of natural vegetation. Habitat patches and corridors must be natural <u>terrestrial</u> habitat (i.e., shrubland, forest, natural rock outcrops, cobble bars, wetlands, and etc.). Large streams and rivers, roads, and “non-natural” habitat such as grassland are barriers that end patches and corridors. | | | |
| Connected at: | Circle all categories that apply but report only the highest point value | | Score |
| Up to 2500 ft. (can be more) | >50% of area is patch | 4 pts | |
| | <50% of area is patch (<i>minimum patch size requirement = 10 acres</i>) | 2 pts | |
| Up to 1000 ft. | >25% of area is patch | 2 pts | |
| | <25% of area is patch | 0 pts | |

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| Metric 2 Total: add 2a – 2c (12 points max.) | Sub-total: |
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| Site: | Rater(s): | Date: |
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Metric 3. Hydrology – Maximum of 29 points.

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| 3a. Input of Water From an Outside Source – Maximum 10 points. Select all that apply. | | Score |
| Surface Water: Inundation from a lake, pond, or stream overbank flow at least yearly (in a typical year) | 4 pts | |
| Groundwater: Score only if you observe direct evidence of groundwater (e.g. including, but not limited to, a spring or seep) | 4 pts | |
| Precipitation: All wetlands receive some portion of their hydrological budget from this | 2 pt | |

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| 3b. Hydrological Connectivity – Maximum 6 points. Select all that apply. | | Score |
| 100-Year Floodplain or abutting a smaller stream/creek. As defined in FEMA maps or NRCS alluvial soil maps if FEMA maps are unavailable. | 2 pts | |
| Between a Stream/Lake/Pond and Human Land Use. The wetland is located between a surface waterbody and any human land use, such that run-off from the adjacent land use could flow through the wetland before it discharges into the surface waterbody. | 2 pts | |
| Wetland Complex. The wetland is part of a large scale (10+ acres) complex of <i>other</i> wetlands within 2500' of the assessment area boundary, with small areas of unmanicured/undeveloped vegetated uplands in between. | 2 pts | |

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| 3c. Duration of Inundation/Saturation – Maximum 4 points. | | Score | |
| Select the option(s) below that best describe(s) the dominant hydrologic characteristic of the wetland. "Dominant" is defined as comprising at least 25% of the wetland area. If separate areas have distinctly different hydrologic characteristics, select all that apply and average the points. Use US ACE hydrology indicators for assistance. Use NRCS growing season criteria to determine the growing season length for the county the wetland is in. If the wetland is in the NWI database, the Rater may consult the hydrology modifiers listed in the Classification Code for assistance. | | | |
| Semi- to Permanently Inundated/ Saturated | (75 – 100% of growing season) | | 4 pts |
| Regularly Inundated/ Saturated | (25 – 75% of growing season) | | 3 pts |
| Seasonally Inundated | (12.5 – 25% of growing season) | | 2 pts |
| Seasonally Saturated in the Upper 12 Inches of Soil | (12.5 – 25% of growing season) | | 1 pt |

| 3d. Alterations to Natural Hydrologic Regime – Maximum 9 points. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------|---|------------|--------------------------|--------------------------|----------------------------------|--------------------------|--------------------------|--------------------------------|--------------------------|--------------------------|--------------------------------|--------------------------|--------------------------|--------------------------------|--------------------------|--------------------------|-----------------------|--------------------------|--------------------------|--------------------|---|-----|------|------------|--------------------------|--------------------------|---------------------------------------|--------------------------|--------------------------|-----------------------------|--------------------------|--------------------------|---|--------------------------|--------------------------|--|--------------------------|--------------------------|---|
| Evaluate the intactness of the natural hydrologic regime of the wetland. Check all forms of observed hydrologic alteration(s) that are potentially influencing the wetland (e.g. alteration may be outside of the wetland). Keep in mind that some alternations do not need to be actively maintained to have permanent negative effects. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A hydrologic alteration may also impact the Substrate/Soil (submetric 4a) and/or Habitat (submetric 4b). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0" style="width:100%;"> <tr> <th align="left">Low</th> <th align="left">High</th> <th align="left">Alteration</th> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>ditch(es) in or near the wetland</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>tile(s) in or near the wetland</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>dike(s) in or near the wetland</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>weir(s) in or near the wetland</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>stream channelization</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>other(s) (specify)</td> </tr> </table> | Low | High | Alteration | <input type="checkbox"/> | <input type="checkbox"/> | ditch(es) in or near the wetland | <input type="checkbox"/> | <input type="checkbox"/> | tile(s) in or near the wetland | <input type="checkbox"/> | <input type="checkbox"/> | dike(s) in or near the wetland | <input type="checkbox"/> | <input type="checkbox"/> | weir(s) in or near the wetland | <input type="checkbox"/> | <input type="checkbox"/> | stream channelization | <input type="checkbox"/> | <input type="checkbox"/> | other(s) (specify) | <table border="0" style="width:100%;"> <tr> <th align="left">Low</th> <th align="left">High</th> <th align="left">Alteration</th> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>stormwater inputs (addition of water)</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>non-stormwater discharge(s)</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>road bed(s)/RR grades(s) in or near the wetland</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>dredging activities in or near the wetland</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>filling/grading activities in or near the wetland</td> </tr> </table> <p align="center">**only consider anthropogenic alterations (e.g. exclude beaver activity)</p> | Low | High | Alteration | <input type="checkbox"/> | <input type="checkbox"/> | stormwater inputs (addition of water) | <input type="checkbox"/> | <input type="checkbox"/> | non-stormwater discharge(s) | <input type="checkbox"/> | <input type="checkbox"/> | road bed(s)/RR grades(s) in or near the wetland | <input type="checkbox"/> | <input type="checkbox"/> | dredging activities in or near the wetland | <input type="checkbox"/> | <input type="checkbox"/> | filling/grading activities in or near the wetland |
| Low | High | Alteration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | ditch(es) in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | tile(s) in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | dike(s) in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | weir(s) in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | stream channelization | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | other(s) (specify) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low | High | Alteration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | stormwater inputs (addition of water) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | non-stormwater discharge(s) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | road bed(s)/RR grades(s) in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | dredging activities in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | filling/grading activities in or near the wetland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Select an option below that best describes the extent of wetland hydrology alteration. You may select adjoining options and average the points when appropriate. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Score | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No Hydrologic Alterations Apparent | | 9 pts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| The wetland hydrology appears to have been altered, but the wetland was resilient to alterations and the functions are intact or near optimal level. | | 7 pts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| The wetland hydrology was altered but appears to retain some degree of functions. | | 3 pts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alterations are severely impacting the hydrology of the wetland. | | 1 pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Metric 3 Total: add 3a – 3d (29 points max.) | Subtotal |
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| Site: | Rater(s): | Date: |
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Metric 4. Habitat Alteration and Habitat Structure Development – Maximum 20 Points.

*** A substrate or habitat disturbance may also negatively impact hydrology (Submetric 3d) and substrate/habitat (Submetric 4a/4b).*

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| 4a. Substrate/Soil Disturbance – Maximum 4 points. | | | |
| Evaluate whether a physical disturbance has occurred to the soil and surface substrates of the wetland. Check all possible forms of observed substrate/soil disturbances within the wetland below. | | | |
| Low | High | Alteration | |
| <input type="checkbox"/> | <input type="checkbox"/> | filling | <input type="checkbox"/> <input type="checkbox"/> human-induced erosion or exposure |
| <input type="checkbox"/> | <input type="checkbox"/> | grading | <input type="checkbox"/> <input type="checkbox"/> human-induced sedimentation or burial |
| <input type="checkbox"/> | <input type="checkbox"/> | logging | <input type="checkbox"/> <input type="checkbox"/> dredging (includes excavating) |
| <input type="checkbox"/> | <input type="checkbox"/> | construction | <input type="checkbox"/> <input type="checkbox"/> vehicle use |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> plowing, disking |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> intensive grazing (hooves) |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> off-road vehicle use |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> other(s) (specify) |
| Select an option below that best describes the extent of wetland soil alteration. You may select adjoining options and average the points when appropriate. | | | Score |
| No Substrate or Soil Disturbance Apparent | | | 4 pts |
| The wetland substrate or soil appears to have been altered, but the wetland was resilient to alterations | | | 3 pts |
| The wetland substrate or soil was altered but was somewhat resilient to alterations | | | 2 pts |
| The wetland substrate or soil was altered and was not resilient to alterations | | | 1 pt |

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| 4b. Habitat Alteration – Maximum 9 points. | | | |
| Evaluate the intactness of the natural habitat and check all possible observed habitat alterations within the wetland below. | | | |
| Utilize aerial photography and field evidence to determine if any habitat alteration has occurred. Determine the approximate pre-disturbance extent of vertical and horizontal habitat attributes (e.g., large woody debris, plant species diversity, hummocks, patchiness, niche diversity, etc.). Disregard changes attributable to wetland community succession or other natural processes. | | | |
| Low | High | Alteration | |
| <input type="checkbox"/> | <input type="checkbox"/> | barriers (e.g. road bed(s)/RR grades(s)) | <input type="checkbox"/> <input type="checkbox"/> large woody debris (LWD) removal |
| <input type="checkbox"/> | <input type="checkbox"/> | tree plantation | <input type="checkbox"/> <input type="checkbox"/> grazing |
| <input type="checkbox"/> | <input type="checkbox"/> | selective cutting | <input type="checkbox"/> <input type="checkbox"/> rutting |
| <input type="checkbox"/> | <input type="checkbox"/> | clearcutting | <input type="checkbox"/> <input type="checkbox"/> Herbicide or chemical treatment |
| <input type="checkbox"/> | <input type="checkbox"/> | mowing or shrub removal | <input type="checkbox"/> <input type="checkbox"/> nutrient enrichment, e.g., nuisance algae |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> dredging |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> plowing/disking/farming |
| <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> <input type="checkbox"/> other(s) (specify) |
| Select an option below that best describes the extent of wetland habitat alteration. You may select adjoining options and average the points when appropriate. | | | Score |
| No Habitat Alterations Apparent | | | 9 pts |
| The wetland habitat appears to have been altered, but the wetland was resilient to alterations and the functions are intact or near optimal level | | | 7 pts |
| The wetland habitat was altered but appears to retain some degree of functions | | | 3 pts |
| The alterations are severely limiting habitat function of the wetland | | | 1 pt |

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| 4c. Habitat Reference Comparison – Maximum 7 points. | | | |
| Determine an overall qualitative rating of the wetland habitat quality in comparison to the best of its type remaining (i.e., any ecologically and/or hydrogeomorphically similar wetland habitat). Do not consider the best example for an area (i.e., compare, for example, emergent riverine wetlands to other emergent riverine wetlands). For instances where there is a clear distinction between wetland areas in terms of habitat structure development, the Rater may double-check non-adjoining options, but justification is required. See Guidance Manual for additional assistance. | | | |
| Select an option below that best describes the wetland habitat structure development. If unclear which of two options is more appropriate, select adjoining options and average the points. | | | Score |
| Excellent: | Wetland appears to represent the best of its type. | | 7 pts |
| Good: | Wetland appears to be a good example of its type | | 5 pts |
| Fair: | Wetland appears to be a fair example of its type. | | 3 pts |
| Poor: | Wetland is a poor example of its type | | 1 pt |

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| Metric 4 Total: add 4a – 4c (20 points max.) | Subtotal |
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| Site: | Rater(s): | Date: |
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Metric 5: Special Wetlands — Maximum of 10 pts.

Metric 5: Special Wetlands — Maximum of 10 pts.

Check all that apply and score as indicated.

Numbers in brackets [] indicate point values.

Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

| | |
|--|-----------------|
| <p>5a. Regulatory Protection / Critical Habitat</p> <ul style="list-style-type: none"> <input type="checkbox"/> Known occurrence of federally threatened/endangered species or designated critical habitat within a HUC-12 watershed [10]. <input type="checkbox"/> Known occurrence of other rare species with state rank S1 *[10], S2 *[5], S3*[3]; *use higher rank if there are mixed ranks or qualifiers (i.e., S1/S2 [10] and S2/S3 [5]). Exclude records which are only “historic” (i.e., surveys have documented that the species is no longer there) within HUC-12 watershed. | Score |
| <p>5b. High Ecological Value / Ranked Communities (See manual and key for ranked list of communities)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Appalachian seep/bog (S1S2) [8] <input type="checkbox"/> Bottomland marsh (S1S2) [8] <input type="checkbox"/> Bottomland slough OR Coastal Plain Slough (S2) [5] <input type="checkbox"/> Calcareous seep/bog (S1) [10] <input type="checkbox"/> Coastal Plain forested acid seep (S1) [10] <input type="checkbox"/> Cypress (tupelo) swamp (S1) [10] <input type="checkbox"/> Sinkhole/depression marsh (S1S2) [8] <input type="checkbox"/> Sinkhole/depression pond (S2) [5] <input type="checkbox"/> Wet depression/sinkhole forest (S1S2) [8] <input type="checkbox"/> Wet bottomland hardwood forest (S2) [5] <input type="checkbox"/> Wet meadow (S1) [10] <input type="checkbox"/> Wet prairie (S1) [10] | Score |
| <p>5c. Low-Quality Wetland</p> <p>Check all that apply, but maximum score is -10 points:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Wetland is < 1 acre and has >75% cover of invasive plants [-10] <input type="checkbox"/> Wetland is <1 acre and is nonvegetated mined/excavated land [-10] <input type="checkbox"/> Wetland is <1 acre and is a constructed stormwater treatment pond [-10] | Score |
| Metric 5 Total: add 5a – 5c (10 points max.)* | Subtotal |

*Score can be negative

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| Site: | Rater(s): | Date: |
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Metric 6. Vegetation, Interspersion, and Habitat Features – Maximum 20 points.

****For each Metric 6 sub-metric, do NOT consider the wetland type being assessed, especially for plant species diversity in 6a.**

| | | | | | | | |
|--|----------------------|--|-----------------------------------|--------------|--|--|--|
| 6a. Wetland Vegetation Components – Maximum 9 points. | | | | | | | |
| Determine the Qualitative Cover Score of each Vegetation Component. Using the Scoring Table below, start on the left and proceed to the right, until a point value is obtained for each Component. Vegetation Components may exist in overlapping layers, e.g., significant areas of shrub/sapling and/or herbaceous may exist under a forest canopy. Only groups of trees, clusters of shrubs, or dense patches of herbaceous stems may count toward area coverage. Do not include lone trees, shrub/saplings, or sparse patches of herbaceous stems. See Submetric 6c for list of Kentucky’s most invasive wetland species. Check the box on the right to indicate how the score was determined for each Vegetation Component (i.e., F, S or H). | | | | | | | |
| Qualitative Cover Scoring Table | | | | | | | |
| Habitat component - Check all that apply → | | | | | | | |
| Vegetation Component is >0.1 acre | >25% of wetland area | Native species dominate the coverage | High native diversity | 3 pts | | | |
| | | | Moderate to low native diversity | 2 pts | | | |
| | | Invasive or non-native species dominate the coverage | Moderate to high native diversity | 2 pts | | | |
| | | | Low native diversity | 1 pt | | | |
| | <25% of wetland area | Native species dominate the coverage | Moderate to high native diversity | 2 pts | | | |
| | | | Low native diversity | 1 pt | | | |
| | | Invasive or non-native species dominate the coverage | Moderate native diversity | 1 pt | | | |
| | | | Low native diversity | 0 pts | | | |
| Vegetation Component is <0.1 acre | >25% of wetland area | Native species dominate the coverage | Moderate to high native diversity | 2 pts | | | |
| | | | Low native diversity | 1 pt | | | |
| | <25% of wetland area | Invasive or non-native species dominate the coverage | | 0 pts | | | |
| | | | | 0 pts | | | |
| Write in “absent” (don’t score it a zero) if habitat is not present. | | | | | | | |
| Forest Overstory Component (F) – Maximum 3 points. Qualitative cover score derived from table. Forested wetland areas are characterized by a group of trees at least 3 inches in DBH, regardless of height. | | | | Score | | | |
| Shrub/Sapling Component (S) – Maximum 3 points. Qualitative cover score derived from table. Shrub/Sapling wetland areas are dominated by clusters of woody plants less than 3 inches in DBH and greater than 3.28 feet in height. Species include true shrubs, young trees, and stunted trees. | | | | Score | | | |
| Herbaceous Component (H) – Maximum 3 points. Qualitative cover score derived from table. Herbaceous wetland areas are dominated by dense patches of erect, non-woody plants, regardless of size, and woody plants less than 3.28 feet in height. This component includes the robust-stemmed yellow pond lily (<i>Nuphar advena</i>) and American lotus (<i>Nelumbo lutea</i>). All floating-leaf species (including <i>Nymphaea</i> spp.) are excluded from the herbaceous component, and are instead included within the open water component (see Submetric 6b). | | | | Score | | | |
| 6a. Vegetative Components Score | | | | | | | |
| Subtotal | | | | | | | |

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| Site: | Rater(s): | Date: |
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6b. Open Water, Mudflat, and Aquatic Bed Habitats – Maximum 3 points.
 Open water is an unobstructed, inundated area of water with few or no rooted emergent or non-tree woody plant species. For KY-WRAM, mudflats are considered areas with exposed mud substrate with little to no vegetation. This metric is designed to evaluate habitat for waterfowl, shorebirds, fish, and other wildlife.

This Habitat Component includes combined acreage from any of the following areas:

- **Small ponds (including farm ponds), streams and/or their floodwaters, pools, saturated sandbars, or other natural or constructed waters**
- **Seasonal standing water areas** (e.g., mudflats and dried-down vernal pools) that were inundated long enough during the growing season to support aquatic life. This includes the “understory” below a forest canopy.
- **Aquatic bed areas** (submerged aquatic vegetation). Aquatic bed is dominated by plants growing at or below the surface of the water for most of the growing season in most years. The KY-WRAM includes aquatic bed within the definition of open water, due to the potential difficulty in differentiating the two entities. For the purposes of the KY-WRAM, all floating-leaf aquatic taxa (e.g. water lilies, *Nymphaea* spp.), are included in the definition of aquatic bed (therefore, are included in the definition of open water).
- **100-foot wide strip of open water along a lake or river** (see Wetland Assessment Area guidelines in the *Guidance Manual*). When the Wetland is adjacent to a lake or large river, calculate the acreage of the 100-foot wide open water strip that is included within the Wetland (see KY-WRAM Wetland Assessment Area Boundary Guidelines). Divide the linear feet of shoreline length by 400. For example, if the vegetated portion of the wetland interfaces with 200 linear feet of a lake, then the extent of the lake’s open water included within the Wetland would be calculated as: 200/400 = 0.5 acre. Open water ends where water depth is > 6.6 ft; the Rater may use depth charts to establish this, when available.
- **Shallow pools free of dense shrub canopy** (e.g., open area within an inundated shrub swamp).
- **Shallow pools free of densely-packed herbaceous vegetation** (e.g., open area within a marsh or bog).
- The Indicators below are intended to provide guidance to determine if open water was present **when the wetland is currently dry.**
 - If the wetland is currently dry, use the appropriate USACE Wetland Delineation Regional Supplement to determine if indicators of open water are present (appropriate indicators are listed below).
 - One primary indicator OR two secondary indicators must be present to consider presence of open water. In the section indicated below, describe how you used indicators to determine your score.

Surface Water Present? **Yes** – How much? Score below **No** – Use indicators below, then assign score

| | | | |
|---|------------------------|--------------|--------------|
| Estimate the total coverage. Choose only 1 category. | | | Score |
| High: | 2.5 acres or more | 3 pts | |
| Moderate: | 1.0 acre to <2.5 acres | 2 pts | |
| Low: | 0.25 acre to <1.0 acre | 1 pt | |
| Virtually Absent: | <0.25 acre | 0 pts | |

Open Water Hydrology Indicators – Information in parentheses represents US ACE Wetland Delineation Regional Supplement Hydrology Indicators that should be consulted for indicators of open water for the purposes of KY-WRAM.

Check indicators present below:

| | | |
|---|-------------|--|
| Primary Indicators (must have 1) <input type="checkbox"/> Surface Water present on aerial imagery (A1) <input type="checkbox"/> Water marks (B1) <input type="checkbox"/> Inundation Visible of Aerial Imagery (B7) <input type="checkbox"/> Algal mat or crust (B4) <input type="checkbox"/> Presence of aquatic fauna (B13) <input type="checkbox"/> Presence of true aquatic plants (B14) | OR → | Secondary Indicators (must have 2) <input type="checkbox"/> Sparsely vegetated concave surface (B8) <input type="checkbox"/> Drainage patterns (B10) <input type="checkbox"/> Moss trim lines (B16) <input type="checkbox"/> Geomorphic position (D2) |
|---|-------------|--|

Describe here how indicators were used to determine score:

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|-----------------|
| Subtotal |
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| Site: | Rater(s): | Date: |
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6c. Coverage of Highly-Invasive Plant Species – Maximum 1 point.
 Estimate the combined total coverage of **any** invasive species present in the wetland.

Selected invasive plant species. Remember to include any species found on the KY-EPPC list that is within the assessment area.
 (Print the complete KY-EPPC list and take into the field)

*These native invasive plants are being included for the purposes of the KY-WRAM (i.e., everything on the KY-EPPC list are exotics)

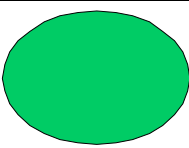
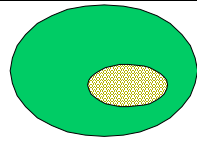
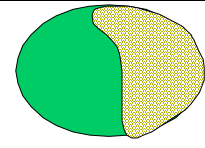
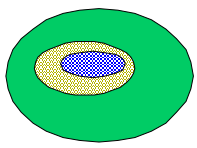
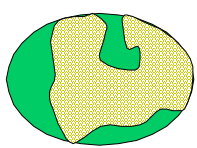
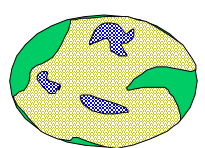
| | |
|---|---|
| <input type="checkbox"/> <i>Alliaria petiolata</i> (Garlic Mustard) <input type="checkbox"/> <i>Alternanthera philoxeroides</i> (Alligator Weed) <input type="checkbox"/> <i>Conium maculatum</i> (Poison Hemlock) <input type="checkbox"/> <i>Euonymus fortunei</i> (Winter Creeper) <input type="checkbox"/> <i>Lespedeza cuneata</i> , <i>L. bicolor</i> , <i>L. stipulacea</i> , <i>L. striata</i> , <i>L. thunbergii</i> (non-native <i>Lespedeza</i>) <input type="checkbox"/> <i>Ligustrum sinense</i> , <i>L. vulgare</i> (Privet) <input type="checkbox"/> <i>Lonicera japonica</i> (Japanese Honeysuckle) <input type="checkbox"/> <i>Lonicera maackii</i> (Bush Honeysuckle) <input type="checkbox"/> <i>Lythrum salicaria</i> (Purple Loosestrife) | <input type="checkbox"/> <i>Microstegium vimineum</i> (Japanese Stilt Grass) <input type="checkbox"/> <i>Myriophyllum aquaticum</i> , <i>M. spicatum</i> (parrotfeather and Eurasian watermilfoil) <input type="checkbox"/> <i>Phalaris arundinacea</i> (Reed Canary Grass)* <input type="checkbox"/> <i>Phragmites australis</i> (Common Reed) <input type="checkbox"/> <i>Polygonum cuspidatum</i> (Japanese knotweed) <input type="checkbox"/> <i>Rhamnus cathartica</i> (Common Buckthorn) <input type="checkbox"/> <i>Rosa multiflora</i> (Multiflora Rose) <input type="checkbox"/> <i>Typha ssp.</i> (Cattail species)* <input type="checkbox"/> Other(s): specify below |
|---|---|

| Estimate the total coverage. Choose only 1 category. | Score |
|---|---------------|
| Virtually Absent: <1% aerial coverage of invasive species | 1 pt |
| Nearly Absent: 1% to <5% aerial coverage of invasive species | 0 pts |
| Low: 5% to <25% aerial coverage of invasive species | -1 pt |
| Moderate: 25% to <75% aerial coverage of invasive species | -3 pts |
| Extensive: >75% aerial coverage of invasive species | -5 pts |

Additional invasive plant species present (list here):

6d. Horizontal (plan view) Interspersion – Maximum 5 points

Evaluate the wetland from a “plan view,” i.e., imagine as if you are hovering above the wetland looking down upon it. The figure shows hypothetical wetlands for estimating the amount of habitat interspersion including growing season vegetation communities and open water. Only include open water that is 6.6 feet deep or less and does not include inundated areas below herbaceous and shrub vegetation. If unclear, select **adjoining** options and average the points.

| | | |
|---|--|---|
|  |  |  |
| NONE | LOW | LOW |
|  |  |  |
| MODERATE | MODERATE | HIGH |

| Wetland has a high degree of interspersion | Score |
|--|--------------|
| Wetland has a high degree of interspersion | 5 pts |
| Wetland has a moderate degree of interspersion | 3 pts |
| Wetland has a low degree of interspersion | 1 pt |
| Wetland has no interspersion | 0 pts |

| |
|-----------------|
| Subtotal |
|-----------------|

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| Site: | Rater(s): | Date: |
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| 6e. Microtopographic Features – Maximum 12 points (i.e., 3 points per feature). Choose only one category for each. | | | | |
| 1. Hummocks/Tussocks/Tree Mounds , e.g., sedge/grass tussocks, decayed nursery logs (remnants of large logs), root tip-up mounds (uprooted trees), etc. Percent coverage is based on total area of the wetland and includes the depressional matrix within any group of raised features. | | | | Score |
| Absent: 0 pt No features present | Low: 1 pt Present but <1% of the area | Moderate: 2 pts 1% to 5% of the area | High: 3 pts >5% of the area | |
| 2. Large Woody Debris (LWD) . per log, average width ≥6 inches (e.g., fallen trees and/or large branches, etc.) | | | | Score |
| Virtually Absent: 0 pt < 1 per acre | Low: 1 pt 1 to 5 per acre | Moderate: 2 pts 6 to 10 per acre | High: 3 pts >10 per acre | |
| 3. Large Snags (≥12 inches DBH) . | | | | Score |
| Absent: 0 pt No snags present | Low: 1 pt Present but <1 per acre | Moderate: 2 pts 1 to 5 per acre | High: 3 pts >5 per acre | |
| 4. Amphibian Breeding/Nursery Habitat , e.g., temporary pools with standing water of sufficient duration and depth to support frog and/or salamander reproduction. Permanent areas of vegetated standing water along the edges of ponds, lakes, and some streams also serve as amphibian habitat (see Manual for description of habitat quality). | | | | Score |
| Virtually Absent: 0 pt < 5% of the area | Low: 1 pt Present in small amounts (5% to 10% of the area) but of low to moderate quality | Moderate: 2 pts Present in moderate or greater amounts (>10% of the area) but of low to moderate quality OR Present in small amounts (5% to 10% of the area) but of highest quality | High: 3 pts Present in moderate or greater amounts (>10% of the area) and of highest quality | |
| 6e. Microtopographic Features Score | | | | |

| | |
|---|--------------------|
| Metric 6 Total: add 6a – 6e (20 points max.) | Total Score |
|---|--------------------|

KY-WRAM Summary

| | | |
|---|--------------|--------------------------|
| Narrative Rating | | Circle One |
| Question 1: USFWS Critical Habitat, Federal T/E Species, or State-ranked (S1, S2, or S3) species present? | YES | NO |
| Question 2: KSNPC Rare Wetland Community Type Present? | YES | NO |
| Question 3: Wetland has Scenic, Cultural, or Recreational Value? | YES | NO |
| Quantitative Rating | Score | Maximum |
| Metric 1: Wetland Size and Distribution | _____ | 9 |
| Metric 2: Upland Buffers and Intensity of Surrounding Land Use | _____ | 12 |
| Metric 3: Hydrology | _____ | 29 |
| Metric 4: Habitat Alteration and Habitat Structure Development | _____ | 20 |
| Metric 5: Special Situations | _____ | 10 |
| Metric 6: Vegetation, Interspersion, and Habitat Features | _____ | 20 |
| Total Score = | | 100 pts. Max. |

| | | |
|-------|-----------|-------|
| Site: | Rater(s): | Date: |
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Scoring Comments:

HGM definitions:

RIVERINE: Occur in flood plains and riparian corridors in association with stream channels of any flow regime. Dominant water sources are overbank flow or subsurface hydraulic connections.

DEPRESSIONAL: Occur in topographic depressions. Dominant water sources are precipitation, ground water discharge, and water from adjacent uplands. Water moves vertically.

SLOPE: Occur where there is a discharge of ground water to the land surface. Normally occur on sloping land; gradient may be slight to steep. Water does not pool but flows downslope in one direction.

FLAT: Occur most commonly on historic flood plain terraces – where the channel has incised so deeply that it rarely or never floods onto the flood plain. Main source of water is precipitation, and they have poor vertical drainage. They receive no groundwater discharge, which distinguishes them from depressional and slope wetlands.