



Training Modules for Guidance for Stream Restoration with Associated Wetlands

Module 3:

Use of the Ecological Integrity Assessment for Key Wildlife Habitats

Photos: DNR





Ecological Integrity Assessment for Key Wildlife Habitats (KWH)

- **Key Wildlife Habitats are described in the Maryland State Wildlife Action Plan.**
- **The habitats are based on vegetation communities that are associated with certain wildlife species. The habitats are characterized by factors such as physiography, geology, hydrology, climate, soil composition.**
- **The wildlife using these habitats are rare, in decline, or under threat of decline, and are indicative of the diversity and health of the State’s wildlife. These are considered to “Species of Greatest Conservation Need.”**



Using Results of Ecology Integrity Assessment for KWH

The assessment used for this project considers numerous factors used in scoring the condition of the habitat, including:

- Surrounding Landscape
- Hydrology
- Soils
- Vegetation
- Other habitat features
- Channel condition



Using Results of Ecology Integrity Assessment for KWH

- **The scores for the riparian area are used in conjunction with hydrology channel scores.**
- **Scores are numeric and translate into separate scores of Excellent-Good-Fair-Poor rankings for the hydrology and riparian area.**
- **It is possible to have a higher quality riparian area which shows less degradation than the stream channel itself.**



Using Results of Ecology Integrity Assessment for KWH

Overall Ecological Integrity Assessment = Excellent

- **The site appears to have sustainable high quality**
- **Not a Recommended Site for Restoration**



Using Results of Ecology Integrity Assessment for KWH

If Overall EIA Results < Excellent:

- **Evaluate the hydrology channel and connectivity scores and plant community and habitat structure scores**

➤ **Hydrology channel and connectivity score “Excellent – Good”**

Stream still floods riparian area frequently

and

➤ **Overall plant community/habitat “Excellent – Good”**

- **Continue to protect riparian area. Onsite alteration typically not recommended.**



Using Results of Ecology Integrity Assessment for KWH

Photo: DNR



Example of a Piedmont Seepage Wetland with Good-Excellent hydrology and vegetation, with bonus points assigned for other values including being a nontidal wetland of special State concern, targeted ecological area, trout stream



Using Results of Ecology Integrity Assessment for KWH

- Hydrology channel and/or connectivity scores are “Excellent – Good”
 - Stream still floods riparian area frequently and the channel and banks show no or minimal instability and erosion
 - and
 - Overall Plant Community/Habitat “Fair-Poor”
- Add enhancements in the form of plantings or removal of invasive species in the riparian/wetland area.
- Add additional habitat features which may be lacking.



Using Results of Ecology Integrity Assessment for KWH

Example of channel in good condition, but only a fair vegetation community



Photo: DNR



Using Results of KWH Assessment

- **Hydrology channel and/or connectivity scores “Fair”**
 - **Stream still floods riparian area occasionally, and may have moderate channel instability and erosion**
 - and**
 - **Overall Plant Community/Habitat “Excellent - Good”**
- **Limited in-channel work may be needed to improve stream functions with slight water level increases.**
- **In-channel structures should mimic natural features of the stream in its physiographic region.**
- **The removal or lessening of stressors in the contributing watershed, such as undersized road crossings or impervious surface treatment, is highly recommended.**
- **Correction of off-site stressors which may allow natural recovery of the stream should be considered.**



Using Results of Ecology Integrity Assessment for KWH

- Hydrology scores for channel and/or connectivity are “Fair”
 - Stream still floods riparian area occasionally and there is moderate channel instability and bank erosion
 - and
 - Overall Plant Community/Habitat “Excellent - Good”
- cont.
- Minor changes, if any, in riparian area
- Post-construction water levels should generally mimic hydroperiod of the soil



Using Results of KWH Assessment

Channel in fair condition and showing some disconnection from floodplain. Floodplain vegetation in excellent condition.



Photo: DNR



Using Results of Ecology Integrity Assessment for KWH

- Hydrology score for channel and/or connectivity are “Poor”
 - Stream is incised and flooding rarely, if ever, occurs or channel shows severe instability and bank erosion
 - and
 - Overall Plant Community/Habitat “Excellent - Good”
- Re-connection to the floodplain should generally be attempted be achieved by in-channel work with some limited work in the riparian area
- Restored hydroperiod should reflect indicators in reference soil profiles.
- Probably uncommon



Using Results of Ecology Integrity Assessment for KWH

- Hydrology score for channel and/or connectivity are “Poor”
 - Stream is incised and flooding rarely, if ever, occurs and/or there is severe channel instability and erosion
- and
- Overall Plant Community/Habitat “Fair”
 - Re-connection to the floodplain should be limited as much as practicable to in-channel work
 - Restored hydroperiod should reflect indicators in reference soil profiles
 - Add enhancements in the form of plantings or removal of invasive species in the riparian/wetland area.
 - Add additional habitat features which may be lacking.



Using Results of Ecology Integrity Assessment for KWH

Here is an example of a channel with a section in poor condition.



Photo: DNR



Using Results of Ecology Integrity Assessment for KWH

- Hydrology scores for channel and/or connectivity are “Poor”

- Stream is incised and flooding rarely, if ever, occurs and/or there is severe channel instability and erosion

and

- Overall Plant Community/Habitat “Poor”

- If not working in nontidal wetlands with priority ecological designations, consult with MDE to determine when designs other than those which support the historic Key Wildlife Habitat onsite may be appropriate for the site.

- Additional work in the riparian area may be more extensive than in higher scoring sites.

- Upland treatment is preferred in conjunction with stream restoration when increased discharge from stormwater is contributing to the degradation.

- The presence of limited native vegetation may support additional grading in the floodplain. Construction practices to prevent soil compaction should be used when soil scores range from “Fair-Excellent.”



Next Steps

Recommendations Welcome for:

- **Additional Practices to Protect Wetland/Riparian Areas**
- **Format/Ease of Use of Forms**
- **Assessment**

Recommendations to be Considered for Future Revisions in 2024

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