Policy Request

Proponent: WETSAG	**Date**: January 5, 2017
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Project Name/Issue: Wetland Mapping Tool Project

Request Description:

CMER has approved a request for a wetlands mapping tool project. This is a request for funding to complete the project using unspent funds within the Adaptive Management Program budget of $75,416. The CMER project is a larger collaborative research effort being performed by the WDOE and the UW to improve the ability to identify and characterize wetlands more efficiently and accurately using remote sensing data. The CMER subcomponent is focused on improving the use of remote sensing to identify and characterize forested wetlands.

Timeline: January – June 2017

Funding Source: AMP $75,416	**Urgency**: High

Purpose of the Project

This project will develop an open-source GIS-based wetland identification tool by linking pixel-based and object-based approaches for delineating forested wetlands. Pixel-based approaches utilize topographic attributes inferred from high-resolution elevation data (e.g., LiDAR DEMs) with soils and geologic mapping to identify hydro-geomorphic attributes associated with wetlands. Object-based approaches use a variety of data sources, potentially including the pixel-based results, with eCognition software to delineate visual (from optical imagery) and topographic features associated with forested wetlands. To apply these tools, the project team will build an add-in tool kit for ArcGIS that will enable a user to: 1) generate the pixel-based attributes, 2) optionally import eCognition-produced files, and 3) map potential wetlands. The wetland identification tool will work either with or without object-based, eCognition-provided data files, although it's anticipated that inclusion of the object-based results will provide better wetland identification and more accurate delineation than can be achieved with the pixel-based results alone.

Project objectives are to:

1. Determine the optimal methodology to identify wetlands for a particular region and for particular wetland types.
2. Determine the accuracy and precision to which different data sources (e.g., LiDAR versus NED DEMs, spectral imagery versus DEM) can resolve wetlands.
3. Create maps identifying probable wetland locations and types that can be calibrated and validated to local conditions.