Uplift Scenario Methods

**Technical Memo**

# Executive Summary

This document outlines the methods used to generate the uplift model scenarios

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# Overview

# I. Change in urban land cover

*In which catchments does aggregate habitat likelihood change the most under modeled urban expansion for the year 2030?*

We answer this by (1) generating a new land cover dataset using the SLEUTH 2030 projected urban expansion, (2) update selected response variables to reflect these land cover changes at the NHD catchment level, and (3) apply these modified inputs to statistical models (MaxEnt, GLM, RF) generated on current data. The result is a second table of habitat likelihoods among NHD catchments under a scenario of urban expansion. We compare these values to their corresponding values under current conditions. Catchments with a high decrease in habitat likelihood are good candidates for avoided conversion as preventing urban expansion in these areas should maintain a greater area of likely habitat.

Not all variables corresponding to a change in NLCD land cover classes are updated in the model application.

## Generating the 2030 land cover dataset using SLEUTH model output.

### Selecting a threshold for classifying pixels as new urban or unchanged

### Updating the 2011 NLCD with the SLEUTH 2030 urban map

We assign any pixel classified as urban in the thresholded SLEUTH dataset as urban (NLCD class 2). Any cell not classified as urban in the thresholded SLEUTH dataset retains its existing NLCD value.

1. Con(SLEUTH2030 = 1, 2, NLCD2011)

### Updating response variables