

FOREST FRAGMENTATION ANALYSIS EXPLANATION

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Methods

For each date, the 12 categories of the Connecticut's Changing Landscape land cover were reclassified into three general categories:

1. fragmenting features (developed, turf & grass, other grasses, agricultural fields, barren land, utility corridors)
2. forest features (deciduous forest, coniferous forest, forested wetland)
3. non-fragmenting features (water, non-forested wetland, tidal wetland all of which do not affect the fragmentation analysis)

CLEAR's Landscape Fragmentation Tool (LFT) (<http://clear.uconn.edu/tools/lft/lft2/index.htm>) was used to identify four forest fragmentation categories using a **300 foot edge width** applied to the reclassified land cover.

The analysis is based on the following research:

- Vogt, P., K. Riitters, C. Estrenguil, J. Kozak, T. Wade, J. Wickham. 2007. Mapping spatial patterns with morphological image processing. *Landscape Ecology* 22: 171-177.

Categories

The forest fragmentation analysis tool classifies forests into four general categories.

- Perforated - forest pixels along the edge of an interior gap in a forest that are degraded by "edge effects" (for example the forest immediately surrounding a small house lot in the middle of the forest).
- Edge - forest pixels along the exterior perimeter of a forest that are degraded by "edge effects" (for example the forest immediately along a major highway or large agricultural field).
- Patch - small isolated fragments of forest that are surrounded by non-forest features and completely degraded by "edge effects".
- Core - forest pixels that are not degraded by "edge effects". The LFT further divides these into:
 - Small core: smaller than 250 acres
 - Medium core: between 250 and 500 acres
 - Large core: larger than 500 acres

NOTE: Edge effects are abrupt changes in vegetative populations or community structures found at the boundary of two or more different habitats.

NOTE: Core forest sub-categories used in this analysis are based on scientific literature and suggest general thresholds for minimum viable forest patch sizes. The relationship between how viable a forest patch is and patch size is dependent on the species of interest.

Edge Width

The edge width parameter is the distance over which the fragmented land cover type of interest (*i.e.* forest) can be degraded by the fragmenting land cover types (*i.e.* development, agricultural fields, etc). The literature indicates that the edge width varies by the species or issue of interest.

- Edge widths reported in the ecology literature range from 50 meters to several hundred meters - depending on the issue of interest.
- **An edge width of 100 meters (approximately 330 feet) is often used for general purpose analysis.**
- The edge width parameter determines the width of the edge and perforated forest zones as well as the thickness of patches.