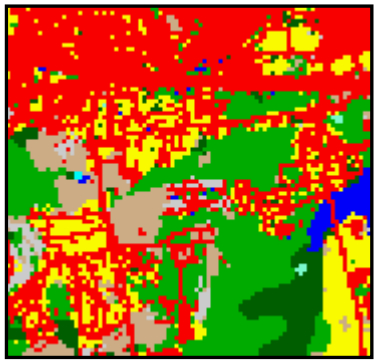
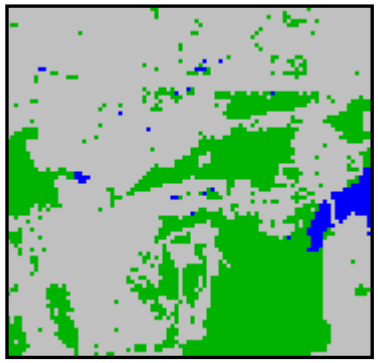
FOREST FRAGMENTATION MODEL PROCEDURE

1. INPUT LAND COVER



Reclassify

Land Cover

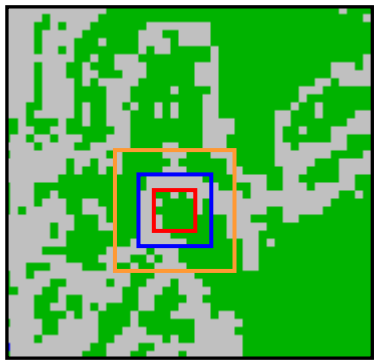


Land Cover:
- Developed
- Turf & Grass
- Other Grass & Ag.
- Deciduous Forest
- Coniferous Forest
- Water
- Non-forested Wetland
- Forested Wetland
- Barren

Land cover reclassified into:
- Non-forest
- Forest
- Not analyzed (*e.g.* water)

2. SELECT ANALYSIS WINDOW SIZE

The analysis window is used to calculate values that determine how a forest pixel is assigned a fragmentation category. Any odd numbered analysis window can be used. The window roams across the landscape until every forest pixel has been assigned to a category.

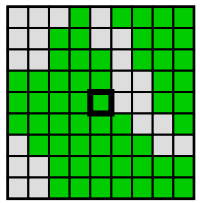


Different sized analysis windows will produce different results.

Example Analysis Window Sizes
- 5 x 5 pixel analysis window
- 9 x 9 pixel analysis window
- 15 x 15 pixel analysis window

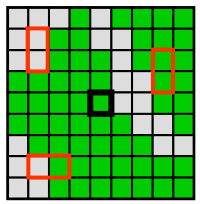
3. CALCULATE Pf and Pff VALUES

Example below uses a 9 x 9 analysis window



Pf = Proportion of pixels in analysis window that are forest.

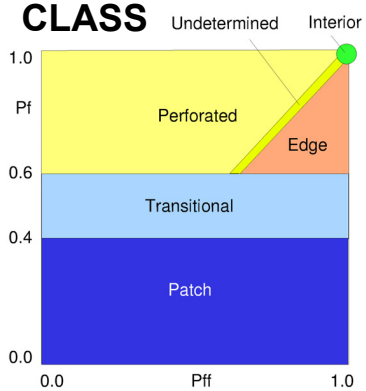
$$\mathbf{Pf} = \frac{57 \text{ forest pixels}}{81 \text{ total pixels}} = \mathbf{0.70}$$



Pff = How connected are the forest pixels in the analysis window. This is calculate by looking at pixel pairs (in a 9 x 9 analysis window there are a total of 144 pixel pairs (72 vertical, 72 horizontal) outlined in red).

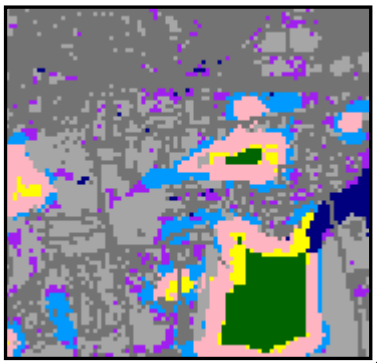
$$\mathbf{Pff} = \frac{86 \text{ pixel pairs, both forest}}{119 \text{ pixel pairs, at least one forest}} = \mathbf{0.72}$$

4. ASSIGN FRAGMENTATION CLASS



Interior: Pf = 1.0
Perforated: Pf > 0.6 and Pff – Pf < 0
Edge: Pf > 0.6 and Pff – Pf > 0
Transition: Pf < 0.6 and Pf > 0.4
Patch: Pf < 0.4

5. OUTPUT FOREST FRAGMENTATION MAP



Forest Fragmentation:
- Interior
- Perforated
- Edge
- Transition
- Patch

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