

Goal of landscape ecology:

“Elucidate the relationship between landscape spatial pattern and ecological processes” (Turner 1989).

EREN is uniquely situated to tackle landscape questions because of the scale of our work

“Landscape” in our context refers to:

areas surrounding a permanent forest plot

How do patterns of landscapes surrounding forest plots impact their processes?

## Sub-Project of the PFPP

Not seeking new data from participating institutions

Using Site data already available

Extracting associated landscape metrics

## Sub-Project of the PFPP

Could be used to generate a separate paper that focuses on landscape questions

Could be used in other papers generated from PFPP

Different groups could be generating different sets of metrics

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Landscape cover

Landscape diversity

Landscape configuration

Patch level metrics

Best evidence of an effect would be change  
within plots over time

Associated with changes in landscape

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Associated with changes in landscape

Not be available until plots have been in place for several more years and NLCD has been updated (2016?)



Analysis should take into consideration the multivariate nature of our plots and their surrounding landscapes

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Ecological distances between plots can be determined using:

within plot,

patch level,

and landscape variables

$$ED_{ij} = \sqrt{\sum (y_{ki} - y_{kj})^2}$$

# Landscape Subproject as a tool for teaching GIS

Provides opportunity for GIS students to work with real data and applications

Working with protocols and data quality issues is good experience for them

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GIS students at Piedmont College produced a set of landscape cover data for 19 forest plots in fall of 2013

Landscape Subproject as a tool for teaching GIS

3 buffer layers were generated for each plot

500 meters, 1 km and 2 km

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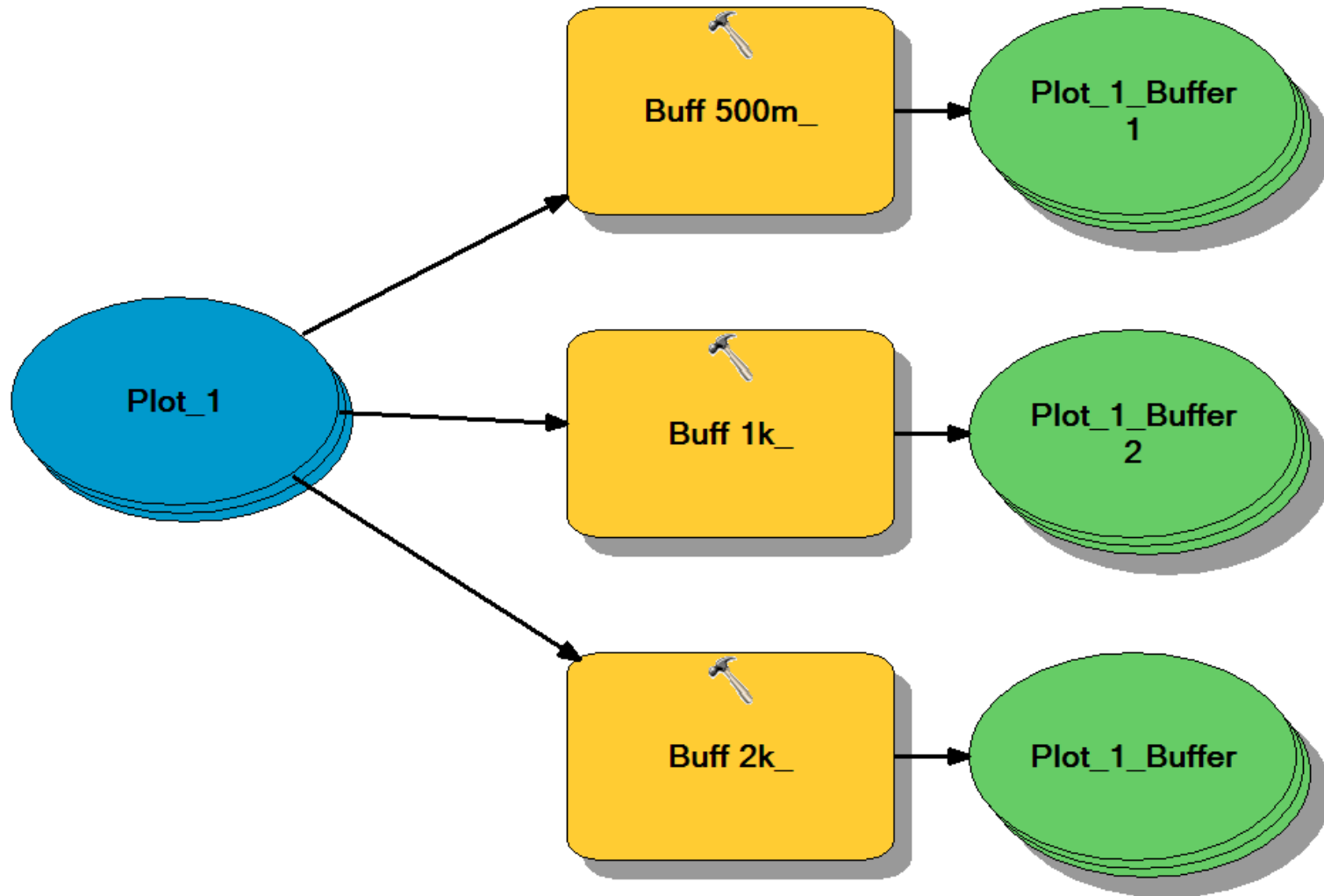
National Land Cover Database (2006)

clipped to each buffer

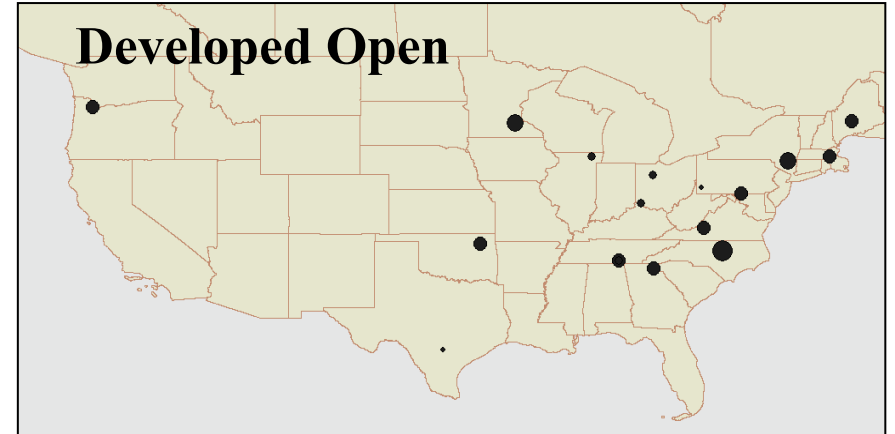
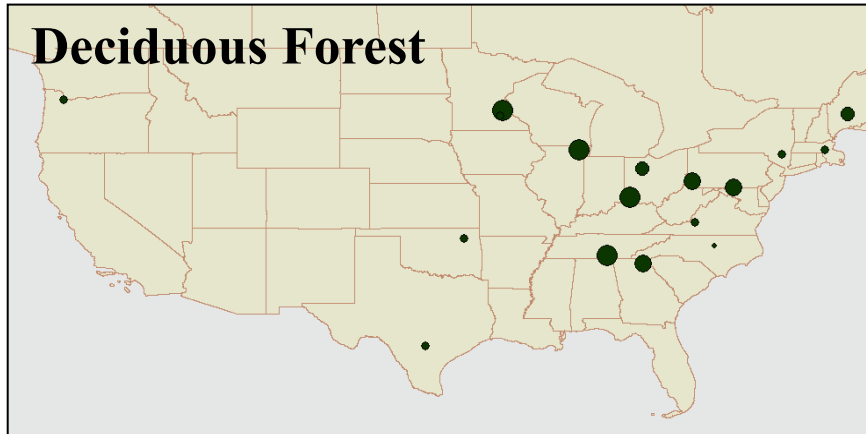
determined # of pixels for each  
land cover type for each clip



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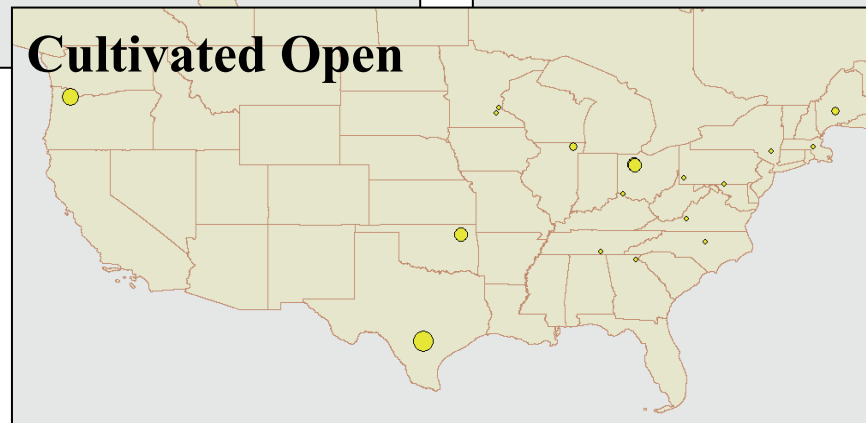
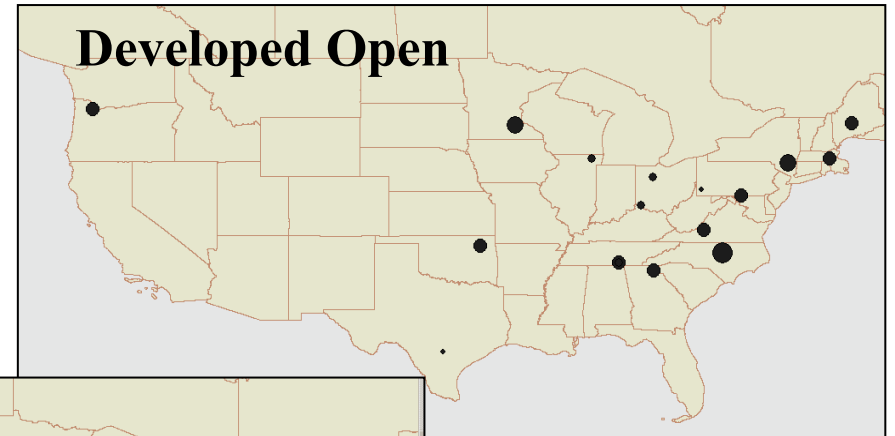
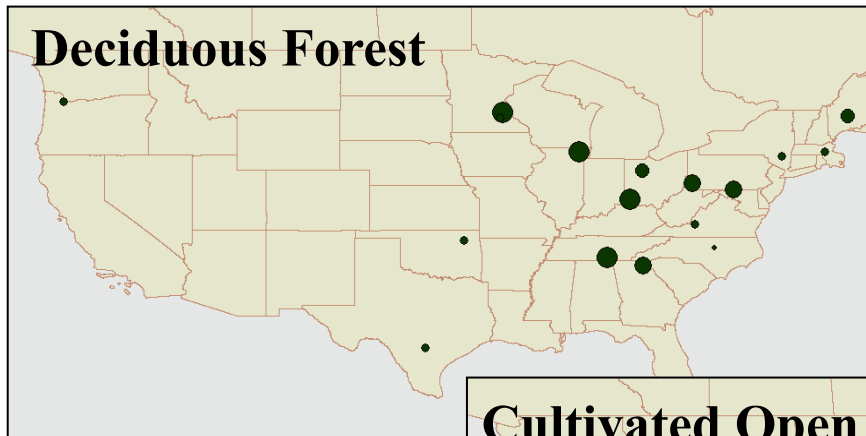


# Landscape Subproject as a tool for teaching GIS





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Landscape Subproject as a tool for teaching GIS

GIS class will redo the work this fall

using 2011 NLCD and new EREN plots

may also work on one or more of the other  
sets of metrics

Other groups/institutions with GIS are invited to  
jump in, share their work!

Landscape Subproject as a tool for teaching landscape ecology

Data from GIS course will be used by students in upper level undergraduate ecology course

Groups of students will work together to explore relationships between landscape metrics and forest plot characteristics.

Landscape Subproject as a tool for teaching landscape ecology

Other institutions are invited to use the landscape data generated by Piedmont students in their ecology classes.

Interactions between students exploring the same data set but at different institutions