----- Original Message -----
From Steve Taylor <taylors@wou.edu>
Date Thu, 21 Sep 2006 07:39:24 -0700
To Katherine Noll <knoll@wou.edu>, duttonb@wou.edu
Cc taylors@wou.edu
Subject Luckiamute landuse / photoanalysis work plan

katie / bryan - I'll be in late morning, but still need to finish this proposal that went on the shelf last week for workshops, bs meetings etc. I'm contemplating staying here today until this proposal is done, but want to keep you folks going on stuff in the lab. There are too many distractions and avoidance mechanisms at office. Is rachel going to hang around today? If so, She can work on the Newberry data extraction.

Today would be a good day to work on air photo problem. After thinking about it, if we are actually going to conduct a meaningful quantitative analysis of landuse, we will need to georegister the air photos that you scanned (n ~100). To do that properly, we will need to find 4-5 points of known UTM location on each photo, by comparing and identifying from the known, Georegistered, digital orthophoto quads, as we discussed.

Here are the steps I see:

(1) (you can work on this task this morning) print out hard copies of the air photos that you scanned, label them with property id, photo id, location and date. The best way to do this is to use the "poster template" from templeton's / mine classes (36 x 48 in sheet) that can be plotted out on the plotter. Open in powerpoint, then insert as many photos as you can on one sheet, in chronological order by area, + label them. Make sure all photos are scaled or sized to 100%. We can then print them out on the plotter, so we have a hard copy record that we can mark up and lay out on the lab bench for the big picture (computers are cool, but it's still helpful to have hard/paper copies for first-cut visual analysis). Aligning photos on the 36 x 48 sheet in a chronological "time series" will allow us to do a first-cut visual, much like you were doing on the monitor yesterday. Before we conduct any type of analysis, we need to get the qualitative, big picture, for each site by looking at hard copy time series snap shots of the photos.
(2) Get the survey lines digitized in UTM coordinates, on a georegistered base map or air photo, and formatted in a shape file so we can overlay them. Digitizing and shape file creation in this case would be easiest in ArcView.
(3) Round up the riparian_landowner shape file, stream network shape file, and 7.5-minute quadrangle shape file.
(4) Round up the Digital Orthophotoquads
(5) Overlay the landowner shape, stream network shape, and quad shape on DOQ's, so you can locate the "unknown air photo" frames on the known "DOQ". Use fence lines, roads, field patterns, and land boundaries to locate points on unknown, in relation to DOQ. The best way to do this would be to set up two computers / monitors side-by-side. One with the DOQ, on the other, unknown photo, for side-by-side comparison.
(6) Use "image analyst" extension in ArcView to conduct a "georegistration" and "photorectification" analysis of the air photos you scanned.
(7) Once rectified and georegistered, then we can digitize landuse polygons and conduct a quantitative land-change analysis by classifying landuse type (forest, cultivated, pavement, etc) and statistically deriving values of landuse areas over time.

from there, this will give us the data to evaluate the effects of landuse change at the different localities vs. vegetative composition.

there you have it the grand vision, I'm glad bryan is paying you ahead of time for this most important slave work... now all you need is time between math, physics, chemistry to work on it??? Perhaps we can build a team approach and bring some other folks in on this. Rachel seems like she might be partially available, Dane would be a good candidate since he has developed some significant GIS skills and could help on this work into the fall term. Bryan may have some bio students to plug in, I'll think about that idea and discuss it with him