Carly and Liz's talk

Fire in the Uwharries – a brief history of fire disturbance in the Uwharrie landscape

Fire as an ecological force
-plays an important role in the distribution of vegetative communities
-maintains many natural communities – individual species found in high frequency communities may need fire for survival (Dionea muscipula and Pinus palustris)
-fire regime defined by season, frequency, intensity, severity, predictability, size, spatial pattern
-different fire regimes have different impacts – higher frequency regime means less severity and intensity compared to lower frequency regimes due to fuel buildup

Uwharrie National Forest
-Piedmont fire frequency: 4-6 years; Coastal Plain fire frequency: 1-3 years. The UNF is between these two provinces.
-the southeastern portion of the forest is within the Coastal Plain fire frequency range.

Pre-human fires – lightning fire bioclimatic regions of N Am – Komarek 1968. Region 1 is the Southern Pine Forest region, with the highest lightning strike frequency of all of N Am.

Native Americans and fire:
-increased the frequency of an already high frequency fire regime
-impacts were greatest near areas of high density (Morrow Mtn and many areas in the UNF)
-used fire ceremonially, as a hunting tool, forage management, and as a weapon.

European Settlement
-first settlers arrive in early 18th century
-native pines used as naval stores and turpentine production.
-by 1920, most virgin pine in the area was gone. Transition to pine plantations to meet demand.
-alteration of natural fire regime begins.

Fire suppression
-beginning in 1920's, due to increased investment in infrastructure and economic reliance on timber plantations.
-management by USFS beginning in 1935. Official policy of fire suppression until 1972.
-over a 50-yr period of suppression – many missed fire intervals; in areas with ~5 yr return interval, there have been over 10 missed fires.
-resulted in changed forest structure and decline in fire-beneficiary species: Helianthus schweinitzii, and Pinus palustris (longleaf pine).

Natural fire regime
-the natural fire regime is defined by some reference point – a point before the current highly altered fire regime came into existence.
-an appropriate reference point is pre-European and post-Native American b/c easier to identify than pre-Native American, vegetative patterns had been stable for ~6,000 years (even with N. American influence), and high frequency natural fire regime.

Restoration of natural fire regime
Restore to a reference period and a reference community, we must understand the fire regime associated with maintaining the reference community's structure and composition.

Defining a Fire Regime
-coarse-scale patterns: climate variability and lightning frequency. Fine-scale patterns: topography, compartment size, vegetative community.

Fine-scale: Vegetation

Piedmont longleaf pine forest are present in sites that have frequent fire return intervals. Hardwood stands have very low fire return interval. Physical env/topog play a role in the distribution of these communities.

Fine-scale: Topography
Physical landscape impacts fire regime. Slope and landform impact movement of fire across the landscape. Topographic fire regime map (Langley 2000): fire regime map. Class 1 is a fire-protected site and class 5 is a site with high fire frequency. Used soil polygons and moisture indices to make the fire regime map. Also distance to rivers and slope classes (from DEM).

Fine-scale: Fire compartments
-a unit of landscape with continuous fuel and no natural firebreaks, such that a lightning ignition in one part would be likely to burn the whole (Frost 2000?).
-28 fire compartments on the landscape (some were cut off at the Uwharrie area boundary) – Langley 2000.
-fire regimes within compartments – northeastern sides of the compartments more likely to have fires due to wind than southwestern sides.

Restoration of natural fire regime
-these maps provide a great starting point in determining where to reintroduce specific fire regimes.
-the current condition of the landscape makes prescribed fire the only option in returning to a natural fire regime – to protect human lives and property, and because of fragmentation.
-USFS and private landowners may have different goals for prescribed fire use (different goals may require different timing), but coordination is not impossible with willing landowners and increased communication between landowners and USFS.

Overall recommendations
-continue to develop historical maps (vegetation, fire compartments, etc.) to identify areas where restoration is most appropriate.
-work to increase communication between private landowners, land trusts, conservation organizations, and the USFS to implement large scale fire restoration plans – increased likelihood of success and decreased costs (cost sharing, decreased redundancy, etc.)

Ideas

Fire for nesting birds – may have negative impact on individuals, but positive impact on species – might be something good to throw in as a box.

If we knew what the tax parcels near the UNF were, then we could see where the willing landowners might be.

Overlay fire compartments with current land use to see how fragmented the fire compartments already are.

Carly's talk

Uwharries Land Settlement – a story

Native Americans – the first ones might have been there around 10000 years ago. Might have been some Cherokee in the area, but not sure exactly which tribes were in the area. There are so many archaeology sites in the area because of the Slate Belt. Some debate over how the land might have influenced settlement – instead of just rich numbers of game and water here, it could have been the presence of slate belts. They needed a lot of rhyolite to make their tools. Became increasingly sedentary as time went on – more evidence of food storage and vessels, and permanent habitations. Woodland period from 700-1200 AD – people were getting up and moving around; this is attributed to tribal warfare. More violence and less permanent habitation; after the period, they became more sedentary again. The

last Native Americans probably left around 1833; some were integrated into surrounding communities, with corresponding class issues.

Moravian settlement happened NW of the Uwharries, west of High Point. The Great Wagon Road – where original settlers came from. Some people also came from the Cape Fear area. Moravians were from Czechoslovakia; others were German, Scotch-Irish, and French.

1783 – gold found in the area but not in the Uwharries. 1795 – 3 speculators bought ~883,000 acres, divided it up into smaller homesteads, and tried to sell it, but people couldn't pay the land taxes, so the Uwharrie area land was never very profitable. 1917 – Alcoa dam was built; energy from that used to produce aluminum. By late 19th century in this area, timber had become profitable; by 1920s, trees were stripped from the area and the gold was gone, so people started to leave the area. 1976 – boy scout troop started the Uwharrie trail. 1982 – campsites, trails, even concession stands available. 1983 – Reagan administration announced the sale of 6 million acres nationwide, 41,879 of which were in the Uwharries (practically the whole forest – 50,189 acres today). The measure didn't pass, credited largely to community protest. Today, there is a lot less acreage up for sale, and those parcels aren't as profitable as they would have been. Since 1983, archaeologists have become more interested in the area, as well as the Nature Conservancy and other conservation organizations. Duke University is also trying to negotiate 1223 acres to add to the forest from private land.

Data layers for our presentation
Fire regime (within and outside UNF)
Recreation: OHV, horse, bikes, hikers
Fragmentation (land use land cover change)
--Land parcels to see who owns what (within and outside UNF)
Hydrological data (watershed codes – Katerina – also there's a data layer from the library according to Liz)
Copy of soil erosion map to display (so OHV guy won't keep asking where the impacts are)