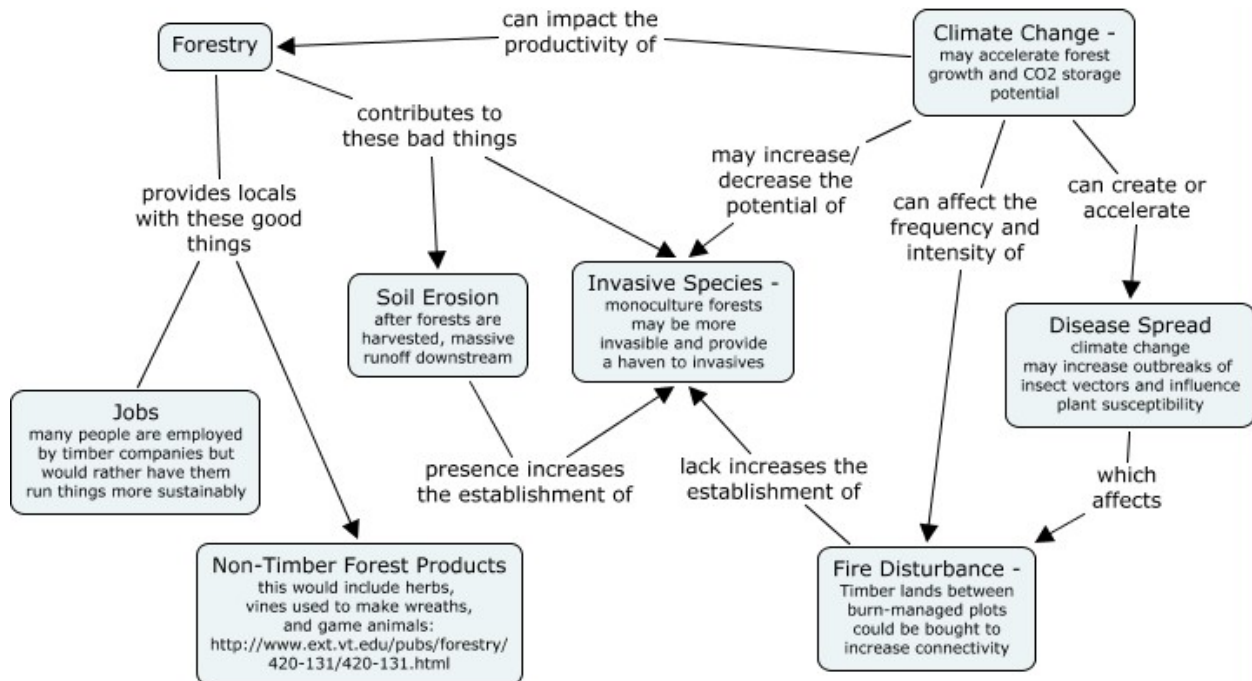


Ecol 199 Concept Map Assignment
Dahl Winters
2/14/06

The two areas I am researching are *forestry* and *climate change*. The following is a concept map of the ecological interactions within my narrative, as well as some human ones.



Things I still need to research

Distribution of Uwharrie timber land. How much timber land is in the Uwharries, and how are they distributed? Are there big tracts of land next to areas of conservation importance? I need a GIS layer of this.

Management of timber land for biodiversity. Forests might be managed sustainably right now, but could they be managed for more biodiversity? Instead of monoculture pine plantations, could other economically important trees be planted there as well? Then, instead of doing clearcuts which would increase erosion and runoff during harvest (and leave the land looking unsightly), only certain species would be cut at certain times. This would open up more natural gaps to accelerate tree growth beneath.

Climate change and tree pathogens. Gather up literature showing effects of climate change on increased insect outbreaks and disease susceptibility, as well as any pathogens that could potentially impact timber production.

Climate change and species redistributions. What might be the impacts of climate change on the distributions of important Uwharrie species within the next 50-100 years, considering the relationship between climate change and fire disturbance?

Use of timber land by game animals. What species use timber lands as habitat and what species don't? Are there any plots comparing species diversity in timber lands and USFS lands? Do game animals frequently use timber lands as corridors from wildlife feed areas to areas where there is a lot of hunting? Are there enough grasses for deer and turkey to graze in timber lands?

Use of timber land for hunting and recreation (especially for OHVs). Can timber lands be made available for hunting and recreation use? How might this affect timber growth? Cutting hiking and OHV trails through forest land (paying the timber companies for these trails through their property) would reduce the effects of OHV use near areas of conservation importance around Badin Lake. I figure people who use OHVs want to experience the thrill of riding their vehicles over rough, hilly terrain, and don't care much about the surrounding plant life (which is why off-trail OHV use is a problem in conservation-important areas). Saplings and seedlings get run over, whereas in a timber land, all (or most) trees will be even-aged, and the area could be opened up to trail use when the trees reach a certain size so as not to be damaged. Any OHV-related timber damage could be reported as reimbursable losses to the USFS, in return for the USFS being able to remove OHV damage from conservation-important areas and avoiding the associated restoration costs.

Proximity of timber lands to private landowners to facilitate multiple use. Which timber lands are closest to private landowners? Need GIS layers of both timber lands and parcels held privately. Could private landowners be allowed use of the timber lands for hunting if game is found there frequently? This would help encourage hunting and keeping harmful deer populations down (which may increase forest growth since the deer wouldn't browse on young trees).

Profitable thinning of adjacent land by timber companies for longleaf pine restoration. Can timber companies find it profitable to thin hardwood trees on private lands, in return for paying the landowner for the trees? This would allow faster restoration of longleaf pine in areas of the Uwharrie where private landowners lack the time or equipment to thin their own forests.

Land swapping to consolidate protected lands. Can timber companies and private landowners be encouraged to swap lands? If landowners (or the USFS) have rocky land unsuitable for farming and timber companies have land adjacent to areas of prime conservation importance, doing a land swap would help consolidate land for conservation, at no loss to the timber company's holdings or to landowners.