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GEOG 640
Debriefing Notes
3/20/19

"Drivers of chaparral type conversion to herbaceous vegetation in coastal Southern California"
By Alexandra Syphard, Teresa Brennan, Jon Keeley
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Asked Dr. R: Is this study area representative of greater So Cal region as the authors state?

- *Roughly representative of about 6/7 Southern California Counties*

What is driving chaparral conversion to grasses?

- *Goal: understanding why this change is occurring by looking at several factors and using mapping/probabilistic models*
- *Paper mentions Native Americans contribution, but not as what is causing it today.*
- *Hypothesis: That factors such as grass fire cycle (p.1 c.2), short-interval fire, atmospheric nitrogen deposition, direct habitat disturbance (anthropogenic) and certain bio-characteristics of the site are all potential contributing factors to the conversion. (See Table 1 p. 93 for full list)*

Authors highlight the difference b/w high-frequency fire and short-interval fire

- *They focus on short interval being the most damaging to the chaparral as an obligate seedling species.*

Figure 1 (map p.92)

- *Too busy! Difficult to see comparison they are trying make*
- *Can see concentrations in N and NW*

Method of random point generation? (p.93 c.2)

- *Methods were overall clear but here we begin to see typos in years*
- *Andrew noted that perhaps they could have used the air photos to generate these random points vs. the other way around*

Explanatory Variables Section (p.93-94)

- *How do they deal with the several differing resolutions?*
  - *"To ensure that this heterogeneity was preserved across variables, we resampled all maps to the resolution of the finest scale variable, which was 30M." (p.94 c.1 end)*
  - *Dr. R: They all utilize this method, geo-rectification, but it has it issues and needs to be clearly noted as well as backed up!*
  - *Runs risk of creating MOAB*

What are the 2 binary dependent variables?

- *Full conversion vs. majority/transitional conversion*
- *Andrew brought up that he was curious as to why chaparral was being compared as now vs. then, but not the grasses. Dr. R reaffirmed that this would be a good idea as grasses can also secede/invade over time.*

Results

- *Figure 1 and Figure 3 seem to highlight different results, which works for what they are trying to prove as the main drivers but is questionable.*
- *According to Figure 1 Available Water Soil Capacity, slope, Topographic Heterogeneity, Distance to Trail and Historical Fire Frequency contribute most to complete/majority conversion.*
- *According to Figure 3 Distance to Trail and Topographic Heterogeneity are significant*
- *Figure 4 is much clearer than previous map and perhaps has more value*
- *While their environmental characteristics are of great significance the authors conclude with short-interval fire and landscape disturbances being what the study found as the most notable contributing factors*

Issues

- *Figure 1 and Figure 3 did not accomplish purpose of displaying data in useful fashion*
- *Their method of random selection requires further inquiry*
- *Results/Discussion contradict at times*

Side Notes

- *Atmospheric Nitrogen Deposition is not like nitrogen fixation*
  - *First studied in the Inland Empire on inland interior scrub*
  - *SMOG settles on the soil and acts as an agent of conversion because weeds/grasses make better use of this nitrogen*
- *CSS is a "soft" chaparral with more "open" spacing that experiences Facultative Summer Deciduous (sorry if the term is incorrect!)*
  - *This means the leaves wilt in summer and come rain the plant springs back to life*