**Skype-talk with Gergana 21/01/20**

* Dataset accessibility vs roads -> decided for accessibility
  + Roads might be present in remote places, which would change the focus of analysis. But roads definitely play important role in accessibility as well -> justify accessibility
* Question about biodiversity metrics
  + Check out Measuring biological diversity – book on Gergana’s desk
  + Start with Jaccard for now and see how much time for other analysis later
  + Decide on temporal change within community (which are close to roads/accessible) or across communities (or both)
  + Decide on 1 baseline or consecutive
  + Other potential metrics include evenness (eg pielou)
    - Paper: Faith Jones: Dominance structure  
      <https://royalsocietypublishing.org/doi/10.1098/rsbl.2018.0187>
  + Check out Klara’s tutorial! Vegan package
  + Similarity of plots to other plots vs more similar plots closer to roads?
* Questions about focus of analysis
  + How to account for difference in taxa, biomes, geographic regions
    - Either focus on global analysis -> factors as random effects
    - Or adjust research question so it reflects focus
      * Prediction with biological reasoning! + draw out graph
    - Taxa: birds are most common (then mammals, amphibians)
    - Connection taxa and mobility (birds more mobile than amphibians)
    - Option to plot per taxa or use different colours
    - For region could use broad categorization eg continent
* Questions about metrics
  + State space models
    - Advantage 2 errors instead of just one
    - Good for measuring population changes (eg LPI)
  + Rarefaction
    - Takes into consideration uneven sampling
    - Sample-based (or abundance) inter/extrapolation
    - Good for species richness
    - Anne Chao -> Rpackage iNExt
  + PCA
    - Data exploration not analysis
    - Cluster analysis: points which are more similar; colour code by accessibility
    - Coding Club tutorial – Intro to ordination
    - But for magnitude of finding statistical analysis!
      * Need to be very specific:   
        For every 10% increase in accessibility, communities become 5% more similar
* Framing paper
  + Don’t worry about it too much now – scope of paper (eg conservation ‘vs’ human development can be set at the end – it is also dependant on results
  + Relevance to research:
    - Recent studies (eg Blowes and Dornelas) found composition is changing on individual sites (high turnover), but does this lead to homogenization across sites? Human traffic/accessibility reshuffle communities, so do the winners tend to be the same? Or are other drivers (eg trophic food chains, climate change etc) more important drivers than accessibility?  
      -> analysis about the relative importance of accessibility as common global change driver
  + Relevance for conservation efforts: accessibility might also mean more opportunities to do conservation intervention
* Next steps
  + Do Klara’s tutorial
  + Do a ‘pilot study’ with the subset of data to visualise some of it
    - Download BioTime data (terrestrial)
    - Produce map of all sites in year 2000
    - Calculate how similar one site to all other sites (Jaccard)
    - Extract accessibility score from GEE
    - Set size of point on map as score of compositional similarity
    - Set colour of point as accessibility
    - Use average similarity of pair of sites
  + Read Blowes and Dornelas AND their critiques
  + Think of 3 research questions and their graphs (1 each, but can be panels) which should be ones that I would be interested in when listening to a presentation/ of ecological relevance, draw them, cut them, arrange them
  + Read Gergana’s dissertation
  + Write full outline plan