Paper

Objectives/Outcomes

1. Documentation on quantitative methods, pros/cons for setting benchmarks
2. Deliverable for Rio Puerco FO
3. Benchmarks for wind erosion
4. Demonstrated approaches for setting benchmarks

Specific objectives

1. Describe and demonstrate different approaches
2. Provide recommendations on the things people should consider
   1. Considerations
      1. Statistical assumptions (e.g., normality)
      2. What is natural/acceptable erosion?
      3. Functional effect vs. functional threshold
      4. Data representativeness to range of responses
      5. Multiple benchmarks
      6. Distribution of data (what happens when you add new data from a different temporal/spatial population)
   2. Objective driven
      1. Preserving existing functions or trying to establish a minimum
      2. Novel ecosystems

Define Scope

1. Scale(s)?
2. Approaches
3. Which indicators

Add discussion about elements of professional judgement

**Outline**

Introduction

1. Context, link to Webb et al. 2018

Framework/Workflow

1. Pre-processing/First considerations
   1. Outlier evaluation
      1. Add more specific guidance
   2. Professional judgement needs:
      1. Dataset variation in space
      2. Dataset variation in time
      3. Literature availability
   3. Scale
   4. Data quality/richness/availability
      1. Circular logic considerations
   5. Revisits
2. Context
   1. Identify an ecologically based classification scheme (ecoregion, MLRA, ESD, MODIS landcover, etc)
3. Indicator/Distributions [Allie, Jeremy]
   1. Quartiles
4. Ecologically based
   1. Reference [Jeremy, Brandi]
      1. Different sources (historical, experimental, ecological)
      2. Historical vs. desired condition
   2. ESD (but not states, discuss state in the paper) [Jeremy]
   3. Fuzzy clustering [Allie]
   4. Functional effect (ecological response)[Ron, Brandi]
5. Functional relationships
   1. Segmented regression [Ron, Brandi]
   2. Change in variance (may not always be represented in literature) [Brandon]
   3. Derivatives [Ron, Brandi]
   4. Professional judgement []
6. Synthesis and Recommendations
   1. Table 1
7. Conclusions
   1. Climate change and benchmarks

Figures and Tables

1. Table 1. Summarize approaches
   1. Citations/fields that use approach
   2. Pros/Cons
2. Decision tree

Data [Sarah]

1. MLRA 42 - 2022
2. AIM + LMF based on AERO data runs
3. Spatial join to remove revisits (keep first visit)

Indicators [Sarah]

1. Q
2. F
3. Bare soil
4. Total foliar cover
5. Gaps > 100 cm
6. Gaps > 200 cm
7. Max height
8. Soil stability
9. Scaled gap (mean gap/mean height)