Notes on analysis for Sean Anderson on 1/26/2018

All actual variables names are in **bold**

Workflow plan:

*Question 1 – best simple bivariate models?*

* Checking the following predictors (different satellite indices of burn severity):
  + **dNBR: normalized burn ratio (diff between pre and post image) affected a lot by abs. change**
  + **dNBR\_BL: bilinear interpolation across neighboring cells vs. focal pixel**
  + **dNBR\_Offest: standardizes for nearby regional effects by offsetting by nearby image**
  + **dNBR\_Offset\_BL**
  + **RdNBR: relative… (trying to fix dNBR… commonly used but complicated)**
  + **RdNBR\_BL**
  + **RBR: relative burn ratio, simple intuitive ratio of change**
  + **RBR\_BL**
* *Could exclude BL and offset if not better*
* With the following responses:
  + **Firemort.BA.p** (BA killed proportion)
  + **Firemort.trees.p** (Trees killed proportion)
  + **CHARHT\_percMax** (Char height as proportion of tree height)
  + **BOLESCORCH** (Bole scorch proportion)
  + **CHARCOV** (Charred surface proportion)

*Question 2 – can we improve with easily available GIS data?*

* Running through the following…
  + Building the best model with these easily available additional predictor variables, with the goal of making the best generalizable model of burn severity for the US Rockies
    - **lat**
    - **HeatLoad**
    - **slope**
    - **preNBR**

*Question 3 – How are the “best” models affected by important characteristics of stand structure, that are NOT easily attainable*.

* + Then once that best generalizable model is created, asking which of these interactions affects the relationship between field and satellite burn severity
    - **QMD\_LAF quadratic mean diameter of trees at time of fire**
    - **QMD\_all** **quadratic mean diameter of trees (incl. dead before fire from insects etc.)**
    - **ba\_ha basal area of trees per ha**
    - **stems\_ha stems per ha**
    - **RedGrayGreenStage.BA.p prop. Basal area in plot killed by bark beetle before fire**

I will attach a ‘clean’ csv file that is trimmed down to these variables and possibly a few more.

The csv is called “RockiesBurnSev\_clean\_20180124”

Maps: raw, mean, credible high, credible low…