**Tests and comparisons**

Has compensation persisted long-term?

* GAM + difference of smooths comparing totale (each plot) for long-term controls and long-term exclosures. Calculate difference of smooths on by=TREATMENT. Shows where differences *overlap 1* and a visualization of long-term dynamics. Gam(totale ~ period + s(period, by = treatment) + plot + s (period, by = plot))
  + We do not expect the differences to overlap 1 most of the time.
* Analog of a repeated measures ANOVA implemented as a (generalized) linear mixed-effects model.
  + Define eras based on the GAM. Would be fancier to find the breakpoints, but we can use 1996 and 2010ish (Bailey’ arrives; drought)
  + Either where totale (on each plot) ~ time \* era \* treatment with a random effect for plot and an autocorrelated correlation structure
  + Or where ratio of mean\_on\_exclosures/mean\_on\_controls ~ time \* era with an autocorrelated correlation structure
  + This is to get p-values and effect size estimates. I think the GAM is better for getting the gist of the story.

Do we find a consistent compensation effect in the new exclosures?

* GAM + difference of smooths comparing totale (each plot) for longterm controls, longterm exclosures, and new exclosures.
  + Does the difference in totale between longterm exclosures and new exclosures converge to zero after the treatments are initiated in 2015?
* Another lme with an additional era?

Do these also for: total abundance, Dipo abundance, smgran abundance, PB abundance. Not for specific hypothesis testing but to inform what’s going on. E.g. if compensation were continuing, is PB still abundant? Or is the compensation coming from other species?

How much is PB contributing to this?

Do the plant communities differ in longterm v new exclosures immediately before the switch?

* pCCA + anova – following Supp and Christensen here

Does the plant community (writ large?) differ now from when PB was dominant?

* Ordination + test for an era \* treatment effect, but controlling for plot and possibly year if that’s possible
* This is just to say “things have changed now”