**Long-term exclosures**

1. What is the magnitude of the *discrepancy* between exclosures and controls in total energy use a) prior to PB establishment, b) following PB establishment, c) 2010-2015?
2. What is the current magnitude of the *compensatory* gains by small granivores observed on the exclosure plots a) prior to PB establishment, b) following PB establishment, c) 2010-2015?
3. What is the magnitude of compensatory gains by non-PB small granivores in the same time periods?
4. Prior to PB, exclosures are like 20% of controls for total energy. From 1996-2010, they are closer to 80%. From 2010-2015, they are about 40%.
5. Prior to PB, small granivores use 20% of total control energy on exclosure plots but only 7% of total control energy on control plots, so they appear to play a considerably expanded role on exclosures (GLS p = 0.0009; GLM p < 0.0001). Following PB, they use about 68% on exclosures and 29% on controls (p < 0.0001, < 0.0001). After 2010, the statistical distinction is less clear, but on average they are using 41% on exclosures and 26% on controls (p = 0.048, p = 0.0018); after 2015, they are using 36% on exclosures and 26% on controls (p = .44, p = .148). The difference in total e GAM smooths converges to zero beginning in August 2017, but visually the difference appears to be narrowing since ca. 2010. The difference in GAM smooths on the ratio converge in 2015, and they appear to overlap starting ca. 2010.
6. Prior to PB, tiny granivores are using 5% on controls and 21% on exclosures (p = 0.0002, p < 0.0001). With PB, 21% on exclosures and 17% on controls (p = 0.53, p = .15). After 2010, 26% on exclosures and 25% on controls (but p = .94, p = .95); after 2015, 35% on exclosures and 26% on controls (but p = .52, p = .24). The difference in GAM smooths on total energy converges to zero from 2001 onwards, with a brief divergence from 2015-2017. The difference in GAM smooths on the ratio converge in 2008, although I would chalk the late convergence prior to 2001 up to the Gamma GAM’s failure to capture the dips, and convergence, evident in the mid 2000s; increasing k to 100 brings it to 2006.

**Persistence of 1990s compensation**

1. Did the high degree of compensation observed in the 2000s persist past 2010?
2. If it does, is it still being done by PB, or have other species taken over? If it doesn’t, is this numerically driven by a decrease just in PB, or has the entire small granivore group contracted?
3. From 1996-2010, total energy use on exclosures averages 80%; from 2010 onward, it averages closer to 40%. So, no.
4. While the proportion of energy being used by all small granivores declines precipitously, there is not a synchronous decline in the proportion being used by *tiny* granivores. So (numerically) the decline is driven by a decrease in PB energy use on exclosure plots.

**Persistence of compensatory effects on exclosures**

1. Has the effect of krat removal on total energy use changed over time?
2. Has the compensatory gain from smaller granivores changed over time?
3. Sure has! The discrepancy of energy use has gone from only 20% on exclosures, to near complete match, to about 40-50%.
4. Yes; it has decreased. The compensatory gain from small granivores including PB obviously declines following 2010 such that there is essentially no difference between exclosures and controls now.

Interestingly, the tiny granivores have had a relatively stable proportion of energy use, and similar between controls and exclosures, since the early 2000s. While in the early 2000s this may have been because Bailey’s rendered both treatment types essentially equivalent to tiny granivores, it’s not obvious that that would *still* be happening after Bailey’s starts to decline. Since 2010 there has not been a statistically detectable difference in energy use by small/tiny granivores on control versus exclosures, meaning there is **no** compensation going on. This contrasts to earlier time periods, when the communities on exclosure plots consistently used more energy on exclosures than on controls – indicating they were able to expand to use at least some, and in the 1990s-2000s, almost all, of the resources vacated by kangaroo rats.

**Experimental effect of kangaroo rat removal under current circumstances**

1. Following the exclosures in 2015, how much energy is used on controls, new exclosures, and longterm exclosures?
2. Following 2015, how much energy are small granivores using on new/longterm exclosures relative to controls?
3. Tiny granivores?
4. Do new exclosures match longterm exclosures?
5. Is there a detectable difference in total E or proportional E being used on the new treatments relative to controls?
6. New exclosures are 48% of controls; old exclosures are 39%.
7. Controls: .26, new exclosures: .43, long exclosures: .36. GLS finds no differences between treatments post-2015. GLM finds a significant difference between controls and longterm exclosures. GAMs on ratios for controls-new exclosures have overlapped since 2017; controls-long exclosures have overlapped since 2017; new and old exclosures have overlapped since 2002.
8. Controls: .26; new exclosures, .38, old exclosures, .35. GLS finds no differences. GLM finds no differences. GAM smooths on ratios for controls-new exclosures have overlapped since the mid-2000s.

**New exclosure plots**