**Name: Morgan Mackert**

1. General Info
   1. Proposed Title: “Evaluating the provisioning of native ground-nesting bee habitat in contour buffer and filter strips within agricultural landscapes”
   2. Likely coauthors: Dr. Mary Harris and Amy Moorhouse
   3. Proposed journal (1st choice): Journal of the Kansas Entomological Society
   4. Proposed journal (backup): Agriculture, Ecosystems, and Environment
2. The overarching question of this paper is: What response can be observed within native ground-nesting bee populations, specifically concerning species richness/diversity/abundance, when appropriate habitat is provisioned?
3. Which is important/interesting/unresolved because (1-4 reasons)
   1. To my knowledge, the most recent comprehensive research conducted concerning the specific habitat and/or soil requirements of native bees within the United States was done in 1991. In Europe, it appears that the most recent publication was in 1996. Prior to both of those publications, a book was published in 1936. It appears to me that there’s a bit of a knowledge gap regarding native bees and their preferred habitat.
   2. Pollinators (specifically honey bees) are declining, and have much pressure placed upon them for pollination purposes, as they play a key role in the world’s food production. By allowing native bees to recolonize areas they once inhabited, some of the pressure can be alleviated from the honey bees. Not only will pollination be more efficient, but a vital piece of the ecosystem will be strengthened.
   3. All 250+ species of Iowa’s native bees have slightly different nesting styles or preferences; it’ll be interesting to see where each species falls within the spectra of variables.
4. To answer this question/explore this topic, I addressed the following objectives: (NB you can have more or less than 3 objectives, but I recommend 2-4)
   1. Establish plots of bare soil near or within CRP contour buffer and filter strips composed of different vegetation mixes (ranging from 100% brome grass to more than fifteen flowering species) to evaluate subsequent usage by ground-nesting bees.
   2. Sample the native bee community to assess species diversity and richness within CRP contour buffer and filter strips comprised of various vegetation mixes for the duration of Iowa’s growing season.
   3. Evaluate available floral resources within CRP contour buffer and filter strips throughout Iowa’s growing season.
5. I addressed these objectives: (use list/bullet points below)
   1. In CRP contour buffer and filter strips throughout central and northeastern Iowa
   2. With the following focal/model species/model system: native ground-nesting bees
   3. And the following approaches: using various trapping methods to gain better insight into which species are present in the surrounding areas, to ultimately have a better idea of which species may be present upon nesting plot assessment
6. For my analysis, I want to test: the degree to which floral resources influence bee presence. I’ve noticed there seem to be more bees in traps with no floral resources in the area than at the sites that have abundant resources. I’d be interested to look further into this phenomenon and see if there’s any significance.
7. My response (y-axis) variable is: bee abundance.
8. My predictors (x-axis/colors/shapes on the graph) are: floral resources, and perhaps weather conditions.
9. I replicated this across multiple sites.
10. I think I will need to analyze these data using a simple or multivariate regression.
11. I anticipate I will get a final figure(s) that will look like this *[sketch one or more figures below that you could imagine being part of the final paper]*