NATIVE POLLINATORS: Grazing Treatments and Rangelands in Montana
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INTRODUCTION
Pollinators are economically and environmentally critical to native landscapes
- Approximately 4,000 native bee spp. within the U.S. contribute to 75% of food crops and 80% of flowering plant pollination
- 70% of native bees nest in underground galleries susceptible to livestock trampling
- 70% of the Western U.S. land is managed with livestock grazing
  - MT is 66% range/pasture lands which in 2016 produced $1.4mm in cow-calf receipts

Objective: Produce a Genus level Hymenopteran inventory from two rest-rotation grazing programs implemented in sage-brush steppe and mixed-grass prairie habitats

METHODS
1. Weekly sampling May-July
2. Yellow, blue, white colored pan traps filled with soapy water deployed at each location
   - Variable colors capitalize on the visual preferences of pollinators
3. Samples were returned to MSU, cleaned, and stored in 95% ethanol
4. Hymenoptera specimens were mounted and identified to Genus
5. Differences in treatment least squared means were calculated using Proc MIXED (SAS® v9.2) with random sampling location

RESULTS
Total Pollinator Catch: 25,563 specimens
- Sidney: Fall: SGI, NSGI, LMWR; Rest: SGI, NSGI; Spring: LMWR; Off easement: LMWR; Winter: SGI, NSGI; LMWR
- Roundup: Fall: LMWR; Rest: LMWR; Spring: LMWR; Off easement: LMWR; Winter: LMWR

Fig. 1. Box plots of 2016 catches per trap

DISCUSSION
Pollinator catches did not differ at Sidney in 2016 (p = 0.97) or 2017 (p = 0.63) suggesting that treatment floral resources, architecture, reproductive galleries and microhabitats were similar.

Pollinator catches differed at Roundup in 2016 (p < 0.04), and 2017 (p < 0.05) suggesting differences exist among treatment floral resources, architecture, reproductive galleries and/or microhabitats.

CONCLUSION
Pollinator catches did not differ either year at Sidney and catches at Roundup were lowest both years on the LMWR, which has not experienced livestock grazing in over seven years. These data, when combined with our 2018 collections, could begin to suggest that moderate livestock grazing is a benign to useful tool for native bee conservation.

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