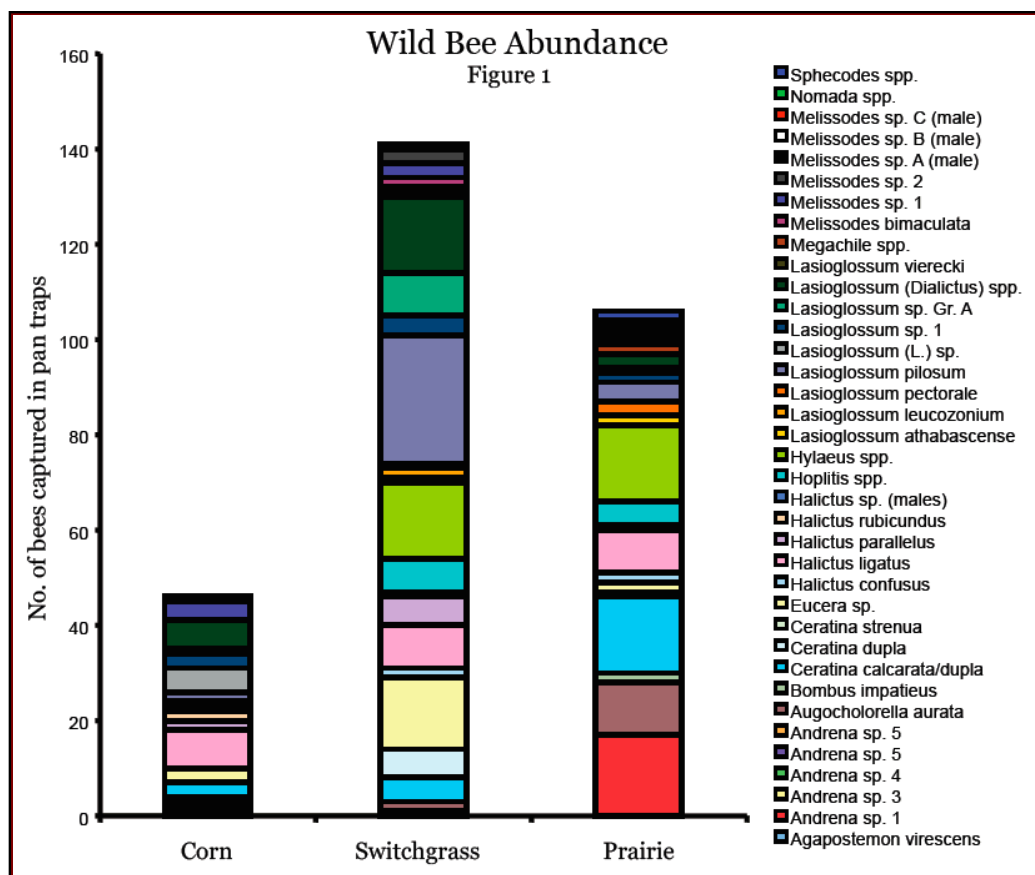
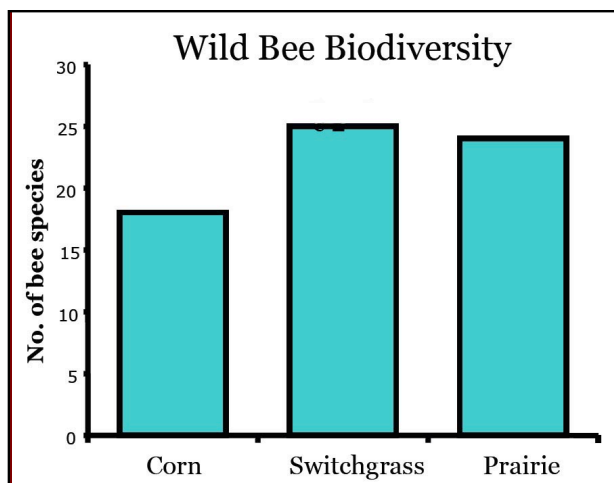


Sample Graphs for Field Investigations

This document contains examples of studies done by ecologists working in the field using the same techniques in this package. You may use these examples to show demonstrate how to might make graphs, or as points of discussion of the actual results found.

Bee Sampling using Bee Bowls



Sample graphs for bee bowl data.

H Gordon et. al. 2009. GLBRC, Kellogg Biological Station.

Estimating Pollinator Activity with Flower Observations

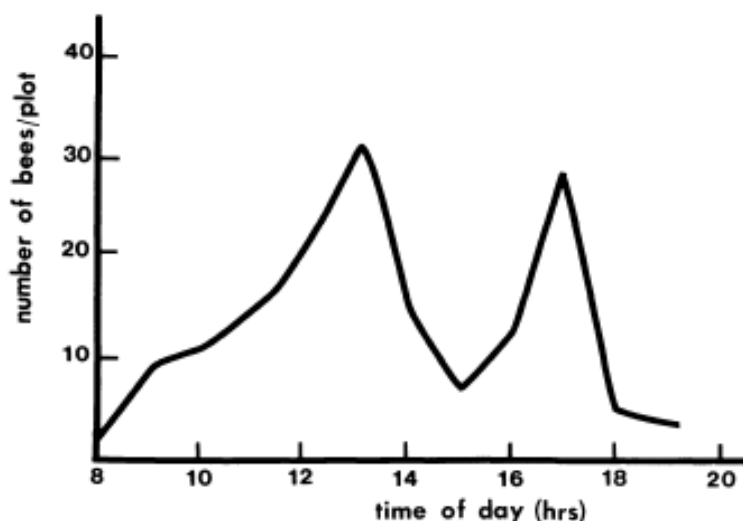
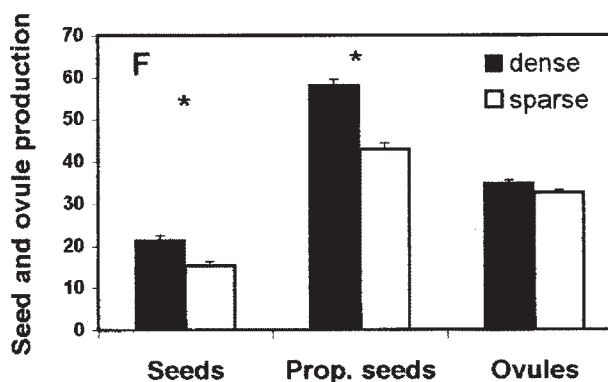


Fig. 2. Daily visitation patterns of honey bees on sunflowers in bloom in central Wyoming.

Summary graph of bee visitation rates as a function of time of day from researchers studying oilseed crops in Wyoming. From Krause, GL, and W.T. Wilson. 1981. "Honey bee pollination and visitation patterns on hybrid oilseed sunflowers in Central Wyoming (Hymenoptera: Apidae)" *Journal of the Kansas Entomological Society* 54(1): 75-82.

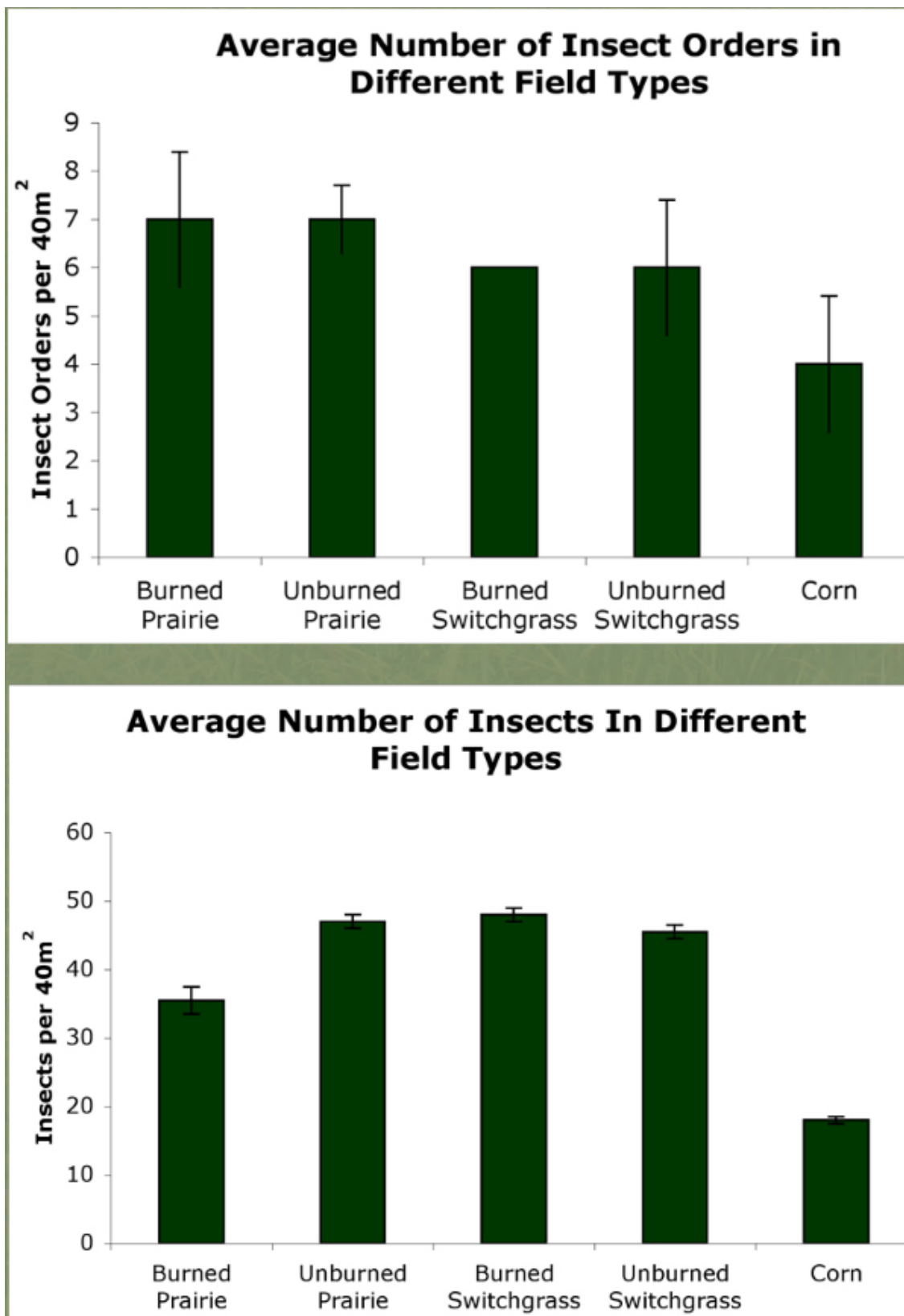
Estimating Pollinator Activity with Potted Plants

E, F Number of seeds set (*Seeds*), the proportion of ovules set as seeds (*Prop. seeds*), and total ovule production per flower (*Ovules*). Asterisk indicates significant difference between dense and sparse arrays ($P < 0.05$, ANOVA, Tables 2, 3, 4)



Summary graph of seed set in potted plants by researchers studying the effects of plant density on pollination. From Bosch, M and N.M. Waser. 2001. "Experimental manipulation of plant density and its effect on pollination and reproduction of two confamilial montane herbs." *Oecologia*. 126(1): 76-83.

Sampling Invertebrates with Sweep Nets



From C. Kempski. 2008. GLBRC KBS-REU program.

Sampling Ground Invertebrates with Pitfall Traps

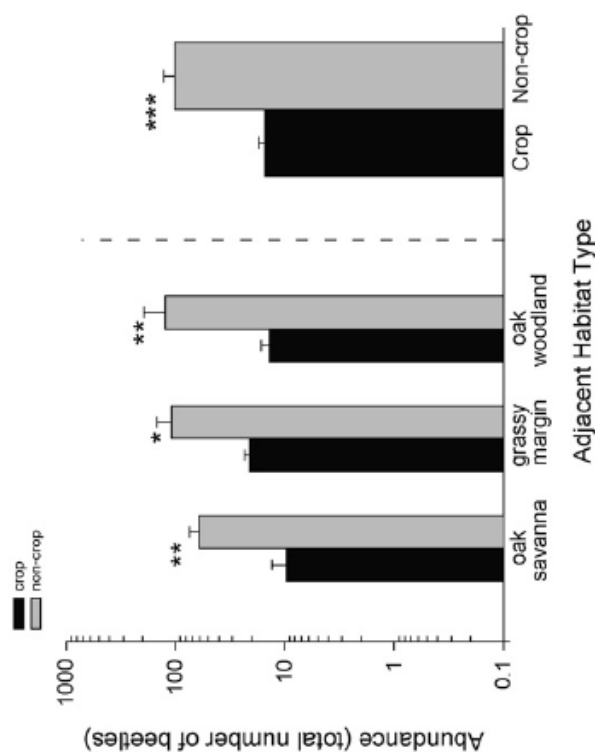


Fig. 1. Average abundance (number of beetles/plot over course of season) of granivorous carabids (+SE) in potato fields and adjacent non-crop habitats. Significance levels, determined by *a priori* contrasts are indicated by * ($p < 0.05$), ** ($p < 0.01$), and *** ($p < 0.001$). Abundance was greater in the non-crop habitats than within the potato fields (crop).

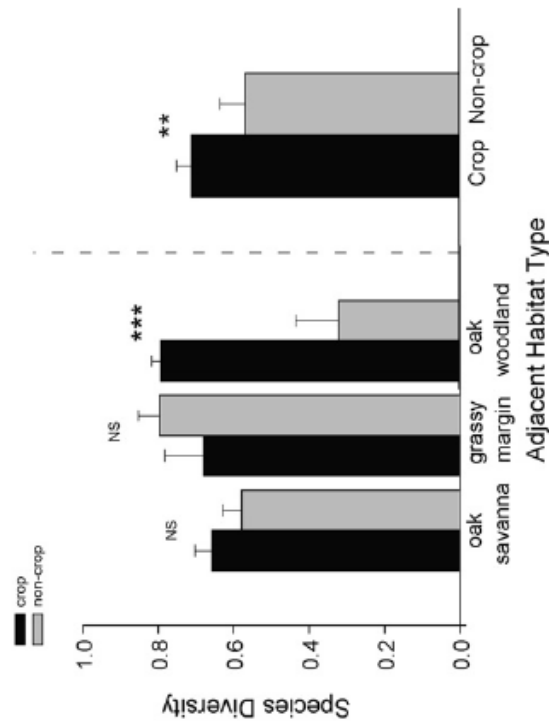


Fig. 2. Average diversity (1-Simpson's *D*) of granivorous carabids (+SE) in potato fields and adjacent non-crop habitats. Significance levels, determined by *a priori* contrasts are indicated by ** ($p < 0.01$), *** ($p < 0.001$), and NS ($p > 0.05$). On average, diversity was greater within the potato field (crop) than in the non-crop habitat, although this difference varied by adjacent habitat type (location \times habitat, $p < 0.001$).

Please cite this article in press as: Gaines, H.R., Gratton, C., Seed predation increases with ground beetle diversity in a Wisconsin (USA) potato agroecosystem. *Agric. Ecosyst. Environ.* (2010), doi:10.1016/j.agee.2010.03.003

Estimating Weed Seed Predation by Ground Invertebrates

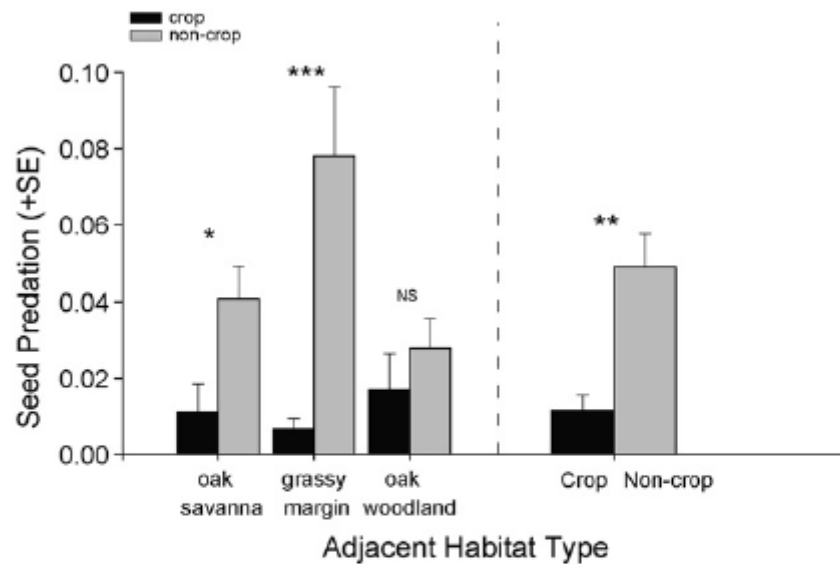


Fig. 4. Mean predation (mean proportion seeds predated per day+SE) by small predators in potato fields and adjacent non-crop habitats. Significance levels, determined by *a priori* contrasts are indicated by * ($p < 0.05$), ** ($p < 0.01$), *** ($p < 0.001$), and NS ($p > 0.05$). On average, seed predation was greater in the non-crop habitat than within the potato field, although this difference varied by adjacent habitat type (location \times habitat, $p < 0.05$).

From Gaines, H.R. and C.S. Gratton 2010. "Seed predation increases with ground beetle diversity in a Wisconsin (USA) potato agroecosystem." *Agri. Ecosyst. Environ.* doi: 10.1016/j.agee.2010.03.003