SUPPLEMENTAL INFORMATION

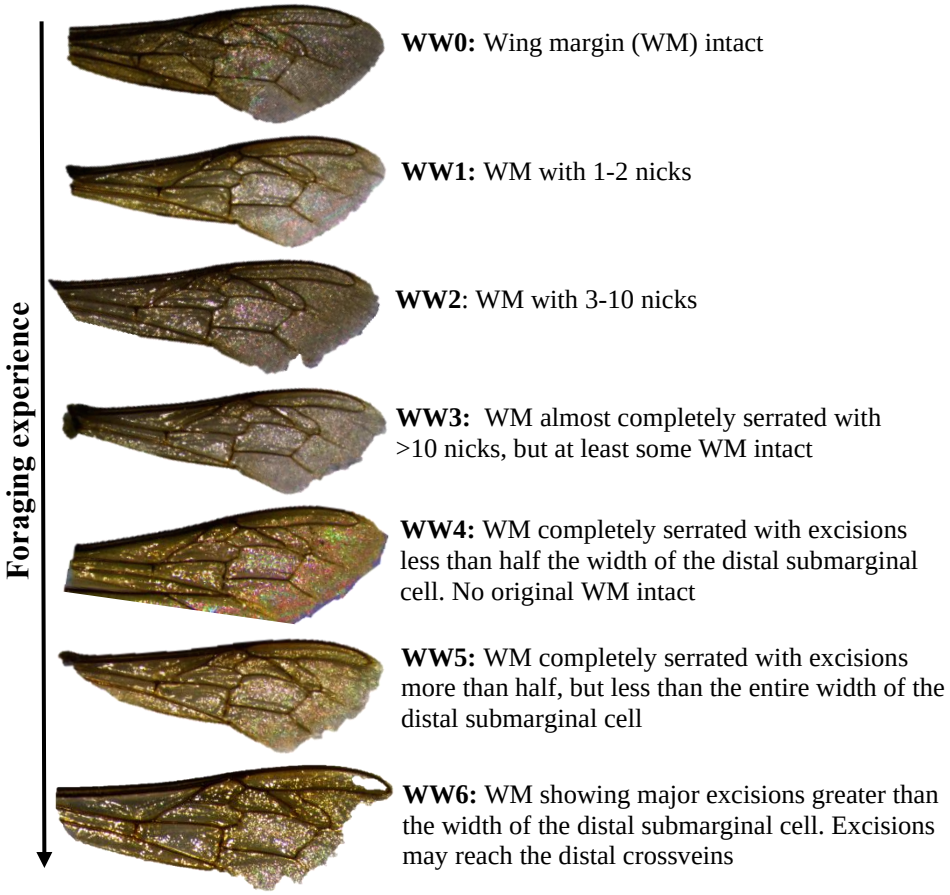

Figure S1. Honey bee wing wear rating scale as modified from Mueller and Wolf-Mueller 1993

Table S1. Least square means comparisons with Tukey adjustment of honey bee activity-density in pan traps across the season in soybean fields in central Iowa during 2015 and 2016.

Date	Date	Estimate	SE	DF	t Value	P value
1-Jul	12-Aug	-0.4000	0.8262	81.94	-0.48	0.6296
1-Jul	15-Jul	-0.3000	0.8262	81.94	-0.36	0.7175
1-Jul	15-Jun	0.3446	1.0150	91.93	0.34	0.7350
1-Jul	24-Sep	-6.7446	1.0150	91.93	-6.65	**<.0001**
1-Jul	29-Jul	-0.9000	0.8262	81.94	-1.09	0.2792
1-Jul	6-Sep	-1.2554	1.0150	91.93	-1.24	0.2193
12-Aug	15-Jul	0.1000	0.8262	81.94	0.12	0.9040
12-Aug	15-Jun	0.7446	1.0150	91.93	0.73	0.4651
12-Aug	24-Sep	-6.3446	1.0150	91.93	-6.25	**<.0001**
12-Aug	29-Jul	-0.5000	0.8262	81.94	-0.61	0.5467
12-Aug	6-Sep	-0.8554	1.0150	91.93	-0.84	0.4015
15-Jul	15-Jun	0.6446	1.0150	91.93	0.64	0.5270
15-Jul	24-Sep	-6.4446	1.0150	91.93	-6.35	**<.0001**
15-Jul	29-Jul	-0.6000	0.8262	81.94	-0.73	0.4698
15-Jul	6-Sep	-0.9554	1.0150	91.93	-0.94	0.3490
15-Jun	24-Sep	-7.0891	1.1790	102.9	-6.01	**<.0001**
15-Jun	29-Jul	-1.2446	1.0150	91.93	-1.23	0.2233
15-Jun	6-Sep	-1.6000	1.1685	81.94	-1.37	0.1746
24-Sep	29-Jul	5.8446	1.0150	91.93	5.76	**<.0001**
24-Sep	6-Sep	5.4891	1.1790	102.9	4.66	**<.0001**
29-Jul	6-Sep	-0.3554	1.0150	91.93	-0.35	0.7270

Table S2. Test of fixed effects investigating whether honey bee activity-density is affected by the interaction between the maximum brood or maximum adult bee population at a site and the surrounding land cover within 1.6 km.

	Capped brood population				Adult bee population			
	Effect	**DF**	**F Value**	**Pr > F**	**Effect**	**DF**	**F Value**	**Pr > F**
Developed	***Brood pop***	1, 16	1.94	0.182	***Bee population***	1, 6	0.99	0.358
	Developed	1, 16	3.23	0.091	***Developed***	1, 6	0.64	0.456
	Pop*Developed	1, 16	3.03	0.101	***Pop*Developed***	1, 6	0.45	0.526
Cropland	***Brood pop***	1, 16	0.14	0.716	***Bee population***	1, 6	0.92	0.374
	Cropland	1, 16	0.23	0.641	***Cropland***	1, 6	0.91	0.378
	Pop*Cropland	1, 16	0.15	0.704	***Pop*Cropland***	1, 6	1.12	0.33
Woodland	***Brood pop***	1, 16	0.2	0.664	***Bee population***	1, 6	0	0.962
	Woodland	1, 16	0.28	0.603	***Woodland***	1, 6	0.18	0.687
	Pop*Woodland	1, 16	0.29	0.596	***Pop*Woodland***	1, 6	0.87	0.387
Grassland	***Brood pop***	1, 16	0.55	0.469	***Bee population***	1, 6	0.35	0.578
	Grassland	1, 16	1.07	0.316	***Grassland***	1, 6	0.24	0.643
	Pop*Grassland	1, 16	0.74	0.404	***Pop*Grassland***	1, 6	0.39	0.556