ADDITIONAL FILE 1

Additional analyses comparing *Brassica rapa* and *B. napus* flower-visitor assemblages in South Canterbury, New Zealand

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ADDITIONAL STATISTICAL ANALYSES

These analyses were conducted using data from window traps placed in *Brassica napus* and *B. rapa* fields as outlined in Howlett et al. (2018). Total counts of flower visiting insects were converted into mean count per species per trap before analyses were conducted. The analyses presented here are:

A log-linear model (McCullagh & Nelder 1989), which was used to analyse all species simultaneously to assess how and whether the percentages of each insect out of the total insects per trap at each site varied between the crops. As part of this, comparisons between crops for each insect were carried out using a binomial GLM with a logit link. For all of these analyses, means and associated confidence limits were obtained on the link (log or logit scale) and back-transformed for presentation.

Multivariate analyses using Principal Components was carried out on the data for species with at least 5 insects per trap totalled across locations. (i.e. total per trap at each location, then totalled across locations). The log(number per trap + 0.5) were analysed, with a standard principal components analysis, and a biplot of the results presented (Gabriel 1981). For this, differences between crops were not specifically examined. Instead, we informally plotted the means for each principal for each crop, averaged over the locations.

Multivariate analyses using Canonical Variates was also carried out on the data for species with at least 5 insects per trap totalled across locations. (i.e. total per trap at each location, then totalled across locations). Here, the log(number per trap + 0.5) was used to identify which species primarily differentiate between the crop species. Results were presented as a unidimensional plot of the two crops.

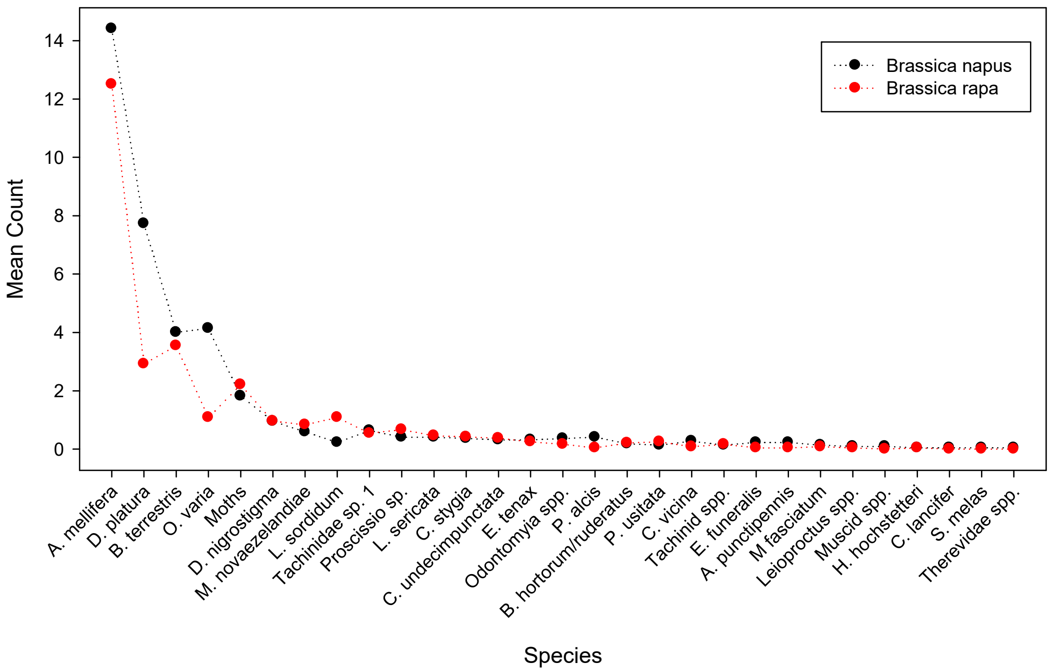
All analyses were carried out with Genstat (Payne et al. 2017).

RESULTS OF ADDITIONAL ANALYSES

Log-linear model

Mean counts per trap were dominated by honey bees (*Apis mellifera*). However, counts of all taxa were similar (Figure S1). Exceptions were the flies *Delia platura* and *Oxysarcodexia varia* where counts were more than double in *B. napus* fields, while the native bee *Lasioglossum sordidum* had higher counts in *B. rapa* fields (Fig. S1).

Figure S1 Percentage of each species out of the total for each crop, ordered by the overall percentage for each species.



In terms of the percentage representation of each insect taxa, *D. platura*, *Bombus terrestris* and *O. varia* showed the most variation between crop species (Fig. S2). These variations were also significant (Table S1).

Figure S2 Percentage of each species out of the total for each crop, ordered by the overall percentage for each species.

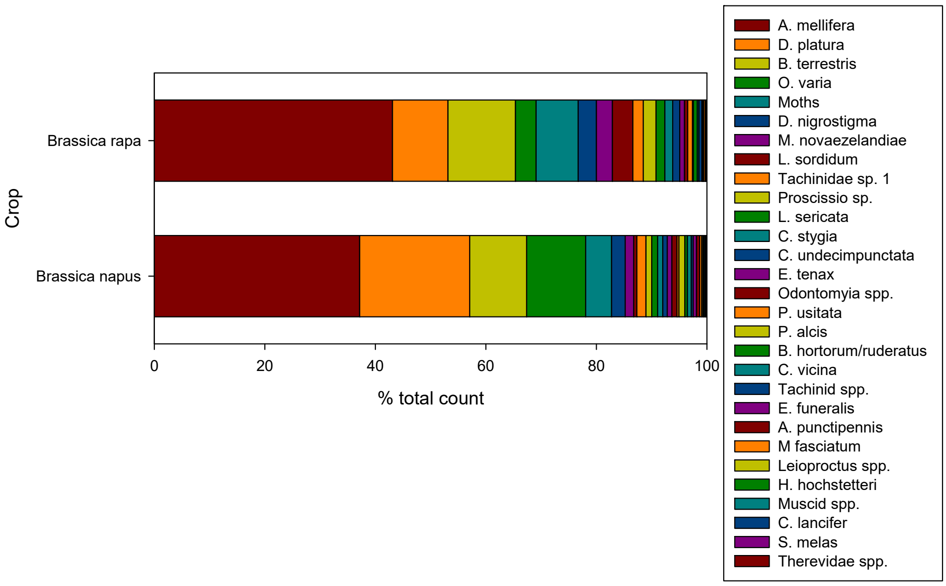


Table S1 Percentage of each insect species out of total catch (95% confidence limits) for each crop

	Crop species		
Insect species	*Brassica napus*	*Brassica rapa*	P
A. mellifera	37.2 (31.5,43.2)	43.1 (36.6,49.8)	0.185
D. platura	19.9 (15.5,25.2)	10.1 (6.7,14.9)	0.002
B. terrestris	10.3 (7.2,14.6)	12.2 (8.5,17.3)	0.512
O. varia	10.7 (7.5,15.0)	3.7 (1.9,7.3)	0.003
Moths	4.7 (2.7,8.0)	7.6 (4.7,12.0)	0.180
D. nigrostigma	2.5 (1.1,5.2)	3.3 (1.6,6.7)	0.581
M. novaezelandiae	1.5 (0.6,4.0)	2.9 (1.3,6.2)	0.308
L. sordidum	0.6 (0.1,2.8)	3.7 (1.9,7.3)	0.011
Tachinidae sp. 1	1.6 (0.6,4.1)	1.9 (0.7,4.9)	0.850
Proscissio sp.	1.1 (0.3,3.4)	2.3 (1.0,5.4)	0.281
L. sericata	1.1 (0.3,3.4)	1.6 (0.5,4.5)	0.612
C. stygia	0.9 (0.3,3.2)	1.4 (0.5,4.3)	0.612
C. undecimpunctata	0.8 (0.2,3.0)	1.3 (0.4,4.1)	0.611
E. tenax	0.8 (0.2,3.0)	0.9 (0.2,3.6)	0.960
Odontomyia spp.	0.9 (0.3,3.2)	0.6 (0.1,3.3)	0.647
P. alcis	1.1 (0.3,3.4)	0.1 (0.0,4.6)	0.176
C. vicina	0.7 (0.2,2.9)	0.3 (0.0,3.4)	0.514
B. hortorum/ruderatus	0.5 (0.1,2.7)	0.7 (0.1,3.4)	0.721
P. usitata	0.4 (0.0,2.6)	0.9 (0.2,3.6)	0.463
Tachinid spp.	0.4 (0.0,2.6)	0.6 (0.1,3.3)	0.717
A. punctipennis	0.6 (0.1,2.8)	0.1 (0.0,4.6)	0.411
E. funeralis	0.6 (0.1,2.8)	0.1 (0.0,4.6)	0.411
M. fasciatum	0.4 (0.0,2.6)	0.3 (0.0,3.4)	0.901
Leioproctus spp.	0.2 (0.0,2.7)	0.1 (0.0,4.6)	0.819
Muscid spp.	0.2 (0.0,2.8)	0.0 (0.0,*)	0.389
H. hochstetteri	0.1 (0.0,3.9)	0.1 (0.0,4.7)	0.936
C. lancifer	0.1 (0.0,3.9)	0.0 (0.0,*)	-
S. melas	0.1 (0.0,3.9)	0.0 (0.0,*)	-
Therevidae spp.	0.1 (0.0,3.9)	0.0 (0.0,*)	-

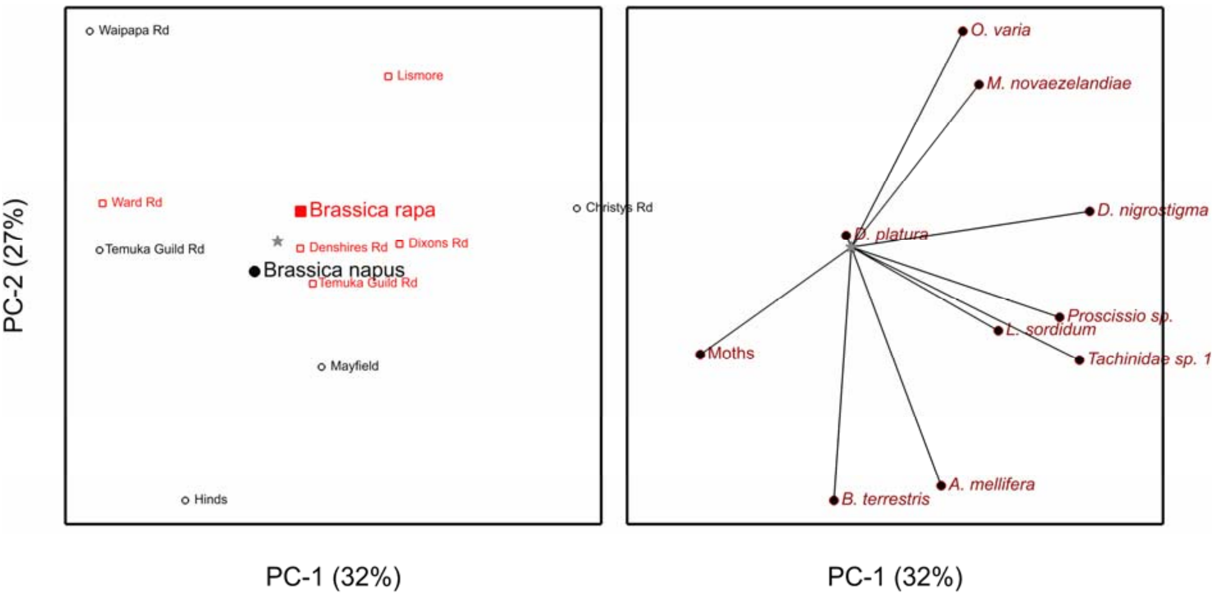
Principal components analysis

The first two principal components accounted for 59% of the variation between the locations and the next two components accounted for a further 30%. The species means were fairly close together on the plot, despite there being some fairly strong differences between the individual locations.

Table 2 Vector lengths and co-ordinates for the first two dimensions of the principal components analysis.

Insect species	length	PC1	PC2
A. mellifera	3.04	1.07	-2.85
B. terrestris	3.03	-0.21	-3.02
Tachinidae sp. 1	3.03	2.71	-1.35
O. varia	2.90	1.33	2.58
D. nigrostigma	2.87	2.83	0.43
Proscissio sp.	2.61	2.48	-0.84
M. novaezelandiae	2.47	1.52	1.94
Moths	2.20	-1.80	-1.28
L. sordidum	2.01	1.75	-1.00
D. platura	0.15	-0.06	0.14

Figure 3 Principal components bi-plot, showing scores for each site and the mean score per crop on the left, and vectors for each insect species to the right. The length of the vector correlates with the importance of the insect species in the plot, and the angle between vectors indicates the correlation between insect species, with high correlations for vectors with angles close to 0° or 180°, and low correlations for angles close to 90°.



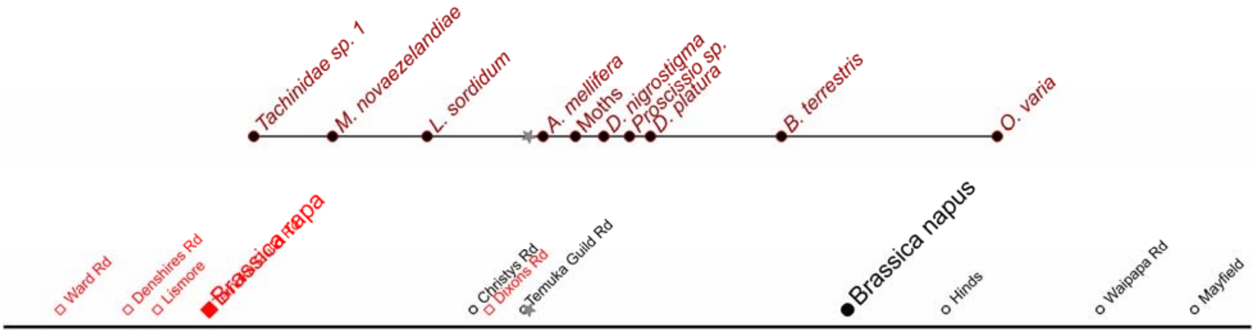
Canonical Variate analysis

Insect species with the greatest variation in numbers between the crops were *O. varia*, *Tachinidae* sp. *1* and *B. terrestris*, with lower numbers for *O. varia*, and *Bombus terrestris* each these for *B. napus* than for *B. rapa*. Higher numbers of *Tachinidae* sp. 1 were found with *Brassica rapa* than for *B. napus*.

Table 3 Canonical variate lengths for each species.

Insect species	length
O. varia	0.6329
Tachinidae sp. 1	0.3710
B. terrestris	0.3415
M. novaezelandiae	0.2646
D. platura	0.1646
L. sordidum	0.1369
Proscissio sp.	0.1363
D. nigrostigma	0.1016
Moths	0.0633
A. mellifera	0.0196

Figure 4 Canonical variates plot, showing which insect species most differentiate between the two crops. Insect species furthest from the overall mean (star) varied the most between the two crops.



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