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APPENDIX S1. Supplementary tables S1 to S6.

Table S1. Landscape composition and habitat diversity at 250, 500 and 1000 m.

Table S2. Matrix of the correlation coefficients among landscape variables included in the models.

Table S3. Model selection for landscape effects on lepidoptera incidence, aphid incidence and flea beetle abundance.

Table S4. Model selection for Parasitoid-host ratios.

Table S5. Model selection for landscape effects on plant damage and crop yield.

Table S6. Test of conditional independence claims associated with the path model shown in FIG. 6.

Table S1. Proportion of meadows, seminatural habitats, cropland, and landscape diversity (Shannon- Wiener index) at 250, 500 and 1000 m around the experimental fields.

	Meadows		Seminatural habitats		Cropland		Landscape diversity index	
Scale	min	max	min	max	min	max	min	max
250	3.5	71.5	0	64.7	0	90.0	1.26	2.61
500	0.3	67.0	1.0	76.4	0.7	80.7	1.55	2.72
1000	7.0	53.8	5.8	86.9	1.7	62	1.90	2.67

Table S2. Matrix of the correlation coefficients among landscape variables included in the models. Bold font indicates significant correlations (Pearson correlation $p < 0.05$).

Landscape variable/scale	Cropland/250	Cropland/500	Cropland/1000	Meadows/250	Meadows/500	Meadows/1000	Seminatural habitats/250	Seminatural habitats/500
Cropland/ 250								
Cropland/ 500	**0.8943**							
Cropland/1000	**0.6584**	**0.6758**						
Meadows/250	**-0.3317**	-0.2763	0.1138					
Meadows/ 500	-0.2167	-0.2393	0.2224	**0.8813**				
Meadows/1000	0.1384	0.0513	0.2491	**0.6153**	**0.7096**			
Seminatural habitats/250	**-0.4487**	**-0.3994**	-0.2487	-0.0068	0.0197	-0.1592		
Seminatural habitats/500	-0.2448	**-0.3396**	-0.2347	-0.0272	-0.0889	-0.1078	**0.8574**	
Seminatural habitats/1000	-0.1505	-0.1072	**-0.3571**	-0.1703	-0.2528	**-0.3763**	**0.7179**	**0.7801**

Table S3. Model selection for landscape effects on lepidoptera incidence, aphid incidence and flea beetle abundance. The overall best model (most parsimonious), competing models (AICc ≤2) and the average models are presented. The overall best models are bolded. The number of parameters in the model (k), the AICc, AICc difference (ΔAICc) and determination coefficients (R^2) are given for each model. Values in parentheses correspond to the contribution (i.e., importance) of each variable calculated over the best set of models. Models were selected using the dredge function based on second order Akaike Information Criterion (AICc). Mean and significance (*p < 0.05, **p < 0.01, ***p < 0.0001) are given for the coefficients of each linear mixed effects model.

						Landscape variables									
						Cropland			**Semi-natural areas**			**Meadows**			
Response variable	**Model**	**AICc**	**ΔAICc**	**R2**	**k**	**250 m**	**500 m**	**1000 m**	**250 m**	**500 m**	**1000 m**	**250 m**	**500 m**	**1000 m**	**Year**
	1	**-32.7**	**0.00**	**0.718**	**2**									**-0.454*** **	**+*** **
	2	-32.3	0.34	0.764	3		-0.211							-0.521***	+***
	3	-31.6	1.10	0.749	3	-0.141								-0.485***	+***
	4	-31.2	1.48	0.725	3			-0.212						-0.440 ***	+***
Lepidoptera incidence	**Average model**	-30.9		1.80	0.755	5	-0.141 (0.20)	-0.062 (0.29)	-0.035 (0.16)						-0.477 (1)	0.268 (1)
	1	**-15.1**	**0.00**	**0.575**	**2**							**0.658***			**+*** **
	2	-14.5	0.62	0.635	3							0.483*		0.456	+***
	3	-13.8	1.38	0.587	2								0.723		+***
	4	-13.3	1.84	0.609	3						-0.206	0.623*			+***
Aphids incidence	**Average model**	-13.4		1.7	0.642	5					-0.020 (0.15)	0.498 (0.81)	0.088 (0.19)	0.121 (0.28)	0.319 (1)
	1	117.4	0.00	0.447	3					2.235		2.61**			+*
	2	117.7	0.28	0.482	3					2.356			2.902**		+*
	3	**119.2**	**1.79**	**0.464**	**2**							**2.235****			**+***
Flea beetles abundance	**Average model**	116.3	1.1	0.466	4					1.882 (0.82)		1.547 (0.62)	1.108 (0.38)		-0.745 (1)

Table S4. Model selection for landscape effects on Parasitoid-host ratios. The overall best model (most parsimonious), competing models (AICc ≤2) and the average models are presented. The overall best models are in bold type. The number of parameters in the model (k), the AICc, AICc difference (ΔAICc) and determination coefficients (R^2) are given for each model. Values in parentheses correspond to the contribution (i.e., importance) of each variable calculated over the best set of models. Models were selected using the dredge function based on second order Akaike Information Criterion (AICc). Mean and significance (*p < 0.05, **p < 0.01, ***p < 0.0001) are given for the coefficients of each linear mixed effects model.

						Landscape variables								
						Cropland			**Semi-natural areas**			**Meadows**		
Response variable	**Model**	**AICc**	**ΔAICc**	**R2**	**k**	**250 m**	**500 m**	**1000 m**	**250 m**	**500 m**	**1000 m**	**250 m**	**500 m**	**1000 m**
Parasitoid-host ratio	1	-14.5	0.00	0.843	1						-0.682			
	2	**-13.0**	**1.50**	**0.627**	**1**								**0.844***	
	Average model	-14.2	0.30	0.769	2						-0.439 (0.59)		0.300 (0.41)	

Table S5. Model selection for landscape effects on plant damage and crop yield. The overall best model (most parsimonious), competing models (AICc ≤2) and the average models are presented. The overall best models are bolded. The number of parameters in the model (k), the AICc, AICc difference (ΔAICc) and determination coefficients (R2) are given for each model. Values in parentheses correspond to the contribution (i.e., importance) of each variable calculated over the best set of models. Models were selected using the dredge function based on second order Akaike Information Criterion (AICc). Mean and significance (*p < 0.05, **p < 0.01, ***p < 0.0001) are given for the coefficients of each linear mixed effects model.

					Landscape variables													
					Cropland			Seminatural areas			Meadows							
Model	**AICc**	**ΔAICc**	**R2**	**k**	**250 m**	**500 m**	**1000 m**	**250 m**	**500 m**	**1000 m**	**250 m**	**500 m**	**1000 m**	**Year**	**Flea beetle abundance**	**Aphid Incidence**	**Lepidoptera incidence**	**Plant damage**
1	**47.3**	**0.00**	**0.639**	**5**							**1.464***		**-1.509***	**+*** **	**0.051****		**1.313**	
1	**297.6**	**0.00**	**0.587**	**1**														**-0.359****
2	298.3	0.69	0.598	2											0.614			-0.432**
3	298.4	1.09	0.588	2				10.750										-0.349**
4	298.6	1.31	0.628	3				12.530							0.701			-0.428**
5	298.64	1.34	0.637	3											0.843	-9.289		-0.480**
6	298.97	1.67	0.722	5				38.790	-29.460						1.009	-11.310		-0.473**
7	299.13	1.83	0.592	2										+				-0.414**
8	299.18	1.88	0.641	3				30.220	-23.400									-0.343**
9	299.2	1.9	0.609	2												-5.189		-0.372**
10	299.2	1.90	0.668	4				12.930							0.951	-9.499		-0.478**
11	299.27	1.97	0.673	4				32.990	-24.010						0.716			-0.423**
Average model	296.7	1.6	0.722	6				21.874 (0.47)	-25.788 (0.21)					-2.290 (0.07)	0.785 (0.52)	-8.926 (0.30)		-0.409** (1)

Table S6. Test of conditional independence claims associated with the path model shown in FIG.6.

D-sep claim of independence	Mix effect model*	*p* value
$(X_4; X_6)\|\{X_3, X_8\}$	$X_6 \sim \mathbf{X_4} + X_3 + X_8$, random = ~1|study areas/field	0.547
$(X_4; X_1)\|\{X_2\}$	$X_1 \sim \mathbf{X_4} + X_2$, random =~1|study areas/field	0.529
$(X_3; X_5)\|\{X_4, X_8\}$	$X_5 \sim \mathbf{X_3} + X_4 + X_8$, random = ~1 study areas/field	0.894
$(X_3; X_7)\|\{X_4, X_8\}$	$X_7 \sim \mathbf{X_3} + X_4 + X_8$, random = ~1| study areas/field	0.138
$(X_3; X_1)\|\{X_2\}$	$X_1 \sim \mathbf{X_3} + X_2$, random = ~1| study areas/field	0.614
$(X_8; X_1)\|\{X_2\}$	$X_1 \sim \mathbf{X_8} + X_2$, random = ~1| study areas/field	0.403
$(X_5; X_6)\|\{X_4, X_8\}$	$X_6 \sim \mathbf{X_5} + X_4 + X_8$, random = ~1| study areas/field	0.514
$(X_5; X_7)\|\{X_4, X_8\}$	$X_7 \sim \mathbf{X_5} + X_4 + X_8$, random = ~1| study areas/field	0.206
$(X_5; X_1)\|\{X_2, X_4, X_8\}$	$X_1 \sim \mathbf{X_5} + X_2 + X_4 + X_8$, random = ~1| study areas/field	0.131
$(X_6; X_7)\|\{X_3, X_4, X_8\}$	$X_7 \sim \mathbf{X_6} + X_3 + X_4 + X_8$, random = ~1| study areas/field	0.392
$(X_6; X_1)\|\{X_2, X_3, X_8\}$	$X_1 \sim \mathbf{X_6} + X_2 + X_3 + X_8$, random = ~1| study areas/field	0.877
$(X_7; X_2)\|\{X_3, X_4, X_5, X_6, X_8\}$	$X_2 \sim \mathbf{X_7} + X_3 + X_4 + X_5 + X_6 + X_8$, random = ~1| study areas/field	0.957
$(X_7; X_1)\|\{X_2, X_4, X_8\}$	$X_1 \sim \mathbf{X_7} + X_2 + X_4 + X_8$, random = ~1| study areas/field	0.926

Notes: The notation '(X,Y)|{A,B,…}' means that variables X and Y are d-separated, and hypothesized to be probabilistically independent, conditional on the set of variables {A,B,…} (Shipley 2004).

X_1 = crop yield (square root transformed), X_2 = plant damage (log-transformed), X_3 = proportion of meadows in a 1000m radius, X_4 = proportion of meadows in a 250 m radius, X_5= flea beetle abundance (log-transformed), X_6= Lepidoptera incidence (square root transformed), X_7= aphid incidence (square root transformed), X_8= Year of study.

Each independent claim was tested using mixed effect models obtained in R with the nlme package. The factors in bold are those dependent variables whose partial regression slope should be not significantly different from zero ($p > 0.05$) if the pair of variables (X, Y) are statistically independent.

LITERATURE CITED

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