

**Online Supplements:**

**Supplementary Table 1:** General linear models testing the determinants of A) host and B) parasitoid species richness pooled over the entire sampling period. Habitat type was a fixed factor in models A & B. In model B (Parasitoids): host diversity (total pooled) and abundance were also included as covariables, with interaction effects between these and habitat type.

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Model A: Host richness					
<b>Variable</b>	<b>DF</b>	<b>SS</b>	<b>MS</b>	<b>F</b>	<b>P</b>
Habitat type	4	18.17	4.54	0.80	0.535
Error	43	245.75	5.72		

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Model B: Parasitoid richness					
<b>Variable</b>	<b>DF</b>	<b>SS</b>	<b>MS</b>	<b>F</b>	<b>P</b>
Habitat type	4	4.42	1.10	0.84	0.508
Host richness	1	0.44	0.44	0.34	0.565
Host abundance	1	0.91	0.90	0.69	0.411
Habitat*Host richness	4	11.89	2.97	2.26	0.083
Habitat*Host abundance	4	11.79	2.95	2.25	0.085
Error	33	43.22	1.31		

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**Supplementary Table 2:** General linear models testing the effect of parasitoid diversity pooled over the entire sampling period on rates of parasitism for the six most common host species. Habitat type was included as a fixed factor. Individ. = number of individuals. R<sup>2</sup> values are adjusted for ties.

<b>Host species</b>	Indiv.	Parasitoid spp.	Parasitoid indiv.	Effect	D.f.	F	p	R <sup>2</sup> (adj)
<i>Anthidium</i> sp.	7841	4	2877	0	-	-	-	-
<i>Pseudodynerus</i> sp.	6884	6	487	+	1,38	7.23	0.011	0.138
<i>Trypoxylon</i> sp.2	1548	2	173	0	-	-	-	-
<i>Zeta</i> sp.	955	4	108	+	1,14	16.8	0.001	0.513
Sphecidae Gen. sp. 2	846	5	78	0	-	-	-	-
<i>Neofidelia</i> sp.	761	5	93	0	-	-	-	-

**Supplementary Appendix 1:** Parasitoid species/morphospecies, mode of attack, hosts parasitised in our study, and the habitat types (R = Rice, P = Pasture, C = Coffee, Ac = Abandoned coffee, F = Forest) in which they were found.

Family	Species/ morphospecies	Mode of attack	Observed hosts	Habitat types
Eulophidae	<i>Melittobia acasta</i>	Gregarious ectoparasitoid of several orders. Facultatively hyperparasitic	<i>Anthidium</i> sp. <i>Chrysis</i> sp. <i>Euglossa variabilis</i> <i>Megachile</i> sp.1 <i>Monobia angulosa</i> <i>Neofidelia</i> sp. <i>Pseudodynerus</i> sp. <i>Tetrapedia</i> sp. <i>Trypoxylon</i> sp.1 <i>Trypoxylon</i> sp.2 <i>Trypoxylon</i> sp.3 <i>Zeta</i> sp. Eumeninae Gen. sp.3 Eumeninae Gen. sp.4 Sphecidae Gen. sp.2 Sphecidae Gen. sp.3 Pompilidae Gen. sp.1	All
Chrysididae	<i>Chrysis</i> sp.	Cleptoparasite (kills host to eat food resources) of Hymenoptera.	<i>Anthidium</i> sp. <i>Monobia angulosa</i> <i>Neofidelia</i> sp. <i>Pseudodynerus</i> sp. <i>Tetrapedia</i> sp. <i>Trypoxylon</i> sp.1 <i>Trypoxylon</i> sp.2 <i>Trypoxylon</i> sp.3 <i>Zeta</i> sp. Sphecidae Gen. sp.2 Sphecidae Gen. sp.3 Unidentified host sp.1	All
Megachilidae	<i>Coelioxys</i> sp.	Cleptoparasite (kills host to eat food resources).	<i>Neofidelia</i> sp. <i>Tetrapedia</i> sp. <i>Pseudodynerus</i> sp. <i>Megachile</i> sp.1 <i>Megachile</i> sp.2 Megachilidae Gen. sp.5	All
Bombyliidae (Diptera)	Bombyliidae Gen. sp.1	Solitary ectoparasitoid	<i>Anthidium</i> sp. <i>Pseudodynerus</i> sp. Sphecidae Gen. sp. 2 <i>Zeta</i> sp.	R, P, C

Leucospidae	Leucospidae Gen. sp.1	Solitary ectoparasitoid of aculeate Hymenoptera. Facultatively hyperparasitic	<i>Anthidium</i> sp. <i>Trypoxylon</i> sp.3 Eumeninae Gen. sp.4 Megachilidae Gen. sp.5	R, P, C, Ac
Leucospidae	<i>Leucospis</i> sp.	Solitary ectoparasitoid of aculeate Hymenoptera. Facultatively hyperparasitic	<i>Neofidelia</i> sp. <i>Tetrapedia</i> sp. <i>Pseudodynerus</i> sp. Sphecidae Gen. sp. 2	P, C, Ac, F
Ichneumonidae	Phygadeuontinae Gen. sp.	Solitary endoparasitoid	<i>Neofidelia</i> sp. Sphecidae Gen. sp. 2	R, C, Ac, F
Chalcididae	Chalcididae Gen. sp.	Solitary endoparasitoid	<i>Pseudodynerus</i> sp.	R, P
Unidentified	Unidentified parasitoid sp.	-	<i>Zeta</i> sp. Sphecidae Gen. sp.3	R, C

**Supplementary Figures 1-5:** Variation in A) parasitism rates, parasitoid (natural enemy) species richness and host species richness, and B) parasitoid (natural enemy) and host abundance per plot (mean  $\pm$  SE) through time for each habitat type. Sampling was carried out every month from June 2003 to October 2004. Parasitism rates are the proportion of host larvae parasitised. The habitat types were: Figure 1: Rice, Figure 2: Pasture, Figure 3: Coffee, Figure 4: Abandoned coffee, and Figure 5: Forest.

Figure 1A: Rice

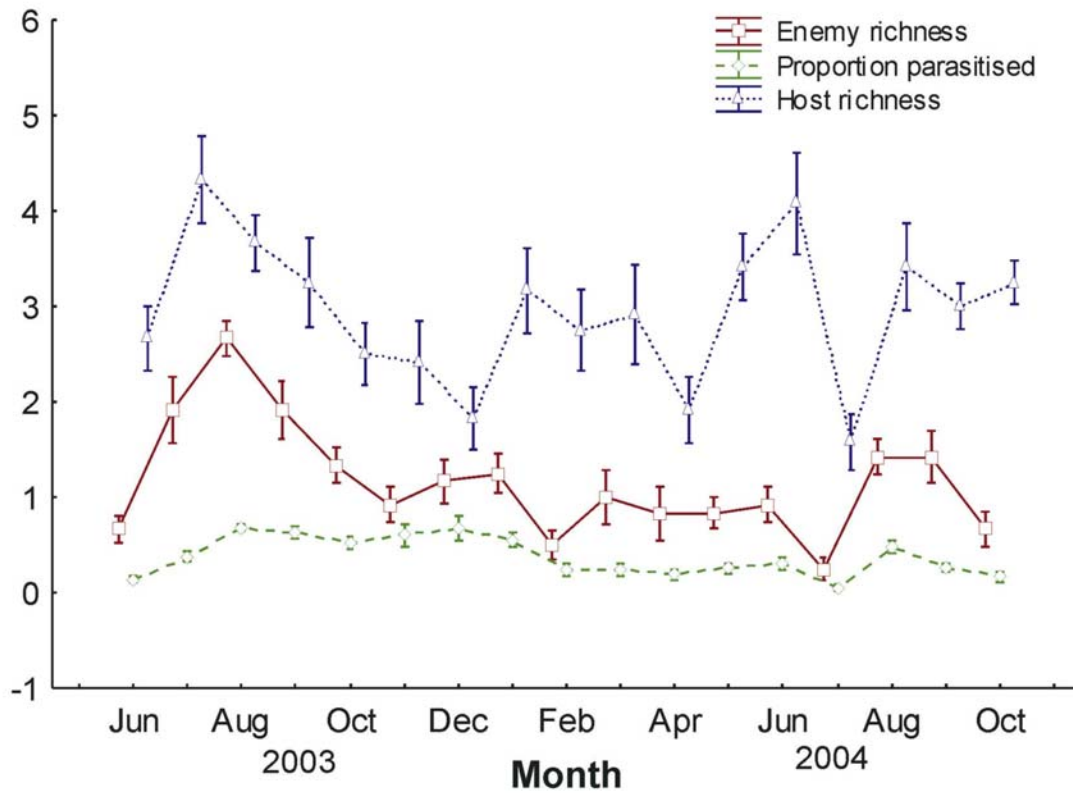


Figure 1B: Rice

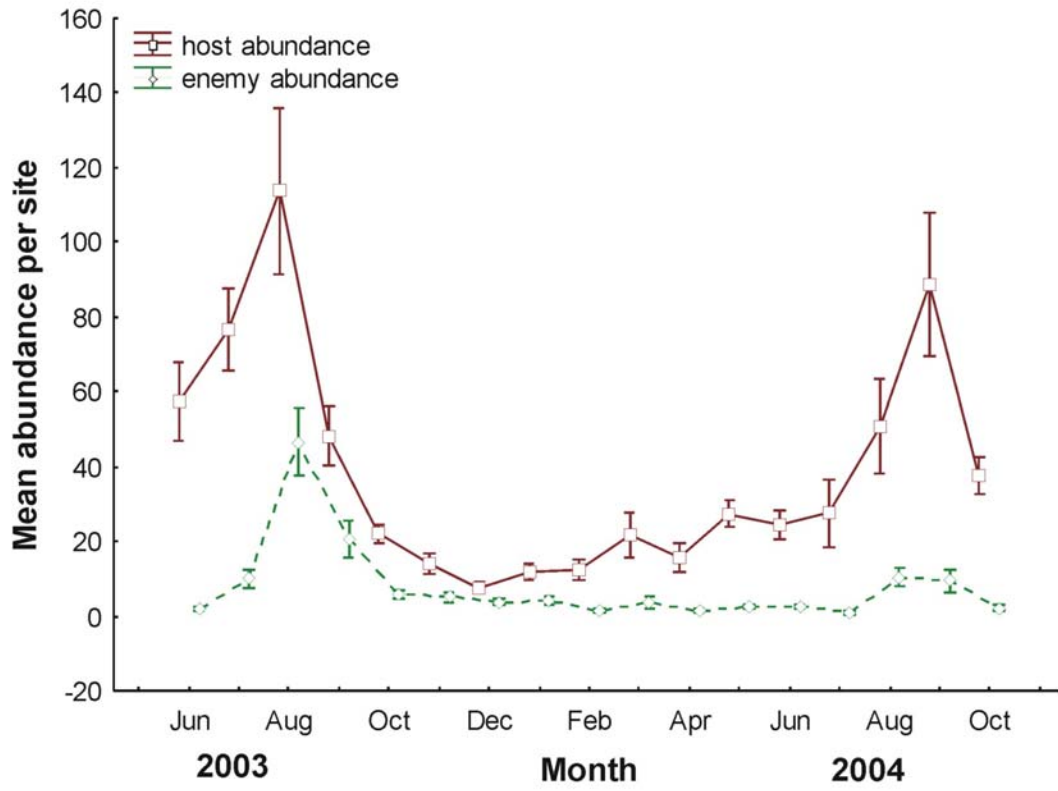


Figure 2A: Pasture

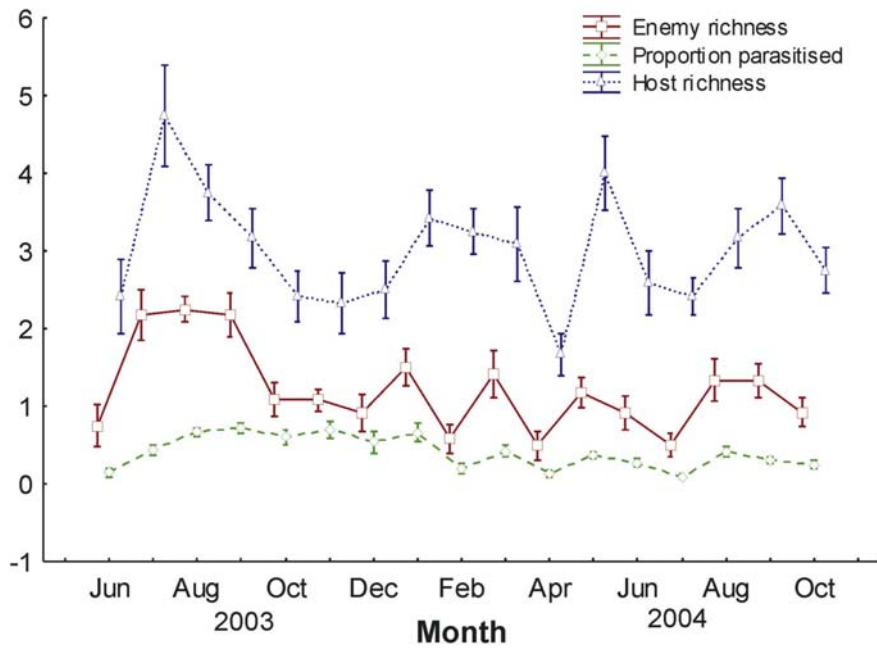


Figure 2B: Pasture

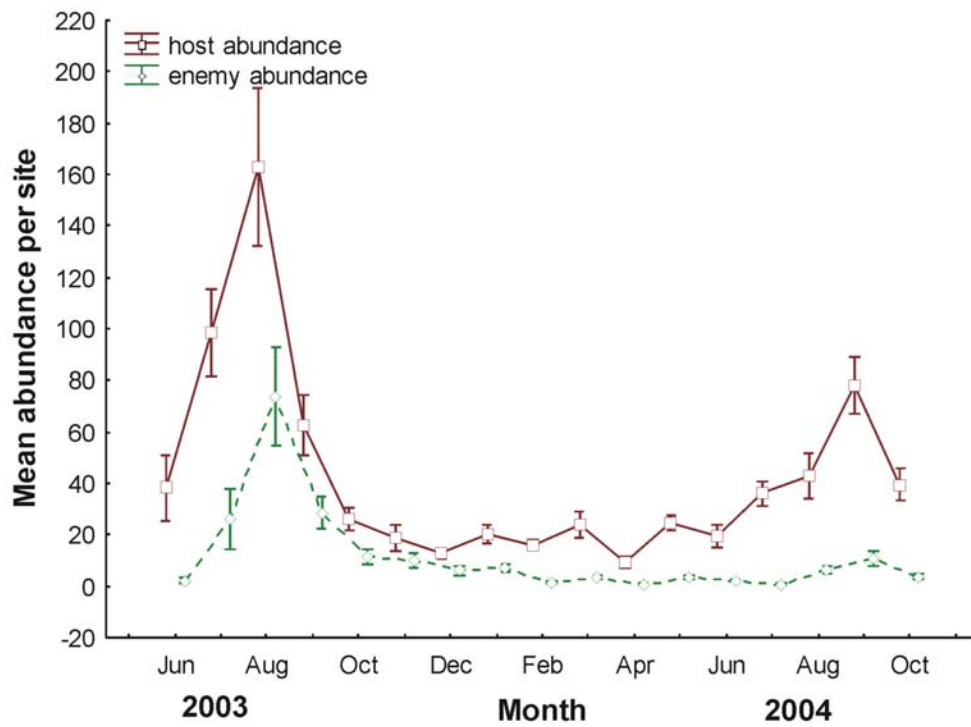


Figure 3A: Coffee

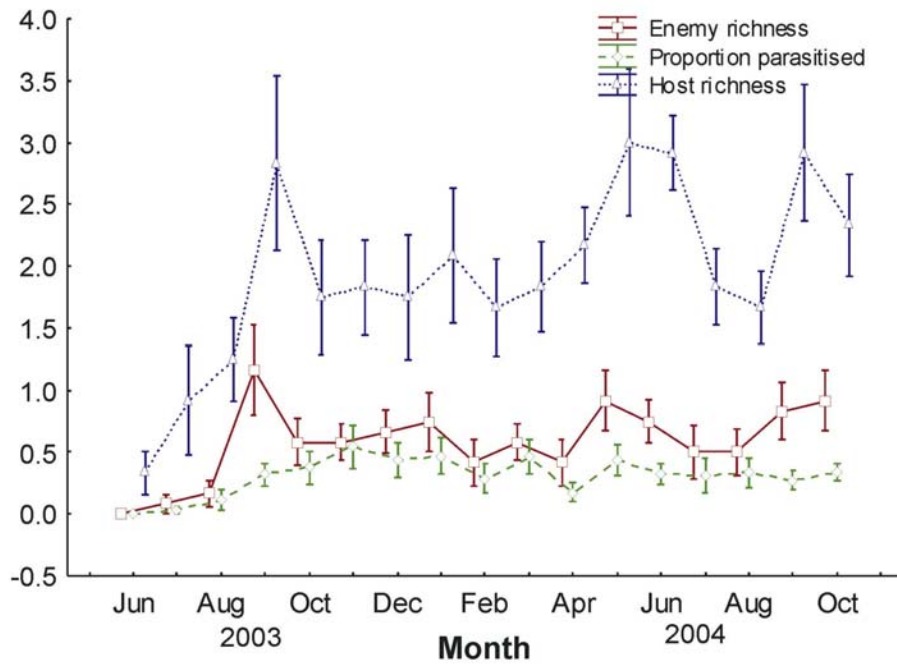


Figure 3B: Coffee

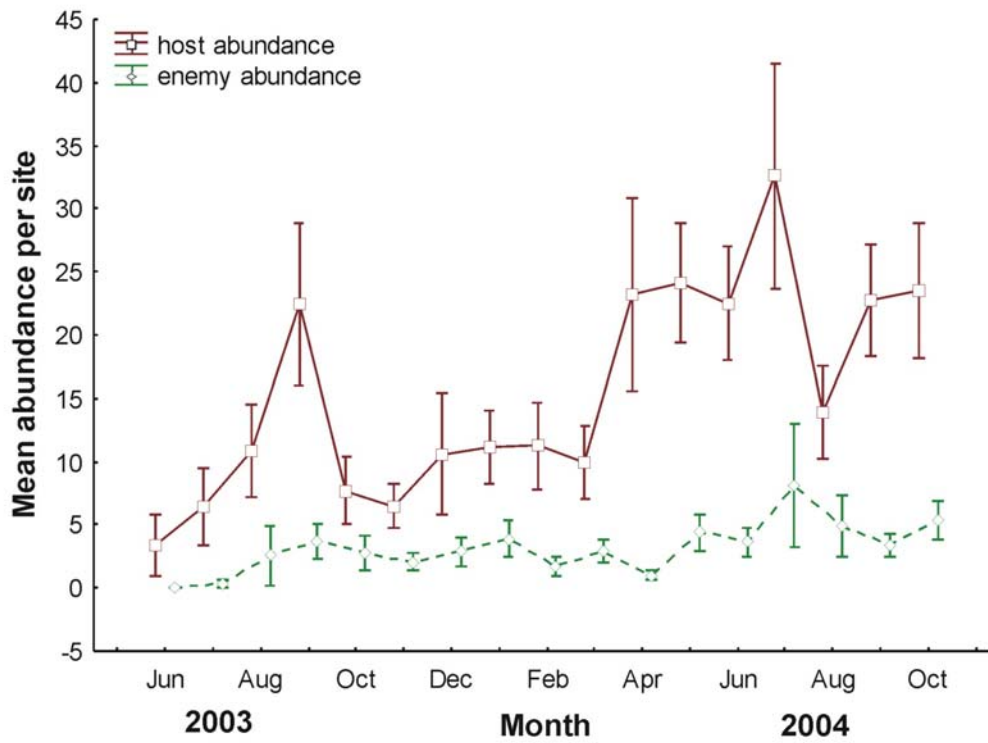




Figure 4A: Abandoned coffee

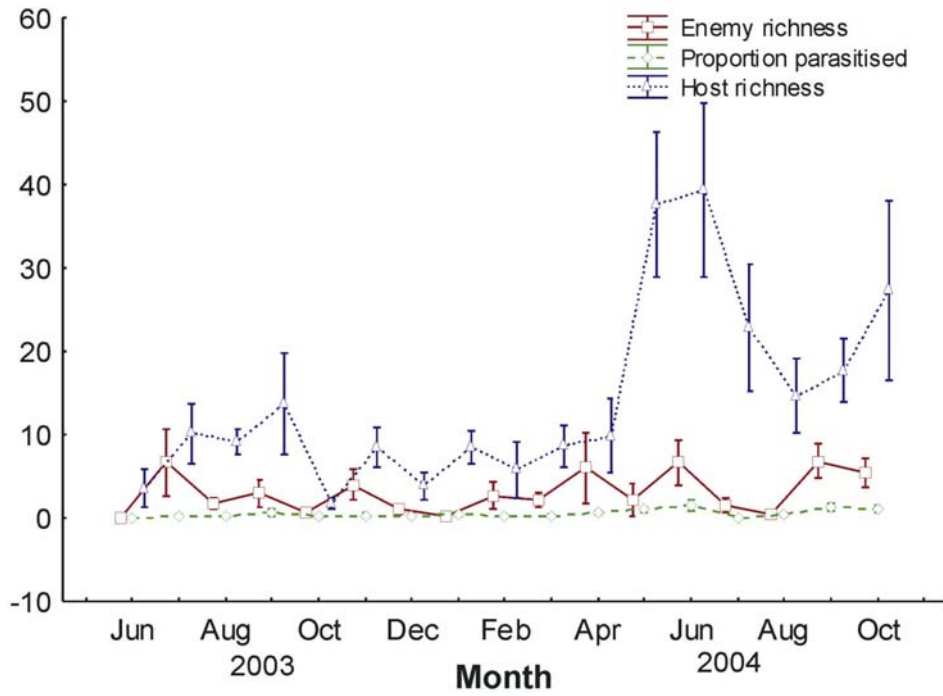


Figure 4B: Abandoned coffee

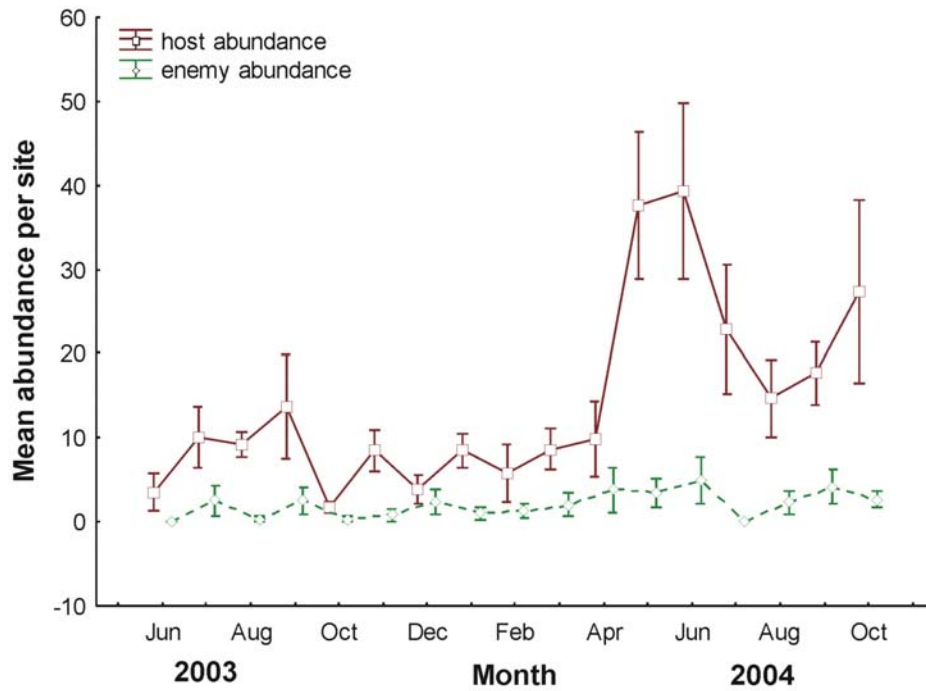


Figure 5A: Forest

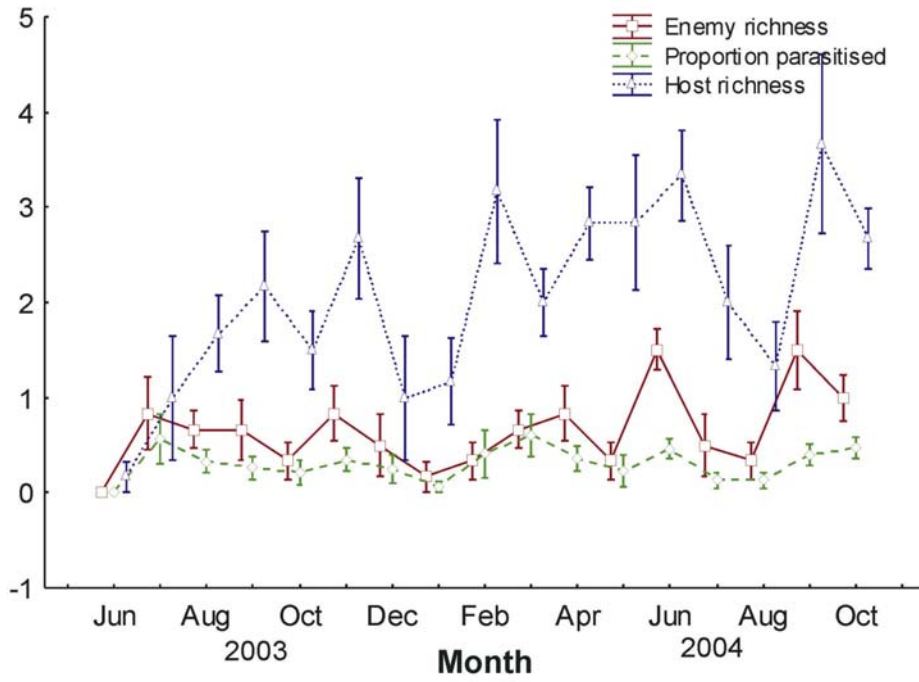
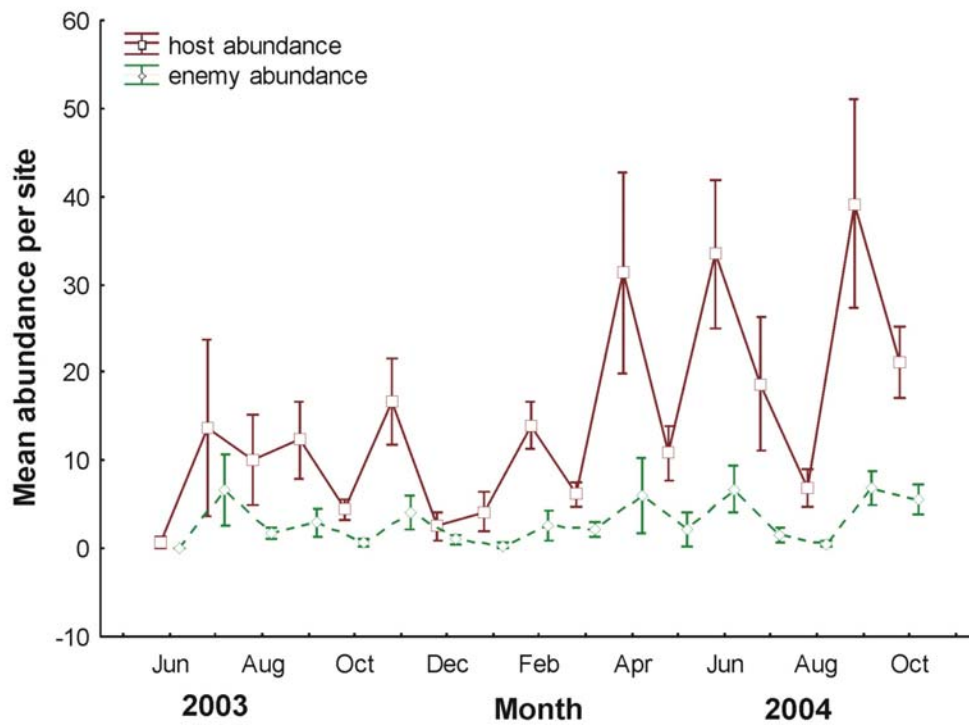


Figure 5B: Forest



**Supplementary Figure 6:** Map of the study region showing study plots. Map by M. Torres, modified from: Tylianakis, J.M., Klein, A-M., Lozada, T. & Tscharntke, T. (2006) Spatial scale of observation affects  $\alpha$ ,  $\beta$  and  $\gamma$  diversity of cavity-nesting bees and wasps across a tropical land use gradient. *Journal of Biogeography*, in press.

