Supplementary material

correspondence to: coll.s.nell@gmail.com

Tree species

A – *S. macrophylla*
B – *C. pentandra*
C – *C. dodecandra*
D – *P. piscipula*
E – *T. rosea*
F – *E. cyclocarpum*

ACEF	A	B	A	ABCF									
A	ABDE	A	ACDF	A	ABCF								
ABDF	E	ABEF	A	ACDF	A							A	
A	CDEF	A	BCDF	A	C	ABCE	A	F	A	BCDE	A	ADEF	A
D	ACDE	F	ABDE	ABCF	B	ABCD	ACEF	A	ACDF	A	BDEF	C	A
A	A	ABDF	A	D	A	A	ADEF	ACDE	A	ABEF	ACEF	BCEF	A
ABEF	A	A	A	ABCE	ADEF	ACDE	A	A	ADEF	A	E	A	ABCD
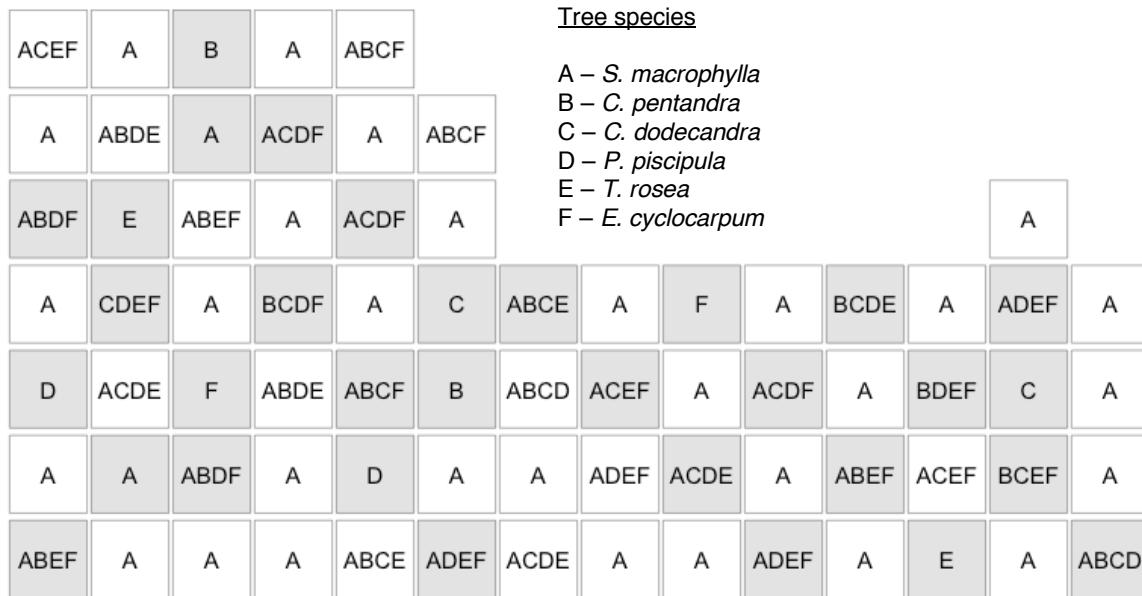
Fig S1

Map of the UADY Tree Diversity Experiment plot design. Letters indicate tree richness and composition in each plot; A = *S. macrophylla*, B = *C. pentandara*, C = *C. dodecandra*, D = *P. piscipula*, E = *T. rosea*, F = *E. cyclocarpum*. Experimental plots used for this study are shaded.
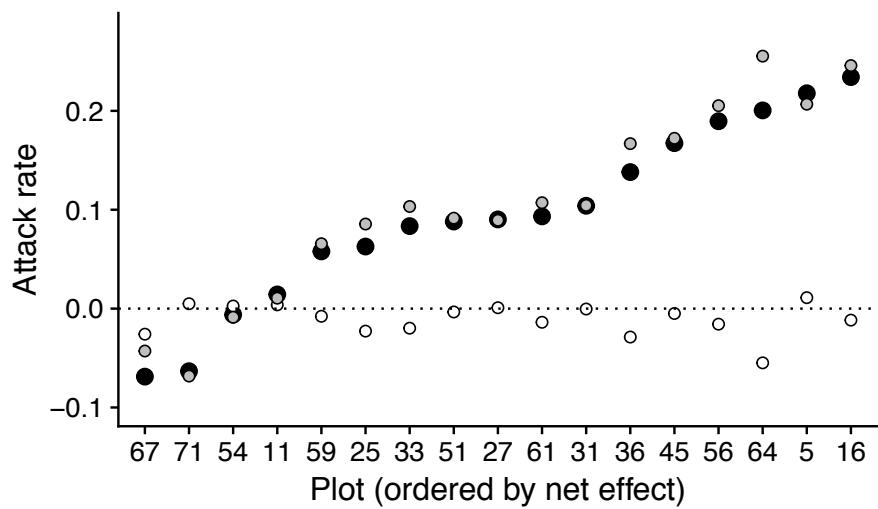
Figure S2
The net effect of tree diversity on model attack rate for each polyculture plot (n = 17, black fill) based upon tree-level attack rates. The net effect is the difference between attack rates in polyculture and the average attack rates for component tree species in monoculture. This net effect is decomposed into selection (white fill) and complementarity effects (grey fill).
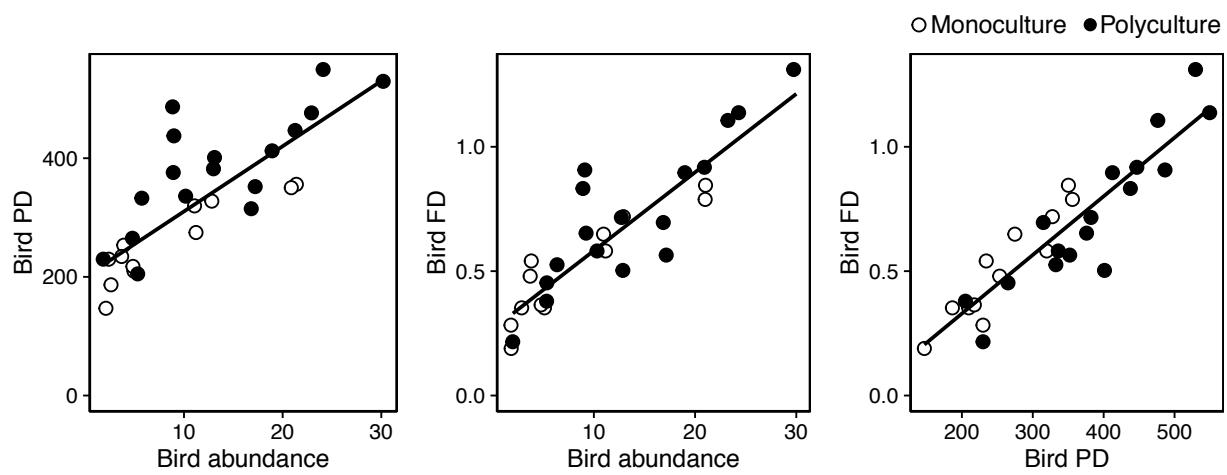
Fig S3

Bi-variate relationships between plot-level bird abundance and PD (R2 = 0.64, P < 0.001), abundance and FD (R2 = 0.79, P < 0.001) and PD and FD (R2 = 0.82, P < 0.001). Monoculture plots are indicated with open circles and polycultures are filled circles. Axis units are the same as in Fig. 2.

Table S1. List of bird species and species-level foraging attributes used to calculate functional diversity. Dietary traits were used to subset insect-eating species (Category = Invert, % Invert > 0), and functional diversity was calculated based on the primary period of activity (0 = diurnal, 1 = nocturnal), body mass, and time spent foraging in forest strata. Taxonomic names follow the Birdlife world list V3. Bird traits are sourced from Wilman *et al.* (2014).

Scientific name	Diet		Period of activity	Mass (mg)	Percent of time spent in foraging strata				
	Category	% Invert			Ground	Understory	Mid-high	Canopy	Aerial
Amazilia rutila	Fruit/Nect	10	0	5.2	0	20	70	10	0
Arremonops rufivirgatus	Omnivore	40	0	22.4	80	20	0	0	0
Buteo magnirostris	Vert/Scav	40	0	269.0	33	33	33	0	0
Camptostoma imberbe	Invert	70	0	7.4	0	20	30	50	0
Caprimulgus badius	Invert	100	1	59.8	0	10	80	10	0
Columbina passerina	Omnivore	10	0	35.4	100	0	0	0	0
Columbina talpacoti	Plant/Seed	10	0	46.0	100	0	0	0	0
Contopus cinereus	Invert	100	0	11.6	0	30	70	0	0
Cyanocompsa parellina	Fruit/Nect	20	0	15.6	20	80	0	0	0
Cyanocorax yncas	Omnivore	40	0	78.5	0	70	30	0	0
Cyanocorax yucatanicus	Omnivore	40	0	118.0	30	30	20	20	0
Cyclarhis gujanensis	Invert	100	0	28.8	0	40	40	20	0
Dendroica dominica	Invert	100	0	9.7	0	0	20	80	0
Dives dives	Invert	100	0	91.3	80	10	10	0	0
Eumomota superciliosa	Invert	70	0	62.5	20	10	60	0	10
Icterus gularis	Invert	70	0	55.2	0	40	40	20	0
Icterus spurius	Omnivore	40	0	19.4	30	50	20	0	0
Leptotila verreauxi	Plant/Seed	20	0	146.8	100	0	0	0	0
Megarynchus pitangua	Invert	70	0	69.9	0	10	50	40	0
Melanerpes aurifrons	Omnivore	40	0	80.8	20	20	60	0	0
Melanoptila glabrirostris	Invert	60	0	35.4	0	100	0	0	0
Momotus momota ssp. lessonii	Omnivore	50	0	114.9	30	30	30	10	0
Myiarchus tuberculifer	Invert	80	0	17.7	0	33	33	33	0
Myiarchus tyrannulus	Invert	70	0	35.5	20	80	0	0	0
Myiozetetes similis	Omnivore	40	0	28.0	20	20	40	20	0
Nyctidromus albicollis	Invert	100	1	57.8	40	30	20	0	10

Species	Diet								
Pachyramphus aglaiae	Omnivore	50	0	29.7	0	50	50	0	0
Pachyramphus major	Omnivore	50	0	24.8	0	0	100	0	0
Piaya cayana	Invert	100	0	101.9	0	0	20	80	0
Pitangus sulphuratus	Omnivore	40	0	62.9	50	40	10	0	0
Polioptila caerulea	Invert	100	0	5.8	0	50	50	0	0
Quiscalus mexicanus	Invert	80	0	160.5	80	10	10	0	0
Rostrhamus sociabilis	Invert	100	0	366.9	100	0	0	0	0
Saltator atriceps	Invert	60	0	83.8	0	40	60	0	0
Saltator coerulescens	Invert	100	0	54.9	0	70	30	0	0
Seiurus aurocapilla	Invert	70	0	18.8	80	20	0	0	0
Thryothorus maculipectus	Invert	100	0	15.0	0	100	0	0	0
Tolmomyias sulphurescens	Invert	90	0	14.3	0	30	70	0	0
Trogon melanocephalus	Omnivore	50	0	85.1	0	20	70	10	0
Turdus grayi	Fruit/Nect	30	0	79.5	0	20	80	0	0
Tyrannus couchii	Invert	80	0	39.0	0	0	100	0	0
Tyrannus melancholicus	Invert	100	0	37.4	0	0	50	50	0
Uropsila leucogastra	Invert	100	0	9.0	33	33	33	0	0
Vireo griseus	Invert	70	0	11.4	0	40	40	20	0