



Figure S1. (A) Geographic location of Colombia within South America. (B) Location of the Caldas department within Colombia. (C) Sampling site location of cocoa crops (■), coffee crops (△), citrus crops (○), and secondary forests (+).

Table S1. Functional traits of bird species in agroecosystems (CC = cocoa crops, CF = coffee crops, CT = citrus crops) and secondary forests (SF). Trait abbreviations are: BD: bill Depth (mm), Ta: Tarsus length (mm), T: Tail Length (mm), W: Weight (g), WC: Wing Chord (mm), BW: Bill Width (mm), TC: Total Culmination (mm), Fr: frugivore, Gr: Granivore, In: Insectivorous, Ne: Nectarivore, Cu: Cup, En: Enclosed, Ho: Hole, Pl: Platform, Ca: Canopy, Sca: sub-canopy, Un: Underbrush, Grf: Ground, Fv: Flower visiting, Ru: Rummage, Tr: trapper, Th: thief, F: Forest, FE: Forest Edge, Os: Open Site.

Family	Species	Abundance					Morphological Traits						Life history and behavioral traits				
		CC	CF	CT	SF	BD	TC	BW	WC	Ta	T	W	Diet	Nest types	Foraging strata	Foraging strategies	Habitat Pref.
Tinamidae	<i>Crypturellus soui</i>				x	4.1	16.3	4.3	95	33.8	33	88	Fr - Gr - In	Pl	Grf	Ru	F
Columbidae	<i>Leptotila verreauxi</i>	x	x	x		7	17.3	4.8	137	33.1	101	137	Fr - Gr	Pl	Grf	Ru	FE - Os
	<i>Zenaida auriculata</i>		x	x		4	18.3	4.2	135	22.5	96.5	110	Gr	Pl	Grf	Ru	F - Os
	<i>Columbina passerina</i>			x		2.9	12.9	2.3	74.5	19.6	57	30	Fr - Gr	Pl	Grf	Ru	Os
	<i>Columbina minuta</i>	x		x		3.2	10.9	3.6	76	18	55	36.5	Gr	Cu	Grf	Ru	Os
	<i>Columbina talpacoti</i>	x	x	x	x	4	14.7	3.6	88.5	20.4	71	46	Gr - In	Pl	Grf	Ru	Os
Cuculidae	<i>Crotophaga ani</i>	x	x			24.3	34.4	12.2	151	39	214	119	In	Pl	Un - Grf	Ru - Tr	Os
	<i>Piaya cayana</i>		x			10.9	31.4	10.2	144	29.3	265	102	In	Pl	Ca	Ru	FE
	<i>Coccyzus americanus</i>			x		8.4	29.3	7.5	141.5	20.2	153	55	In	Pl	Un	Ru	FE - Os
Trochilidae	<i>Florisuga mellivora</i>	x	x	x	x	3	24.4	5.1	71	5.6	40	7.3	In - Ne	Cu	Un	Fv - Ru - Th	FE
	<i>Glaucis hirsutus</i>			x	x	4	34.9	3.5	60	3	41	6	In - Ne	Cu	Un	Fv - Ru	FE - Os
	<i>Phaethornis striigularis</i>	x		x	x	2.1	24.9	4.9	39	4.1	38.5	2.4	In - Ne	Cu	Un	Fv - Ru	F - FE
	<i>Phaethornis anthophilus</i>				x	2.2	36.3	3.8	57.5	2.9	66.5	5.5	In - Ne	Cu	Un	Fv - Ru	FE
	<i>Phaethornis guy</i>	x		x	x	2.9	43.4	3.2	60	5	68	5.7	In - Ne	Cu	Un	Fv - Ru - Tr	F
	<i>Phaethornis syrmatophorus</i>				x	2.4	43.5	4.7	60.3	4.3	65	5.9	In - Ne	En	Un	Ru	F - FE
	<i>Colibri coruscans</i>		x			2.2	26.7	2.5	74	5.5	45	8.5	In - Ne	Cu	Ca - Sca - Un	Fv - Th	FE
	<i>Anthracothonax nigricollis</i>	x	x	x		2.3	25.5	2.6	68.5	120	40.5	8	In - Ne	Cu	Un	Ru	FE - Os
	<i>Ensifera ensifera</i>		x			2.7	91.9	2.4	71	6.2	44	8.8	Ne	Cu	Un	Fv	F - FE
	<i>Ocreatus underwoodii</i>		x			1.5	14.9	1.7	57	2.4	32	7	In - Ne	Cu	Un	Fv - Tr - Th	FE
	<i>Chlorostilbon melanorhynchus</i>	x	x	x	x	2	15.9	2.2	45	2.9	28	3	In - Ne	Cu	Un	Fv	FE
	<i>Chlorostilbon gibsoni</i>		x			2.3	19.5	2.1	52	2.8	27.5	4.5	In - Ne	Cu	Un	Fv	F - FE
	<i>Chalybura buffonii</i>	x		x	x	2.7	27.2	5.3	63	6.2	39.6	5.5	In - Ne	Cu	Un	Ru	FE - Os

	<i>Saucerottia saucerottei</i>	x	x	x	x	2.3	20.5	2.4	51	5.5	31	4.1	In - Ne	Cu	Un	Ru	Os
	<i>Amazilia tzacatl</i>	x	x	x	x	2.5	22.4	3.9	55	2.9	35	5	In - Ne	Cu	Un	Ru	Os
	<i>Uranomitra franciae</i>		x			2	23.2	2.5	53	100	34.5	4	In - Ne	Cu	Un	Ru	FE
	<i>Polyerata amabilis</i>				x	2.4	22.1	2.5	50	3.8	30	3.8	In - Ne	Cu	Un - Grf	Fv	FE
	<i>Baryphthengus martii</i>				x	13.9	14.2	11.9	146	38.7	210	200	Fr - In	Ho	Un - Grf	Ru	F - FE
Momotidae	<i>Momotus subrufescens</i>				x	10.9	42.4	9.1	128	31.7	204	87	Fr - In	Ho	Sca - Un - Grf	Ru - Tr	F - FE - Os
	<i>Momotus aequatorialis</i>	x				14.5	44.5	12.2	155	36.7	305	172.6	Fr - In	Ho	Sca - Un	Ru	F - FE - Os
Bucconidae	<i>Malacoptila mystacalis</i>				x	10.4	34	12.1	92	20	98	48.5	In	Ho	Sca - Un - Grf	Ru	F - FE
Capitonidae	<i>Capito hypoleucus</i>	x				10.7	24.4	9.6	88	29.3	60	67	Fr - In	Ho	Ca - Sca	Ru	F - FE
	<i>Melanerpes formicivorus</i>		x			7.1	25.2	8.6	137	18.6	85	73	Fr - In	Ho	Ca - Sca	Ru	F - FE
	<i>Melanerpes rubricapillus</i>	x		x		7.6	24.7	4.9	102	23.8	60	45.5	Fr - In	Ho	Ca - Sca	Ru	F - FE
Picidae	<i>Veniliornis kirkii</i>	x			x	5.9	20.4	5.5	84	16.2	56	26.9	In	Ho	Ca - Sca	Ru	F
	<i>Celeus loricatus</i>				x	7.2	22.4	7.1	115.5	23	72.5	71.5	Fr - In	Ho	Sca - Un - Grf	Ru	FE
	<i>Colaptes punctigula</i>	x		x		7.5	25.1	8.4	110.5	21.2	81.5	55	Fr - In	Ho	Ca	Ru	FE - Os
Falconidae	<i>Milvago chimachima</i>			x		14.5	30.7	12.2	285	50.2	190	500		Pl	Ca - Grf	Tr	Os
Psittacidae	<i>Pionus menstruus</i>				x	22.4	26.1	12.6	186	6.7	89	247	Fr - Gr	Ho	Ca	Ru	F
	<i>Forpus conspicillatus</i>	x		x	x	8.2	14.4	12.2	76	13.3	45	23	Gr	Ho	Ca	Ru	Os
	<i>Taraba major</i>				x	10.1	28.5	8	91	31.9	82	68	In	Cu	Un	Ru	FE
Thamno- philidae	<i>Thamnophilus multistriatus</i>	x		x		6.2	21.8	11.1	70.5	23.5	65	24	In	Cu	Ca - Un	Ru	FE
	<i>Thamnophilus atrinucha</i>				x	6.5	22.8	5.6	70	21.7	57.5	21.8	In	Cu	Un	Ru	FE
	<i>Formicivora grisea</i>				x	3.7	16.4	4	51	22.9	49	15	In	Cu	Un	Ru - Tr	F - FE
	<i>Poliocrania exsul</i>				x	4.7	20.3	4.6	68	28.9	42	27	In	En	Ca	Ru	F
	<i>Glyphorynchus spirurus</i>				x	4	12	4.6	66.5	19.9	65	14	In	Ho	Sca - Un	Ru	F
	<i>Xiphorhynchus susurrans</i>		x		x	7.3	36.6	14.3	103.5	23.4	97	44.6	In	Ho	Ca - Un	Ru	Os
	<i>Dendroplex picus</i>			x	x	7.2	28.5	4.7	95	22	86	27	In	Ho	Un	Ru	FE - Os
Furnariidae	<i>Campylorhamphus trochilirostris</i>				x	5.5	59.3	4.1	95	24.1	92	41	In	Ho	Sca - Un	Ru	F
	<i>Lepidocolaptes souleyetii</i>	x		x		5.5	29.9	3.2	91.5	19.2	94	30	Fr - In	Ho	Sca - Un	Ru	F - FE
	<i>Lepidocolaptes lacrymiger</i>	x				5.5	30.6	4.9	105	19.4	97.5	30.1	In	Ho	Sca - Un	Ru	F - FE
	<i>Xenops minutus</i>				x	8.5	14.6	3.4	64	15.9	52	13	In	Ho	Un	Ru	F - FE
	<i>Xenops rutilans</i>				x	5	13.7	2.7	71	16.8	58	14	In	Ho	Un	Ru	FE
	<i>Synallaxis albescens</i>	x	x	x		4	12.1	9.3	52	21.7	80	15	In	En	Un - Grf	Ru	FE
	<i>Corapipo leucorrohoa</i>				x	3.6	10.1	8.1	57	16.9	31	10	Fr - In	Cu	Un	Tr	F
Pipridae	<i>Lepidothrix coronata</i>				x	3.8	8.8	4.4	50.5	17.1	25	10	Fr - In	Cu	Un	Ru	F
	<i>Manacus manacus</i>				x	4.1	13	10.5	55	21.3	32	18	Fr - In	Cu	Un	Ru	E - FE
	<i>Machaeropterus regulus</i>				x	3.8	10.6	8.5	51	14	20	10.5	Fr - In	Cu	Sca - Un	Ru	F - FE
	<i>Ceratopipra erythrocephala</i>				x	4	12.2	4.5	60	14.7	20	12.2	Fr - In	Cu	Sca - Un	Ru	F
	<i>Tityra inquisitor</i>				x	9	24.6	11.5	100	20.1	65	41	Fr - In	Ho	Ca - Sca	Tr	F
Tityridae	<i>Pachyrhamphus polychopterus</i>	x				5.3	14.3	7.1	72	19.1	65	22.5	In	En	Sca	Ru	F - FE
	<i>Myiobius atricaudus</i>				x	3	14.4	8.4	63	18.9	60.5	10.6	In	En	Un	Ru - Tr	FE
Onychorhyn- chidae	<i>Onychorhynchus coronatus</i>				x	5.1	22.5	11.1	87.5	19.6	76.5	22.6	In	En	Sca - Un	Ru	FE
	<i>Mionectes olivaceus</i>		x			4	14.9	4.9	68.5	16.7	58.5	9	Fr - In	En	Un	Ru - Tr	F - FE
	<i>Mionectes oleagineus</i>	x	x	x	x	3.4	13.3	4.8	59	15.3	47	10.5	Fr - In	En	Un	Ru	F
	<i>Leptopogon amaurocephalus</i>			x	x	3.6	13.8	4.7	63	16.1	54	12	Fr - In	Cu	Un	Ru - Tr	F
	<i>Leptopogon superciliaris</i>	x			x	3.9	14.7	9.4	65	15.5	57	12.3	Fr - In	En	Sca - Un	Ru	FE
	<i>Tolmomyias sulphureus</i>	x		x	x	4.1	16.5	12.2	66.5	18.5	60	16.8	In	En	Sca - Un	Ru - Tr	Os
	<i>Oncostoma olivaceum</i>				x	3.5	12.7	4.7	45	12.6	30	7.1	Fr - In	En	Un	Tr	FE
	<i>Poecilotriccus sylvia</i>				x	3.2	14.2	5.2	50	19.4	35	9	Fr - In	En	Un	Ru	FE
	<i>Todirostrum cinereum</i>	x	x	x	x	2.9	13.5	5.6	43	20.5	34.5	7	Fr - In	En	Ca - Un	Ru	FE - Os
	<i>Zimmerius chrysops</i>	x	x	x	x	3.3	8.8	4.2	51.5	18.7	45	9	In	En	Ca	Ru	FE
Tyrannidae	<i>Camptostoma obsoletum</i>				x	3.9	10.8	5.8	56.5	17.4	50	18	In	En	Ca - Un	Ru	F - FE - Os
	<i>Elaenia flavogaster</i>	x	x	x	x	4.3	12.1	6.6	77.5	23.1	71	24	Fr - In	Cu	Sca - Un	Tr	FE
	<i>Elaenia frantzii</i>		x		x	3.8	12.9	4.5	71	14.9	67.8	15.5	Fr - In	Cu	Ca - Sca - Un	Ru	FE - Os
	<i>Tyrannulus elatus</i>			x		3	8	3.4	52	15	42.5	8	Fr - In	Cu	Ca	Ru	FE
	<i>Myiopagis viridicata</i>				x	3.6	13.8	9.6	65	18	60	13.9	Fr - Gr	Cu	Ca - Sca	Ru - Tr	F
	<i>Phyllomyias griseiceps</i>	x				3.7	8.1	5.3	54	14.4	42.9	4.2	Fr - In	Cu	Ca	Tr	FE
	<i>Phaeomyias murina</i>	x	x	x	x	3.5	10.7	4.4	54.5	19.9	52.5	11.5	Fr - In	Cu	Ca - Sca	Ru	FE
	<i>Attila spadiceus</i>				x	5.7	21.1	7.1	83	27.7	74	37	Fr - In	Cu	Ca - Sca	Ru - Tr	F - FE
	<i>Legatus leucophaeus</i>				x	4.5	7.8	6.3	77	14.7	55	21	Fr - In	En	Ca - Sca	Ru	FE

	<i>Pitangus sulphuratus</i>	x	x		9.1	27.9	10.6	110.5	27.9	82.5	61	Fr - In	En	Ca - Un	Tr	FE - Os	
	<i>Megarynchus pitangua</i>	x			8.9	35.9	10.1	105	20.1	87	63	Fr - In	Cu	Ca - Sca	Ru	FE	
	<i>Myiodynastes chrysocephalus</i>		x		7	23.3	11.9	104	16.5	90	44	Fr - In	Cu	Ca	Tr	FE	
	<i>Myiodynastes luteiventris</i>			x	7.8	24.5	10.7	115	16.6	80	45	Fr - In	Cu	Ca - Un	Ru - Tr	FE	
	<i>Myiodynastes maculatus</i>	x		x	8.8	25.4	15.4	103.5	21.3	80	43.3	Fr - In	Cu	Ca - Un	Ru - Tr	FE	
	<i>Myiozetetes cayanensis</i>	x	x		4.8	14.2	6.3	86	22.1	75.5	34	Fr - In	En	Ca - Sca	Tr	FE	
	<i>Tyrannus melancholicus</i>	x	x	x	7.7	23.5	10	110	21.6	97	45	Fr - In	Cu	Ca - Un	Tr	Os	
	<i>Tyrannus savana</i>			x	5.2	18	6.5	100	16	210	36	Fr - In	Cu	Ca	Tr	Os	
	<i>Myiarchus cephalotes</i>		x		5.4	21.8	7.5	89	22.8	91	26.5	In	Cu	Ca	Tr	FE	
	<i>Myiarchus crinitus</i>			x	3.2	9.9	4.5	57	20.4	50	11.5	Fr - In	Ho	Ca - Sca	Ru - Tr	FE	
	<i>Myiophobus fasciatus</i>	x		x	3.7	14.1	4.8	61	19.8	55	12	In	Cu	Ca - Un	Ru	Os	
	<i>Pyrocephalus rubinus</i>			x	4.2	13.9	6.3	74.5	18.4	59	15.5	In	Cu	Un - Grf	Tr	Os	
	<i>Empidonax virescens</i>	x	x	x	x	4.1	13	7	71	17.4	62.5	12.3	Fr - In	ho	Ca - Un	Tr	FE
	<i>Empidonax traillii</i>	x		x	4.8	12.3	6.2	58	19.4	51	10	In	Cu	Un	Tr	FE - Os	
	<i>Contopus sordidulus</i>		x		3.7	14.1	6.1	78	16.1	62	13	In	Cu	Ca - Sca	Ru - Tr	FE - Os	
	<i>Contopus virens</i>	x		x	4.1	15	5.7	77.5	17.7	65	16.6	Fr - In	En	Ca - Sca	Tr	FE - Os	
Vireonidae	<i>Cyclarhis nigrirostris</i>		x		7	17.5	5.4	78	21.1	75.5	29	In	Cu	Ca - Sca - Un	Ru	FE	
	<i>Pachysylvia semibrunnea</i>			x	x	4.1	16.3	3.6	60	18.8	52	11	In	Cu	Ca - Sca	Ru	FE
	<i>Vireo leucophrys</i>	x		x	4.1	15.2	5.1	66	18.4	50	15	In	Cu	Un	Ru	FE - Os	
	<i>Vireo olivaceus</i>	x	x	x	4.6	15.3	9	73	20.6	50	16.5	In	Cu	Ca - Un	Ru	F	
	<i>Vireo flavoviridis</i>	x			4.4	15.4	4.7	72.5	22.6	50	17	Fr - In	En	Sca	Ru	F	
Hirundinidae	<i>Stelgidopteryx ruficollis</i>	x	x	x	x	2.6	6.3	5.2	102	10.1	60	14	In	Ho	Un	Tr	Os
	<i>Progne tapera</i>		x		4.7	5.6	6.2	101	15.3	41	35.6	In	Ho	Grf	Tr	Os	
Troglodytidae	<i>Microcerculus marginatus</i>			x	3.9	21	9.2	59	23.4	22	18.4	In	En	Grf	Ru	F	
	<i>Troglodytes aedon</i>	x	x	x	x	3.6	16.1	3.4	52	22.5	42.5	16	In	Ho	Un - Grf	Ru	FE
	<i>Pheugopedius fasciatoventris</i>			x	5.3	20.7	5.2	69	22.6	57.5	19.5	In	En	Grf	Ru	F - FE	
	<i>Pheugopedius sclateri</i>			x	4.1	13.1	3.7	57	21.9	57	17	In	En	Un	Ru	F	
	<i>Henicorhina leucophrys</i>	x		x	3.3	17.4	3.7	53.5	23.9	29	16.2	In	En	Un	Ru	F	
Poliioptilidae	<i>Poliioptila plumbea</i>	x	x	x	2.5	12.1	3.4	52	19	47	6	In	Cu	Ca - Un	Ru	FE	
Turdidae	<i>Catharus aurantiirostris</i>			x	4.8	15.4	4.5	75	30.6	65	40	Fr - In	Cu	Un	Ru	FE	
	<i>Catharus minimus</i>			x	4.2	16.3	5.5	101	30.2	70	30.6	Fr - In	Cu	Un - Grf	Ru	FE	
	<i>Catharus ustulatus</i>	x	x	x	x	4.2	16.2	5.4	97	28.2	67	29.6	Fr - In	Cu	Un - Grf	Ru	F - FE
	<i>Turdus leucomelas</i>	x		x	7	15.8	8	118	32.2	100	61	Fr - In	Cu	Sca - Un	Ru	Os	
	<i>Turdus grayi</i>	x	x	x	7	19.9	7.3	111	34.3	100	64	Fr - In	Cu	Grf	Ru	Os	
	<i>Turdus ignobilis</i>	x	x	x	x	6.5	23.5	6.7	110	31.8	87	64.4	Fr - In	Cu	Un - Grf	Ru	Os
Estrildidae	<i>Lonchura malacca</i>			x	8.4	12.7	7.2	53	19.2	35	13	Gr	En	Un	Ru	Os	
Fringillidae	<i>Spinus xanthogastrus</i>	x	x	x	6.4	9.6	5.3	64	14.7	40	12	Gr	Cu	Ca - Un	Ru	F	
	<i>Spinus psaltria</i>	x	x	x	6.4	9.7	5.1	60	15.5	40	9	Gr - In	Cu	Un	Ru	FE	
	<i>Euphonia laniirostris</i>	x	x	x	x	5.6	10	7.6	61	17.5	37.5	15	Fr - In	En	Ca - Sca	Ru	FE
	<i>Euphonia cyanocephala</i>		x		4	7.6	4.8	63	13.8	38	17	Fr	En	Ca - Sca	Ru	FE	
	<i>Euphonia xanthogaster</i>			x	6.4	9.6	5.3	64	14.7	40	12	Gr	Cu	Ca - Un	Ru	F	
Passerellidae	<i>Arremonops conirostris</i>	x			8.2	16	6.6	77	36.2	65	37.2	Gr - In	En	Grf	Ru	FE	
	<i>Arremon aurantiirostris</i>			x	9.1	13.7	6.8	73	26.5	61.5	9.8	Gr - In	En	Un - Grf	Ru	F - FE	
	<i>Zonotrichia capensis</i>		x	x	6.6	13.7	5.7	63	25.2	58	22	Fr - Gr	Cu	Un - Grf	Ru	Os	
Icteridae	<i>Icterus spurius</i>			x	5.7	19.1	5	80	23.5	81	24	Fr - In	En	Ca - Un	Ru	FE - Os	
	<i>Icterus chrysater</i>			x	9.7	24.8	5.9	94	35.2	92.5	46	Fr - In	En	Ca	Ru	FE - Os	
	<i>Molothrus bonariensis</i>			x	9.1	20.9	7.4	110	24	90.5	60	In	Cu	Grf	Ru	Os	
Parulidae	<i>Parkesia noveboracensis</i>	x	x	x	x	3.7	13.5	3.7	74	24	51	16	In	Cu	Un - Grf	Ru	FE
	<i>Mniotilta varia</i>			x	x	3.6	14.1	4	70	18.1	49	10.2	Fr - In	Cu	Ca - Sca - Un	Ru	F - FE
	<i>Leiothlypis peregrina</i>	x	x	x	x	3.3	10.6	3	63	18.4	43	10	In	Cu	Ca - Sca	Ru	FE
	<i>Oporornis agilis</i>	x	x	x	x	3.9	11.8	3.4	57.5	23.6	49.5	12	Fr - In	Cu	Un - Grf	Ru	FE
	<i>Geothlypis philadelphia</i>	x		x	x	3.9	12	4	58	23.8	50	11	In	Cu	Un - Grf	Ru	F - FE
	<i>Setophaga pitiayumi</i>		x		3.8	12.7	4.7	55	20.5	44.5	8	In	En	Un	Ru	FE	
	<i>Setophaga castanea</i>			x	3.6	13.7	4.7	72.5	18.4	55	10	Fr - In	Cu	Un	Ru	F	
	<i>Setophaga fusca</i>	x	x	x	3.5	12.6	4	65	16.8	50.5	9	Fr - In	Cu	Ca - Un	Ru	F	
	<i>Setophaga petechia</i>	x	x	x	3.2	12.3	3.7	60	20.6	40	9.5	In	Cu	Un	Ru	Os	
	<i>Setophaga striata</i>			x	3.2	14.3	3.7	72	22.2	32	11	In	Cu	Un	Ru	FE	
	<i>Myiothlypis fulvicauda</i>	x		x	3.8	16	7.1	61.5	23.3	49	15.4	In	En	Grf	Ru	F - FE	
	<i>Basileuterus rufifrons</i>	x			3.8	11.8	4.7	60	22.5	50	6	Fr - In	En	Un - Grf	Ru	Os	
	<i>Basileuterus culicivorus</i>	x	x	x	3.8	13.7	4.9	59	19.5	52	11	In	En	Un	Ru	F	
	<i>Cardellina canadensis</i>	x	x	x	x	3.6	12.4	4.5	62	19.8	55	10	Fr - In	Cu	Un	Ru	F - FE

	<i>Myioborus miniatus</i>	x	x	x		3.4	10.6	5	64	30.3	63	9	In	Cu	Ca - Sca - Un	Tr	FE
Cardinalidae	<i>Piranga rubra</i>	x	x	x	x	8.6	18.7	8.5	92	22	74.5	30.3	Fr - In	Cu	Ca - Un	Ru	FE
	<i>Piranga olivacea</i>				x	7.9	19.5	12.3	92	19.1	68	26.4	In	Cu	Ca	Ru - Tr	F
	<i>Habia gutturalis</i>				x	8.4	19.6	7.8	93	27.1	89.5	34	In	Cu	Un - Grf	Ru	F
	<i>Pheucticus ludovicianus</i>	x	x			12.4	18	9.2	100	21.5	85	47.8	Fr - In	Cu	Ca - Sca	Ru	FE
	<i>Cyanoloxia brissonii</i>	x			x	11	9.1	8	71.5	23.6	63	22	Gr	Cu	Un	Ru	FE
Thraupidae	<i>Chlorophanes spiza</i>	x	x	x	x	4.8	16.9	8.9	70	18.7	48	18.7	Fr - In - Ne	Cu	Un	Ru	FE
	<i>Hemithraupis guira</i>	x				5.2	11.7	6.1	64	16.5	59	23	In	Cu	Ca - Un	Ru	F - FE
	<i>Sicalis flaveola</i>				x	7.1	11.8	5.8	69	22.8	50	20	Gr - In	Cu	Grf	Ru	FE - Os
	<i>Volatinia jacarina</i>	x	x	x	x	5.9	10.8	4.6	47	18.4	43	10	Gr - In	Cu	Grf	Ru	FE
	<i>Loriotus luctuosus</i>		x		x	6	16.6	9	62.5	17	57	13.4	Fr - In	Cu	Sca - Un	Ru	FE
	<i>Eucometis penicillata</i>				x	7	18.8	7.1	85.5	20.2	78	29.5	Fr - In	Cu	Un - Grf	Ru	FE
	<i>Ramphocelus dimidiatus</i>	x	x	x		8	15.7	7	76	23.4	74	28	Fr - In	Cu	Un	Ru	FE
	<i>Ramphocelus flammigerus</i>		x			9.3	16.4	8.8	88	26.5	80	40	Fr - In	Cu	Ca - Un	Ru	F
	<i>Sporophila minuta</i>			x	x	5.2	9.5	4.1	49	16.7	39	8	Gr	Cu	Grf	Ru	Os
	<i>Sporophila funerea</i>			x	x	9.7	12.1	9.9	53.5	17.9	47	12.3	Gr	Cu	Un - Grf	Ru	FE
	<i>Sporophila crassirostris</i>	x		x		12.6	17.8	9.7	64.5	18.1	62	22	Gr	Cu	Grf	Ru	FE
	<i>Sporophila intermedia</i>	x	x	x		7.7	10.2	5.5	54.5	19.3	45	11	Gr	Cu	Grf	Ru	FE
	<i>Sporophila luctuosa</i>		x			7.4	8.8	6.8	55	19.1	44	13.5	Gr	Cu	Un	Ru	FE
	<i>Sporophila nigricollis</i>	x	x	x		6.6	9	4.7	52	17.2	42	9.5	Gr	Cu	Grf	Ru	Os
	<i>Saltator maximus</i>				x	10	19.1	9.1	93.5	27.6	44.5	44.5	Fr - In	Cu	Ca	Ru	F
	<i>Saltator atripennis</i>				x	11.3	20.9	9.8	101.5	23.8	100	54.5	Fr	Cu	Ca	Ru	F
	<i>Saltator striatipectus</i>	x	x	x		12.6	20.5	9.5	90	28.2	86	39	Fr - In	Cu	Ca	Ru	F
	<i>Coereba flaveola</i>	x	x	x	x	3.9	14.2	3.8	53.5	16.7	32	9	Fr - Ne	En	Ca - Sca	Th	FE - Os
	<i>Tiaris olivaceus</i>	x	x	x	x	5.6	9.1	4.2	50	19	42	10	Gr - In	En	Grf	Ru	FE
	<i>Asemospiza obscura</i>		x		x	7.1	10.4	6.3	53	19.3	74	11	Fr - Gr	En	Un	Ru	F
	<i>Melanospiza bicolor</i>	x				6.2	9.2	4.4	55	17.4	35	13	Fr - Gr	En	Un	Ru	Os
	<i>Stilpnia heinei</i>		x			5.1	8.1	5.1	71	20.2	48	20.5	Fr - In	Cu	Ca	Ru	FE
	<i>Stilpnia vitriolina</i>	x	x	x	x	5.8	12.2	5.9	73	21.3	58	22	Fr - In	Cu	Ca	Ru	FE
	<i>Stilpnia cyanicollis</i>	x		x	x	4.8	11.5	4.3	65.5	18.5	47.5	18	Fr - In	Cu	Ca - Un	Ru	FE - Os
	<i>Tangara inornata</i>	x			x	4.8	11.3	4.9	55	25.6	45	15	Fr - In	Cu	Ca	Ru	FE
	<i>Tangara gyrola</i>	x	x	x	x	5.6	12.4	5.5	73.5	19.7	50	19.5	Fr - In	Cu	Ca - Un	Ru	FE
	<i>Thraupis episcopus</i>	x	x	x	x	6.3	14.4	6.8	87	23.3	65	33	Fr - In	Cu	Ca	Ru	FE - Os
	<i>Thraupis palmarum</i>	x	x	x	x	7	14.6	5.9	92	25.1	71	36	Fr - In	Cu	Ca	Ru	Os

Table S2. Mean values of the functional diversity indices (RaoQ, FRic, FEve, and FDiv) estimated at the cocoa, coffee, and citrus agroecosystems, and at the secondary forests. Results are presented separately for morphological, life history, and behavioral traits.

Traits	Index	Cocoa	Coffee	Citrus	Forest
Morphological	RaoQ	0.054	0.058	0.035	0.033
	FRic	3.658	4.974	6.371	3.057
	FEve	0.671	0.674	0.703	0.703
	FDiv	0.686	0.69	0.679	0.738
Life history	RaoQ	0.53	0.497	0.458	0.295
	FRic	8.175	9.211	10.167	2.351
	FEve	0.559	0.653	0.487	0.47
	FDiv	0.801	0.787	0.803	0.734
Behavioral	RaoQ	0.383	0.34	0.385	0.242
	FRic	8.093	5.555	11.454	3.292
	FEve	0.797	0.784	0.762	0.745
	FDiv	0.756	0.735	0.702	0.783

Table S3. Results of the Generalized Linear Models comparing morphological, life history, and behavioral traits among agroecosystems and secondary forests. Bold figures denote significant comparisons.

(A) MORPHOLOGICAL TRAITS							
			Estimate	SE	df	t Value	p Value
RaoQ	Intercepts	Forest Intercept	-2.796	0.118	23.982	-23.73	< 0.001
		Cocoa intercept	-2.617	0.136	19.487	-19.25	< 0.001
		Intercept Coffee	-2.577	0.144	17.561	-17.91	< 0.001
		Citrus Intercept	-2.665	0.166	18.492	-16.06	< 0.001
	Contrasts	Forest vs. Cocoa	0.179	0.18	21.259	0.995	0.331
		Forest vs. Coffee	0.219	0.186	19.813	1.178	0.253
		Forest vs. Citric	0.13	0.204	20.118	0.641	0.529
		Cocoa vs. Coffee	0.04	0.198	18.435	0.202	0.842
		Cocoa vs. Citric	-0.049	0.215	18.883	-0.227	0.823
		Coffee vs. Citric	-0.089	0.22	18.084	-0.403	0.691
FRic	Intercepts	Forest Intercept	0.443	0.353	21.072	1.253	0.224
		Cocoa intercept	1.144	0.405	16.635	2.825	0.012
		Intercept Coffee	1.234	0.427	14.793	2.891	0.011
		Citrus Intercept	1.787	0.493	15.476	3.624	0.002
	Contrasts	Forest vs. Cocoa	0.701	0.537	18.376	1.304	0.208
		Forest vs. Coffee	0.791	0.554	16.98	1.427	0.172
		Forest vs. Citric	1.345	0.607	17.112	2.216	0.041
		Cocoa vs. Coffee	0.09	0.588	15.628	0.152	0.881
		Cocoa vs. Citric	0.644	0.638	15.929	1.008	0.328
		Coffee vs. Citric	0.554	0.652	15.178	0.849	0.409
FEve	Intercepts	Forest Intercept	-0.24	0.019	22.491	-12.71	< 0.001
		Cocoa intercept	-0.267	0.021	17.395	-12.448	< 0.001
		Intercept Coffee	-0.267	0.022	15.295	-11.875	< 0.001
		Citrus Intercept	-0.247	0.026	15.817	-9.471	< 0.001
	Contrasts	Forest vs. Cocoa	-0.027	0.029	19.397	-0.952	0.353
		Forest vs. Coffee	-0.027	0.029	17.807	-0.935	0.362
		Forest vs. Citric	-0.007	0.032	17.756	-0.215	0.832
		Cocoa vs. Coffee	0.0000	0.031	16.247	-0.009	0.993
		Cocoa vs. Citric	0.0200	0.034	16.429	0.601	0.556
		Coffee vs. Citric	0.021	0.034	15.591	0.597	0.559
FDiv	Intercepts	Forest Intercept	-0.228	0.011	108.000	-21.23	< 0.001
		Cocoa intercept	-0.265	0.012	108.000	-22.83	< 0.001
		Intercept Coffee	-0.263	0.012	108.000	-22.3	< 0.001
		Citrus Intercept	-0.272	0.014	108.000	-19.92	< 0.001
	Contrasts	Forest vs. Cocoa	-0.037	0.016	108.000	-2.368	0.02
		Forest vs. Coffee	-0.036	0.016	108.000	-2.245	0.027
		Forest vs. Citric	-0.044	0.017	108.000	-2.545	0.012
		Cocoa vs. Coffee	0.002	0.017	108.000	0.097	0.923
		Cocoa vs. Citric	-0.007	0.018	108.000	-0.376	0.707
		Coffee vs. Citric	-0.008	0.018	108.000	-0.462	0.645
(B) LIFE HISTORY TRAITS							
			Estimate	SE	df	t Value	p Value
RaoQ	Intercepts	Forest Intercept	-0.819	0.033	107.000	-25.16	< 0.001
		Cocoa intercept	-0.522	0.035	107.000	-15.05	< 0.001
		Intercept Coffee	-0.560	0.035	107.000	-15.87	< 0.001
		Citrus Intercept	-0.610	0.041	107.000	-14.96	< 0.001
	Contrasts	Forest vs. Cocoa	0.296	0.048	107.000	6.231	< 0.001
		Forest vs. Coffee	0.258	0.048	107.000	5.378	< 0.001
		Forest vs. Citric	0.208	0.052	107.000	3.995	< 0.001
		Cocoa vs. Coffee	-0.038	0.05	107.000	-0.77	0.443
		Cocoa vs. Citric	-0.088	0.054	107.000	-1.643	0.103
		Coffee vs. Citric	-0.050	0.054	107.000	-0.924	0.357
FRic	Intercepts	Forest Intercept	0.636	0.44	23.349	1.445	< 0.001
		Cocoa intercept	3.683	0.472	16.500	7.796	< 0.001
		Intercept Coffee	4.116	0.5	15.096	8.226	< 0.001
		Citrus Intercept	4.491	0.575	15.326	7.807	< 0.001
	Contrasts	Forest vs. Cocoa	3.047	0.646	19.279	4.719	< 0.001

FEve		Forest vs. Coffee	3.481	0.666	18.095	5.223	< 0.001
		Forest vs. Citric	3.855	0.724	17.763	5.323	< 0.001
		Cocoa vs. Coffee	0.434	0.688	15.735	0.63	0.538
		Cocoa vs. Citric	0.808	0.744	15.784	1.086	0.294
		Coffee vs. Citric	0.375	0.762	15.226	0.491	0.630
	Intercepts	Forest Intercept	-0.639	0.049	20.908	-13.071	< 0.001
		Cocoa intercept	-0.520	0.049	13.421	-13.071	< 0.001
		Intercept Coffee	-0.397	0.051	11.684	-7.757	< 0.001
		Citrus Intercept	-0.617	0.058	9.924	-10.609	< 0.001
	Contrasts	Forest vs. Cocoa	0.119	0.069	16.562	1.713	0.105
		Forest vs. Coffee	0.242	0.071	15.162	3.423	0.004
		Forest vs. Citric	0.022	0.076	13.139	0.284	0.781
		Cocoa vs. Coffee	0.123	0.071	12.477	1.737	0.107
		Cocoa vs. Citric	-0.097	0.076	11.202	-1.276	0.228
		Coffee vs. Citric	-0.221	0.077	10.64	-2.848	0.016
FDiv	Intercepts	Forest Intercept	-0.170	0.007	24.75	-23.700	< 0.001
		Cocoa intercept	-0.143	0.007	16.464	-19.390	< 0.001
		Intercept Coffee	-0.153	0.008	14.654	-19.900	< 0.001
		Citrus Intercept	-0.144	0.009	13.35	-16.370	< 0.001
	Contrasts	Forest vs. Cocoa	0.027	0.01	19.931	2.675	0.015
		Forest vs. Coffee	0.017	0.011	18.464	1.634	0.119
		Forest vs. Citric	0.026	0.011	16.787	2.300	0.035
		Cocoa vs. Coffee	-0.010	0.011	15.482	-0.970	0.347
		Cocoa vs. Citric	-0.001	0.011	14.521	-0.120	0.906
		Coffee vs. Citric	0.009	0.012	13.894	0.765	0.457
(C) BEHAVIORAL TRAITS							
		Estimate	SE	df	t Value	P Value	
RaoQ	Intercepts	Forest Intercept	-0.956	0.037	24.576	-26.14	< 0.001
		Cocoa intercept	-0.743	0.042	20.127	-17.56	< 0.001
		Intercept Coffee	-0.800	0.045	18.201	-17.85	< 0.001
		Citrus Intercept	-0.730	0.052	19.196	-14.12	< 0.001
	Contrasts	Forest vs. Cocoa	0.214	0.056	21.883	3.818	0.001
		Forest vs. Coffee	0.156	0.058	20.441	2.704	0.013
		Forest vs. Citric	0.227	0.063	20.794	3.584	0.002
		Cocoa vs. Coffee	-0.057	0.062	19.076	-0.927	0.365
		Cocoa vs. Citric	0.013	0.067	19.563	0.2	0.843
		Coffee vs. Citric	0.071	0.068	18.76	1.031	0.316
FRic	Intercepts	Forest Intercept	1.126	0.389	22.42	2.898	0.008
		Cocoa intercept	2.901	0.452	18.628	6.418	< 0.001
		Intercept Coffee	2.065	0.48	16.952	4.3	< 0.001
		Citrus Intercept	3.761	0.553	17.971	6.805	< 0.001
	Contrasts	Forest vs. Cocoa	1.775	0.596	20.122	2.978	0.007
		Forest vs. Coffee	0.939	0.618	18.866	1.52	0.145
		Forest vs. Citric	2.635	0.676	19.295	3.901	0.001
		Cocoa vs. Coffee	-0.836	0.659	17.712	-1.268	0.221
		Cocoa vs. Citric	0.860	0.714	18.23	1.205	0.244
		Coffee vs. Citric	1.696	0.732	17.522	2.317	0.033
FEve	Intercepts	Forest Intercept	-0.201	0.016	18.963	-12.556	< 0.001
		Cocoa intercept	-0.16	0.018	13.7	-9.499	< 0.001
		Intercept Coffee	-0.174	0.019	11.515	-9.432	< 0.001
		Citrus Intercept	-0.192	0.021	11.467	-8.956	< 0.001
	Contrasts	Forest vs. Cocoa	0.032	0.024	15.753	1.317	0.207
		Forest vs. Coffee	0.026	0.024	14.076	1.081	0.298
		Forest vs. Citric	0.009	0.027	13.564	0.334	0.743
		Cocoa vs. Coffee	-0.005	0.026	12.499	-0.199	0.845
		Cocoa vs. Citric	-0.023	0.028	12.312	-0.811	0.433
		Coffee vs. Citric	-0.018	0.028	11.487	-0.618	0.549
FDiv	Intercepts	Forest Intercept	-0.195	0.015	22.032	-13.04	< 0.001
		Cocoa intercept	-0.224	0.017	17.982	-12.96	< 0.001
		Intercept Coffee	-0.241	0.018	16.238	-13.16	< 0.001
		Citrus Intercept	-0.266	0.021	17.156	-12.6	< 0.001
	Contrasts	Forest vs. Cocoa	-0.029	0.023	19.575	-1.275	0.217
		Forest vs. Coffee	-0.046	0.024	18.263	-1.956	0.066

Forest vs. Citric	-0.071	0.026	18.599	-2.754	0.013
Cocoa vs. Coffee	-0.017	0.025	17.029	-0.679	0.506
Cocoa vs. Citric	-0.042	0.027	17.481	-1.543	0.141
Coffee vs. Citric	-0.025	0.028	16.753	-0.894	0.384
