
Supplementary information

Thresholds for adding degraded tropical forest to the conservation estate

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Robert M. EWERS; C. David L. ORME; William D. PEARSE; Nursyamin ZULKIFLI; Genevieve YVON-DUROCHER; Kalsum M. YUSAH; Natalie YOH; Darren C. J. YEO; Anna WONG; Joseph WILLIAMSON; Clare L WILKINSON; Fabienne WIEDERKEHR; Bruce L. WEBBER; Oliver R. WEARN; Leona WAI; Maisie VOLLANS; Joshua P. TWINING; Edgar C. TURNER; Joseph A. TOBIAS; Jack THORLEY; Elizabeth M. TELFORD; Yit Arn TEH; Heok Hui TAN; Tom SWINFIELD; Martin SVÁTEK; Matthew STRUEBIG; Nigel STORK; Jani SLEUTEL; Eleanor M. SLADE; Adam SHARP; Adi SHABRANI; Sarab S. SETHI; Dave J. I. SEAMAN; Anati SAWANG; Gabrielle Briana ROXBY; J. Marcus ROWCLIFFE; Stephen J. ROSSITER; Terhi RIUTTA; Homathevi RAHMAN; Lan QIE; Elizabeth PSOMAS; Aaron PRAIRIE; Frederica POZNANSKY; Rajeev PILLAY; Lorenzo PICINALI; Annabel PIANZIN; Marion PFEIFER; Jonathan M. PARRETT; Ciar D. NOBLE; Reuben NILUS; Nazirah MUSTAFFA; Katherine E. MULLIN; Simon MITCHELL; Amelia R. MCKINLAY; Sarah MAUNSELL; Radim MATULA; Michael MASSAM; Stephanie MARTIN; Yadvinder MALHI; Noreen MAJALAP; Catherine S. MACLEAN; Emma MACKINTOSH; Sarah H. LUKE; Owen T. LEWIS; Harry J. LAYFIELD; Isolde LANE-SHAW; Boon Hee KUEH; Pavel KRATINA; Oliver KONOPIK; Roger KITCHING; Lois KINNEEN; Victoria A. KEMP; Palasiah JOTAN; Nick JONES; Eyyen W. JEBRAIL; Michal HRONEŠ; Sui Peng HEON; David R. HEMPRICH-BENNETT; Jessica K. HAYSOM; Martina F. HARIANJA; Jane HARDWICK; Nichar GREGORY; Ryan GRAY; Ross E. J. GRAY; Natasha GRANVILLE; Richard GILL; Adam FRASER; William A. FOSTER; Hollie FOLKARD-TAPP; Robert J. FLETCHER; Arman Hadi FIKRI; Tom M. FAYLE; Aisyah FARUK; Paul EGGLETON; David P. EDWARDS; Rosie DRINKWATER; Rory A. DOW; Timm F. DÖBERT; Raphael K. DIDHAM; Katharine J. M. DICKINSON; Nicolas J. DEERE; Tijmen DE LORM; Mahadimenakbar M. DAWOOD; Charles W. DAVISON; Zoe G. DAVIES; Richard G. DAVIES; Martin DANČÁK; Jeremy CUSACK; Elizabeth L. CLARE; Arthur CHUNG; Vun Khen CHEY; Philip M. CHAPMAN; Lauren CATOR; Daniel CARPENTER; Chris CARBONE; Kerry CALLOWAY; Emma R. BUSH; David F.R.P. BURSLEM; Keiron D. BROWN; Stephen J. BROOKS; Ella BRASINGTON; Hayley BRANT; Michael J. W. BOYLE; Sabine BOTH; Joshua BLACKMAN; Tom R. BISHOP; Jake E. BICKNELL; Henry BERNARD; Saloni BASRUR; Maxwell V. L. BARCLAY; Holly BARCLAY; Georgina ATTON; Marc ANCRENAZ; David C. ALDRIDGE; Olivia Z. DANIEL; Glen REYNOLDS; Cristina BANKS-LEITE

Supporting information

Supplementary Table 1. List of data sources compiled for analysis. For each data source, we present the surname of the first author and a survey citation; a weblink to a data publication or, if that is unavailable, then a weblink to a published paper presenting the data; the types of taxa included; the number of taxa; the number of sampling methods used; the number of sampling periods; and the final number of surveys we extracted from that data source.

First author	Link	Taxon type(s)	No. taxa	No. sampling methods	No. sample periods	No. surveys
Bernard ⁷⁰	https://zenodo.org/record/3908128	mammal	23	1	1	1
Bishop ⁶⁹	https://zenodo.org/record/1198839	invertebrate	299	1	1	1
Both ⁶⁸	https://zenodo.org/record/3247631	plant	262	1	1	1
Brant ⁷¹	https://zenodo.org/record/1198846	invertebrate	43	2	2	3
Carpenter ⁷²	https://zenodo.org/record/5562260	invertebrate	106	6	1	6
Chapman ⁷³	https://zenodo.org/record/2579792	mammal	12	1	1	1
Deere ⁷⁴	https://zenodo.org/record/4010757	mammal	28	1	3	3
Döbert ⁷⁵	https://zenodo.org/record/2536270	plant	1,235	1	1	1
Drinkwater ⁷⁶	https://zenodo.org/record/3476542	invertebrate	2	1	2	2
Ewers ⁷⁷	https://zenodo.org/record/3975973	invertebrate	17	1	1	1
Faruk ⁷⁸	https://zenodo.org/record/1303010	amphibian	2	1	1	1
Fayle ⁷⁹	https://zenodo.org/record/3876227	invertebrate	271	1	1	1
Fraser ⁸⁰	https://zenodo.org/record/3973551	amphibian	22	1	1	1
Fraser ⁸¹	https://zenodo.org/record/3981222	bird	82	1	1	1
Gray ⁸²	https://zenodo.org/record/1198302	invertebrate	56	1	1	1
Gray ⁸³	https://zenodo.org/record/3475406	invertebrate	11	1	1	2
Gregory ⁸⁴	https://zenodo.org/record/3994260	invertebrate	1	1	1	1
Hardwick ⁸⁵	https://zenodo.org/record/4275386	invertebrate	90	1	1	1
Hemprich-Bennett ⁸⁶	https://zenodo.org/record/3247465	mammal	47	1	3	3
Heon ⁸⁷	https://doi.org/10.1890/15-1363	mammal; bird; reptile	62	1	6	6
Heon ⁸⁸	https://zenodo.org/record/3955050	mammal; reptile; bird	35	1	7	7
Heon ⁸⁹	https://zenodo.org/record/1304117	mammal	8	1	1	1
Jebrail ⁹⁰	https://zenodo.org/record/3475408	invertebrate	7	1	1	1
Kendall ⁹¹	https://zenodo.org/record/1237736	invertebrate	1	1	1	1
Konopik ⁹²	https://zenodo.org/record/1995439	amphibian	29	1	3	3
Lane Shaw ⁹³	https://zenodo.org/record/1237732	invertebrate	21	1	1	1
Layfield ⁹⁴	https://zenodo.org/record/1198475	mammal	1	1	1	1
Luke ⁹⁵	https://zenodo.org/record/5710509	invertebrate	191	3	2	6
Luke ⁹⁶	https://zenodo.org/record/1198833	invertebrate	27	2	1	2
Mackintosh ⁹⁷	https://zenodo.org/record/4630980	invertebrate	17	1	1	1
Maunsell ⁹⁸	https://zenodo.org/record/4247169	invertebrate	599	1	1	1

Maunsell ⁹⁹	https://zenodo.org/record/4139685	invertebrate	216	1	1	1
Mitchell ¹⁰⁰	https://doi.org/10.1016/j.ecolind.2020.106717	bird	135	1	5	5
Mullin ¹⁰¹	https://zenodo.org/record/3971012	mammal	7	1	2	3
Noble ¹⁰²	https://zenodo.org/record/3485086	amphibian	11	1	1	1
Pianzin ¹⁰³	https://zenodo.org/record/3897377	mammal	2	1	1	1
Pillay ¹⁰⁴	https://zenodo.org/record/3366104	bird	7	1	2	2
Psomas ¹⁰⁵	https://zenodo.org/record/1400562	invertebrate	42	1	1	1
Qie ¹⁰⁶	https://zenodo.org/record/3901735	mammal; bird; reptile; invertebrate	54	1	1	1
Qie ¹⁰⁷	https://zenodo.org/record/1400564	plant	312	1	3	3
Sawang ¹⁰⁸	https://zenodo.org/record/3354068	invertebrate	8	1	2	2
Seaman ¹⁰⁹	https://zenodo.org/record/5109892	mammal	1	1	1	1
Sethi ¹¹⁰	https://zenodo.org/record/3997172	bird; amphibian	290	1	2	3
Shapiro ¹¹¹	https://zenodo.org/record/1237720	invertebrate	10	1	1	1
Sharp ¹¹²	https://zenodo.org/record/1323504	invertebrate	594	1	2	11
Slade ¹¹³⁻¹¹⁵	https://zenodo.org/record/3247492 https://zenodo.org/record/3247494 https://zenodo.org/record/3832076	invertebrate	83	1	3	3
Slade ^{116,117}	https://zenodo.org/record/3906118 https://zenodo.org/record/3906441	invertebrate	72	1	2	2
Turner ¹¹⁸	https://zenodo.org/record/5729342	plant	123	1	10	10
Twining ¹¹⁹	https://zenodo.org/record/1237731	reptile; mammal	6	1	1	1
Vollans ¹²⁰	https://zenodo.org/record/3929764	invertebrate	2	1	1	1
Wilkinson ¹²¹	https://zenodo.org/record/4072959	fish	36	3	5	10
Williamson ¹²²	https://zenodo.org/record/1487595	invertebrate	15	1	1	1

Supplementary Table 2. List of functional groups used in analyses. Groups are a combination of up to four factors: (1) Category – used to aggregate functional groups into sets of related functions; (2) Taxon – used to separate functional groups by taxonomic identity; (3) Attributes – specific morphology, behaviour, life history strategy or conservation status; and (4) Level – used to separate attributes by categories of increasing value.

Category	Taxon ^a	Attributes	Level
Body mass	insect		low
Body mass	insect		medium
Body mass	insect		high
Body mass	ant		low
Body mass	ant		medium
Body mass	ant		high
Body mass	mammal		low
Body mass	mammal		medium
Body mass	mammal		high
Body mass	bird		low
Body mass	bird		medium
Body mass	bird		high
Body mass	amphibian		low
Body mass	amphibian		medium
Body mass	amphibian		high
Body mass	fish		low
Body mass	fish		medium
Body mass	fish		high
Trophic	all taxa	parasitoid	
Trophic	all taxa	parasite	
Trophic	all taxa	carnivore	
Trophic	all taxa	herbivore	
Trophic	all taxa	saprophage	
Trophic	all taxa	producer	
Trophic	all taxa	generalism	low
Trophic	all taxa	generalism	high ^c
Diet	all taxa	hematophage	
Diet	all taxa	piscivore	
Diet	all taxa	vertivore	
Diet	all taxa	invertivore	
Diet	all taxa	bacteriophage	
Diet	all taxa	frugivore	
Diet	all taxa	granivore	
Diet	all taxa	florivore	
Diet	all taxa	nectarivore	
Diet	all taxa	palynivore	
Diet	all taxa	folivore	
Diet	all taxa	phloeophage	
Diet	all taxa	xylophage	

Diet	all taxa	rhizophage	
Diet	all taxa	algivore	
Diet	all taxa	mycophage	
Diet	all taxa	saprophage	
Diet	all taxa	coprophage	
Diet	all taxa	necrophage	
Diet	all taxa	detritivore	
Diet	all taxa	saproxyllic	
Diet	all taxa	soilphage	
Diet	all taxa	generalism	low ^b
Diet	all taxa	generalism	high ^c
Movement	invertebrate	legged	
Movement	invertebrate	legless	
Movement	insect	winged	
Movement	insect	legged	
Movement	mammal	winged	
Movement	mammal	legged	
Movement	reptile	legged	
Movement	reptile	legless	
Movement	all taxa	winged	
Movement	all taxa	legged	
Movement	all taxa	legless	
Sociality	insect	eusocial	
Sociality	insect	social	
Sociality	insect	solitary	
Sociality	mammal	social	
Sociality	mammal	pair	
Sociality	mammal	solitary	
Sociality	bird	pair	
Sociality	bird	solitary	
Sociality	amphibian	social	
Sociality	amphibian	solitary	
Sociality	all taxa	eusocial	
Sociality	all taxa	social	
Sociality	all taxa	pair	
Sociality	all taxa	solitary	
Development	invertebrate	direct	
Development	invertebrate	indirect	
Development	insect	direct	
Development	insect	indirect	
Development	all taxa	direct	
Development	all taxa	indirect	
Physiology	all taxa	endotherm	
Physiology	all taxa	ectotherm	
Habitat strata ^d	insect	arboreal	
Habitat strata	insect	understorey	
Habitat strata	insect	terrestrial	
Habitat strata	insect	subterranean	

Habitat strata	insect	aquatic	
Habitat strata	mammal	aerial	
Habitat strata	mammal	arboreal	
Habitat strata	mammal	understorey	
Habitat strata	mammal	terrestrial	
Habitat strata	mammal	subterranean	
Habitat strata	mammal	aquatic	
Habitat strata	bird	aerial	
Habitat strata	bird	arboreal	
Habitat strata	bird	understorey	
Habitat strata	bird	terrestrial	
Habitat strata	bird	aquatic	
Habitat strata	reptile	arboreal	
Habitat strata	reptile	terrestrial	
Habitat strata	reptile	subterranean	
Habitat strata	reptile	aquatic	
Habitat strata	amphibian	arboreal	
Habitat strata	amphibian	terrestrial	
Habitat strata	amphibian	subterranean	
Habitat strata	amphibian	aquatic	
Habitat strata	all taxa	aerial	
Habitat strata	all taxa	arboreal	
Habitat strata	all taxa	understorey	
Habitat strata	all taxa	terrestrial	
Habitat strata	all taxa	subterranean	
Habitat strata	all taxa	aquatic	
Habitat strata	all taxa	constant	
Habitat strata	all taxa	variable	
Habitat strata	all taxa	generalism	low ^b
Habitat strata	all taxa	generalism	high
Plant	plant	wood density	low
Plant	plant	wood density	high
Plant	plant	photosynthesis	low
Plant	plant	photosynthesis	high
Plant	plant	competitor	low
Plant	plant	competitor	high
Plant	plant	stress	low
Plant	plant	stress	high
Plant	plant	ruderal	low
Plant	plant	ruderal	high
Red List status	all taxa	threatened	
Red List status	all taxa	not threatened	

^a Taxonomic groups for invertebrates have a partially nested structure. The group 'invertebrate' contains all invertebrate taxa except those belonging to class *Insecta* and class *Arachnida*. The group 'insect' contains all insect taxa (class *Insecta*) except ants (family *Formicidae*).

^b Low generalism is equivalent to high specialism

^c *High trophic and diet generalism is equivalent to high omnivory*

^d *Habitat strata are defined as the forest layers where a taxon forages for food*