Electronic Supplementary Material (ESM)

Drescher et al., 2015, Ecological and socioeconomic functions across tropical land-use systems after rainforest conversion, *Phil. Trans. R. Soc. B* **371,** *111-222,* doi: 10.1098/2015.0275

ESM Table S1: Geographic coordinates and land use types of core plots, meteo stations, climate tower and the biodiversity enrichment experiment. For locations of household surveys see Faust et al. (1). BD = Bukit Duabelas landscape, HR Harapan landscape.

Plot type	Landscape	Code	Land-use	Latitude	Longitude
Core plot	BD	BF1	Forest	S 01°59'42.5"	E 102°45'08.1"
Core plot	BD	BF2	Forest	S 01°58'55.1"	E 102°45'02.7"
Core plot	BD	BF3	Forest	S 01°56'33.9"	E 102°34'52.7"
Core plot	BD	BF4	Forest	S 01°56'31.0"	E 102°34'50.3"
Core plot	BD	BJ2	Jungle rubber	S 02°01'49.7"	E 102°46'16.7"
Core plot	BD	BJ3	Jungle rubber	S 02°03'46.7"	E 102°48'03.5"
Core plot	BD	BJ4	Jungle rubber	S 02°00'57.3"	E 102°45'12.3"
Core plot	BD	BJ5	Jungle rubber	S 02°08'35.6"	E 102°51'04.7"
Core plot	BD	BJ6	Jungle rubber	S 02°01'49.3"	E 102°46'15.0"
Core plot	BD	BR1	Rubber	S 02°05'30.7"	E 102°48'30.7"
Core plot	BD	BR2	Rubber	S 02°05'06.8"	E 102°47'20.7"
Core plot	BD	BR3	Rubber	S 02°05'43.0"	E 102°46'59.6"
Core plot	BD	BR4	Rubber	S 02°04'36.1"	E 102°46'22.3"
Core plot	BD	BO2	Oil palm	S 02°04'32.0"	E 102°47'30.7"
Core plot	BD	BO3	Oil palm	S 02°04'15.2"	E 102°47'30.6"
Core plot	BD	BO4	Oil palm	S 02°03'01.5"	E 102°45'12.1"
Core plot	BD	BO5	Oil palm	S 02°06'48.9"	E 102°47'44.5"
Core plot	HR	HF1	Forest	S 02°09'09.9"	E 103°21'43.2"
Core plot	HR	HF2	Forest	S 02°09'29.4"	E 103°20'01.5"
Core plot	HR	HF3	Forest	S 02°10'30.1"	E 103°19'57.8"
Core plot	HR	HF4	Forest	S 02°11'15.2"	E 103°20'33.4"
Core plot	HR	HJ1	Jungle rubber	S 01°55'40.0"	E 103°15'33.8"
Core plot	HR	HJ2	Jungle rubber	S 01°49'31.9"	E 103°17'39.2"
Core plot	HR	HJ3	Jungle rubber	S 01°50'56.9"	E 103°17'59.9"
Core plot	HR	HJ4	Jungle rubber	S 01°47'07.3"	E 103°16'36.9"
Core plot	HR	HR1	Rubber	S 01°54'39.5"	E 103°16'00.1"
Core plot	HR	HR2	Rubber	S 01°52'44.5"	E 103°16'28.4"
Core plot	HR	HR3	Rubber	S 01°51'34.8"	E 103°18'02.1"
Core plot	HR	HR4	Rubber	S 01°48'18.2"	E 103°15'52.0"
Core plot	HR	HO1	Oil palm	S 01°54'35.6"	E 103°15'58.3"
Core plot	HR	HO2	Oil palm	S 01°53'00.7"	E 103°16'03.6"
Core plot	HR	HO3	Oil palm	S 01°51'28.4"	E 103°18'27.4"
Core plot	HR	HO4	Oil palm	S 01°47'12.7"	E 103°16'14.0"
Enrich. Exp..	HR	PT Humusindo	Oil palm	S 01°56'30.7"	E 103°15'6.67"
Meteo-station	HR	Bungku	Village	S 01°54'06.5"	E 103°15'08.0"
Meteo-station	HR	PT REKI	Forest	S 02°07'34.2"	E 103°22'08.5"
Meteo-station	BD	L. Kepayang	Village	S 02°05'17.6"	E 102°46'03.1"
Meteo-station	BD	P. Kabau	Village	S 01°57'58.7"	E 102°36'05.1"
Climate Tower	HR	PTPN VI	12yr oil palm	S 01°41'35.0"	E 103°23'29.0"
Climate Tower	HR	Pompa Air	2yr oil palm	S 01°50'7.6"	E103°17'44.2"

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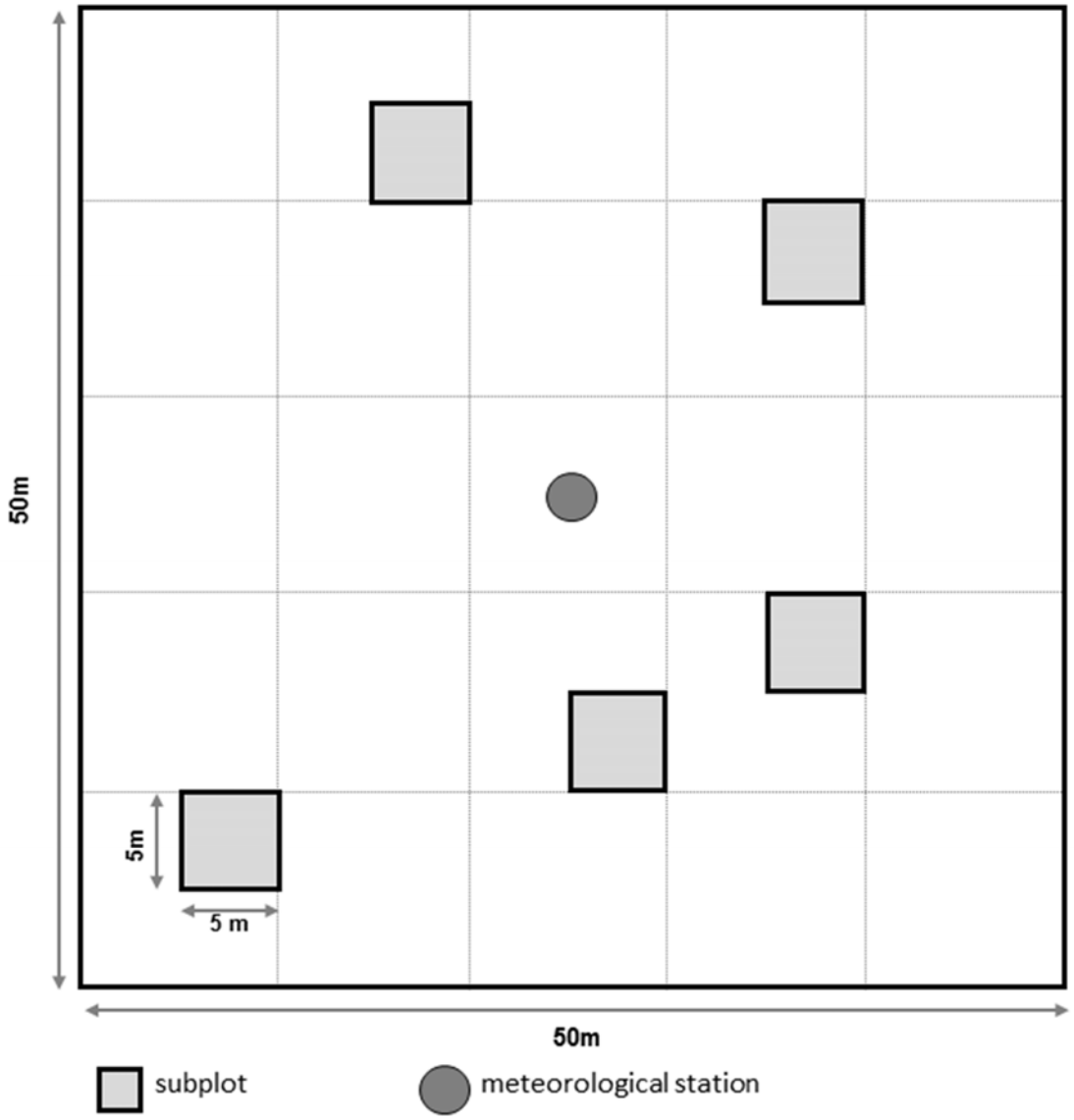
ESM Figure S1: Core plot design.

Five nested 5 x 5 m subplots are located in fixed positions within the 50 x 50 m core. A meteorological station is installed in the centre of each plot that measures hourly air temperature, relative air humidity at 2 m above ground and soil temperature and moisture at 0.3 m depth.



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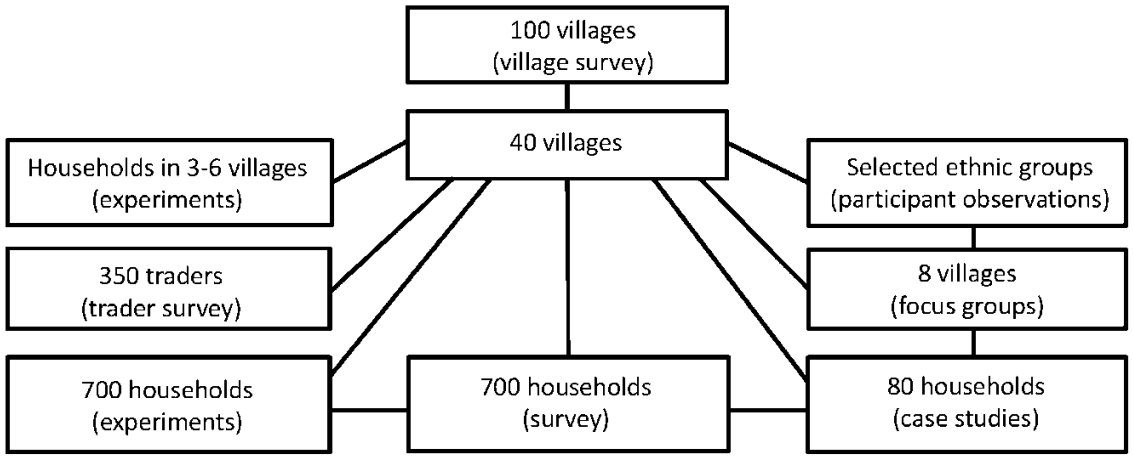
ESM Figure S2: Sampling framework of the socioeconomic survey.



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ESM Text S1: Additional methods and results

Evaluation of land-use changes 1990-2013 – Land-use/land-cover (LULC) maps produced for the years of 1990, 2000, 2011, and 2013 were prepared by The Forest Resources Inventory and Remote Sensing Laboratory of the Forestry Faculty at Bogor Agricultural University (IPB). Time series of Landsat imagery with spatial resolution at 30 x 30 m of TM 1989-1990, TM/ETM+ 1999-2001, TM/ETM+ 2009-2011, and OLI 2013 were used as data sources (TM: Thematic Mapper, ETM+: Enhanced Thematic Mapper Plus, OLI: Operational Land Imager). Visual interpretation by on-screen digitation was conducted to produce different LULC classes based on the Landsat image mosaics after a pre-processing image procedure including image to image rectification and image enhancement for each acquisition. Visual interpretation was based on the LULC classification guideline produced by the Indonesian Ministry of Forestry (2) with 23 classes. During visual interpretation, local knowledge on LULC classes and RapidEye images with higher spatial resolution (5 × 5 m) at particular regions within the study area were used additionally. The 2013 LULC maps were validated using 298 reference points taken from different classes in 2014 resulting in an overall accuracy assessment of 78.2%.

Tree heterogeneity – To test for environmental heterogeneity in the core plots, we used the abundance of large trees (DBH ≥ 10 cm) of all species as an indicator of habitat quality to capture strong environmental habitat factors common to all species (3). For each plot, we tested for significant deviation from homogeneity based on 199 realizations of the complete spatial randomness null model (i.e. a homogeneous spatial Poisson process). Observed field data and null models were illustrated and contrasted using the g-function, the L-function, and a goodness-of-fit test (GoF; distance interval 20 m to 25 m, cutoff point 0.05) using Programita, version January 2014 (4). While trees are homogeneously distributed at scales beyond the planting distance in rubber and oil palm plantations, most forest and jungle rubber plots were homogeneous, with the exception of one forest plot in the Harapan landscape (HF2: p = 2.0%) and one jungle rubber plot each in the Bukit Duabelas (BJ5: p = 0.5%) and Harapan (HJ2: p = 1.5%) landscapes.

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ESM Text S2: Biodiversity Enrichment Experiment and Meteorological Monitoring

Biodiversity Enrichment Experiment – The biodiversity enrichment experiment was established in December 2013 within the oil palm plantation of PT Humusindo in the Harapan landscape (Main Document, Fig. 2). To investigate the effects of increased tree biodiversity on ecological and economic performance of palm oil plantations, six native tree species were planted in gaps between oil palms: *Parkia speciosa, Durio zibethinus, Archidendron pauciflorum, Peronema canescens, Shorea leprosula, Dyera polyphylla*. These species are economically relevant for timber, fruit or latex. Plots of 5 × 5 m, 10 × 10 m, 20 × 20 m, and 40 × 40 m were established adopting a random partitions design (5), resulting in a total of 52 experimental plots with different tree species compositions. The experiment aims to reveal the spatial and temporal effects of biodiversity and ecosystem functions on gaps and the surrounding oil palm and helps to understand the socio-economic benefits and constraints of enrichment planting. The longer term goal of this experiment is to evaluate whether such enrichment planting might be developed towards a promising option to enhance the ecological value of oil palm plantations without significantly compromising their economic performance.

Meteorological Monitoring Network – In addition to the 32 meteo-stations located within the 32 core plots, two meteorological stations with extended instrumentation were installed in each of the two landscapes (in proximity to forest and to agricultural systems respectively, Main Document, Fig. 2). These four meteo-stations measure rainfall, wind direction and speed, radiation (global radiation, net radiation, photosynthetically active radiation), as well as air temperature, air humidity, soil temperature, soil moisture and soil heat fluxes. Furthermore, we installed a climate tower, initially in a 2 year old oil palm plantation (Pompa Air, Fig. 2) and subsequently moved to a mature plantation (PTPN VI, Fig. 2). The climate tower allows continuous quantification of net fluxes of water, energy and greenhouse gases (CO_2 and CH_4) (6) exchanged between oil palm plantation and atmosphere, integrating both soil and canopy sources and sinks.

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Supplementary Table S2. Data for environmental and biological results in Figure 5.

Abbreviations: F – Rainforest, J - Jungle Rubber, R - Rubber plantation, O - Oil Palm plantation.

Core Plot	System	Mean Temp. [°C]	Mean Humidity [%]	Canopy Openness [%]	Litterfall [Mg/ha/yr]	Litter Carbon [g/m²]	Tree Biomass [Mg/ha]	Plant species [N]	Ant species [N]	Oribatid mite species [N]
BF1	F	24.50	97.249	2.36	6.86	78.39	131.41	278	68	NA
BF2	F	24.48	98.615	3.35	5.83	69.64	163.55	279	62	NA
BF3	F	24.42	96.013	2.04	9.86	71.95	176.69	193	75	NA
BF4	F	24.85	94.571	2.22	7.16	131.50	224.36	203	49	NA
BJ2	J	25.00	94.940	NA	NA	39.63	NA	NA	NA	NA
BJ3	J	25.42	91.383	6.39	5.20	62.31	78.18	169	56	NA
BJ4	J	24.92	94.560	5	7.73	50.60	76.57	205	50	NA
BJ5	J	25.25	93.318	5.85	5.36	56.35	85.02	168	40	NA
BJ6	J	NA	NA	4.69	6.77	NA	81.80	160	42	NA
BR1	R	25.45	91.287	14.49	3.08	31.51	47.03	58	25	NA
BR2	R	25.53	89.461	12.68	2.90	34.53	25.98	52	20	NA
BR3	R	25.78	86.896	10.9	3.48	48.01	24.43	44	27	NA
BR4	R	25.64	89.755	19.43	3.67	68.32	30.07	58	21	NA
BO2	O	25.95	88.755	23.41	5.10	6.71	22.01	65	26	NA
BO3	O	25.12	92.921	13.29	8.81	9.42	23.66	73	24	NA
BO4	O	25.45	91.421	12.97	5.98	10.00	20.78	75	32	NA
BO5	O	25.67	90.855	20.61	9.06	21.07	20.60	79	18	NA
HF1	F	24.88	96.394	2.37	6.56	32.52	204.12	315	50	36
HF2	F	24.91	95.108	2.56	6.62	44.72	174.43	294	47	16
HF3	F	24.67	98.098	2.22	7.40	53.42	206.03	333	35	18
HF4	F	24.92	95.466	3.19	5.76	72.34	234.57	301	43	41
HJ1	J	25.37	91.907	11.39	6.69	27.09	68.05	128	19	26
HJ2	J	25.06	93.752	6.85	6.96	35.56	60.35	130	33	29
HJ3	J	25.13	91.504	6.76	5.16	45.27	64.95	131	40	20
HJ4	J	25.13	93.609	7.48	5.74	63.97	63.03	179	44	35
HR1	R	25.37	92.245	8.18	2.89	7.45	44.62	73	20	13
HR2	R	25.62	90.014	14.76	3.39	14.64	30.72	72	24	30
HR3	R	25.40	91.158	15.72	2.81	23.40	41.14	44	24	12
HR4	R	25.59	90.404	11.52	2.47	29.98	56.58	92	22	14
HO1	O	25.35	91.120	15.20	5.79	3.24	34.26	96	38	16
HO2	O	25.49	91.278	11.80	5.32	3.79	33.15	45	21	4
HO3	O	25.18	91.235	11.95	5.73	5.04	26.52	51	23	9
HO4	O	25.39	90.944	15.91	4.99	5.27	22.93	85	19	7

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Supplementary Table S3: Data for socio-economic results in Figure 5.

Abbreviations: J – Jungle Rubber, R – Rubber Monoculture, O – Oil Palm Monoculture.

Units: Labour ['00 hours/ha/year], gross/year [million IDR/ha/year], gross/labour ['000 IDR/hours].

system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour
J	1.98	3.36	0.00	O	0.75	1.14	NA	O	0.13	-1.19	-0.98
J	5.44	4.16	0.00	O	0.96	-1.83	NA	O	3.66	25.01	-0.96
J	9.04	7.65	0.35	O	0.64	9.33	-18.00	O	2.7	3.33	-0.91
J	10	22.01	0.35	O	1.02	15.93	-16.56	O	11.4	22.08	-0.90
J	3.79	1.33	0.40	O	0.16	-1.55	-13.54	O	2.61	15.28	-0.83
J	11.43	9.77	0.43	O	1.44	5.86	-11.75	O	1.44	-3.40	-0.62
J	3.36	11.60	0.48	O	2.11	5.97	-10.67	O	3.82	-7.24	-0.49
J	3.86	5.92	0.48	O	1.49	21.22	-9.65	O	1.08	37.07	-0.45
J	4.9	15.76	0.50	O	1.69	14.03	-9.43	O	4.68	12.82	-0.45
J	3.65	3.13	0.52	O	1.84	4.87	-9.35	O	1.45	-7.31	-0.41
J	7.84	3.15	0.60	O	0.14	-0.42	-9.33	O	2.43	15.13	-0.34
J	13.72	21.13	0.61	O	0.79	25.88	-9.09	O	1.06	0.07	-0.31
J	3.2	6.15	0.62	O	0.8	10.05	-9.09	O	0.88	3.26	-0.30
J	0	0.00	0.76	O	1.62	25.66	-8.96	O	1.41	-7.76	-0.24
J	7.84	3.75	0.83	O	0.28	-0.78	-8.88	O	1.35	-0.56	-0.22
J	21.6	27.76	0.85	O	0.12	-1.22	-8.85	O	1.08	-1.81	-0.14
J	7.84	3.75	0.85	O	0.21	-2.07	-8.65	O	0.41	-1.55	-0.09
J	4.03	7.58	0.86	O	0.28	-1.12	-8.49	O	1.12	13.45	-0.04
J	5.48	24.18	1.04	O	0.36	-1.14	-8.34	O	1.04	5.39	-0.02
J	4.08	2.04	1.25	O	3.36	-2.09	-8.13	O	0.28	-1.47	0.00
J	0	0.00	1.26	O	0.16	-2.30	-8.02	O	0.52	3.37	0.00
J	1.68	2.11	1.29	O	2.08	10.63	-7.82	O	0.6	15.70	0.00
J	7.83	10.87	1.39	O	0.4	0.06	-7.16	O	0.98	14.03	0.00
J	2.72	2.26	1.53	O	1.68	7.57	-6.70	O	1.05	-3.32	0.00
J	0.88	9.18	1.54	O	2.39	12.11	-5.94	O	1.16	17.49	0.00
J	10.01	3.55	1.69	O	0.84	4.90	-5.65	O	1.18	-3.77	0.00
J	6.21	2.67	1.78	O	0.99	8.16	-5.60	O	1.26	9.68	0.00
J	11.8	12.29	1.88	O	2.37	31.50	-5.60	O	2.24	-5.72	0.00
J	7.76	13.85	1.92	O	2.47	1.56	-5.46	O	2.44	31.68	0.00
J	6.33	3.91	2.07	O	1.73	10.78	-5.36	O	2.56	12.00	0.00
J	9.82	6.03	2.20	O	3.4	-4.27	-5.07	O	3.06	9.75	0.00
J	5.78	16.87	2.91	O	2.45	9.09	-5.01	O	4.68	18.21	0.00
J	7.84	4.09	3.21	O	3.28	9.18	-4.75	O	1.41	10.36	0.00
J	4.74	9.82	3.44	O	2.02	14.72	-4.61	O	2.12	17.36	0.07
J	9.31	5.55	4.40	O	0.08	-0.96	-4.59	O	2.67	15.38	0.14
J	10.24	12.89	10.37	O	3.66	4.08	-4.59	O	1.04	5.39	0.15
				O	0.1	-0.39	-4.51	O	1.07	21.42	0.20
				O	0.96	5.07	-4.28	O	1.69	14.03	0.25
				O	0	0.00	-4.18	O	2.4	11.69	0.38
				O	2.48	6.00	-4.14	O	1.25	-2.21	0.40
				O	2.01	16.18	-4.11	O	0.09	-0.80	0.42
				O	0.18	-3.15	-3.90	O	0.09	-0.87	0.42
				O	3.31	11.07	-3.87	O	0.08	-2.18	0.42
				O	3.87	3.08	-3.79	O	2.4	19.82	0.59

system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour
O	2.44	2.56	0.93	O	2.4	19.82	0.59	O	1.76	7.52	2.73
O	3.36	14.72	0.95	O	2.56	6.39	0.60	O	0.89	23.12	2.76
O	1.25	22.89	1.03	O	0.52	2.72	0.63	O	0.67	7.68	2.79
O	2.37	33.48	1.05	O	0.12	-0.73	0.75	O	2.6	5.74	2.80
O	2.88	4.74	1.11	O	1.25	22.89	0.79	O	1.15	7.94	2.80
O	0.74	-1.34	1.15	O	1.33	1.97	0.79	O	1.14	3.64	2.82
O	1.32	17.46	1.17	O	1.42	1.17	0.82	O	1.76	8.95	2.82
O	1.19	7.58	1.23	O	2.44	2.56	0.93	O	1.14	19.93	2.86
O	1.19	7.58	1.23	O	3.36	14.72	0.95	O	2.64	3.43	2.86
O	0.13	-1.19	-0.98	O	1.25	22.89	1.03	O	0.57	-2.07	2.90
O	3.66	25.01	-0.96	O	2.37	33.48	1.05	O	0.6	12.73	2.90
O	2.7	3.33	-0.91	O	2.88	4.74	1.11	O	0.9	5.16	3.00
O	11.4	22.08	-0.90	O	0.74	-1.34	1.15	O	1.66	-5.91	3.03
O	2.61	15.28	-0.83	O	1.32	17.46	1.17	O	0.08	-0.50	3.04
O	1.44	-3.40	-0.62	O	1.19	7.58	1.23	O	2.84	-2.94	3.04
O	3.82	-7.24	-0.49	O	1.19	7.58	1.23	O	0	-0.52	3.11
O	1.08	37.07	-0.45	O	0.05	-0.05	1.30	O	6.38	25.31	3.13
O	4.68	12.82	-0.45	O	0.48	-3.98	1.30	O	1.25	18.02	3.17
O	1.45	-7.31	-0.41	O	0.24	-0.95	1.33	O	2.19	7.29	3.17
O	2.43	15.13	-0.34	O	3.08	14.96	1.39	O	2.26	-10.46	3.18
O	1.06	0.07	-0.31	O	8.15	-2.48	1.40	O	1.8	9.64	3.19
O	0.88	3.26	-0.30	O	0.12	-0.46	1.45	O	5.32	9.10	3.21
O	1.41	-7.76	-0.24	O	2.9	3.78	1.47	O	0.88	5.24	3.31
O	1.35	-0.56	-0.22	O	1.21	7.80	1.51	O	1.68	-2.06	3.33
O	1.08	-1.81	-0.14	O	0.74	-2.77	1.58	O	0.1	-1.03	3.34
O	0.41	-1.55	-0.09	O	0.64	1.61	1.61	O	1.62	4.67	3.37
O	1.12	13.45	-0.04	O	0.54	-1.95	1.64	O	1.8	4.08	3.57
O	1.04	5.39	-0.02	O	8.33	-2.61	1.71	O	0.1	-0.45	3.59
O	0.28	-1.47	0.00	O	0.48	-1.91	1.83	O	3.42	-0.48	3.65
O	0.52	3.37	0.00	O	0.2	-0.48	1.85	O	2.37	29.66	3.69
O	0.6	15.70	0.00	O	2.9	-5.80	1.94	O	1.8	18.63	3.71
O	0.98	14.03	0.00	O	0.79	2.07	1.96	O	0.22	-0.19	3.77
O	1.05	-3.32	0.00	O	1.6	14.01	1.96	O	4.68	14.95	3.78
O	1.16	17.49	0.00	O	0.18	-1.14	2.01	O	2.22	31.21	3.86
O	1.18	-3.77	0.00	O	1.49	3.99	2.09	O	1.78	2.89	3.88
O	1.26	9.68	0.00	O	0.67	0.13	2.11	O	1.29	5.53	3.96
O	2.24	-5.72	0.00	O	0.16	0.25	2.15	O	1.5	1.13	3.97
O	2.44	31.68	0.00	O	2.37	7.64	2.17	O	0.48	-2.05	4.01
O	2.56	12.00	0.00	O	2.16	0.00	2.20	O	2.91	11.60	4.05
O	3.06	9.75	0.00	O	2.22	21.75	2.25	O	0.7	3.33	4.07
O	4.68	18.21	0.00	O	2.4	21.10	2.26	O	2.69	26.84	4.14
O	1.41	10.36	0.00	O	0.96	13.58	2.41	O	2.69	26.84	4.14
O	2.12	17.36	0.07	O	1.07	18.32	2.46	O	5.88	9.31	4.16
O	2.67	15.38	0.14	O	0	0.00	2.49	O	4.68	13.23	4.17
O	1.04	5.39	0.15	O	2.27	13.34	2.51	O	2.15	29.12	4.20
O	1.07	21.42	0.20	O	1.99	12.00	2.53	O	3.2	32.13	4.24
O	1.69	14.03	0.25	O	1.22	-0.04	2.61	O	0.26	-0.24	4.25
O	2.4	11.69	0.38	O	0	0.00	2.61	O	0.4	-4.82	4.31
O	1.25	-2.21	0.40	O	0.84	-2.73	2.63	O	0	0.00	4.33

system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour
O	0.09	-0.80	0.42	O	1.8	12.14	2.65	O	2.2	9.21	4.36
O	0.09	-0.87	0.42	O	0	-0.18	2.65	O	0.69	1.30	4.37
O	0.08	-2.18	0.42	O	4.68	12.41	2.68	O	2.1	0.00	4.41
O	3.2	8.98	4.48	O	3.13	0.78	5.14	O	0.62	-2.11	8.28
O	0	0.00	4.64	O	0.68	-3.17	5.15	O	0.64	1.36	8.56
O	2.45	16.58	4.67	O	1.16	-1.15	5.23	O	1.7	27.02	8.70
O	1.62	-0.40	4.69	O	1.58	11.41	5.33	O	1.52	21.18	8.75
O	3.14	13.91	4.72	O	2.96	10.65	5.40	O	2.7	3.33	8.77
O	0.73	-0.78	4.75	O	1	3.90	5.67	O	0.67	7.37	8.92
O	0.36	-2.65	4.78	O	0.36	-0.67	5.68	O	0.56	1.23	9.30
O	1.5	0.00	4.84	O	1.67	-0.75	5.74	O	2.08	5.97	9.75
O	0.65	9.41	4.85	O	2.36	15.38	5.76	O	0.92	4.06	9.94
O	1.84	3.62	4.85	O	2.2	9.00	5.83	O	0.93	11.22	9.94
O	2.22	27.04	5.02	O	0.88	7.18	5.84	O	1.86	11.34	10.01
O	2.08	14.60	5.04	O	3.44	14.47	5.86	O	1.87	2.50	10.07
O	0.61	-1.32	5.06	O	2.25	6.22	6.00	O	0	0.00	10.24
O	3.18	9.71	5.06	O	2.37	34.90	6.06	O	0.86	4.96	10.30
O	2.16	23.03	5.09	O	2.34	9.41	6.19	O	0	0.00	10.50
O	2.5	12.67	5.13	O	0	0.00	6.19	O	1.88	17.58	10.61
O	3.12	1.32	5.14	O	0.9	-4.11	6.20	O	1.7	1.63	10.78
O	3.13	0.78	5.14	O	2.34	4.96	6.30	O	2.82	-6.28	10.81
O	0.68	-3.17	5.15	O	0.34	-3.34	6.32	O	2.13	0.86	10.95
O	1.16	-1.15	5.23	O	0.35	-1.69	6.32	O	0.12	0.00	11.09
O	1.58	11.41	5.33	O	2.26	7.58	6.40	O	2.72	0.42	11.26
O	2.96	10.65	5.40	O	0.28	-0.99	6.43	O	1.52	-0.75	11.34
O	1	3.90	5.67	O	1.52	-3.31	6.44	O	1.8	0.68	11.90
O	0.36	-0.67	5.68	O	1.6	44.32	6.49	O	3.71	-0.35	11.97
O	1.67	-0.75	5.74	O	1.6	12.49	6.53	O	1.66	0.69	12.12
O	2.36	15.38	5.76	O	2.86	5.23	6.55	O	0.16	-0.40	12.40
O	2.2	9.00	5.83	O	4.32	13.15	6.57	O	1.98	-11.24	12.46
O	0.88	7.18	5.84	O	1.52	11.88	6.59	O	1.6	4.83	12.93
O	3.2	32.13	4.24	O	1.82	8.70	6.71	O	1.81	-1.88	13.13
O	0.26	-0.24	4.25	O	1.86	7.05	6.74	O	1.96	9.87	13.24
O	0.4	-4.82	4.31	O	2.22	31.51	6.82	O	0.89	26.61	13.29
O	0	0.00	4.33	O	0.3	-0.64	6.85	O	0.12	-0.60	13.47
O	2.2	9.21	4.36	O	5.89	8.26	7.00	O	2.04	9.94	13.85
O	0.69	1.30	4.37	O	0.13	-1.14	7.18	O	1.76	11.40	13.91
O	2.1	0.00	4.41	O	1.68	5.26	7.23	O	1.64	10.88	13.99
O	3.2	8.98	4.48	O	4.68	17.39	7.25	O	2.99	12.43	14.00
O	0	0.00	4.64	O	1.24	3.91	7.28	O	1.94	-0.04	14.07
O	2.45	16.58	4.67	O	1.47	12.70	7.46	O	1.66	0.69	14.13
O	1.62	-0.40	4.69	O	1.14	8.71	7.57	O	1.48	11.97	14.17
O	3.14	13.91	4.72	O	2.26	-2.17	7.62	O	2.34	18.23	14.18
O	0.73	-0.78	4.75	O	1.6	2.23	7.75	O	2.16	17.98	14.26
O	0.36	-2.65	4.78	O	2.29	1.38	7.76	O	2.03	6.18	14.33
O	1.5	0.00	4.84	O	4.76	18.02	7.77	O	1.14	1.33	14.36
O	0.65	9.41	4.85	O	0.95	-0.22	7.83	O	1.96	4.42	14.67
O	1.84	3.62	4.85	O	1.26	11.14	8.01	O	6.59	47.72	14.95
O	2.22	27.04	5.02	O	1.88	5.48	8.06	O	1.63	7.85	15.49

Electronic Supplementary Material (ESM)

Drescher et al., 2015, Ecological and socioeconomic functions across tropical land-use systems after rainforest conversion, *Phil. Trans. R. Soc. B* **371,** *111-222,* doi: 10.1098/2015.0275

system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour
O	2.08	14.60	5.04	O	2.43	-1.09	8.07	O	6.34	7.46	15.78
O	0.61	-1.32	5.06	O	0.98	13.83	8.16	O	1.88	5.48	15.80
O	3.18	9.71	5.06	O	0.36	-0.96	8.16	O	1.8	-0.62	17.04
O	2.16	23.03	5.09	O	0.42	10.03	8.22	O	2.19	-3.31	17.33
O	2.5	12.67	5.13	O	0	0.00	8.27	O	1.75	23.38	18.20
O	3.12	1.32	5.14	O	0	0.00	8.27	O	1.75	19.96	18.20
R	0.37	1.02	-7.56	R	24.39	14.24	0.58	R	6.62	12.36	1.37
R	10.95	9.05	-3.92	R	5.28	22.50	0.60	R	5.49	6.16	1.37
R	4.35	23.22	-3.76	R	6.06	34.00	0.64	R	7.23	4.96	1.39
R	6.27	-4.21	-3.39	R	25.32	8.09	0.64	R	1.88	0.00	1.39
R	8.87	1.86	-2.91	R	4.05	7.01	0.69	R	NA	32.28	1.41
R	7.74	7.71	-2.78	R	12.59	32.97	0.70	R	18.24	25.40	1.43
R	16.06	16.90	-2.72	R	0.06	-0.20	0.71	R	5.76	23.50	1.44
R	0.1	-0.20	-2.44	R	4.16	7.49	0.78	R	5.97	19.13	1.44
R	30	18.00	-2.41	R	7.08	8.15	0.79	R	7.32	19.63	1.45
R	7.63	11.01	-2.02	R	10.92	7.04	0.80	R	0.03	-0.10	1.48
R	11.22	11.24	-1.82	R	0.4	0.00	0.82	R	14.8	38.18	1.48
R	8.61	16.61	-1.71	R	4.3	17.25	0.82	R	3.6	0.00	1.50
R	7.17	10.77	-1.33	R	0.1	-0.27	0.83	R	1.15	2.03	1.54
R	22.08	25.85	-1.29	R	9.16	22.86	0.84	R	6.84	1.23	1.58
R	33.6	29.12	-1.26	R	13.3	48.08	0.85	R	0.18	-0.32	1.62
R	16.74	23.57	-1.01	R	13.02	10.65	0.87	R	15.88	14.45	1.62
R	6.78	20.36	-0.98	R	9.93	21.85	0.88	R	0.3	-1.05	1.68
R	4.06	28.62	-0.67	R	6.72	9.20	0.91	R	8.54	18.03	1.73
R	13.7	21.63	-0.40	R	0.54	-0.69	0.91	R	0.18	-0.19	1.74
R	5.58	28.52	-0.38	R	3.92	-1.50	0.91	R	6.58	8.46	1.74
R	6.82	9.35	-0.35	R	12.24	15.73	0.92	R	14.35	10.08	1.80
R	4.06	40.34	-0.30	R	0	0.00	0.94	R	3.75	17.83	1.82
R	5.74	10.59	-0.07	R	9.7	32.98	0.94	R	15.49	14.08	1.82
R	1.57	-2.11	0.00	R	14.29	32.42	0.95	R	8.85	13.11	1.84
R	5.62	7.83	0.00	R	5.13	15.00	0.98	R	10.68	25.70	1.86
R	5.62	8.15	0.00	R	6.75	7.09	1.00	R	6.37	12.76	1.89
R	5.68	10.34	0.00	R	9.23	14.93	1.00	R	6.38	15.16	1.89
R	6.28	21.12	0.00	R	6.19	6.60	1.00	R	6.42	9.53	1.89
R	7.57	31.98	0.00	R	5.62	2.08	1.01	R	12.48	16.81	1.93
R	8.1	-2.46	0.00	R	8.74	11.95	1.05	R	0.24	-0.60	1.98
R	8.98	4.90	0.00	R	9.52	-0.65	1.05	R	21.24	4.90	2.00
R	9.5	22.04	0.00	R	7.9	16.18	1.06	R	0	0.00	2.00
R	19.56	21.44	0.00	R	16.97	4.88	1.10	R	10.77	20.32	2.05
R	19.58	19.49	0.00	R	7.33	8.35	1.10	R	13.64	17.68	2.05
R	19.6	23.19	0.00	R	9.3	10.99	1.12	R	6.22	32.16	2.06
R	9.23	16.05	0.18	R	21.22	41.99	1.14	R	6.91	6.32	2.08
R	1.34	-1.32	0.21	R	7.43	9.44	1.15	R	19.87	12.68	2.11
R	8.92	13.76	0.23	R	2.51	32.46	1.16	R	17.17	36.26	2.11
R	7.16	4.00	0.23	R	0.16	-1.29	1.17	R	11.48	14.38	2.20
R	8.48	6.93	0.27	R	1.28	-0.46	1.18	R	16.14	5.62	2.25
R	3.16	3.67	0.29	R	11.34	10.66	1.18	R	0	0.00	2.27
R	22.38	19.58	0.32	R	7.43	36.52	1.20	R	8.47	6.61	2.30
R	23.36	21.38	0.32	R	6.29	19.59	1.20	R	10.23	9.75	2.32

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system	labour	gross/ year	gross/ labour	system	labour	gross/ year	gross/ labour
R	0.03	-0.09	0.35	R	6.08	22.22	1.20
R	6.22	4.90	0.37	R	7.77	6.22	1.20
R	3.6	0.00	0.38	R	12.58	4.90	1.25
R	7.08	7.83	0.39	R	8.5	2.25	1.27
R	7.03	10.07	0.45	R	6.88	6.94	1.28
R	6.22	35.46	0.46	R	7.54	6.36	1.28
R	7	11.38	0.46	R	10.56	31.85	1.30
R	7.08	8.48	0.55	R	10.77	20.32	1.35
R	4.12	19.44	0.56	R	25.32	8.09	1.37
R	4.39	9.16	2.69	R	16.24	59.93	2.37
R	5.42	12.49	2.70	R	30	29.41	2.40
R	5.52	17.42	2.71	R	8.88	22.60	2.49
R	11.8	14.20	2.80	R	7.63	11.01	2.54
R	22.2	59.71	2.92	R	0.1	-0.43	2.57
R	0	0.00	2.93	R	4.4	22.06	2.58
R	0.42	-1.62	3.00	R	0	0.00	2.62
R	7.44	15.35	3.01	R	8.52	23.85	2.67
R	10.64	31.23	3.11	R	0.16	0.00	2.68
R	0	0.00	3.15				
R	18.95	38.86	3.19				
R	6.48	1.46	3.19				
R	8.97	8.40	3.20				
R	20.77	14.67	3.36				
R	12.28	22.38	3.40				
R	3.81	4.58	3.61				
R	0.34	-0.95	3.65				
R	18.75	15.86	3.67				
R	4.56	12.33	3.69				
R	10.68	4.90	4.00				
R	0.11	-0.05	4.07				
R	10.77	20.32	4.22				
R	4.92	11.11	4.25				
R	10.51	4.72	4.71				
R	3.6	0.00	4.74				
R	0.11	-0.15	4.91				
R	10.91	13.07	5.00				
R	6.26	19.98	5.10				
R	9.39	29.94	5.16				
R	14.4	5.46	5.33				
R	4.22	11.47	5.60				
R	9.39	34.54	5.69				
R	9.69	24.96	7.03				
R	9.56	16.04	9.91				
R	5.46	10.94	12.88				

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