Supplementary Information

Landscape context affects the sustainability of organic farming systems

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Supplementary Methods

We searched references from the following meta-analyses as a first step in obtaining studies for our analysis of ecosystem services in organic and conventional agroecosystems.

S1. Batary, P., Baldi, A., Kleijn, D. & Tscharntke, T. Landscape-moderated biodiversity effects of agri-environmental management: a meta-analysis. *Proc. R. Soc. B Biol. Sci.* **278,** 1894–1902 (2011).

S2. Crowder, D. W. & Reganold, J. P. Financial competitiveness of organic agriculture on a global scale. *Proc. Natl. Acad. Sci.* **112,** 7611–7616 (2015).

S3. Crowder, D. W., Northfield, T. D., Gomulkiewicz, R. & Snyder, W. E. Conserving and promoting evenness: organic farming and fire-based wildland management as case studies. *Ecology* **93,** 2001–2007 (2012).

S4. Gonthier, D. J. *et al.* Biodiversity conservation in agriculture requires a multi-scale approach. *Proc. R. Soc. B Biol. Sci.* **281,** 9–14 (2014).

S5. Lichtenberg, E. M. *et al.* A global synthesis of the effects of diversified farming systems on arthropod diversity within fields and across agricultural landscapes. *Glob. Chang. Biol.* **23,** 4946–4957 (2017).

S6. Lori, M., Symnaczik, S., Mäder, P., Deyn, G. De & Gattinger, A. Organic farming enhances soil microbial abundance and activity – A meta-analysis and meta-regression. *PLoS ONE* **12,** 1–25 (2017).

S7. Montañez, M. N. & Amarillo-Suárez, A. Impact of organic crops on the diversity of insects : A review of recent research. *Rev. Colomb. Entomol.* **40,** 131–142 (2014).

S8. Ponisio, L. C. *et al.* Diversification practices reduce organic to conventional yield gap. *Proc. R. Soc. B Biol. Sci.* **282,** 20141396–20141396 (2014).

S9. Prieto-Benítez, S. & Méndez, M. Effects of land management on the abundance and richness of spiders (Araneae): A meta-analysis. *Biol. Conserv.* **144,** 683–691 (2011)

S10. Seufert, V., Ramankutty, N. & Foley, J. A. Comparing the yields of organic and conventional agriculture. *Nature* **485**, 229–232 (2012).

S11. Tuck, S. L. et al. Land-use intensity and the effects of organic farming on biodiversity: A hierarchical meta-analysis. *J. Appl. Ecol*. **51,** 746–755 (2014).

S12. Tuomisto, H. L., Hodge, I. D., Riordan, P. & Macdonald, D. W. Does organic farming reduce environmental impacts? - A meta-analysis of European research. *J. Environ. Manage*. **112**, 309–320 (2012).

Table S1. List of all landscape variables. For each study, we assessed landscape context in a 1-km radius around the coordinates given for each sampled location. If studies included more than one sampling location, we calculated the landscape in a 1-km buffer around each location and averaged the values to generate one landscape metric per study, which represented the average of all the landscapes sampled in the study. The table indicates if a variable represents landscape composition, compositional heterogeneity (number and proportions of different cover types), or configurational heterogeneity (spatial arrangement of cover types) and if a value was selected for final analyses based on Spearman's correlation coefficient, Pearson's correlation coefficient, and the variance inflation factor. The final variables chosen were also variables that are commonly used in studies examining effects of landscape context on metrics of sustainability. See the FRAGSTATS website for more metric information (http://www.umass.edu/landeco/research/fragstats/documents/Metrics/Metrics%20TOC.htm) or Fahrig et al. (2011).

Category	**Metric type**	**Class**	**Used in analyses**	**Definition**
Field_size_1000	Configurational heterogeneity	Numeric value	Yes	Field size calculated for all studies from IIASA-IFPRI global field size map by Fritz et al. (2015); 1 km resolution https://cropland.geo-wiki.org/downloads/
X_Crop	Landscape composition	Percentage	Yes	Percent cropland; calculated for all studies Europe – CORINE with 35 m resolution http://www.eea.europa.eu/publications/COR0-landcover United States – NASS Cropland Data Layer (CDL)with 30 m resolution https://nassgeodata.gmu.edu/CropScape/ Elsewhere – IIASA-IFPRI Cropland Percentage Map by Fritz et al. (2015) with 1 km resolution https://cropland.geo-wiki.org/downloads/

				See Supplementary Data 4 for reclassification schemes for CORINE and CDL
X_Natural	Landscape composition	Percentage	No	Percent natural habitat; only calculated for studies in Europe and the United States Europe – CORINE with 35 m resolution http://www.eea.europa.eu/publications/COR0-landcover United States – NASS Cropland Data Layer (CDL)with 30 m resolution https://nassgeodata.gmu.edu/CropScape/
X_Urban	Landscape composition	Percentage	No	Percent urban habitat; only calculated for studies in Europe and the United States Europe – CORINE with 35 m resolution http://www.eea.europa.eu/publications/COR0-landcover United States – NASS Cropland Data Layer (CDL)with 30 m resolution https://nassgeodata.gmu.edu/CropScape/
ED	Configurational heterogeneity	Numeric value	No	Edge density – sum of length (m) of all edge segments divided by the total landscape area (m^2) multiplied by 10,000 to convert to hectares. Only calculated for studies in Europe and the United States.
Nat_ED	Configurational heterogeneity	Numeric value	No	Edge density – sum of length (m) of all natural habitat edge segments divided by the total landscape area (m^2) multiplied by 10,000 to convert to hectares. Only

				calculated for studies in Europe and the United States.
Crop_ED	Configurational heterogeneity	Numeric value	No	Edge density – sum of length (m) of all crop land edge segments divided by the total landscape area (m^2) multiplied by 10,000 to convert to hectares. Only calculated for studies in Europe and the United States.
AREA_MN	Configurational heterogeneity	Numeric value	No	Mean patch area – sum across all patches in the landscape of the corresponding patch metric values divided by the total number of patches. Only calculated for studies in Europe and the United States.
Nat_AREA_MN	Configurational heterogeneity	Numeric value	No	Mean patch area – sum across all natural habitat patches in the landscape of the corresponding patch metric values divided by the total number of patches. Only calculated for studies in Europe and the United States.
Crop_AREA_MN	Configurational heterogeneity	Numeric value	No	Mean patch area – sum across all crop land patches in the landscape of the corresponding patch metric values divided by the total number of patches. Only calculated for studies in Europe and the United States.
ENN_MN	Configurational heterogeneity	Numeric value	No	Euclidean nearest-neighbor distance – distance (m) to the nearest neighboring patch of the same type, based on shortest edge-to-edge distance from cell center to cell center.

				Only calculated for studies in Europe and the United States.
Nat_ENN_MN	Configurational heterogeneity	Numeric value	No	Euclidean nearest-neighbor distance – distance (m) to the nearest neighboring patch of the same natural habitat type, based on shortest edge-to-edge distance from cell center to cell center. Only calculated for studies in Europe and the United States.
Crop_ENN_MN	Configurational heterogeneity	Numeric value	No	Euclidean nearest-neighbor distance – distance (m) to the nearest neighboring patch of the same crop land type, based on shortest edge-to-edge distance from cell center to cell center. Only calculated for studies in Europe and the United States.
CONTAG	Configurational heterogeneity	Numeric value	No	Contagion index - minus the sum of the proportional abundance of each patch type multiplied by the proportion of adjacencies between cells of that patch type and another patch type, multiplied by the logarithm of the same quantity, summed over each unique adjacency type and each patch type; divided by 2 times the logarithm of the number of patch types; multiplied by 100 (to convert to a percentage). In other words, the observed contagion over the maximum possible contagion for the given number of patch types.

				Only calculated for studies in Europe and the United States.
Nat_CONTAG	Configurational heterogeneity	Numeric value	No	Contagion index - minus the sum of the proportional abundance of each natural habitat patch type multiplied by the proportion of adjacencies between cells of that patch type and another patch type, multiplied by the logarithm of the same quantity, summed over each unique adjacency type and each natural habitat patch type; divided by 2 times the logarithm of the number of natural habitat patch types; multiplied by 100 (to convert to a percentage). In other words, the observed contagion over the maximum possible contagion for the given number of natural habitat patch types. Only calculated for studies in Europe and the United States.
Crop_CONTAG	Configurational heterogeneity	Numeric value	No	Contagion index - minus the sum of the proportional abundance of each crop habitat patch type multiplied by the proportion of adjacencies between cells of that crop habitat patch type and another patch type, multiplied by the logarithm of the same quantity, summed over each unique adjacency type and each crop habitat patch type; divided by 2 times the logarithm of the number

				of crop habitat patch types; multiplied by 100 (to convert to a percentage). In other words, the observed contagion over the maximum possible contagion for the given number of crop habitat patch types. Only calculated for studies in Europe and the United States.
IJI	Configurational heterogeneity	Numeric value	No	Interspersion juxtaposition index - the observed interspersion over the maximum possible interspersion for the given number of patch types. Only calculated for studies in Europe and the United States.
Nat_IJI	Configurational heterogeneity	Numeric value	No	Interspersion juxtaposition index - the observed natural habitat interspersion over the maximum possible natural habitat interspersion for the given number of natural habitat patch types. Only calculated for studies in Europe and the United States.
Crop_IJI	Configurational heterogeneity	Numeric value	No	Interspersion juxtaposition index - the observed crop habitat interspersion over the maximum possible crop habitat interspersion for the given number of crop patch types. Only calculated for studies in Europe and the United States.
PR	Compositional heterogeneity	Numeric value	Yes	Patch richness - number of unique patch types in the landscape calculated for Europe and United States

				studies using CORINE and CDL, respectively (reclassified to 16 cover types)
Nat_PR	Compositional heterogeneity	Numeric value	No	Patch richness - number of unique patch types in the landscape for natural cover types calculated for Europe and United States studies using CORINE and CDL, respectively (reclassified to 4 natural cover types)
Crop_PR	Compositional heterogeneity	Numeric value	No	Patch richness - number of unique patch types in the landscape for crop cover types calculated for Europe and United States studies using CORINE and CDL, respectively (reclassified to 7 crop cover types)
SHDI	Compositional heterogeneity	Numeric value	Yes	Shannon’s Diversity Index – diversity of the landscape accounting for relative abundance of cover types calculated for Europe and United States studies using CORINE and CDL, respectively (reclassified to 16 cover types)
Nat_SHDI	Compositional heterogeneity	Numeric value	No	Shannon’s Diversity Index – diversity of the landscape accounting for relative abundance of cover types calculated for natural cover types in Europe and United States studies (reclassified to 4 natural cover types)
Crop_SHDI	Compositional heterogeneity	Numeric value	No	Shannon’s Diversity Index – diversity of the landscape accounting for relative

				abundance of cover types calculated for crop cover types in Europe and United States studies (reclassified to 7 crop cover types)
SHEI	Compositional heterogeneity	Numeric value	No	Shannon's evenness index – minus the sum, across all patch types, of the proportional abundance of each patch type, multiplied by that proportion, divided by the logarithm of the number of patch types. Only calculated for studies in Europe and the United States (reclassified to 16 cover types)
Nat_SHEI	Compositional heterogeneity	Numeric value	No	Shannon's evenness index – minus the sum, across all natural habitat patch types, of the proportional abundance of each natural habitat patch type, multiplied by that proportion, divided by the logarithm of the number of natural habitat patch types. Only calculated for studies in Europe and the US (reclassified to 4 cover types)
Crop_SHEI	Compositional heterogeneity	Numeric value	No	Shannon's evenness index – minus the sum, across all crop patch types, of the proportional abundance of each crop patch type, multiplied by that proportion, divided by the logarithm of the number of crop patch types. Only calculated for studies in Europe and the United States (reclassified to 7 crop cover types)

Table S2. Variance inflation factor (VIF) of variables selected after examining scatterplots and histograms considered for use in models (Figs. S15-S19).

Variable	**VIF**
% Crop	1.22
Field size	1.47
PR	5.60
Nat_PR	3.95
Crop_PR	4.97
SHDI	6.74
Nat_SHDI	4.52
Crop_SHDI	5.68

Table S3. Variance inflation factor (VIF) of reduced set of variables used in final models.

Variable	**VIF**
% Crop	1.09
Field size	1.13
PR	2.36
SHDI	2.22

Table S4. Full model set considered for "simple" models with only two landscape variables (% cropland and field size). These models included the full dataset (as % cropland and field size could be calculated from every study in the dataset).

Model	Variables included in model
1	% Crop
2	% Crop, % $Crop^2$
3	Field size
4	Field size, Field $size^2$
5	% Crop, Field size, % Crop:Field size
6	% Crop, % $Crop^2$, Field size, Field $size^2$, % Crop:Field size

Table S5. Full model set considered for “complex” model set one with three landscape variables (% cropland, field size, and SHDI). These models included a reduced dataset (as SHDI could only be calculated for a subset of studies, see methods). The model # extends Table S4.

Model	**Variables included in model**
7	% Crop
8	% Crop, % Crop^2
9	Field Size
10	Field size, Field size^2
11	SHDI
12	% Crop, Field size, % Crop:Field size
13	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size
14	% Crop, SHDI, % Crop:SHDI
15	% Crop, % Crop^2, SHDI, % Crop:SHDI
16	Field Size, SHDI, Field size:SHDI
17	Field size, Field size^2, SHDI, Field size:SHDI
18	% Crop, Field size, SHDI, % Crop:Field size, % Crop:SHDI, Field size:SHDI
19	% Crop, % Crop^2, Field size, Field size^2, SHDI, % Crop:Field size, % Crop:SHDI; Field size:SHDI

Table S6. Full model set considered for “complex” model set two with three landscape variables (% cropland, field size, and PR). These models included a reduced dataset (as PR could only be calculated for a subset of studies, see methods). The model # extends Table S4.

Model	**Variables included in model**
20	% Crop
21	% Crop, % Crop^2
22	Field size
23	Field size, Field size^2
24	PR
25	% Crop, Field size, % Crop:Field size
26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size
27	% Crop, PR, % Crop:PR
28	% Crop, % Crop^2, PR, % Crop:PR
29	Field size, PR, Field size:PR
30	Field size, Field size^2, PR, Field size:PR
31	% Crop, Field size, PR, % Crop:Field size, % Crop:PR, Field size:PR
32	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR, Field size:PR

Table S7. List of variables used in data collection for meta-analysis for studies on biotic abundance, biotic richness, crop yields, and profitability

Category	Class	Definition
Pub.id		ID assigned to study
Pub.date	1986 to 2017	Year of publication
Study.name		Format as: Last Name YEAR Last Name and Last Name YEAR Last Name et al YEAR
Country	Argentina Australia Belgium Belgium and the Netherlands Bolivia Brazil Canada China Costa Rica Costa Rica and Guatemala Croatia Czech Republic Denmark Estonia Finland France Germany Greece India Ireland Italy Japan Kenya New Zealand Romania South Africa Spain Sweden Switzerland Taiwan Thailand The Netherlands Tunisia Turkey	Country or countries the study took place in

	UK USA	
Continent	Africa Asia Australia Europe North America South America Zealandia	Continent on which study took place
Biome	Boreal Desert Mediterranean Temperate Tropical	Biome in which study occurred based on the website https://ecoregions2017.appspot.com/
Year.initiated	Numeric value	Year study was initiated
Study.duration	Numeric value	Number of years in which data were collected
Study.grp	Farm – entire farm Field – boundary within area managed by farm not extending to entire farm Plot – experimental plot	Scale of study
Study.type	Experiment Station On Farm Survey – paper survey sent to growers	Way in which data were collected
Crop	Alfalfa Amaranth Apple Apricot Banana Barley Bean Beetroot Broccoli Cabbage Cacao Canola Cantaloupe Carrot Cauliflower Cereals	Crop type(s) in study

	Citrus Clover Coffee Corn Cotton Cowpea Dairy Elephant foot yam Flax Grapes Grass Green beans Guarana Leek Lentil Lettuce Lupin Melon Multi – multiple crops sampled Oats Okra Olive Onion Other Pea Peach Pepper Peppermint Plum Potato Pumpkin Rice Rye Safflower Soybean Spinach Squash Strawberry Sweet corn Sweet potato	

	Taro Tea Tomato Water spinach Watermelon Wheat Yam	
Crop.type	Cereals Beverage Fruits Leguminous Multi – multiple crop types sampled Oil crops Other Roots Vegetables	Following FAO definitions
Annual.perennial	Annual – completes life cycle within one year then dies Perennial – alive year-round for 2+ years; harvested multiple times Annual/perennial – perennial crop grown as an annual or locally determined	Follow NRCS classifications
Crop.diversity	Monocrop – one crop grown in unit measured (farm, field, or plot) Multicrop.both – two or more crops grown in unit measured Multicrop.org - two or more crops grown in unit measured for organic only Multicrop.conv - two or more crops grown in unit measured for conventional only	Crop field diversity in organic and conventional treatments
Rotations	Longer organic – crop rotations longer in organic treatments Longer conventional - crop rotations longer in conventional treatments Similar – similar crop rotations in treatments None – no crop rotations in either treatments	Rotation length in organic and conventional treatments

Irrigation	Org – only in organic treatment(s) Conv – only in conventional treatment(s) Both – both treatments use irrigation to some extent Neither – neither use irrigation (rainfed)	Irrigation practices in organic and conventional treatments
Tillage	Conventional no-till – conventional no till but organic till Conventional reduced – conventional reduced tillage but organic till No-till – both no till Organic reduced – conventional standard tillage but organic reduced tillage Reduced – both reduced Standard – both standard Variable – multiple tillage treatments	Tillage practices in organic and conventional treatments
Org.cert	Biodynamic – uses organic practices and treats farm as integrated system following Rudolf Steiner Certified – certified organic farm Org.stand- uses organic certification standards but uncertified Transitioning – transitioning to organic practices from conventional	Organic certification level; use what paper stated
Conv.cert	Commercial - High-input commercial system Low input - Any low-input commercial system using conventional inputs at low rates	Conventional practice as stated in paper
N.org	Numeric value between 1 and 165	Number of organic replicates
N.conv	Numeric value between 1 and 457	Number of conventional replicates
N.coords	Numeric value between 1 and 290	Number of unique site locations used to calculate landscape metrics
Developed	Developed – very high HDI Less developed – high, medium, or low HDI	Followed Human Development Report (used in Crowder and Reganold (2015)
n.input	more conv - > 50% more N input than organic treatment more org - > 50% more N input than organic treatment ? - unknown	Nitrogen input in conventional and organic treatments

	Similar - Organic and conventional received similar (i.e. in the range of -50%) amounts of N per ha per year over the course of one rotation (or over the study period if it did not cover an entire rotation)	
Org.n.input	Numeric value	In kg/ha; amount of N. If fertilizer is reported as amount manure, would be entered as N/A unless they report a % N per unit of manure
Conv.n.input	Numeric value	In kg/ha; amount of N. If fertilizer is reported as amount manure, would be entered as N/A unless they report a % N per unit of manure
P.input	more conv - > 50% more N input than organic treatment more org - > 50% more N input than organic treatment similar	Phosphorous input in organic and conventional treatments
Org.p.input	Numeric value	In kg/ha; amount of P. If fertilizer is reported as amount manure, would be entered as N/A unless they report a % P per unit of manure
Conv.p.input	Numeric value	In kg/ha; amount of P. If fertilizer is reported as amount manure, would be entered as N/A unless they report a % P per unit of manure
Moisture	High - > 0.4 alpha (ratio of actual to potential evapotranspiration) Medium - 0.3-0.4 alpha Low - < 0.3 alpha	Follow Seufert et al. (2012)
Soil.carbon	High - 4-11 kg C m-2 Medium - 3-4 & 11-22 kg C m-2 Low - 4-11 kg C m-2	
Soil.ph	neutral – weak acidic to weak alkaline 5.5-8 strong acidic - < 5.5 strong alkaline - > 8	

Table S8. List of variables used in data collection for studies on biotic abundance and richness

Category	**Class**	**Definition**
Organism.grp	All – overall effect size across taxa Archaea Arth Bacterial Birds Earthworms Fungi Mammals Microbes – other than fungi or bacterial; unspecified microbes Nematodes Plants Protozoa	Organismal group
Functional.grp	Decomp Herbivore Other Parasitoid Pollinator Predator Producer	Used classifications from study and did not reclassify groups
Richness.org	Numeric value	Species richness in organic system
Richness.org.sd	Numeric value	Organic treatment species richness standard deviation
Richness.conv	Numeric value	Conventional treatment species richness
Richness.conv.sd	Numeric value	Conventional treatment species richness standard deviation
RichRR	Numeric value	Richness effect size calculated as log response ratio Log(Richness.org/Richness.conv)
Abundance.org	Numeric value	Species abundance in organic system
Abundance.org.sd	Numeric value	Organic treatment species abundance standard deviation

Abundance.conv	Numeric value	Conventional treatment species abundance
Abundance.conv.sd	Numeric value	Conventional treatment species abundance standard deviation
AbundRR	Numeric value	Abundance effect size calculated as log response ratio Log(Abundance.org/Abundance/conv)

Table S9. List of variables used in data collection for studies on yield

Category	**Class**	**Definition**
Yield.unit	bu/ac g/m^2 ka/ha kg kg Fw/plant kg/ha kg/m^2 kg/plant kg/tree L/ha Mg/ha t/ha tDM/ha	Units in which yield was reported
Mean.conv	Numeric value	Mean yield in conventional treatment
Sd.conv	Numeric value	Standard deviation in conventional treatment
Mean.org	Numeric value	Mean yield in organic treatment
Sd.org	Numeric value	Standard deviation in organic treatment
YieldRR	Numeric value	Yield log response ratio

Table S10. List of variables used in data collection for studies on profitability

Category	Class	Definition
ConPrice	Numeric value	Price of the conventional crop
OrgPrice	Numeric value	Price of the organic crop
ConCost	Numeric value	Production costs for the conventional crop
ConGRNoP	Numeric value	Gross returns without premiums for the conventional crop
OrgGRNoP	Numeric value	Gross returns without premiums for the organic crop
ConGRP	Numeric value	Gross returns with premiums for the conventional crop
OrgGRP	Numeric value	Gross returns with premiums for the organic crop
ConBCNoP	Numeric value	Benefit/cost ratio without premiums for the conventional crop
OrgBCNoP	Numeric value	Benefit/cost ratio without premiums for the organic crop
ConBC	Numeric value	Benefit/cost ratio with premiums for the conventional crop
OrgBC	Numeric value	Benefit/cost ratio with premiums for the organic crop
PriceRR	Numeric value	Price log response ratio
CostRR	Numeric value	Production cost log response ratio
GRNoRR	Numeric value	Gross returns without premiums log response ratio
GRYesRR	Numeric value	Gross returns with premiums log response ratio
BCNoRR	Numeric value	Benefit/cost ratio without premiums log response ratio
BCYesRR	Numeric value	Benefit/cost ratio with premiums log response ratio

Table S11. Number of studies and effect sizes (estimates) for biotic abundance by category

Category	Class	Studies	Estimates
Country	Argentina	1	2
	Brazil	1	1
	Canada	5	11
	China	1	1
	Costa Rica	1	1
	Finland	1	1
	France	1	1
	Germany	1	3
	India	2	4
	Ireland	2	6
	Italy	5	8
	Japan	1	6
	New Zealand	1	4
	South Africa	1	1
	Spain	3	8
	Sweden	1	2
	Switzerland	6	9
	Taiwan	1	1
	The Netherlands	2	3
	Tunisia	1	1
	UK	1	2
	USA	11	26
Continent	Africa	2	2
	Asia	5	12
	Europe	23	43
	North America	17	38
	South America	2	3
	Zealandia	1	4
Biome	Boreal	2	2
	Desert	2	7
	Mediterranean	8	15
	Temperate	33	71
	Tropical	5	7
Year.initiated	1988-2015		
Study.duration	1	27	65
	2	15	26
	3	5	6
	6	1	1
	8	1	1
	18	1	3
Study.grp	Farm	10	14
	Field	20	40
	Plot	20	48

Study.type	Experiment Station	22	52
	On Farm	22	43
	Survey	5	6
	N/A	1	1
Crop	Alfalfa	1	1
	Apple	3	6
	Banana	1	1
	Beetroot	1	1
	Canola	1	1
	Cereals	4	6
	Citrus	1	1
	Coffee	2	4
	Corn	1	4
	Dairy	1	2
	Grapes	3	3
	Grass	3	6
	Guarana	1	1
	Multi	10	18
	Olive	1	2
	Onion	1	4
	Peach	1	3
	Potato	2	2
	Rice	4	10
	Soybean	1	5
	Tomato	1	1
	Watermelon	1	1
	Wheat	10	18
	N/A	1	1
Crop.type	Beverage	2	4
	Cereals	19	38
	Fruits	9	15
	Multi	5	8
	Oil crops	3	8
	Other	9	18
	Root	2	2
	Vegetables	3	6
	N/A	3	3
Annual.perennial	Annual	31	69
	Annual/perennial	5	8
	Perennial	13	23
	N/A	2	2
Crop.diversity	Monocrop	37	84
	Multicrop.both	7	10
	Multicrop.org	2	2
	N/A	4	6
Rotations	Longer organic	4	11

	None	14	27
	Similar	23	46
	N/A	9	18
Irrigation	Both	10	19
	Neither	5	12
	N/A	35	71
Tillage	Conventional reduced	1	4
	No-till	4	10
	Organic reduced	1	3
	Reduced	1	1
	Standard	15	44
	Variable	1	1
	N/A	27	39
Org.cert	Certified	10	14
	Org.stand	26	54
	N/A	14	34
Conv.cert	Commercial	39	88
	Low input	2	2
	N/A	9	12
Development	Developed	43	93
	Less developed	7	9
n.coords		Min – 1	Min – 1
		Average – 7.7	Average – 6.2
		Max – 42	Max – 42
n.input	more conv	11	25
	more org	5	6
	similar	8	17
	N/A	26	54
P.input	more conv	6	14
	more org	4	10
	similar	8	21
	N/A	32	57
Moisture	high	2	7
	medium	1	2
	N/A	47	93
Soil.carbon	high	1	1
	low	1	1
	medium	2	3
	N/A	46	97
Soil.ph	acidic	1	1
	neutral	9	16
	strong acidic	1	4
	strong alkaline	2	9
	N/A	37	72
Organismal group	Archaea	1	1
	Arth	20	41

	Bacterial	6	8
	Birds	1	1
	Earthworms	4	7
	Fungi	6	11
	Mammals	2	2
	Microbes	5	6
	Nematodes	7	13
	Plants	9	12
Functional group	Decomp	4	8
	Detritovore	1	1
	Fungivore	1	1
	Herbivore	3	5
	Other	9	13
	Parasitoid	4	5
	Pollinator	6	6
	Predator	16	21
	Producer	8	11
	N/A	20	31

Table S12. Number of studies and effect sizes (estimates) for biotic richness by category

Category	Class	Studies	Estimates
Country	Argentina	1	1
	Belgium	1	1
	Belgium and The Netherlands	1	1
	Brazil	1	1
	Canada	3	3
	Costa Rica	2	2
	Costa Rica and Guatemala	1	1
	Croatia	1	1
	Czech Republic	1	1
	Estonia	1	2
	Finland	2	2
	France	1	1
	Germany	4	10
	Ireland	2	3
	Italy	2	2
	South Africa	1	1
	Spain	4	9
	Sweden	1	1
	Switzerland	5	8
	Thailand	1	1
	The Netherlands	4	7
	Tunisia	1	1
	UK	3	9
	USA	15	25
Continent	Africa	2	2
	Asia	1	1
	Europe	33	58
	North America	20	30
	South America	3	3
Biome	Boreal	2	2
	Desert	1	2
	Mediterranean	8	13
	Temperate	43	72
	Tropical	5	5
Year.initiated	1975-2015		
Study.duration	1	29	44
	2	15	26
	3	4	4
	4	3	10
	6	3	4
	8	2	3
	11	1	1
	43	1	1

	N/A	1	1
Study.grp	Farm	20	26
	Field	15	27
	Plot	24	41
Study.type	Experiment Station	20	35
	On Farm	30	40
	Survey	8	18
	N/A	1	1
Crop	Alfalfa	1	1
	Apple	5	7
	Barley	1	1
	Bean	1	1
	Beetroot	1	1
	Cereals	8	8
	Citrus	1	1
	Clover	1	1
	Coffee	2	2
	Corn	3	3
	Dairy	2	3
	Grapes	8	10
	Grass	1	1
	Guarana	1	1
	Multi	9	17
	Olive	1	1
	Other	1	1
	Peach	1	1
	Potato	3	3
	Rice	1	1
	Tea	1	1
	Tomato	1	3
	Watermelon	1	1
	Wheat	12	23
	N/A	1	1
Crop.type	Beverage	3	3
	Cereals	23	36
	Fruits	15	20
	Leguminous	1	1
	Multi	1	1
	Oil crops	1	1
	Other	8	9
	Root	3	3
	Vegetables	3	5
	N/A	7	15
Annual.perennial	Annual	31	53
	Annual/perennial	3	3
	Perennial	21	27

	N/A	5	11
Crop.diversity	Monocrop Multicrop.both Multicrop.org N/A	38 13 2 6	63 21 2 8
Rotations	Longer conventional Longer organic None Similar N/A	1 3 20 21 14	1 6 31 32 24
Irrigation	Both Conv Neither N/A	8 1 4 46	18 1 5 70
Tillage	Conventional no-till Conventional reduced No-till Organic reduced Reduced Standard Variable N/A	1 1 3 2 1 13 3 35	1 2 5 2 1 25 3 55
Org.cert	Biodynamic Certified Org.stand N/A	1 17 26 15	2 31 33 28
Conv.cert	Commercial Low input N/A	41 1 17	63 1 30
Development	Developed Less developed	52 7	87 7
n.coords		Min – 1 Average – 14.4 Max - 240	Min – 1 Average – 13.9 Max - 240
n.input	more conv more org similar N/A	7 2 11 39	10 2 21 61
P.input	more conv more org similar N/A	4 3 8 44	5 4 16 69
Moisture	high medium N/A	1 1 57	1 2 91
Soil.carbon	high	2	2

	medium	1	2
	N/A	56	90
Soil.ph	acidic	1	2
	neutral	7	9
	strong alkaline	1	2
	N/A	50	81
Organismal group	Archaea	2	2
	Arth	19	35
	Bacterial	7	7
	Birds	3	3
	Earthworms	2	5
	Fungi	11	12
	Microbes	2	2
	Nematodes	4	5
	Plants	21	22
	Protozoa	1	1
Functional group	Decomp	3	6
	Detritovore	1	1
	Fungivore	1	1
	Herbivore	4	6
	Omnivore	1	1
	Other	12	14
	Parasitoid	2	2
	Pollinator	6	7
	Predator	10	11
	Producer	19	20
	N/A	18	25

Table S13. Number of studies and effect sizes (estimates) for yield by category

Category	Class	Studies	Estimates
Country	Australia	1	2
	Bolivia	1	1
	Canada	9	16
	China	1	1
	Croatia	1	1
	Czech Republic	1	1
	Denmark	1	6
	Estonia	1	4
	France	1	1
	Germany	2	3
	Greece	2	2
	India	8	12
	Italy	8	12
	Kenya	1	3
	Romania	1	1
	South Africa	1	2
	Spain	4	5
	Sweden	1	1
	Switzerland	1	1
	Taiwan	1	5
	Turkey	1	1
	UK	3	3
	USA	27	75
Continent	Africa	2	5
	Asia	10	18
	Australia	1	2
	Europe	28	42
	North America	36	91
	South America	1	1
Biome	Desert	4	7
	Mediterranean	14	16
	Temperate	51	118
	Tropical	9	18
Year.initiated	1978-2015		
Study.duration	1	5	6
	2	11	15
	3	19	38
	4	11	25
	5	5	13
	6	3	5
	7	7	15
	8	2	8
	9	5	7

	10	2	8
	11	1	1
	13	3	5
	16	1	1
	17	1	3
	19	1	3
	21	1	6
Study.grp	Farm	2	2
	Field	12	19
	Plot	64	138
Study.type	Experiment Station	61	138
	On Farm	15	19
	Survey	2	2
Crop	Alfalfa	6	6
	Amaranth	1	1
	Apple	3	3
	Apricot	1	1
	Barley	2	2
	Bean	2	2
	Broccoli	1	1
	Cabbage	5	5
	Cacao	1	1
	Cantaloupe	1	1
	Carrot	1	1
	Cauliflower	1	1
	Corn	23	29
	Cotton	2	2
	Cowpea	1	1
	Elephant foot yam	1	1
	Flax	1	1
	Green beans	1	1
	Leek	1	1
	Lentil	1	1
	Lettuce	2	2
	Lupin	1	1
	Melon	2	2
	Oats	6	6
	Okra	1	1
	Onion	3	3
	Pea	2	2
	Pepper	2	2
	Peppermint	1	1
	Plum	1	1
	Potato	5	5
	Pumpkin	1	1
	Rice	3	3

	Rye	1	1
	Safflower	1	1
	Soybean	17	23
	Spinach	1	1
	Squash	1	1
	Strawberry	2	2
	Sweet corn	1	1
	Sweet potato	1	1
	Taro	1	1
	Tomato	6	7
	Water spinach	1	1
	Wheat	25	26
	Yam	1	1
Crop.type	Beverage	1	1
	Cereals	45	69
	Fruits	7	7
	Leguminous	7	8
	Oil crops	20	26
	Other	8	8
	Root	9	9
	Vegetables	20	31
Annual.perennial	Annual	71	146
	Annual/perennial	6	6
	Perennial	7	7
Crop.diversity	Monocrop	39	61
	Multicrop.both	39	98
Rotations	Longer conventional	2	3
	Longer organic	4	10
	None	21	26
	Similar	53	118
	N/A	2	2
Irrigation	Both	30	57
	Conv	1	3
	Neither	11	22
	N/A	36	77
Tillage	Conventional no-till	1	1
	Conventional reduced	1	4
	No-till	12	20
	Organic reduced	1	3
	Reduced	2	5
	Standard	32	76
	Variable	4	6
	N/A	27	44
Org.cert	Certified	10	12
	Org.stand	57	124
	N/A	11	23

Conv.cert	Commercial Low input N/A	54 8 16	114 10 35
Development	Developed Less developed	67 11	143 16
n.coords		Min – 1 Average – 1.6 Max - 22	Min – 1 Average – 1.4 Max - 22
n.input	more conv more org Similar N/A	24 8 24 22	36 17 66 40
P.input	more conv more org Similar N/A	11 5 17 45	14 9 41 95
Moisture	high low medium N/A	2 1 4 71	2 1 19 137
Soil.carbon	high low medium N/A	3 1 3 71	5 1 8 145
Soil.ph	medium neutral strong acidic strong alkaline N/A	1 23 4 5 45	4 44 4 7 100
Yield Units	bu/ac g/m^2 ka/ha Kg kg Fw/plant kg/ha kg/m^2 kg/plant kg/tree L/ha Mg/ha t/ha tDM/ha NA	1 1 1 1 1 13 1 1 2 1 15 21 1 18	3 1 3 2 1 21 1 1 2 1 33 33 1 56

Table S14. Number of studies and effect sizes (estimates) for profitability by category

Category	Class	Studies	Estimates
Country	USA	9	37
Continent	North America	9	37
Biome	Mediterranean	1	1
	Temperate	8	36
Year.initiated	1988-2005		
Study.duration	2	1	1
	3	3	6
	4	1	5
	5	1	8
	6	1	2
	8	1	5
	10	1	5
	21	1	5
Study.grp	Plot	9	37
Study.type	Experiment Station	8	36
	On Farm	1	1
Crop	Bean	1	1
	Corn	7	13
	Oats	2	2
	Okra	1	1
	Safflower	1	1
	Soybean	5	11
	Squash	1	1
	Strawberry	1	1
	Tomato	2	3
	Wheat	2	3
Crop.type	Cereals	7	18
	Fruits	1	1
	Leguminous	1	1
	Oil crops	6	12
	Vegetables	3	5
Annual.perennial	Annual	9	37
Crop.diversity	Monocrop	3	3
	Multicrop.both	7	34
Rotations	Longer Conventional	1	2
	Longer Organic	3	9
	None	2	2
	Similar	6	24
Irrigation	Both	4	16
	N/A	6	21
Tillage	Conventional reduced	1	1
	No-till	1	2

	Organic reduced Standard N/A	1 6 2	2 30 2
Org.cert	Org.stand	9	37
Conv.cert	Commercial Low input	9 1	35 2
Development	Developed Less developed	9 0	37 0
n.coords		Min – 1 Average – 1.1 Max – 2	Min – 1 Average – 1.1 Max – 2
n.input	More conv More org Similar N/A	2 1 6 2	2 4 25 6
P.input	Moe conv Similar N/A	2 4 4	2 16 19
Moisture	Medium N/A	3 6	14 23
Soil.carbon	Medium N/A	1 8	4 33
Soil.ph	Neutral Strong Acidic N/A	2 1 7	5 2 30

Table S15. Mean and median values for various landscape metrics across the meta-datasets for biotic abundance, biotic richness, crop yield, and profitability. Data shown represent the mean values for crop field size, crop %, patch richness, and Shannon's habitat diversity index, as well as the standard errors of these metrics. Values were computed from the entire meta-datasets for each sustainability metric and show the mean and variability of each measure.

	Biotic abundance		**Biotic richness**		**Crop yield**		**Profitability**	
Landscape metric	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
Crop field size	26.7	27.9	28.0	28.4	26.5	27.0	30.7	31.2
Crop field size (standard error)	0.22	0.00	0.41	0.00	0.073	0.00	0.00	0.00
Crop %	47.8	55.6	48.5	51.8	50.7	56.8	36.4	36.5
Crop % (standard error)	2.4	0.00	3.2	1.3	0.78	0.00	0.0015	0.00
Patch richness	4.3	3.0	4.4	3.2	5.3	5.0	7.4	7.0
Patch richness (standard error)	0.096	0.00	0.12	0.00	0.022	0.0074	0.00	0.00
Shannon's habitat diversity	0.85	0.80	0.86	0.90	0.87	0.95	0.96	1.1
Shannon's habitat diversity (standard error)	0.035	0.00	0.038	0.00	0.0081	0.00	0.00	0.00

Table S16. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of biotic abundance in relation to landscape factors (simple model set in Table S4). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if ω > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Covariate	ω	β	**Lower CI**	**Upper CI**
% Crop	0.23	-0.075	-0.41	0.26
% Crop^2	0.11	0.61	-0.031	1.3
Field size	**0.83**	**0.41**	**0.079**	**0.73**
Field size^2	0.24	0.21	-0.49	0.92
% Crop:Field size	0.06	-0.24	-0.92	0.44

Table S17. AICc and ΔAICc values for models assessing biotic abundance in relation to landscape factors (see simple model set in Table S4). Models with a Δ*AICc* < 2.0 are bolded.

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Abund_1	% Crop	241.6	4.0
Abund_2	% Crop, % Crop^2	241.3	3.7
Abund_3	**Field size**	**237.6**	**0.0**
Abund_4	**Field size, Field size^2**	**239.5**	**1.9**
Abund_5	% Crop, Field size, % Crop:Field size	242.5	4.9
Abund_6	% Crop, % Crop^2, Field size, Field size^2 % Crop:Field size	244.7	7.1

Table S18. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of biotic abundance in relation to landscape factors (complex model set one in Table S5). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Covariate	*ω*	*β*	Lower CI	Upper CI
% Crop	0.28	0.040	-0.44	0.52
% Crop^2	0.20	**0.85**	**0.13**	**1.6**
Field size	**0.68**	**0.52**	**0.085**	**0.96**
Field size^2	0.30	0.62	-0.32	1.6
SHDI	0.21	-0.21	-0.72	0.30
% Crop:Field size	0.04	0.15	-0.69	1.0
% Crop:SHDI	0.03	-0.39	-1.4	0.58
Field size:SHDI	0.11	-0.12	-1.3	1.1

Table S19. AICc and ΔAICc values for models assessing biotic abundance in relation to landscape factors (see complex model set one, Table S5). Models with a Δ*AICc* < 2.0 are bolded.

Model	Factor(s)	*AICc*	Δ*AICc*
Abund_7	% Crop	182.4	3.4
Abund_8	**% Crop, % Crop^2**	**180.2**	**1.2**
Abund_9	**Field size**	**179.0**	**0.0**
Abund_10	**Field size, Field size^2**	**179.5**	**0.5**
Abund_11	SHDI	181.6	2.6
Abund_12	% Crop, Field size, % Crop:Field size	183.8	4.8
Abund_13	% Crop, % Crop^2, Field size, Field size^2	185.4	6.4
	% Crop:Field size	186.7	7.7
Abund_14	% Crop, SHDI, % Crop:SHDI		
Abund_15	% Crop, % Crop^2, SHDI, % Crop:SHDI	184.5	5.5
Abund_16	Field size, SHDI, Field size:SHDI	182.4	3.4
Abund_17	Field size, Field size^2, SHDI, Field size:SHDI	182.6	3.6
Abund_18	% Crop, Field size, SHDI, % Crop:Field size	188.6	9.6
	% Crop:SHDI, Field size:SHDI		
Abund_19	% Crop, % Crop^2, Field size, Field size^2, SHDI,	188.8	9.3
	% Crop:Field size, % Crop:SHDI,		
	Field size:SHDI		

Table S20. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of biotic abundance in relation to landscape factors (complex model set two in Table S6). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if ω > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Covariate	ω	β	**Lower CI**	**Upper CI**
% Crop	0.30	-0.018	-0.63	0.60
% Crop^2	0.21	**0.85**	**0.098**	**1.6**
Field size	**0.70**	**0.56**	**0.072**	**1.1**
Field size^2	0.31	0.63	-0.34	1.6
PR	0.25	-0.26	-0.90	0.37
% Crop:Field size	0.06	0.22	-0.65	1.1
% Crop:PR	0.06	-1.0	-3.0	1.0
Field size:PR	0.17	0.30	-1.1	1.7

Table S21. AICc and ΔAICc values for models assessing biotic abundance in relation to landscape factors (see complex model set two, Table S6). Models with a Δ*AICc* < 2.0 are bolded.

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Abund_20	% Crop	182.4	3.4
Abund_21	**% Crop, % Crop^2**	**180.2**	**1.2**
Abund_22	**Field size**	**179.0**	**0.0**
Abund_23	**Field size, Field size^2**	**179.5**	**0.5**
Abund_24	PR	182.0	3.0
Abund_25	% Crop, Field size, % Crop:Field size	183.8	4.8
Abund_26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	185.4	6.4
Abund_27	% Crop, PR, % Crop:PR	186.2	7.2
Abund_28	% Crop, % Crop^2, PR, % Crop:PR	183.6	4.6
Abund_29	Field size, PR, Field size:PR	181.5	2.5
Abund_30	Field size, Field size^2, PR, Field size:PR	182.0	3.0
Abund_31	% Crop, Field size, PR, % Crop:Field size % Crop:PR, Field size:PR	186.0	7.0
Abund_32	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR, Field size:PR	184.8	5.8

Table S22. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of biotic richness in relation to landscape factors (simple model set in Table S4). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if $\omega > 0.6$. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Covariate	*ω*	*β*	Lower CI	Upper CI
% Crop	0.15	0.089	-0.10	0.28
% Crop^2	0.02	0.049	-0.27	0.37
Field size	**0.86**	**0.23**	**0.046**	**0.42**
Field size^2	0.26	0.27	-0.049	0.60
% Crop:Field size	0.02	0.16	-0.25	0.58

Table S23. AICc and ΔAICc values for models assessing biotic richness in relation to landscape factors (see simple model set in Table S4). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map.

Model	Factor(s)	*AICc*	Δ*AICc*
Rich_1	% Crop	162.4	3.2
Rich_2	% Crop, % Crop^2	166.0	6.8
Rich_3	**Field size**	**159.2**	**0.0**
Rich_4	**Field size, Field size**	**160.9**	**1.7**
Rich_5	% Crop, Field size, % Crop:Field size	166.6	7.4
Rich_6	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	172.2	13.0

Table S24. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of biotic richness in relation to landscape factors (complex model set one in Table S5). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.08	0.082	-0.15	0.32
% $Crop^2$	0.01	0.041	-0.33	0.41
Field size	**0.89**	**0.31**	**0.094**	**0.53**
Field $size^2$	0.37	**0.37**	**0.0033**	**0.74**
SHDI	0.15	-0.054	-0.28	0.18
% Crop:Field size	0.02	0.17	-0.35	0.69
% Crop:SHDI	< 0.01	-0.20	-0.54	0.14
Field size:SHDI	0.10	-0.48	-1.0	0.050

Table S25. AICc and ΔAICc values for models assessing biotic richness in relation to landscape factors (see complex model set one, Table S5). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Rich_7	% Crop	154.3	4.3
Rich_8	% Crop, % $Crop^2$	157.7	7.7
Rich_9	**Field size**	**150.0**	**0.0**
Rich_10	**Field size, Field $size^2$**	**150.8**	**0.8**
Rich_11	SHDI	154.6	4.6
Rich_12	% Crop, Field size, % Crop:Field size	157.0	7.0
Rich_13	% Crop, % $Crop^2$, Field size, Field $size^2$, % Crop:Field size	161.5	11.5
Rich_14	% Crop, SHDI, % Crop:SHDI	161.2	11.2
Rich_15	% Crop, % $Crop^2$, SHDI, % Crop:SHDI	164.8	14.8
Rich_16	Field size, SHDI, Field size:SHDI	154.4	4.4
Rich_17	Field size, Field $size^2$, SHDI, Field size:SHDI	154.3	4.3
Rich_18	% Crop, Field size, SHDI, % Crop:Field size % Crop:SHDI, Field size:SHDI	164.4	14.8
Rich_19	% Crop, % $Crop^2$, Field size, Field $size^2$, SHDI, % Crop:Field size, % Crop:SHDI, Field size:SHDI	165.1	14.3

Table S26. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of biotic richness in relation to landscape factors (complex model set two in Table S6). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if ω > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Covariate	$\boldsymbol{\omega}$	$\boldsymbol{\beta}$	**Lower CI**	**Upper CI**
% Crop	0.08	0.084	-0.15	0.32
% Crop^2	0.01	0.049	-0.31	0.41
Field size	**0.89**	**0.31**	**0.092**	**0.53**
Field size^2	0.38	**0.38**	**0.0051**	**0.75**
PR	0.12	-0.036	-0.26	0.19
% Crop:Field size	0.02	0.18	-0.34	0.69
% Crop:PR	< 0.01	-0.18	-0.58	0.21
Field size:PR	0.08	-0.44	-0.98	0.11

Table S27. AICc and ΔAICc values for models assessing biotic richness in relation to landscape factors (see complex model set two, Table S6). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape.

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Rich_20	% Crop	154.3	4.3
Rich_21	% Crop, % Crop^2	157.7	7.7
Rich_22	**Field size**	**150.0**	**0.0**
Rich_23	**Field size, Field size^2**	**150.8**	**0.8**
Rich_24	PR	155.0	5.0
Rich_25	% Crop, Field size, % Crop:Field size	157.0	7.0
Rich_26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	161.5	11.5
Rich_27	% Crop, PR, % Crop:PR	161.6	11.6
Rich_28	% Crop, % Crop^2, PR, % Crop:PR	165.2	15.2
Rich_29	Field size, PR, Field size:PR	155.6	5.6
Rich_30	Field size, Field size^2, PR, Field size:PR	154.6	4.6
Rich_31	% Crop, Field size, PR, % Crop:Field size % Crop:PR, Field size:PR	165.5	15.5
Rich_32	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR, Field size:PR	167.7	17.7

Table S28. Relationship between field size and various metrics of crop diversity and natural habitat diversity.

Metric	Estimate	*SE*	*t*	*df*	*P*
% Crop habitat	0.030	0.018	1.68	110	0.095
% Natural habitat	0.012	0.022	0.58	110	0.57
Crop patch richness	-1.88	0.44	-4.23	110	< 0.0001
Crop SHDI*	-3.62	1.18	-3.08	110	0.0026
Natural patch richness	-0.58	0.53	-1.08	110	0.28
Natural SHDI*	-2.91	1.50	-1.94	110	0.055

* Shannon's habitat diversity index

Table S29. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of crop yield in relation to landscape factors (simple model set in Table S4). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if $\omega > 0.6$. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Covariate	ω	β	**Lower CI**	**Upper CI**
% Crop	0.33	-0.018	-0.15	0.11
% Crop^2	0.05	0.083	-0.25	0.41
Field size	**0.68**	-0.10	-0.24	0.032
Field size^2	0.11	-0.13	-0.40	0.13
% Crop:Field size	< 0.01	-0.0027	-0.30	0.30

Table S30. AICc and ΔAICc values for models assessing crop yield in relation to landscape factors (see simple model set in Table S4). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Yield_1	**% Crop**	**128.6**	**1.5**
Yield_2	% Crop, % Crop^2	132.0	4.9
Yield_3	**Field size**	**127.1**	**0.0**
Yield_4	Field size, Field size^2	130.4	3.3
Yield_5	% Crop, Field size, % Crop:Field size	136.3	9.2
Yield_6	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	142.9	15.8

Table S31. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of crop yield in relation to landscape factors (complex model set one in Table S5). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon Diversity Index for the landscape.

Covariate	*ω*	*β*	Lower CI	Upper CI
% Crop	0.17	0.0073	-0.17	0.18
% Crop^2	0.15	0.23	-0.20	0.65
Field size	**0.72**	-0.10	-0.30	0.096
Field size^2	**0.60**	**-0.55**	**-0.90**	**-0.20**
SHDI	0.12	0.030	-0.12	0.18
% Crop:Field size	< 0.01	0.30	-011	0.72
% Crop:SHDI	< 0.01	-0.12	-0.37	0.13
Field size:SHDI	0.01	0.0056	-0.36	0.37

Table S32. AICc and ΔAICc values for models assessing crop yield in relation to landscape factors (see complex model set one, Table S5). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon Diversity Index for the landscape.

Model	Factor(s)	*AICc*	Δ*AICc*
Yield_7	% Crop	110.9	3.1
Yield_8	% Crop, % Crop^2	113.0	5.2
Yield_9	Field size	110.9	3.1
Yield_10	**Field size, Field size^2**	**107.8**	**0.0**
Yield_11	SHDI	111.1	3.3
Yield_12	% Crop, Field size, % Crop:Field size	118.0	10.2
Yield_13	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	117.3	9.5
Yield_14	% Crop, SHDI, % Crop:SHDI	119.4	11.5
Yield_15	% Crop, % Crop^2, SHDI, % Crop:SHDI	121.0	13.2
Yield_16	Field size, SHDI, Field size:SHDI	119.3	11.5
Yield_17	Field size, Field size^2, SHDI, Field size:SHDI	116.1	8.3
Yield_18	% Crop, Field size, SHDI, % Crop:Field size % Crop:SHDI, Field size:SHDI	129.1	21.3
Yield_19	% Crop, % Crop^2, Field size, Field size^2, SHDI, % Crop:Field size, % Crop:SHDI, Field size:SHDI	129.1	21.3

Table S33. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of crop yield in relation to landscape factors (complex model set two in Table S6). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if ω > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.16	0.0088	-0.17	0.19
% Crop^2	0.04	0.23	-0.20	0.65
Field size	**0.68**	-0.10	-0.30	0.095
Field size^2	0.56	**-0.55**	**-0.90**	**-0.20**
PR	0.19	0.095	-0.063	0.25
% Crop:Field size	< 0.01	0.30	-0.11	0.72
% Crop:PR	< 0.01	0.034	-0.35	0.36
Field size:PR	0.02	0.044	-0.29	0.43

Table S34. AICc and ΔAICc values for models assessing crop yield in relation to landscape factors (see complex model set two, Table S6). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = Patch richness for the landscape

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Yield_20	% Crop	110.9	3.1
Yield_21	% Crop, % Crop^2	113.0	5.2
Yield_22	**Field size**	**110.9**	**3.1**
Yield_23	**Field size, Field size^2**	**107.8**	**0.0**
Yield_24	PR	110.0	2.2
Yield_25	% Crop, Field size, % Crop:Field size	118.0	10.2
Yield_26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	117.3	9.5
Yield_27	% Crop, PR, % Crop:PR	118.6	10.8
Yield_28	% Crop, % Crop^2, PR, % Crop:PR	119.7	11.9
Yield_29	Field size, PR, Field size:PR	118.2	10.4
Yield_30	Field size, Field size^2, PR, Field size:PR	115.1	7.3
Yield_31	% Crop, Field size, PR, % Crop:Field size % Crop:PR, Field size:PR	128.8	21.0
Yield_32	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR, Field size:PR	127.7	19.9

Table S35. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of profitability in relation to landscape factors (simple model set in Table S4). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.23	0.13	-0.19	0.45
% Crop^2	0.07	**0.55**	**0.14**	**0.96**
Field size	**0.88**	**-0.35**	**-0.56**	**-0.13**
Field size^2	0.08	0.021	-0.28	0.32
% Crop:Field size	0.10	0.11	-0.11	0.33

Table S36. AICc and ΔAICc values for models assessing profitability in relation to landscape factors (see simple model set in Table S4). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Profit_1	% Crop	51.2	5.2
Profit_2	% Crop, % Crop^2	50.5	4.5
Profit_3	**Field size**	**46.0**	**0.0**
Profit_4	Field size, Field size^2	50.4	4.4
Profit_5	% Crop, Field size, % Crop:Field size	49.9	3.9
Profit_6	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	57.6	11.6

Table S37. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of profitability in relation to landscape factors (complex model set one in Table S5). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.22	0.12	-0.89	1.1
% Crop^2	0.07	0.49	-3.1	4.0
Field size	**0.84**	**-0.35**	**-0.64**	**-0.058**
Field size^2	0.08	-0.012	-2.2	2.2
SHDI	0.06	-0.11	-2.9	2.6
% Crop:Field size	0.10	0.17	-3.7	4.1
% Crop:SHDI	< 0.01	-1.0	-10.8	8.6
Field size:SHDI	0.01	0.36	-7.2	7.9

Table S38. AICc and ΔAICc values for models assessing profitability in relation to landscape factors (see complex model set one, Table S5). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Profit_7	% Crop	51.2	5.2
Profit_8	% Crop, % Crop^2	50.5	4.5
Profit_9	**Field size**	**46.0**	**0.0**
Profit_10	Field size, Field size^2	50.4	4.4
Profit_11	SHDI	51.5	5.5
Profit_12	% Crop, Field size, % Crop:Field size	49.9	3.9
Profit_13	% Crop, % Crop^2, Field size, Field size^2,	57.6	11.5
	% Crop:Field size	58.4	12.4
Profit_14	% Crop, SHDI, % Crop:SHDI		
Profit_15	% Crop, % Crop^2, SHDI, % Crop:SHDI	60.0	14.0
Profit_16	Field size, SHDI, Field size:SHDI	54.6	8.6
Profit_17	Field size, Field size^2, SHDI, Field size:SHDI	57.7	11.7
Profit_18	% Crop, Field size, SHDI, % Crop:Field size % Crop:SHDI, Field size:SHDI	62.1	16.1
Profit_19	% Crop, % Crop^2, Field size, Field size^2, SHDI, % Crop:Field size, % Crop:SHDI, Field size:SHDI	61.7	11.3

Table S39. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of profitability in relation to landscape factors (complex model set two in Table S6). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Covariate	*ω*	*β*	Lower CI	Upper CI
% Crop	0.26	0.52	-1.8	2.8
% Crop^2	0.08	**0.54**	**0.058**	**1.0**
Field size	**0.80**	**-0.35**	**-0.59**	**-0.11**
Field size^2	0.07	0.020	-0.30	0.34
PR	0.12	2.6	-7.5	12.8
% Crop:Field size	0.11	0.11	-0.12	0.34
% Crop:PR	0.06	4.7	-6.5	16.0
Field size:PR	0.03	0.17	-0.46	0.79

Table S40. AICc and ΔAICc values for models assessing profitability in relation to landscape factors (see complex model set two, Table S6). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Model	Factor(s)	*AICc*	Δ*AICc*
Profit_20	% Crop	51.2	5.2
Profit_21	% Crop, % Crop^2	50.5	4.5
Profit_22	**Field size**	**46.0**	**0.0**
Profit_23	Field size, Field size^2	50.4	4.4
Profit_24	PR	51.1	5.1
Profit_25	% Crop, Field size, % Crop:Field ssize	49.9	3.9
Profit_26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	57.6	11.6
Profit_27	% Crop, PR, % Crop:PR	52.3	6.3
Profit_28	% Crop, % Crop^2, PR, % Crop:PR	53.1	7.1
Profit_29	Field size, PR, Field size:PR	53.7	7.7
Profit_30	Field size, Field size^2, PR, Field size:PR	58.4	12.4
Profit_31	% Crop, Field size, PR, % Crop:Field size % Crop:PR, Field size:PR	53.3	7.3
Profit_31	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR, Field size:PR	61.6	15.6

Table S41. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of production costs in relation to landscape factors (simple model set in Table S4). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.43	-0.019	-0.23	0.19
% $Crop^2$	0.09	-0.25	-0.69	0.19
Field size	0.58	-0.033	-0.28	0.21
Field $size^2$	0.17	0.27	-0.0087	0.54
% Crop:Field size	0.01	0.20	-0.23	0.64

Table S42. AICc and ΔAICc values for models assessing production costs in relation to landscape factors (see simple model set in Table S4). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Cost_1	**% Crop**	**0.2**	**0.4**
Cost_2	% Crop, % $Crop^2$	2.9	3.1
Cost_3	**Field size**	**-0.2**	**0.0**
Cost_4	**Field size, Field $size^2$**	**1.6**	**1.8**
Cost_5	% Crop, Field size, % Crop:Field size	7.4	7.6
Cost_6	% Crop, % $Crop^2$, Field size, Field $size^2$, % Crop:Field size	11.1	11.3

Table S43. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of production costs in relation to landscape factors (complex model set one in Table S5). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Covariate	*ω*	*β*	Lower CI	Upper CI
% Crop	0.12	-0.029	-1.1	1.0
% Crop^2	0.03	-0.35	-5.0	4.3
Field size	0.16	-0.033	-0.46	0.39
Field size^2	0.04	0.23	-2.0	2.5
SHDI	**0.74**	0.19	-0.42	0.79
% Crop:Field size	< 0.01	1.2	-16.8	19.3
% Crop:SHDI	< 0.01	-0.33	-5.8	5.1
Field size:SHDI	< 0.01	0.20	-7.2	7.6

Table S44. AICc and ΔAICc values for models assessing production costs in relation to landscape factors (see complex model set one, Table S5). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Model	Factor(s)	*AICc*	Δ*AICc*
Cost_7	% Crop	0.2	4.3
Cost_8	% Crop, % Crop^2	2.8	6.9
Cost_9	Field size	-0.2	3.9
Cost_10	Field size, Field size^2	1.6	5.7
Cost_11	**SHDI**	**-4.1**	**0.0**
Cost_12	% Crop, Field size, % Crop:Field size	7.4	11.5
Cost_13	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	11.1	15.2
Cost_14	% Crop, SHDI, % Crop:SHDI	6.8	10.9
Cost_15	% Crop, % Crop^2, SHDI, % Crop:SHDI	8.1	12.2
Cost_16	Field size, SHDI, Field size:SHDI	5.4	9.5
Cost_17	Field size, Field size^2, SHDI, Field size:SHDI	9.5	13.6
Cost_18	% Crop, Field size, SHDI, % Crop:Field size % Crop:SHDI, Field size:SHDI	17.0	21.1
Cost_19	% Crop, % Crop^2, Field size, Field size^2, SHDI, % Crop:Field size, % Crop:SHDI, Field size:SHDI	14.0	18.1

Table S45. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of production costs in relation to landscape factors (complex model set two in Table S6). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.38	-0.32	-3.1	2.4
% Crop^2	0.07	-0.24	-0.68	0.20
Field size	0.41	0.024	-0.29	0.34
Field size^2	0.10	0.25	-0.015	0.52
PR	0.47	-0.51	-8.7	7.7
% Crop:Field size	0.04	-0.037	-0.29	0.22
% Crop:PR	0.15	-1.9	-13.9	10.1
Field size:PR	0.11	0.57	-0.29	1.0

Table S46. AICc and ΔAICc values for models assessing production costs in relation to landscape factors (see complex model set two, Table S6). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = patch richness for the landscape

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Cost_20	**% Crop**	**0.2**	**0.7**
Cost_21	% Crop, % Crop^2	2.8	3.3
Cost_22	**Field size**	**-0.2**	**0.3**
Cost_23	Field size, Field size^2	1.6	2.1
Cost_24	**PR**	**-0.5**	**0.0**
Cost_25	% Crop, Field size, % Crop:Field size	7.4	7.9
Cost_26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	11.1	11.6
Cost_27	**% Crop, PR, % Crop:PR**	**1.2**	**1.7**
Cost_28	% Crop, % Crop^2, PR, % Crop:PR	4.5	5.0
Cost_29	Field size, PR, Field size:PR	2.3	2.8
Cost_30	Field size, Field size^2, PR, Field size:PR	6.2	5.7
Cost_31	% Crop, Field size, PR, % Crop:Field size % Crop:PR, Field size:PR	3.7	4.2
Cost_32	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR Field size:PR	13.9	14.4

Table S47. Model-averaged partial regression coefficients (*β*) and unconditional 90% CIs from models of organic price premiums in relation to landscape factors (simple model set in Table S4). Akaike weights (*ω*) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if *ω* > 0.6. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Covariate	***ω***	***β***	**Lower CI**	**Upper CI**
% Crop	0.19	-0.019	-0.21	0.18
% Crop^2	0.03	0.14	-0.22	0.51
Field size	**0.83**	-0.13	-0.29	0.028
Field size^2	0.25	**0.23**	**0.022**	**0.43**
% Crop:Field size	0.02	0.21	-0.060	0.48

Table S48. AICc and ΔAICc values for models assessing organic price premiums in relation to landscape factors (see simple model set in Table S4). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015).

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Price_1	% Crop	63.7	2.7
Price_2	% Crop, % Crop^2	67.2	6.2
Price_3	**Field size**	**61.0**	**0.0**
Price_4	**Field size, Field size^2**	**62.6**	**1.6**
Price_5	% Crop, Field size, % Crop:Field size	68.0	7.0
Price_6	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	73.3	12.3

Table S49. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of organic price premiums in relation to landscape factors (complex model set one in Table S5). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if $\omega > 0.6$. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Covariate	ω	β	**Lower CI**	**Upper CI**
% Crop	0.13	-0.022	-0.81	0.76
% Crop^2	0.02	-0.093	-4.1	4.3
Field size	0.58	-0.13	-0.35	0.082
Field size^2	0.18	0.22	-0.70	1.1
SHDI	0.63	0.13	-0.60	0.87
% Crop:Field size	0.01	0.31	-6.3	6.9
% Crop:SHDI	< 0.01	-0.28	-5.8	5.4
Field size:SHDI	< 0.01	0.21	-5.9	6.2

Table S50. AICc and ΔAICc values for models assessing organic price premiums in relation to landscape factors (see complex model set one, Table S5). Models with a Δ*AICc* < 2.0 are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); SHDI = Shannon diversity index for the landscape.

Model	**Factor(s)**	***AICc***	**Δ*AICc***
Price_7	**% Crop**	**62.7**	**1.7**
Price_8	% Crop, % Crop^2	67.2	6.2
Price_9	**Field size**	**61.0**	**0.0**
Price_10	**Field size, Field size^2**	**62.6**	**1.6**
Price_11	**SHDI**	**61.5**	**0.5**
Price_12	% Crop, Field size, % Crop:Field size	68.0	7.0
Price_13	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	73.3	12.3
Price_14	% Crop, SHDI, % Crop:SHDI	71.3	10.3
Price_15	% Crop, % Crop^2, SHDI, % Crop:SHDI	74.4	13.4
Price_16	Field size, SHDI, Field size:SHDI	69.6	8.6
Price_17	Field size, Field size^2, SHDI, Field size:SHDI	72.2	11.2
Price_18	% Crop, Field size, SHDI, % Crop:Field size % Crop:SHDI, Field size:SHDI	80.4	19.4
Price_10	% Crop, % Crop^2, Field size, Field size^2, SHDI, % Crop:Field size, % Crop:SHDI Field size:SHDI	78.8	17.3

Table S51. Model-averaged partial regression coefficients (β) and unconditional 90% CIs from models of organic price premiums in relation to landscape factors (complex model set two in Table S6). Akaike weights (ω) indicate relative importance of each covariate based on summing weights across models where the covariate occurs. Coefficients are in bold if CIs do not include 0 or if $\omega > 0.6$. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = Patch richness for the landscape

Covariate	ω	β	Lower CI	Upper CI
% Crop	0.19	0.035	-1.4	1.5
% Crop^2	0.03	0.14	-0.27	0.55
Field size	**0.71**	-0.13	-0.30	0.037
Field size^2	0.22	**0.23**	**0.022**	**0.43**
PR	0.18	0.23	-4.5	5.0
% Crop:Field size	0.02	0.20	-0.081	0.49
% Crop:PR	0.03	0.89	-8.9	10.7
Field size:PR	0.03	0.31	-0.10	0.72

Table S52. AICc and ΔAICc values for models assessing organic price premiums in relation to landscape factors (see complex model set two, Table S6). Models with a $\Delta AICc < 2.0$ are bolded. % Crop = % of landscape in crop production; Field size = field size from global field size map (Fritz et al. 2015); PR = Patch richness for the landscape

Model	Factor(s)	*AICc*	Δ*AICc*
Price_20	% Crop	63.7	2.7
Price_21	% Crop, % Crop^2	67.2	6.2
Price_22	**Field size**	**61.0**	**0.0**
Price_23	**Field size, Field size^2**	**62.6**	**1.6**
Price_24	PR	63.7	2.7
Price_25	% Crop, Field size, % Crop:Field size	68.0	7.0
Price_26	% Crop, % Crop^2, Field size, Field size^2, % Crop:Field size	73.3	12.3
Price_27	% Crop, PR, % Crop:PR	66.8	5.8
Price_28	% Crop, % Crop^2, PR, % Crop:PR	70.5	9.5
Price_29	Field size, PR, Field size:PR	67.6	6.6
Price_30	Field size, Field size^2, PR, Field size:PR	69.1	8.1
Price_31	% Crop, Field size, PR, % Crop:Field size % Crop:PR, Field size:PR	71.9	10.9
Price_32	% Crop, % Crop^2, Field size, Field size^2, PR, % Crop:Field size, % Crop:PR Field size:PR	78.7	15.9

Fig. S1. Diagram showing how landscape was calculated using a 1 km buffer. Landscapes shown represent areas with (a) low percent crop, small field size (India), (b) low percent crop, large field size (Ohio, USA), (c) high percent crop, small field size (India), and (d) high percent crop, large field size (California, USA).

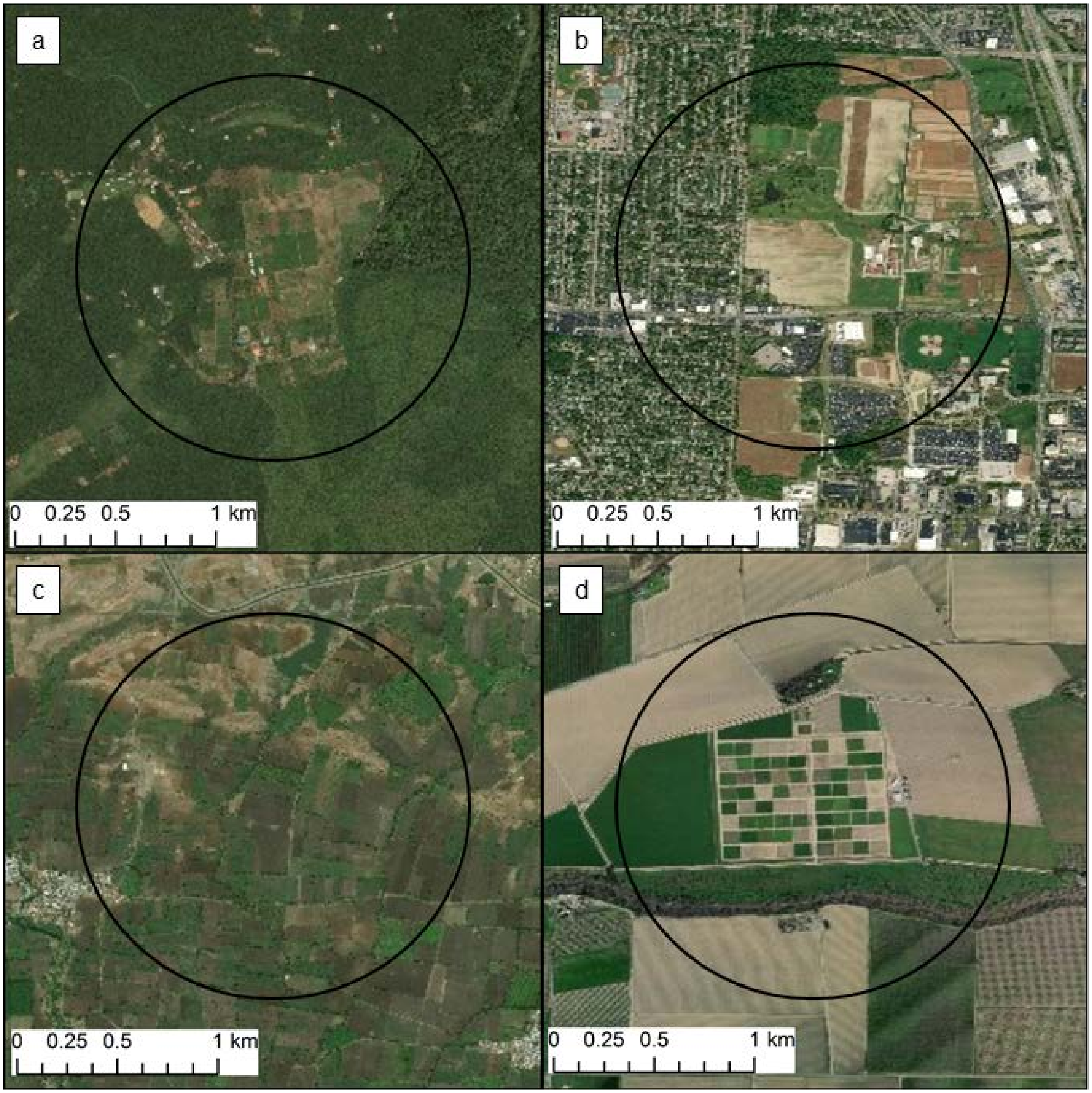


Fig. S2. Histograms showing spread in average values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of biotic abundance in organic compared to conventional systems.

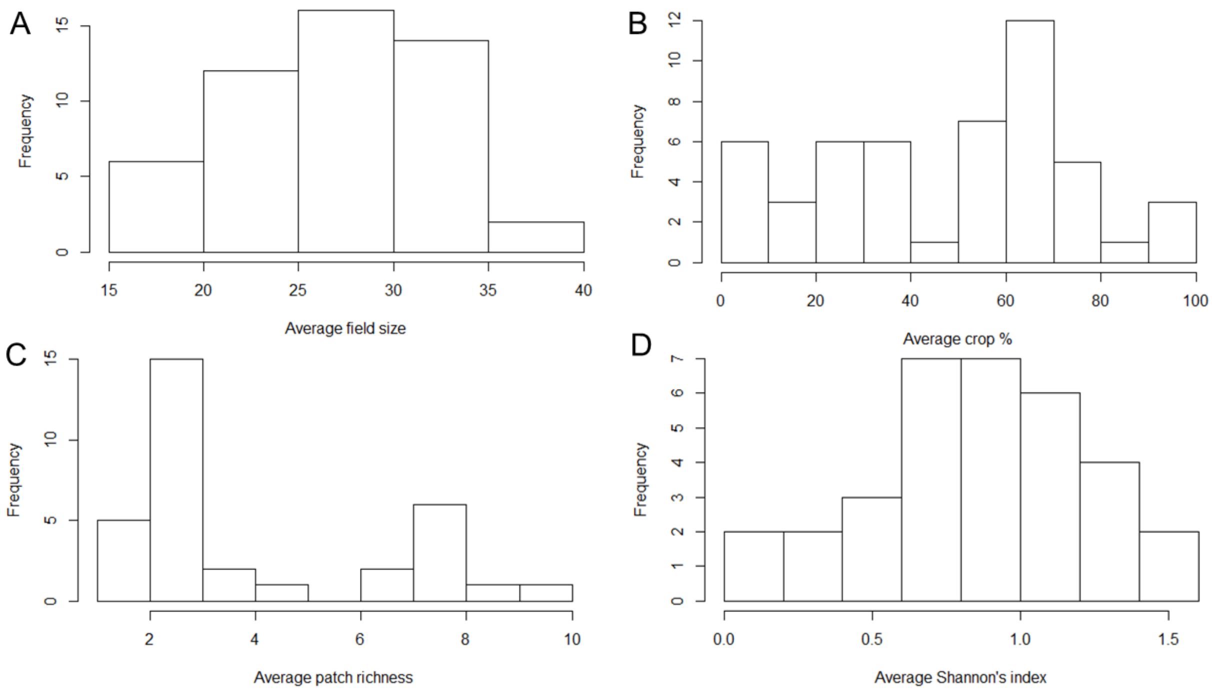


Fig. S3. Histograms showing spread in standard error values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of biotic abundance in organic compared to conventional systems.

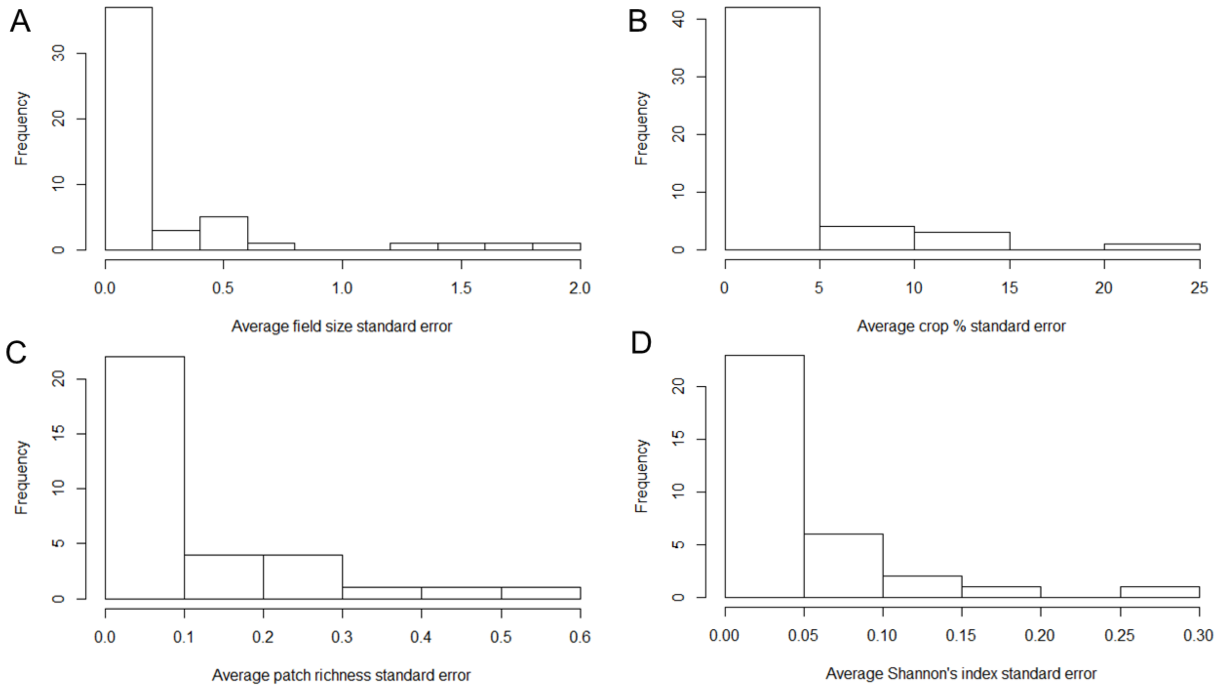


Fig. S4. Histograms showing spread in average values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of biotic richness in organic compared to conventional systems.

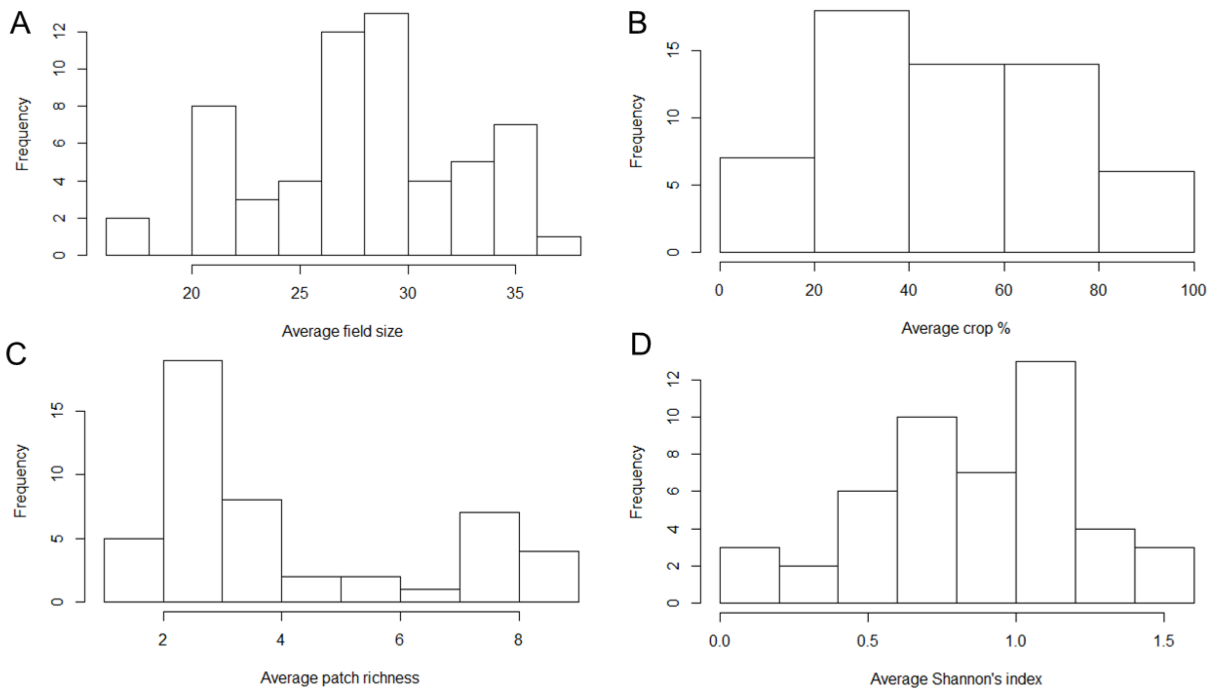


Fig. S5. Histograms showing spread in standard error values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of biotic richness in organic compared to conventional systems.

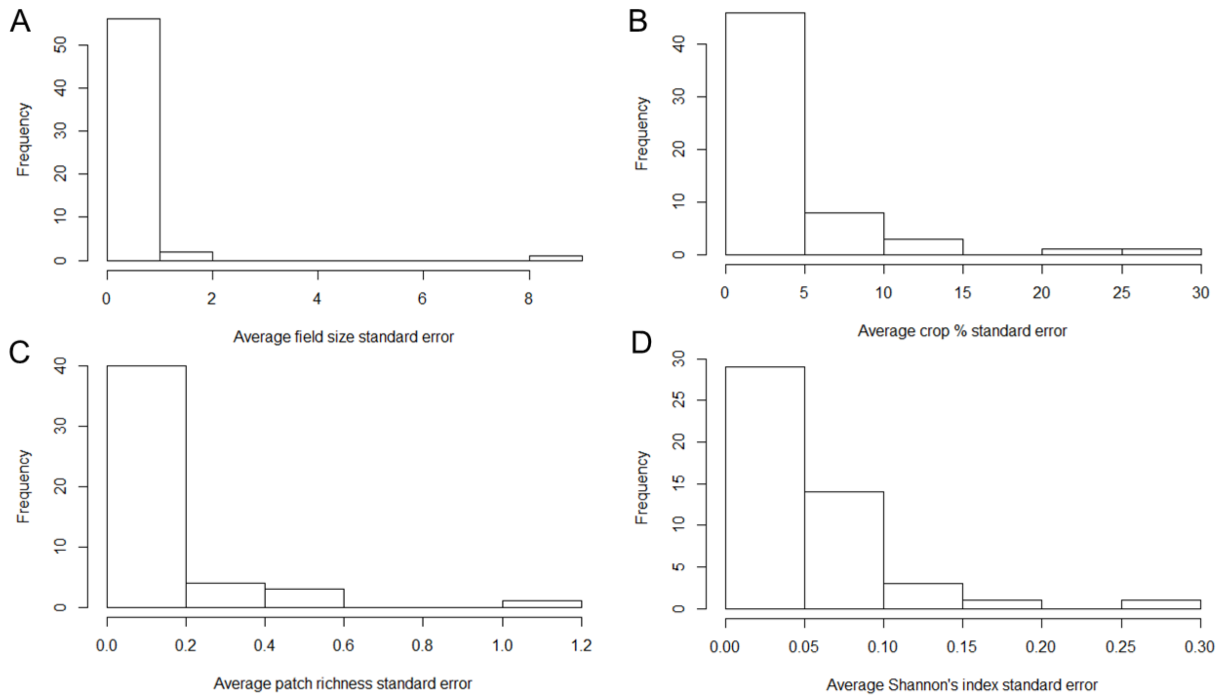


Fig. S6. Histograms showing spread in average values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of crop yield in organic compared to conventional systems.

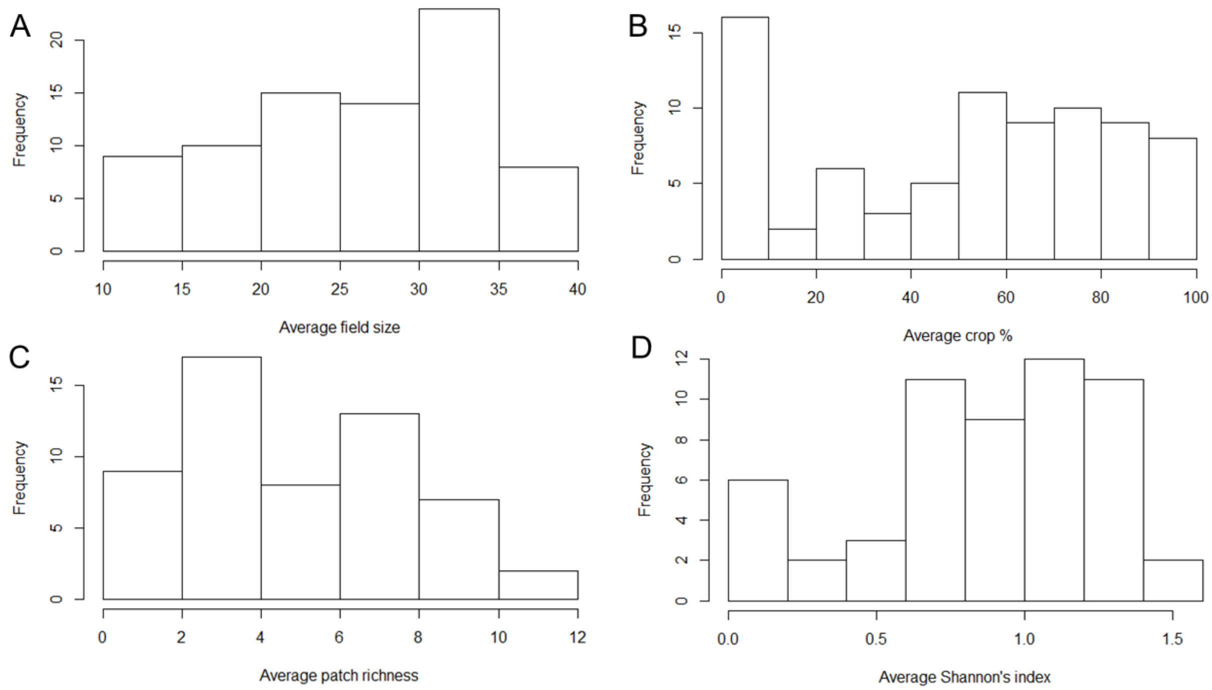


Fig. S7. Histograms showing spread in standard error values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of crop yield in organic compared to conventional systems.

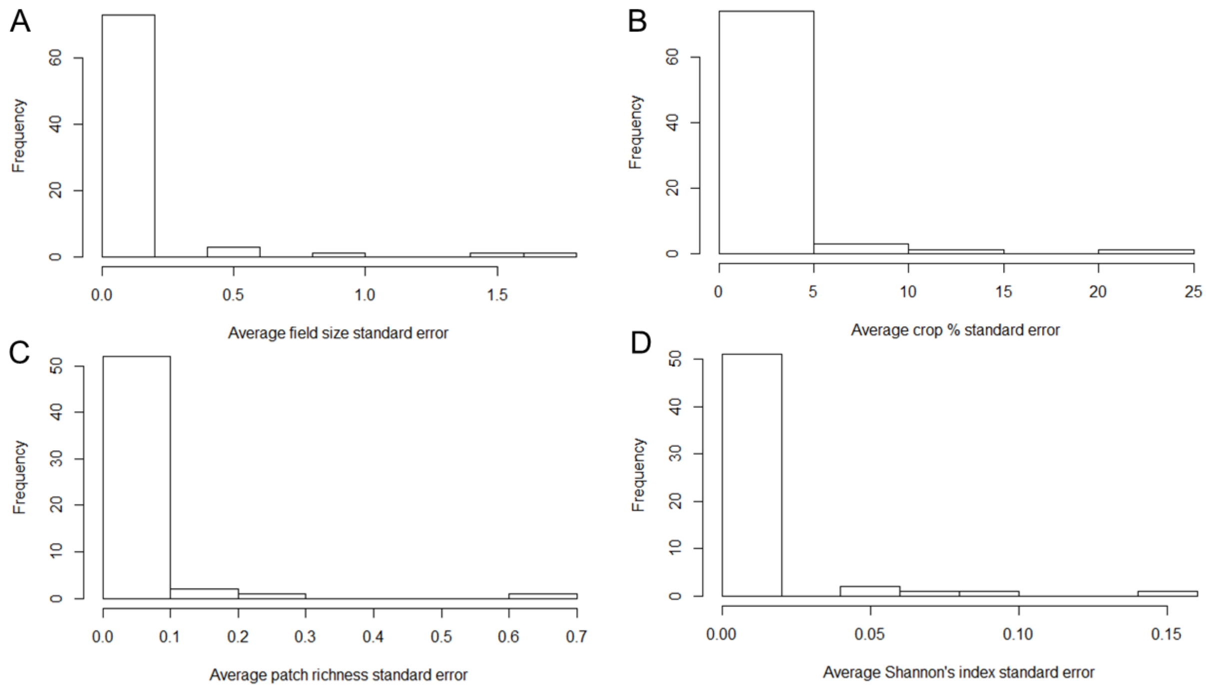


Fig. S8. Histograms showing spread in average values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of profitability in organic compared to conventional systems.

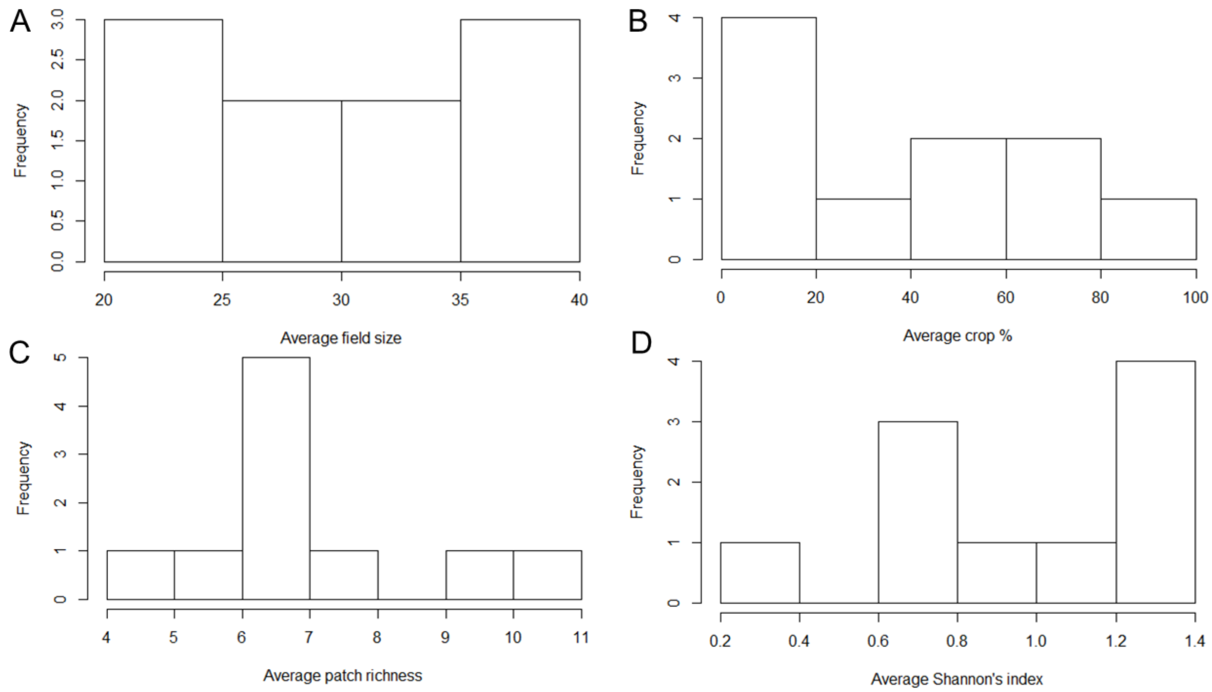


Fig. S9. Histograms showing spread in standard error values for landscape metrics of (A) crop field size, (B) crop %, (C) patch richness, and (D) Shannon's habitat diversity index for studies of profitability in organic compared to conventional systems.

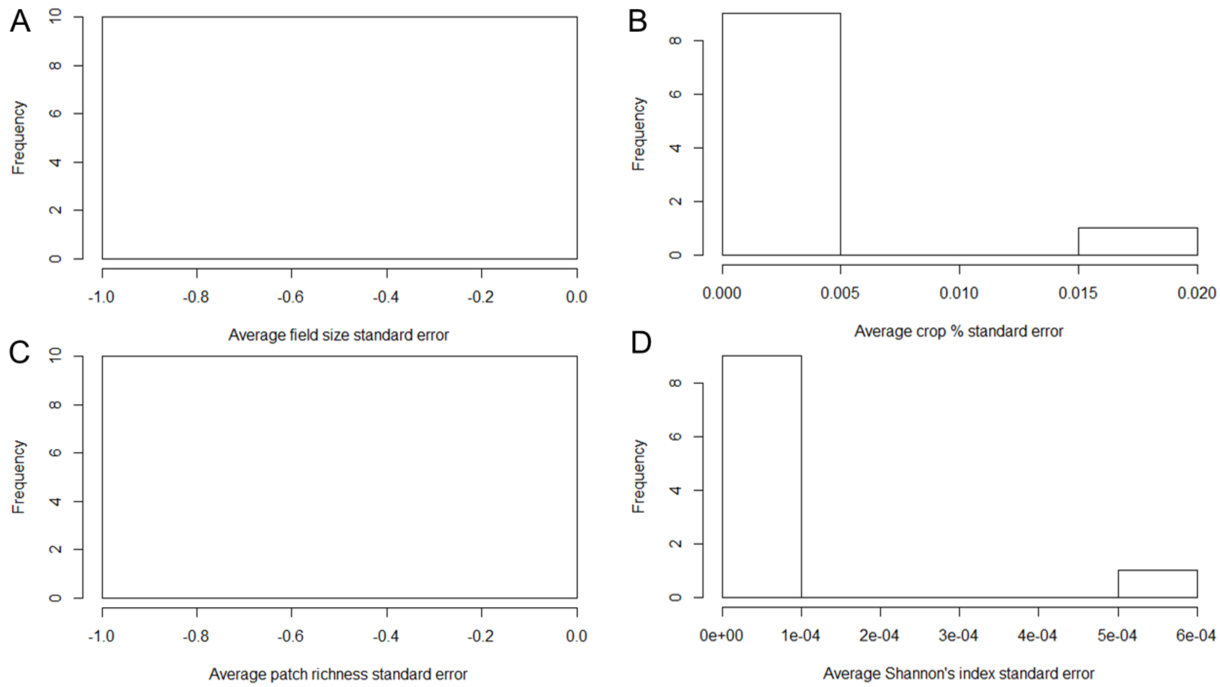


Fig. S10. Relationship between field size, continent, development level, and biome. Average crop field size across biodiversity studies across (A) various continents, (B) developed vs less developed countries, and (C) biomes in the meta-analysis (using the datasets for biotic abundance and biotic richness). Dots indicate values outside of 90% CIs. Center lines indicate median value and box edge indicate 25th and 75th percentiles.

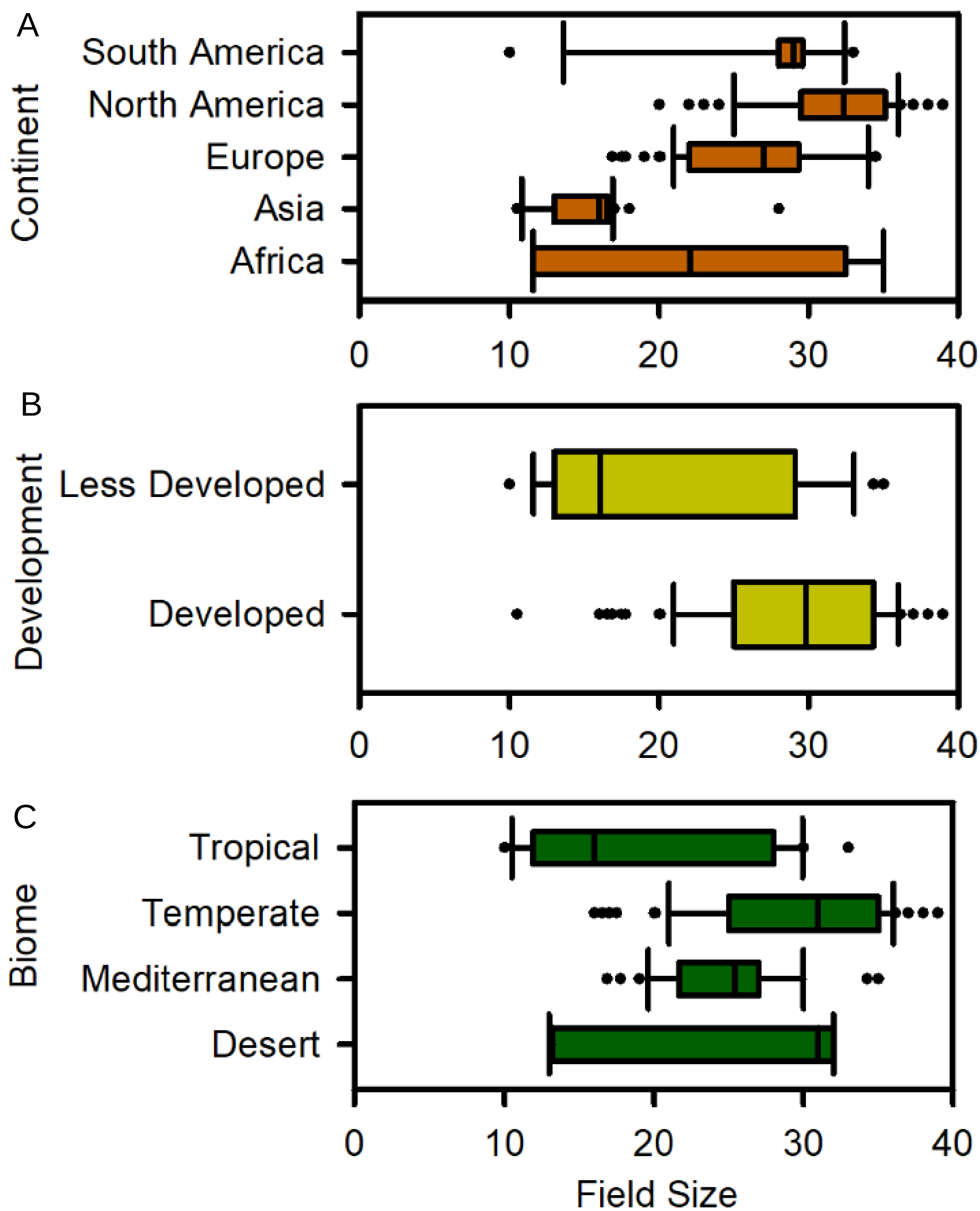


Fig. S11. Effect of crop field size on yield. Best-fit regression (and 90% confidence intervals) showing the relationships between average crop field size based on Fritz et al. (2015) and the log response-ratio effect size for yield of organic vs conventional crops.

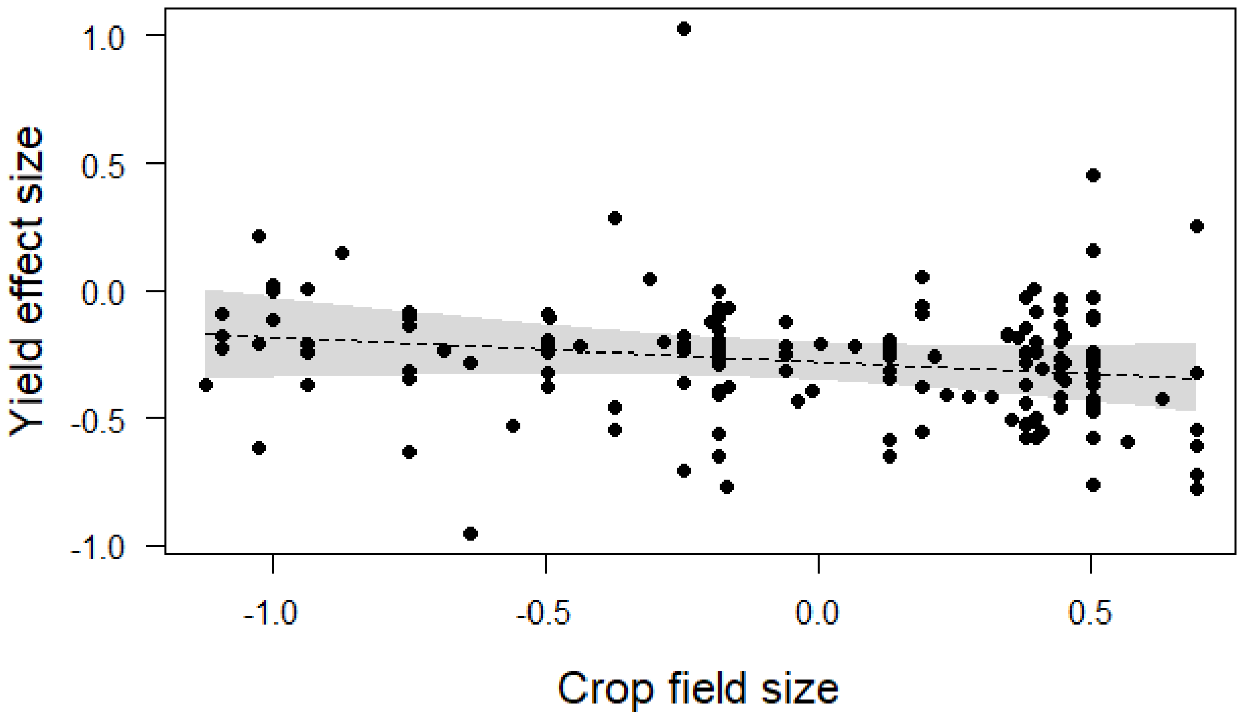


Fig. S12. Effect of crop field size on profitability. Best-fit regression (and 90% confidence intervals) showing relationship between average crop field size based on Fritz et al. (2015) and the log response-ratio effect size for profitability of organic vs conventional crops.

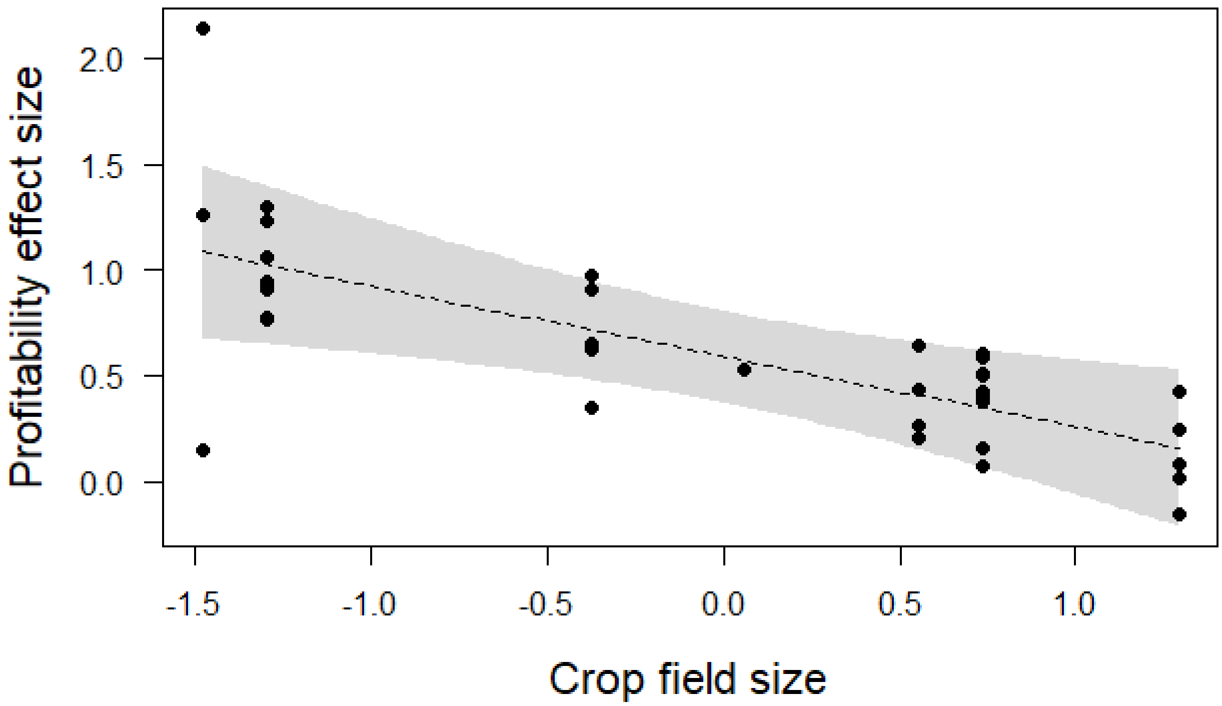


Fig. S13. Correlation between (A) crop yields and benefit/cost ratios, (B) production costs and benefit/cost ratios, and (C) price premiums and benefit/cost ratios. Shown are the observed points, the best-fit correlation line, and the 90% confidence interval.

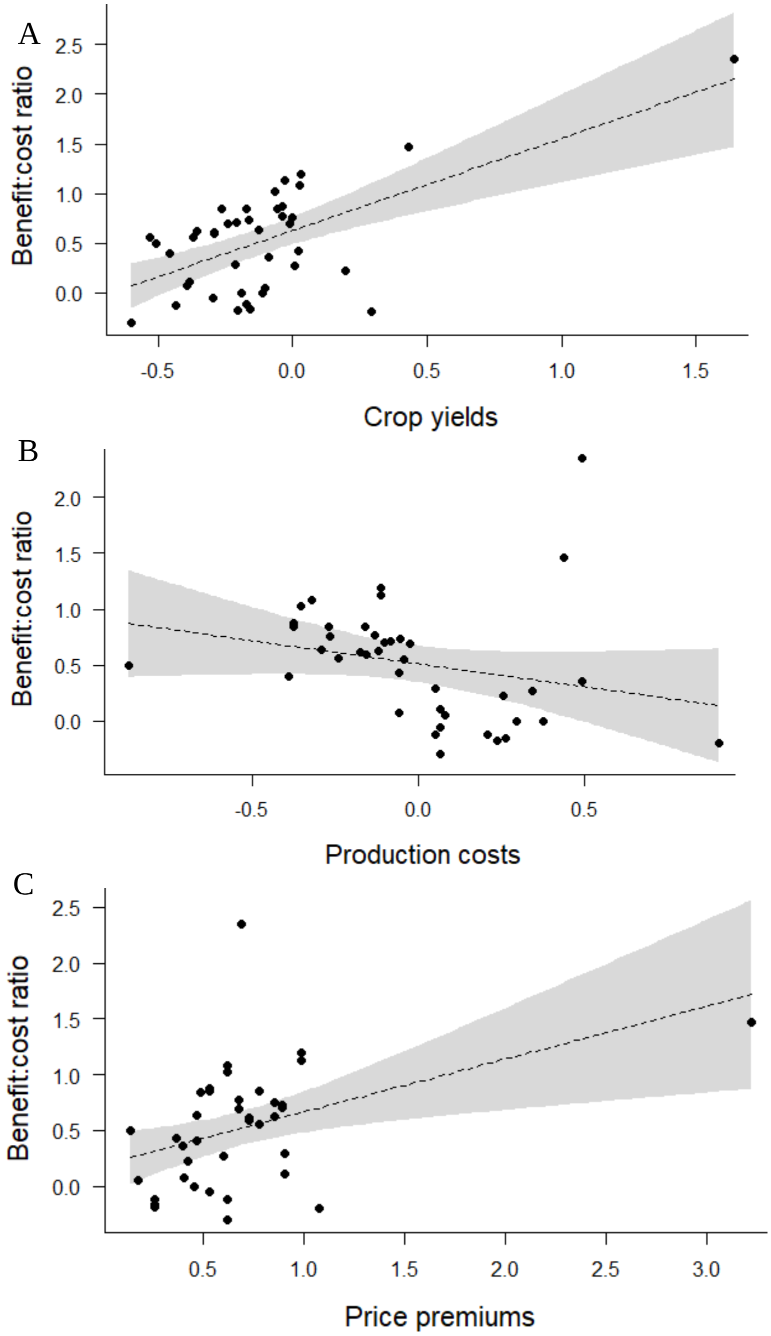


Fig. S14. Map showing the (A) average crop field size and (B) % cropland data layers that were used to calculate landscape metrics in the meta-analysis. Data layers from Fritz et al. (2015).

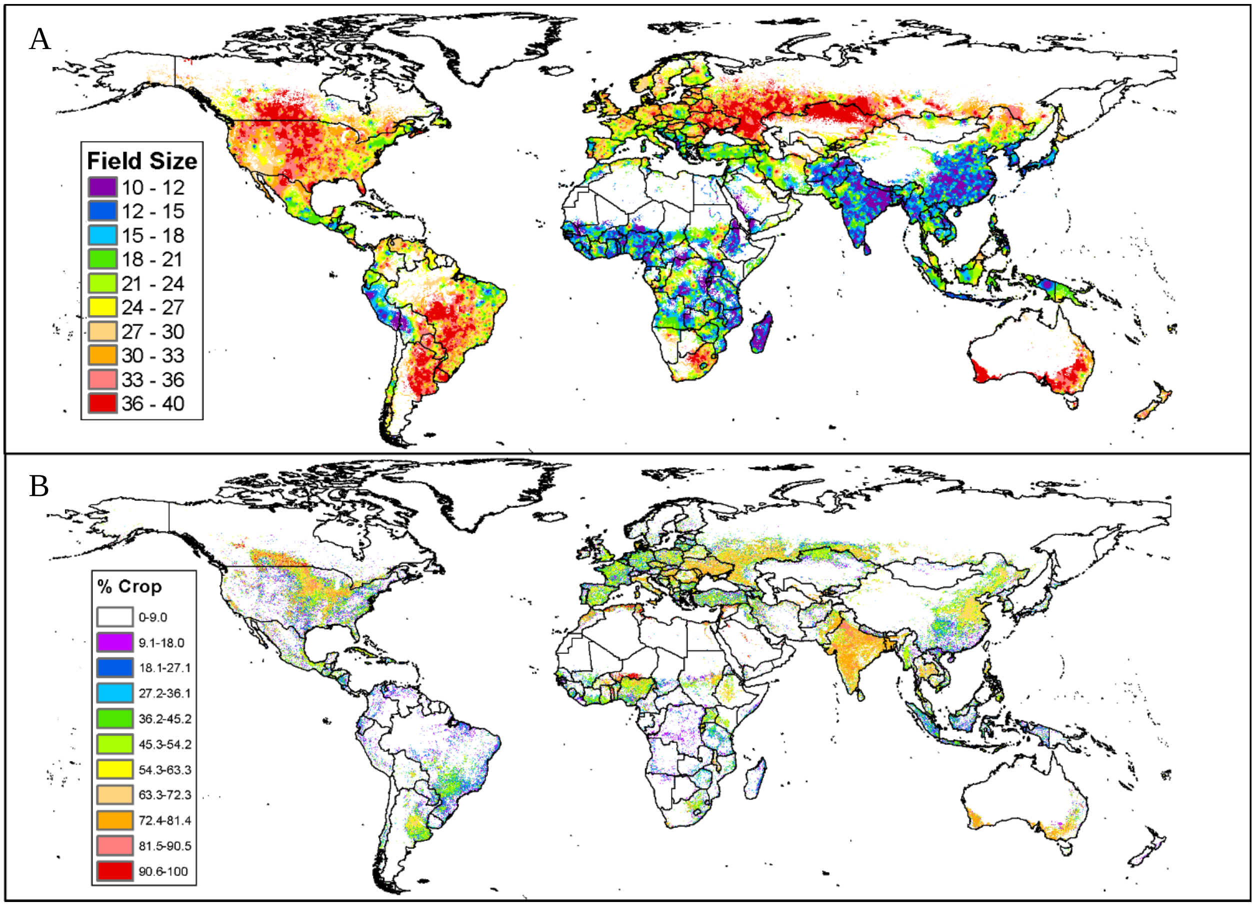


Fig. S15. Histograms showing spread in values for landscape metrics considered.

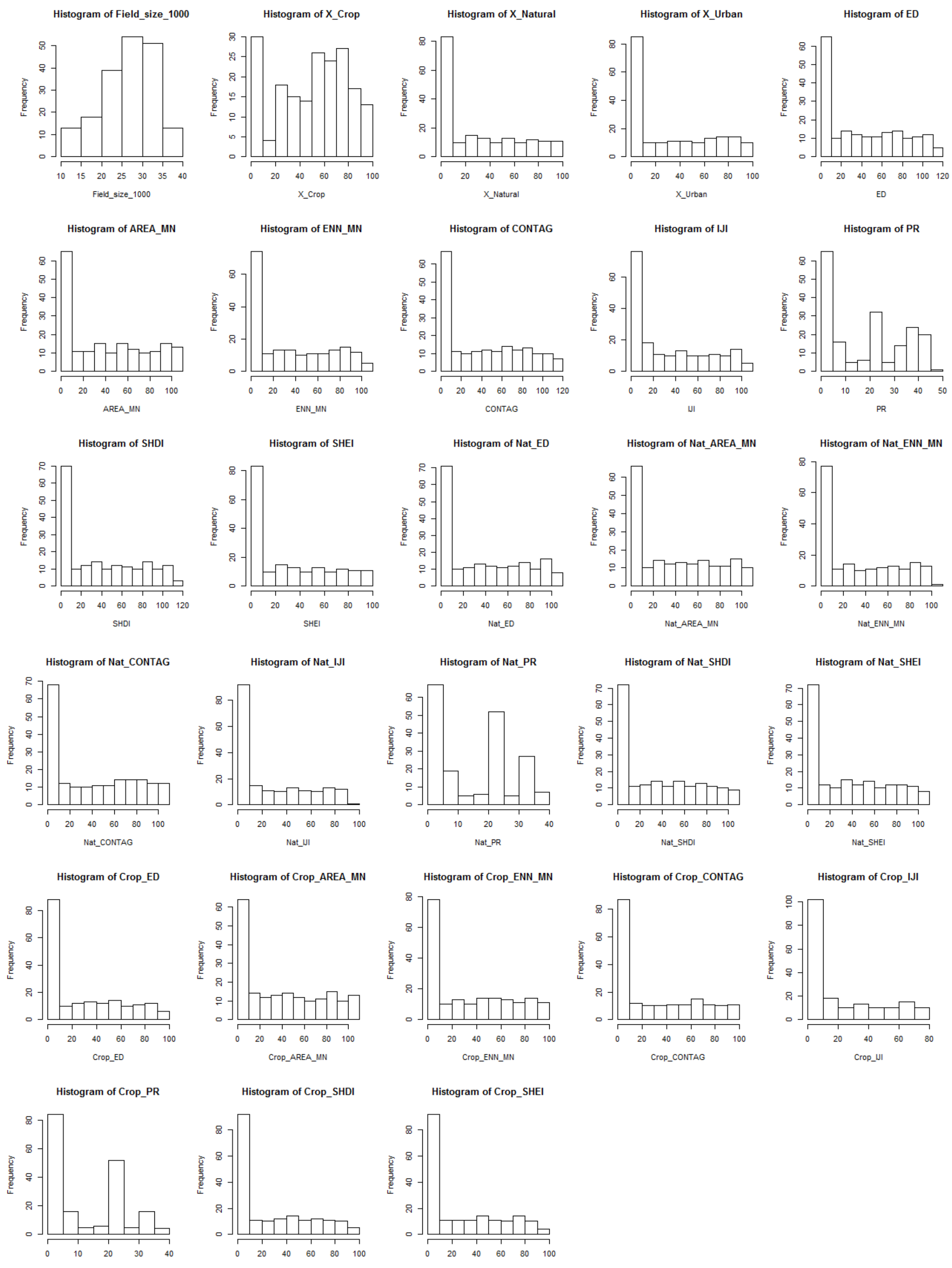


Fig. S16. Scatterplot showing pairwise Pearson's correlations for full variable set considered in models. Plots are showing correlations between variables collected on all cover types (not divided into natural and crop cover types).

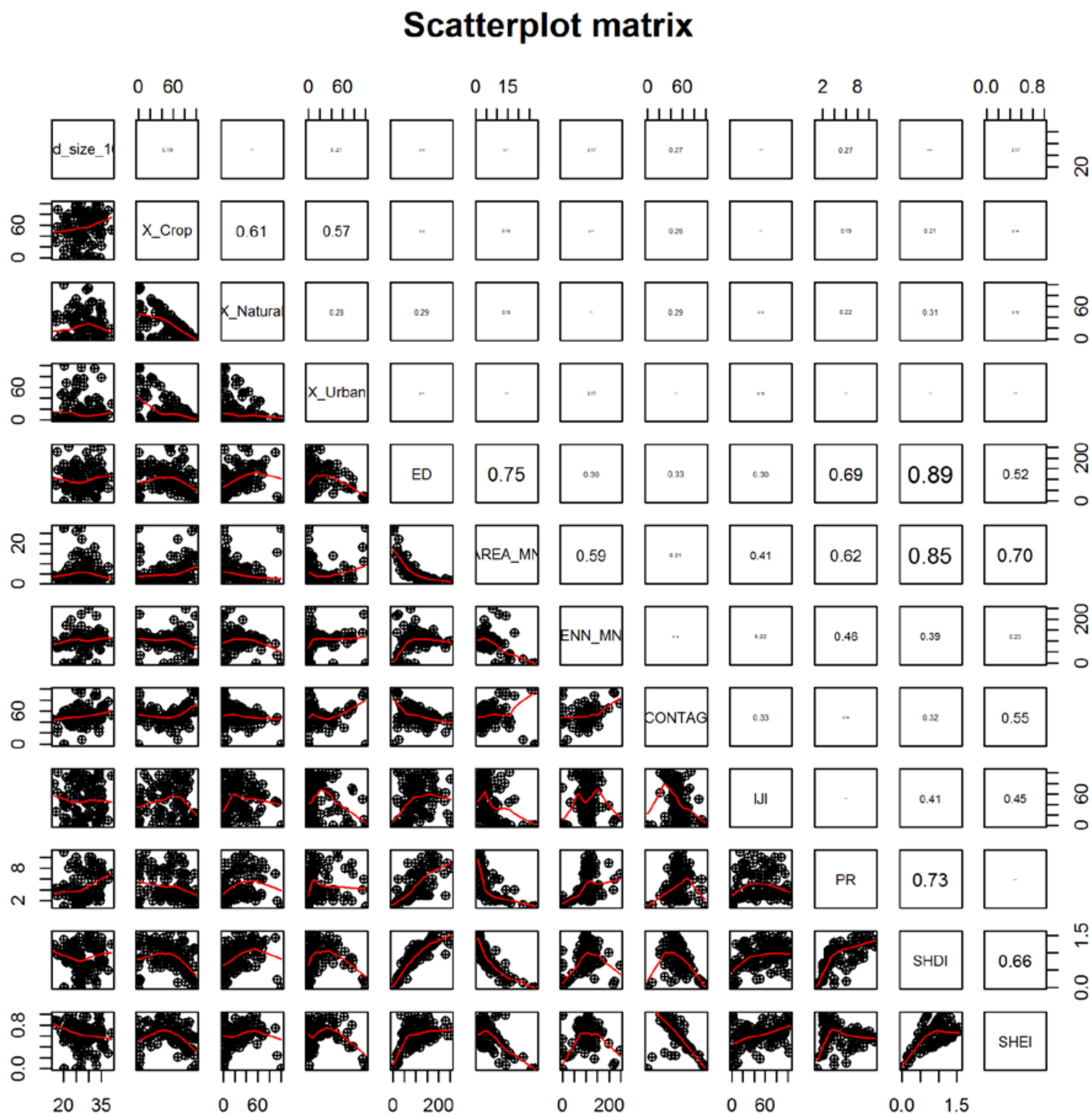


Fig. S17. Scatterplot showing pairwise Pearson's correlations for landscape composition and natural habitat classes compositional/configurational heterogeneity metrics.

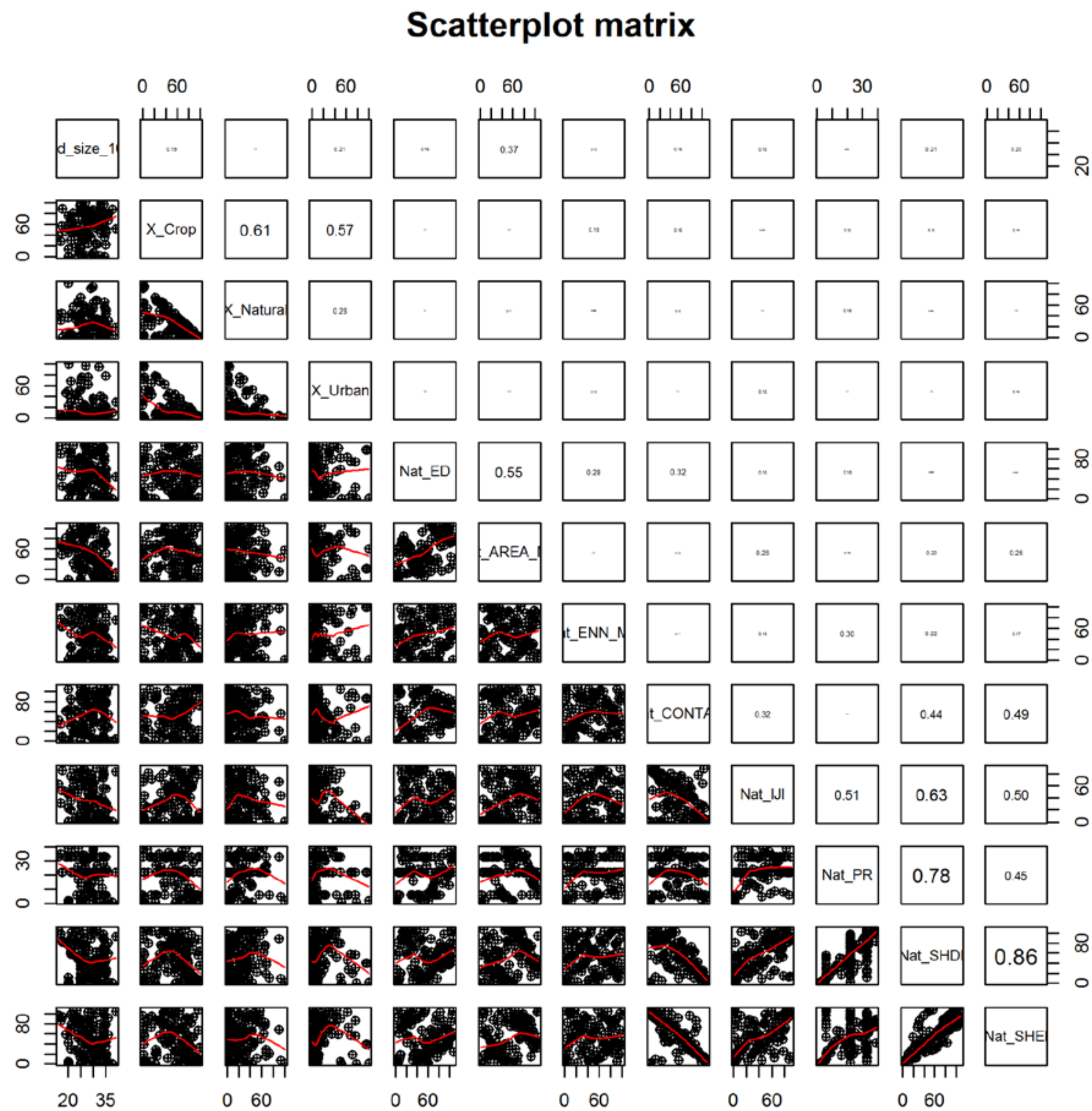


Fig. S18. Scatterplot showing pairwise Pearson's correlations for landscape composition and crop habitat classes compositional/configurational heterogeneity metrics.

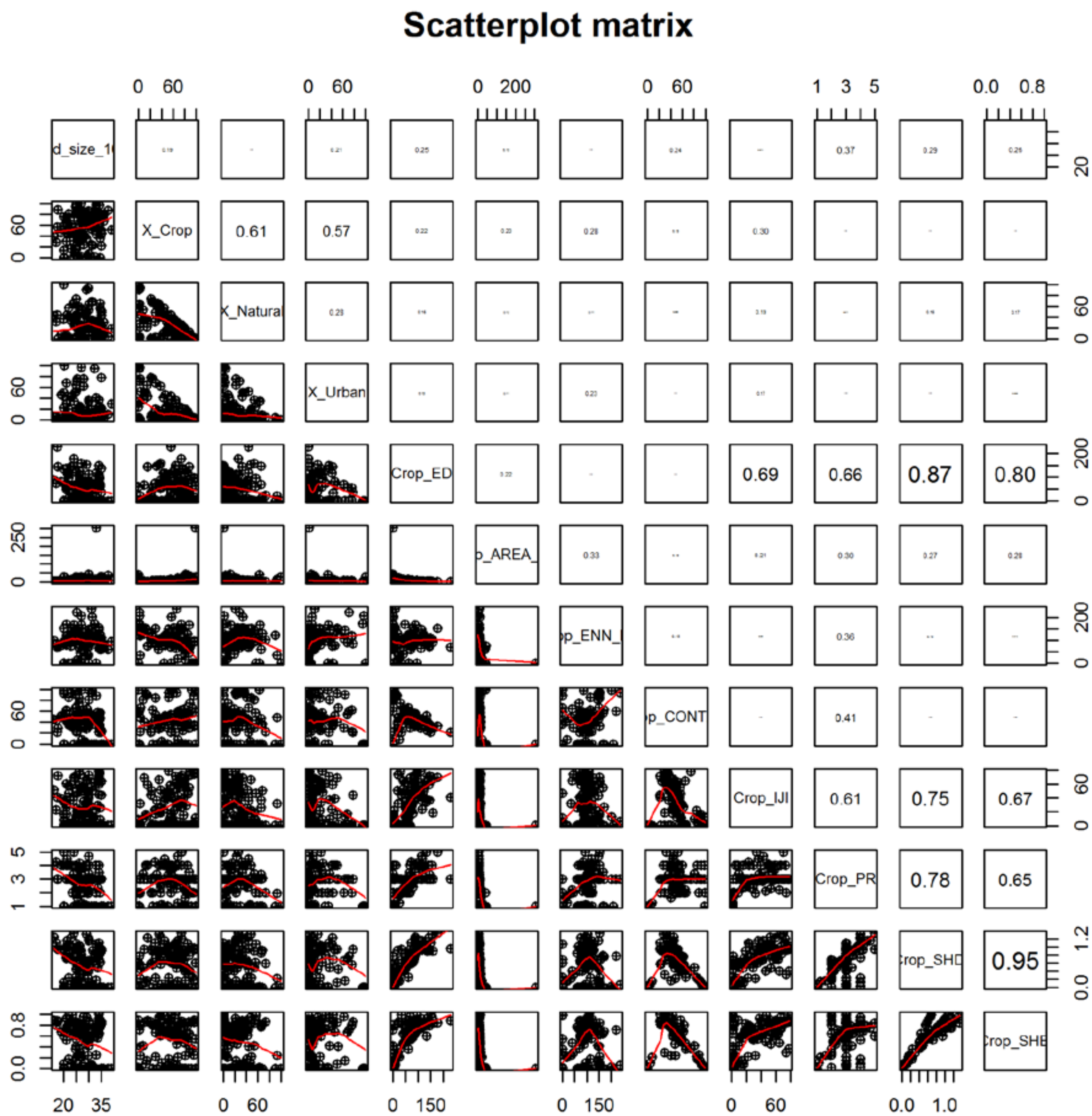
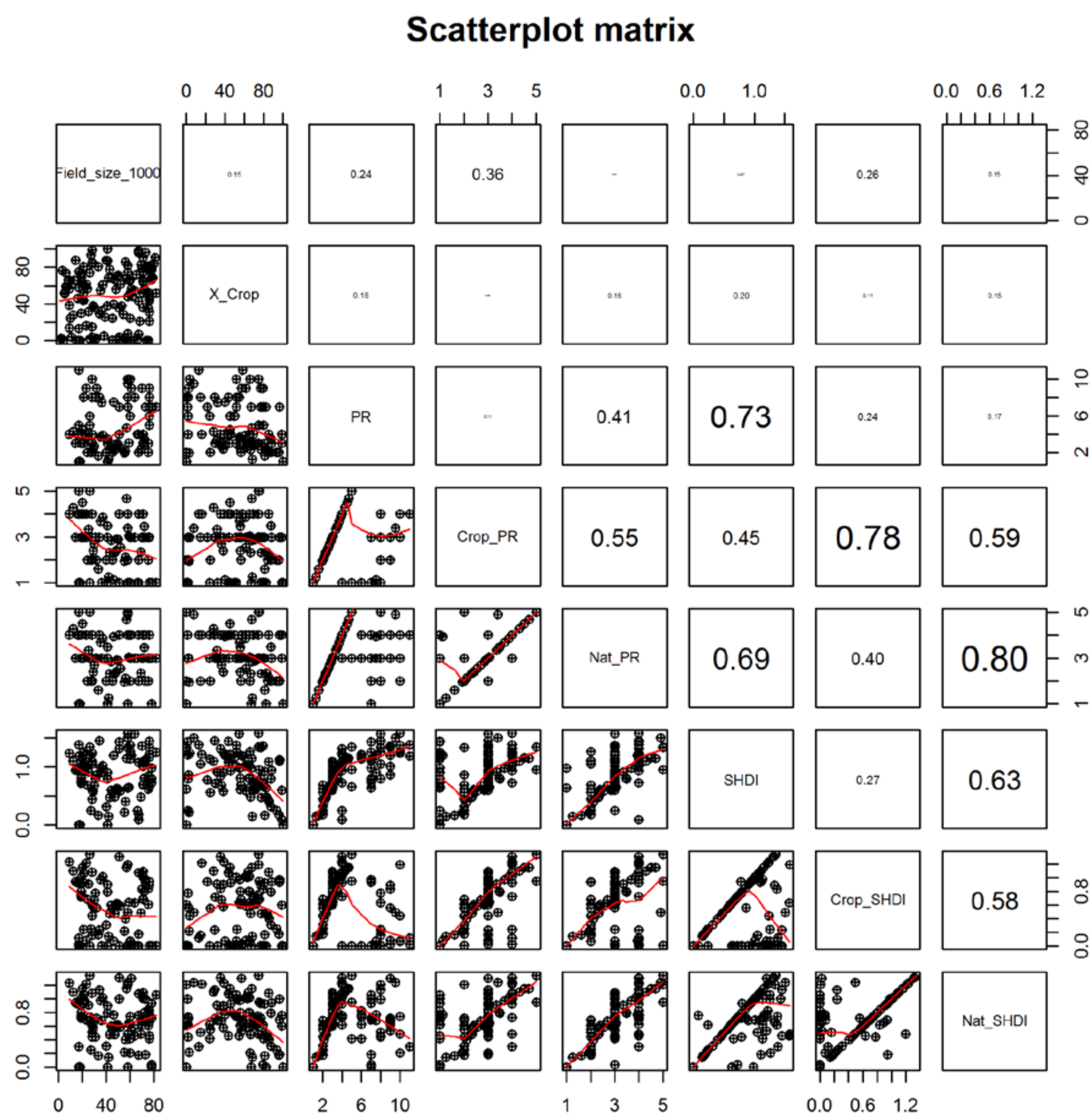


Fig. S19. Scatterplot showing pairwise Pearson's correlations for final variable set considered for models.



Supplementary Data 1. Data used in the meta-analysis for abundance, richness, yield, and profit from all countries, including field size and percentage crop. "Simple" data set with fewer landscape metrics from all countries.

Supplementary Data 2. Data used in the meta-analysis for abundance, richness, yield, and profit from the United States and Europe with data on habitat diversity. "Complex" data set with more landscape metrics from fewer countries.

Supplementary Data 3. File listing studies examined for use in the meta-analysis, including if study was included or rejected.

Supplementary Data 4. Reclassification schemes used for the CORINE data layer for European countries (http://www.eea.europa.eu/publications/COR0-landcover) and the NASS Cropland Data Layer for the United States (https://nassgeodata.gmu.edu/CropScape/).