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The former Iron Curtain still drives biodiversity–profit trade-offs in German agriculture

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Agricultural intensification drives biodiversity loss and shapes farmers' profit, but the role of legacy effects and detailed quantification of ecological–economic trade-offs are largely unknown. In Europe during the 1950s, the Eastern communist bloc switched to large-scale farming by forced collectivization of small farms, while the West kept small-scale private farming. Here we show that large-scale agriculture in East Germany reduced biodiversity, which has been maintained in West Germany due to >70% longer field edges than those in the East. In contrast, profit per farmland area in the East was 50% higher than that in the West, despite similar yield levels. In both regions, switching from conventional to organic farming increased biodiversity and halved yield levels, but doubled farmers' profits. In conclusion, European Union policy should acknowledge the surprisingly high biodiversity benefits of small-scale agriculture, which are on a par with conversion to organic agriculture.

Agricultural intensification greatly gained momentum after World War II due to increasing use of agrochemicals and mechanization^{1–3} to mitigate starvation in almost the whole of Europe⁴. The vision was, at that time, to produce as much food as possible to overcome hunger and poverty in both the Eastern and the Western blocs (Supplementary Fig. 1). This led to increased yields, but was and still is coupled to biodiversity loss^{5,6}. In the Eastern bloc, intensification was combined with a vast collectivization of farms, as farmers were forced to hand over their fields to state-owned cooperatives⁷. This practice aimed at increasing the efficiency of production through landscape-scale homogenization, including the removal of minor field roads, field margins, hedgerows and any semi-natural habitat inhibiting the ambitious production goals leading to large fields. This process was implemented in East Germany during 1953–1960 and resulted in a rapid change from small-scale agriculture, with more than 800,000 family farms, to large-scale agriculture, with fewer than 20,000 cooperatives. Meanwhile, such drastic change did not happen in the West⁸. After the German reunification in 1990, field sizes remained almost unchanged⁹, while ownership changed from cooperatives to private, often Western or foreign farmers. This marked field-size difference is still visible along the former 'Iron Curtain'¹⁰ (Fig. 1). At the same time, European Union (EU) legislation under the Common Agricultural Policy started providing financial support through agri-environmental schemes (AES) with, for example, organic management¹¹. Although some studies questioned the effectiveness of AES in terms of biodiversity

gains^{12,13}, both meta-analytical studies and large-scale field studies show that organic management supports threatened farmland biodiversity generally better than conventional farming^{14,15}, while also producing healthier food and less contamination of soils and groundwater¹⁶. Biodiversity advantages of small-scale farming and landscape heterogeneity have been acknowledged widely in ecology^{17–21}. However, to the best of our knowledge, the ecological and economic role of large-scale versus small-scale farming has never been studied together. Further, we compared ecological and economic consequences of small-scale agriculture with those of organic farming for the first time.

The historical East–West division enabled us to test the effectiveness of organic cereal management for biodiversity in large-scale versus small-scale agriculture. We measured the diversity of plants and arthropods (Methods) and hypothesized that (1) biodiversity is higher in small-scale cropland¹ and (2) the effect of field size is more important for biodiversity than conversion to organic management. In 2013, we selected nine pairs of organic and conventional winter wheat fields in small-scale agricultural landscapes in former West Germany and in large-scale agricultural landscapes in former East Germany, respectively, all along the former inner German border (2 regions × 9 field pairs = 36 study fields; Supplementary Fig. 2). These two neighbouring study regions are representative of the farmland areas of the former East and West Germany^{22,23}. We aimed to explore how biodiversity patterns change from field edges to field centres with the following within-field sampling design. We designated transects at field edges

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Fig. 1 | Illustrative map of West and East Germany (scale 1:30,000) at 25 May 2012. Field-size differences are shown between West and East Germany along the former Iron Curtain (red line) in the study area (around the villages of Weissenborn and Hohes Kreuz, southeast of Göttingen, on the border of Lower Saxony (West) and Thuringia (East)). Source of the photo: ESRI, World Imagery, DigitalGlobe.

(directly next to narrow grassy field margins bordering dirt roads), field interiors (15 m from field edge) and field centres (120 m and 75 m from field edge in East and West, respectively). We performed our study in the agricultural matrix, minimizing the area and potential effect of non-agricultural habitats (Table 1)²⁴. Landscape structure was very different between the two neighbouring regions, with fields more than six times larger in the East, and >70% longer field edges in the West. Conventional farmers in both regions used about five times the amount of nitrogen fertilizer compared with organic farmers, applied synthetic pesticides about five times per year (versus never) and had approximately two times higher yields than organic farmers^{25,26}. This large difference in winter wheat yield

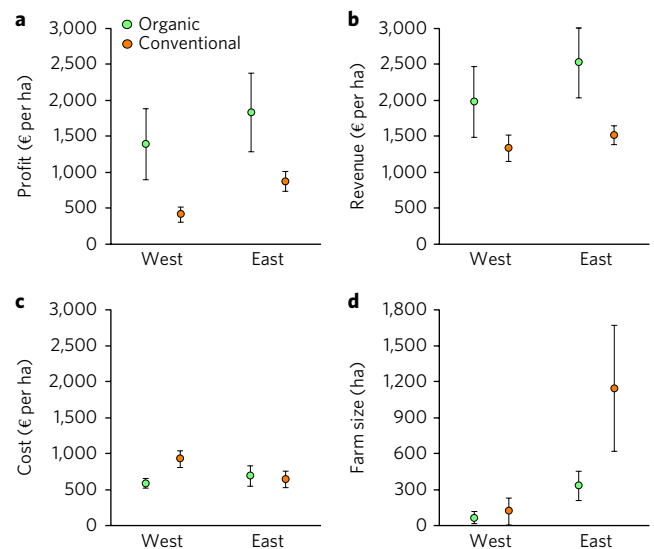


Fig. 2 | Effects of region and management on profit, revenue, cost and farm size. **a–c**, Farmers' profit (**a**), revenue (**b**) and cost (**c**) are measured in € per ha ($n=28$ fields). **d**, Farm size is measured in ha ($n=18$ farms). Organic farmers' revenue contained the subsidy for organic farming, which was €170 and €210 per ha in West and East Germany, respectively. Bars represent mean \pm standard error of the mean. See Supplementary Table 1 for test statistics.

between organic and conventional farmers is typical for the rich soils farmed in the study region²⁷.

We also performed a detailed economic survey of our study farms based on farmer interviews (Methods). Total costs included expenses for mechanical field work, seeds, soil analyses, chemical plant protection, chemical growth regulators, synthetic and organic fertilizers, agricultural wage enterprises and working time. Total revenues included grain and straw revenues as well as subsidies for organic agriculture. Total profit was calculated by deducting total costs from total revenues per field per hectare. We hypothesized that (1) large-scale agriculture is more profitable due to lower variable costs²⁸ and (2) organic agriculture is more profitable due to better marketing possibilities^{29,30}.

Table 1 | Landscape structure (in 500 m buffer) around and local management intensity of study fields in small- (West) versus large- (East) scale agricultural systems with organic versus conventional management (mean \pm standard error of the mean) during 2013 ($n=36$ fields)

Model	West		East		Estimate \pm 95% CI		
	Organic	Conventional	Organic	Conventional	Region	Management	R \times M
Landscape structure							
Field size (ha)	3.7 \pm 0.7	3.3 \pm 0.4	21.7 \pm 5.5	18.3 \pm 2.1	-14.14 \pm 6.90	2.16 \pm 7.74	-1.55 \pm 10.95
Edge length (km)	18.3 \pm 1.3	19.5 \pm 1.6	11.0 \pm 0.8	10.8 \pm 0.6	8.38 \pm 3.67	0.02 \pm 2.90	-1.52 \pm 4.10
Grassy field margin (km)	7.2 \pm 0.5	7.3 \pm 0.4	5.5 \pm 0.6	5.0 \pm 0.9	2.09 \pm 1.90	0.42 \pm 1.73	-0.54 \pm 2.45
Land-use diversity	1.4 \pm 0.1	1.3 \pm 0.0	0.9 \pm 0.1	0.9 \pm 0.1	0.43 \pm 0.26	0.07 \pm 0.22	-0.03 \pm 0.31
Agricultural area (%)	73.9 \pm 4.1	76.9 \pm 6.2	81.0 \pm 5.1	85.5 \pm 4.5	-9.25 \pm 16.11	-5.49 \pm 13.55	2.90 \pm 19.17
Management intensity							
Fertilizer (kg N ha ⁻¹)	21.6 \pm 10.9	199.3 \pm 6.3	65.3 \pm 11.7	193.6 \pm 8.6	-8.47 \pm 33.76	-129.61 \pm 33.76	-57.10 \pm 22.40
Pesticide application (#)	0.0 \pm 0.0	4.3 \pm 0.4	0.0 \pm 0.0	5.2 \pm 0.7	0.19 \pm 1.03	-	-
Yield (dt ha ⁻¹)	40.9 \pm 2.5	85.2 \pm 3.3	48.3 \pm 2.5	85.3 \pm 1.6	0.54 \pm 8.25	-37.91 \pm 8.25	-7.91 \pm 11.67
Study field size (ha)	3.0 \pm 0.5	3.1 \pm 0.4	21.8 \pm 3.6	20.0 \pm 3.0	-16.95 \pm 7.18	1.23 \pm 5.59	-1.35 \pm 7.90

Effects of region (R), management (M) and their interaction are shown as effect estimates \pm 95% confidence intervals (CIs) from general and generalized linear mixed-effects models. N: nitrogen. #: number. Significant effects ($P < 0.05$) are marked in bold.

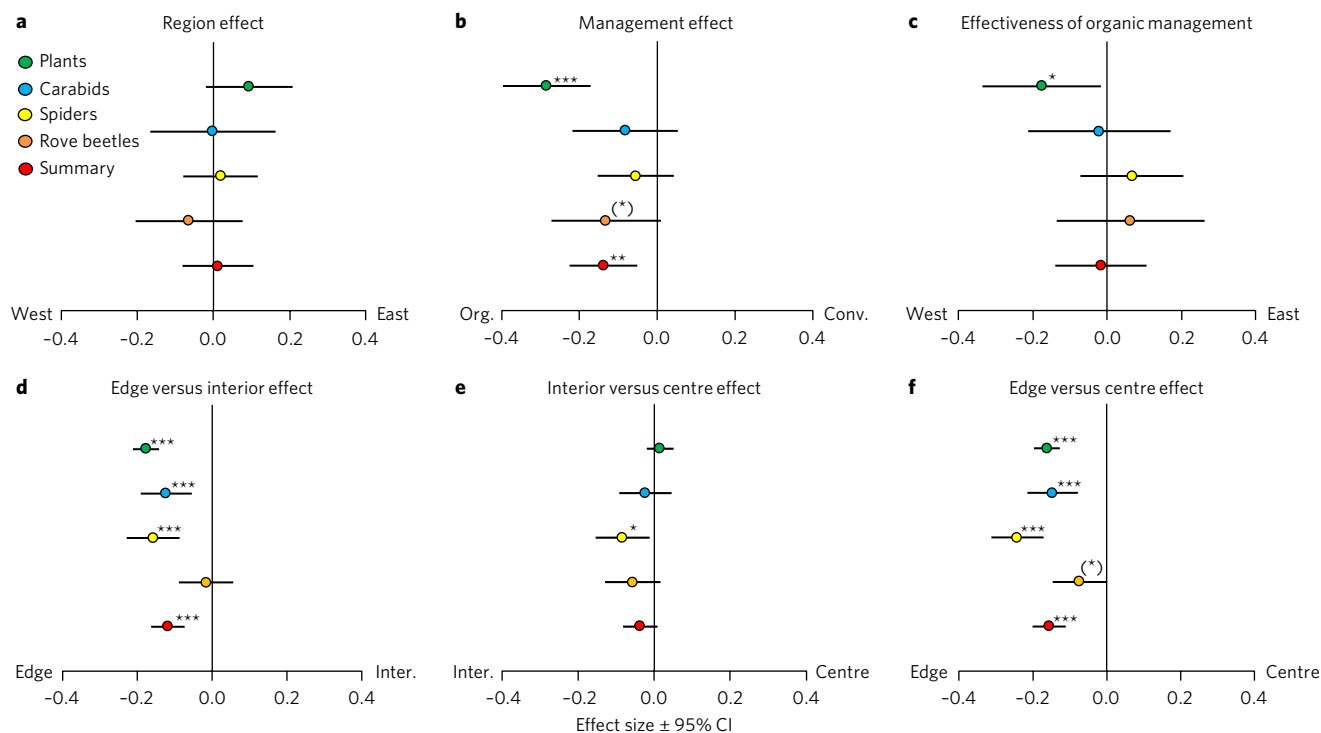


Fig. 3 | Effects of region and management, their interaction and edge effect on plant and arthropod species richness. a–f, Effects of region (a) and management (b), their interaction, that is, effectiveness of organic management (c), and edge effect (edge versus interior (d), interior versus centre (e) and edge versus centre (f)) on plant and arthropod species richness, as well as the summary effect from meta-analysis, expressed as effect estimate ± 95% confidence interval (CI) ($n = 36$ fields). Org.: organic; Conv.: conventional; Inter.: interior. Significance levels: (*) $P < 0.1$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Results

We found that farmers’ profit from winter wheat was more than 100% higher per hectare under organic than conventional management (Fig. 2 and Supplementary Table 1). Subsidies for organic agriculture were €170 and €210 per ha in East and West (AES and subsidies vary among German federal states³¹), respectively, suggesting that these subsidies contributed to the difference in profit between the two management types. Although subsidies were a substantial part of profit for organic farmers, large differences between the two management regimes remain without these subsidies (mean values for West organic: €1,181 per ha; West conventional: €412 per ha; East organic: €1,663 per ha; East conventional: €874 per ha). We also found significantly higher profits per farmed area (~50–60%) in the large-scale than in the small-scale agricultural region. This is because of higher production costs in Western conventional farms due to current labour costs and higher revenues in Eastern organic farms³² probably associated with better marketing possibilities (Fig. 2 and Supplementary Table 1).

There was no effect of region on species richness of plants and arthropods (carabids, rove beetles, spiders), as well as no overall effect of region when all groups were considered together in a fixed-effect meta-analysis³³ (Fig. 3, Supplementary Fig. 4 and Supplementary Tables 2–6) (Methods). The same was true when analysing arthropod abundances and plant cover (Supplementary Figs. 5 and 6). Organically managed fields harboured more species and individuals of all groups than conventionally managed fields. This effect was strongest for plants, which drove the overall summary effect resulting in 44% higher overall species richness in organically than conventionally managed fields. The statistical interaction of region and management was due to a higher effectiveness of organic management in the West for plant richness as well as spider abundances. Interestingly, both species richness and abundances were reduced by about 25% when comparing field edges with field interiors, but there was no further drop towards

the field centres (except for spider richness). Hence, most farmland species and their populations were confined to the very edge of crop fields. This also implies that the higher biodiversity in the small-scale agricultural system in the West can be linked to the much higher amount of field edges^{1,17,19}.

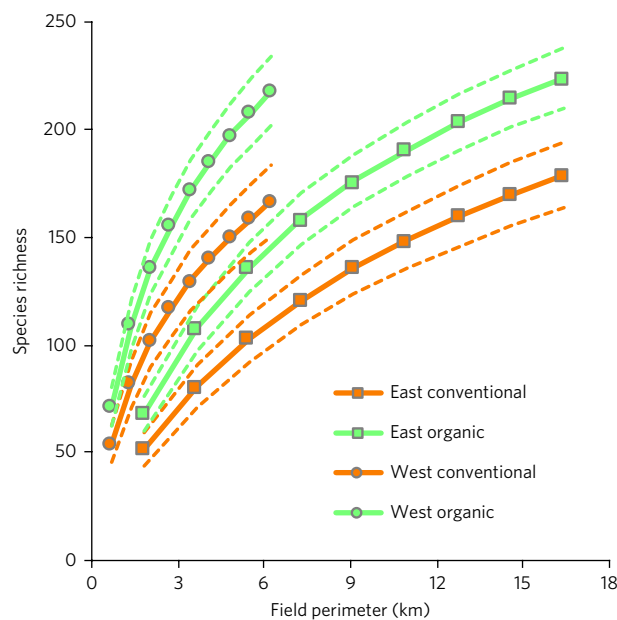


Fig. 4 | Effects of region and management on overall species richness. We used sample-based rarefaction curves standardized for perimeter per field ($n = 36$ fields; dashed lines represent 95% confidence intervals).

To further explore this pattern, we performed sample-based rarefaction curves^{34,35} on incidence data of all taxa in field edges combined by standardizing for field perimeter (field perimeters originate from the mean field size per region, Table 1). The rarefied species richness observed in different types of management (organic over conventional) and region (West over East) was significantly different ($P < 0.05$; Fig. 4). Small-scale conventional management in the West supported higher biodiversity than large-scale organic management in the East (Fig. 4). Although the species richness per field was similar in both regions (Fig. 3), having only nine small fields in the West gives a much higher species richness than four large fields with the same length of field perimeter in the East regardless of management type. This means that the species richness in the fields, that is, alpha diversity, of these two contrasting regions was similar, whereas the species turnover, that is, between-field beta diversity, was much higher in the West than in the East. In addition, richness was higher in organic than in conventional management.

Discussion

Our study showed how the former Iron Curtain between East and West Germany and the associated divide in large-scale and small-scale agriculture are still shaping economic–ecological trade-offs in agriculture. We quantified the great contribution of small-scale agriculture to biodiversity, which was more important than organic management. Yield levels were the same across the East–West divide, but large-scale agriculture led to the highest profit (despite similar yield), and organic farming even doubled profit (despite halved yield). Although large-scale farms allow higher profits, which is in line with economies of scale²⁸, future restructuring of agricultural landscapes towards small fields with field margins would probably be an economically viable option under an EU-subsidized policy on enhancing farmland biodiversity³¹. We emphasize the importance of quantifying ecological–economic trade-offs for a politically balanced view. Further, the long-term stability of former East–West contrasts in agricultural politics and farming practices suggests that evaluations of ecological and economic costs and benefits need to be regionally adapted, taking into account agricultural traditions and potential legacy effects³⁶.

Methods

Biodiversity survey. In June 2013, we surveyed plants by estimating the relative cover per species in three plots (5 m × 1 m in size and 10 m distance between them) per transect ($n = 324$ plots). Arthropods (carabids, spiders and rove beetles) were collected with two funnel traps per transect in two one-week periods from May to June ($n = 432$ funnel traps; for the trapping method see Duelli et al.³⁷).

Economic comparison. The following cost factors were considered per study field: field preparation, including sowing and harvesting (for example, costs due to the use of cultivator, milling machine, plough, harrow, chipper, curry comb, seed drill, harvester and baler), seeds, soil analyses, chemical plant protection (for example, fungicides, insecticides, herbicides, rodenticides or molluscicides), chemical growth regulators, synthetic and organic fertilizers, agricultural wage enterprises and working time. If costs of preparation, sowing (including seed costs) and harvesting were not tractable by farmers, we noted working steps and machine data, and later calculated expenses by the use of the online plant process calculator of the agricultural advisory board for engineering and building³⁸. In doing so, we considered field size, workability of soil (medium or heavy soil), mechanization (kW, machine type, working width of machines or sowing quantity), field-to-farm distance (set up to 1 km) and farming system (organic or conventional). In terms of other parameters (for example, machine costs such as fuel requirement, repair costs and depreciation), we used standardized settings of the online calculator. If farmers' data did not fit exactly into the online calculator (for example, sometimes in the case of kW, field size or machine width), we used the next closest setting. In terms of farm-saved seed, we assumed €0.40 per kg of seed for conventional and €0.47 per kg of seed for organic farming systems (Association for Technology and Structures in Agriculture, personal communication) because statements of farmers showed a huge variation. Machine costs emerging through fertilization and chemical plant protection were calculated by using the default setting of the online calculator³⁸ while considering the farming system (organic or conventional), field size, workability of soil (heavy or medium) and cultivation method (direct sowing method, non-plough tillage or conventional

soil cultivation with plough). If farmers provided information only about the kind and quantity of product used without prices (four farmers), then costs for chemical plant protection products and growth regulators were derived from different price lists^{39–42}. If farmers were unable to provide prices for synthetic fertilizers, cost calculation was based on individual average prices of the fertilizers in Germany for the marketing year 2013–2014 (Agrarmarkt Informations, personal communication). Because farmers used organic fertilizers originating from their own enterprises, they were able to tell us just the quantity and the type of organic fertilizer. Average prices were derived from our own survey of regional companies (Nährstoffverwertung Oldenburger Raum Münsterland, Naturdünger Verwertungs, Agrovormittlungsdienst Emsland-Bentheim, Bioenergiehof Jühnde), which deal with or use natural fertilizers. Prices for liquid manure and digested residue were generally set with €4 per t or €4 per m³ (Lower Saxony) and €5 per t or €5 per m³ (Thuringia), and solid dung with €10 per t. To calculate the costs of working time, we recorded the estimated working hours of each farmer (with reference to the whole winter wheat season 2013–2014). Working time was related to hectares and multiplied by €15 (this amount was based on our own experiences as well as on a farmer's estimate) to calculate costs per hectare.

In addition to the costs, we also considered the revenue side of the winter wheat season 2013–2014. Here, we recorded grain and straw yield as well as additional state grants for organic agriculture per study field. Grain yield was multiplied by actual proceeds stated by the farmers. Grain yield was sold or used as fodder, as seed or for baking purposes. If a crop was still not sold or used at the time of the survey, calculations were based on the estimated proceeds of each farmer. If straw was not left on the field, we also calculated the proceeds of straw (sold or used as fodder or litter). If not stated by the farmers (nine farmers), we used the average German sales price of straw (€73.8 per t) with reference to the marketing year 2013–2014 (Agricultural Market Information Company, 2015). Besides grain and straw proceeds, we also took into account state grants for organic agriculture as a source of revenue. Here, we considered federal state-specific subsidy rates of the business year 2013–2014 (cultural landscape programme of Thuringia: €170 per ha if organic farming was practised ≥ six years; agri-environmental programme of Lower Saxony: €210 per ha if organic farming was practised ≥ three years; Lower Saxony Ministry of Food, Agriculture and Consumer Protection and Thuringian Ministry of Infrastructure and Agriculture, personal communication).

All matters of costs and proceeds were calculated per hectare and year for each field. To obtain total revenue (€ per ha, field and business year), aggregated costs were subtracted from overall proceeds.

Statistical analysis. Due to limited availability of organic farms in the East (fewer organic farms in the East, but with an order of magnitude larger size than in the West⁴³), we applied a so-called partly cross-nested design by selecting from half of the farmers two fields and from the other half only one field: in both regions we had three villages with two organic–conventional pairs and three villages with one organic–conventional pair (see Supplementary Figs. 2 and 3). Therefore, we applied linear mixed-effects models by using the 'lme4'⁴⁴ package of the statistical software R⁴⁵. All biodiversity data were pooled per sampling year and per transect before analysis by taking the mean cover for arable plants and the sum for arthropods. Response variables, if needed, were either log (carabid and rove beetle abundances) or logit (plant cover) transformed to achieve a normal error distribution and/or avoid heteroscedasticity and to get a better model fit. Additionally, all response data were standardized from zero to one⁴⁶ to allow for direct comparisons of effects on the different dependent variables and to perform fixed-effect meta-analyses for getting the overall effects (see next paragraph). The partly cross-nested study design was taken into account in the random structure of the models. Accordingly, each model included the random effects: field ($n = 36$) nested in farm ($n = 24$), nested in village ($n = 9$); and field ($n = 36$) nested in pair ($n = 18$), nested in village (Supplementary Fig. 3). In addition, models contained the following fixed effects: region (East versus West), management (organic versus conventional), transect position (edge, interior or centre) and the interaction between region and management. This model formula in R-syntax is

$$\text{lmer}(y \sim (\text{Region} + \text{Management})^2 + \text{Transect position} + (1|\text{Village} / \text{Farm} / \text{Field}) + (1|\text{Village} / \text{Pair} / \text{Field}))$$

Marginal and conditional R^2 values for species richness and abundance models were calculated using the 'rsquaredGLMM' function of the 'MuMIn'⁴⁷ package of R. We did not simplify the models, to be able to directly compare their effect estimates among the different taxa and to summarize these estimates in a meta-analysis (see below).

One of the main interests was, besides investigating the environmental effects on each individual group, whether these environmental effects showed an overall effect. Therefore, we performed a series of unweighted fixed-effect meta-analyses for each effect type (region effect, management effect, effectiveness of organic management, edge versus interior effect, interior versus centre effect, edge versus centre effect) per measure type (species richness, abundance) with the 'metafor'⁴⁸ package of R. Weighting was not used, because data originate from the same experimental design with the same sample size per measure. This enabled

us to get an effect estimate of all groups expressed as summary effect sizes with their corresponding 95% confidence intervals (presented in Fig. 3 and Supplementary Fig. 5).

We analysed the effects of region and management and their interaction on count data from economic surveys (profit, revenue and cost) with generalized linear mixed-effects models based on a negative binomial distribution for avoiding overdispersion. Random-effect terms correspond to the biodiversity analyses above without the random factor field, because that was the lowest level. This model formula in R-syntax is

```
glmer(y ~ (Region + Management)^2 + (1|Village / Farm) + (1|Village / Pair))
```

We analysed the effects of region and management and their interaction on farm size with linear regression based on a normal distribution (no random effect). Finally, we analysed the effects of region and management and their interaction, presented in Table 1 with generalized linear mixed-effects models based on a normal distribution for all non-integer continuous data based on a normal distribution. One exception was the only count variable, namely, number of synthetic pesticide applications, which was analysed based on a negative binomial distribution for avoiding overdispersion. The structure of random effects was the same as in the case of economic survey data. In the case of number of synthetic pesticide applications, where effect of management could not be analysed (organic fields excluded because synthetic pesticides are not allowed), only village was used as a random factor.

Code availability. A complete description of the main model is provided in the Methods, and all code is available on request from the authors.

Data availability. Species presence data are available in the Supplementary Information (Supplementary Tables 3–6). The biodiversity and environmental data used in the analyses are archived at the research data repository Zenodo (<https://doi.org/10.5281/zenodo.810513>).

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Author contributions

P.B. and T.T. conceived the study; P.B., C.F., O.M. and T.T. developed the study; P.B., R.G., F.R., S.F., C.G., A.-K.H., K.K., D.M., V.R. and A.W. collected data; R.G. and P.C. identified arthropods; P.B. analysed data with substantial input from C.F.D.; and P.B. wrote the paper with substantial input from all authors.

Competing interests

The authors declare no competing financial interests.

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The former Iron Curtain still drives biodiversity-profit trade-offs in German agriculture

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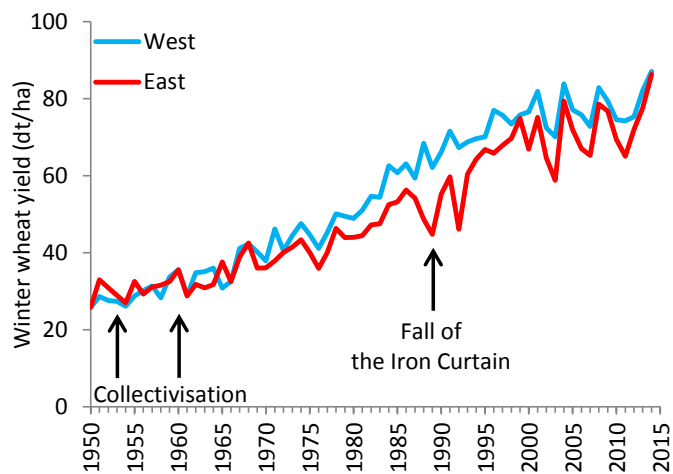
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Supplementary Figure 1: Winter wheat yield (dt/ha) in East and West Germany during 1950-2014. Period of collectivisation (1953-1960) and Fall of the Iron Curtain (1989) are shown. Data source is shown in a table below the figure.

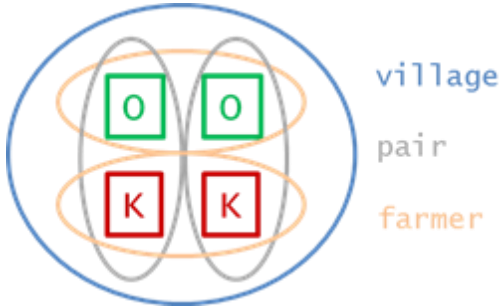


Period	Source	Website
<i>West</i>		
1950-2000	GESIS - Leibniz-Institute for the Social Sciences, Historical Statistics	http://www.gesis.org
2001-2014	Federal Ministry of Food and Agriculture, Statistical Yearbooks on Food, Agriculture and Forestry	http://www.bmel-statistik.de
<i>East</i>		
1950-1956	GESIS - Leibniz-Institute for the Social Sciences, Historical Statistics	http://www.gesis.org
1956-1988	German Digital Newspaper Archive, Statistical Yearbooks of the German Democratic Republic	http://www.digizeitschriften.de
1989-2000	GESIS - Leibniz-Institute for the Social Sciences, Historical Statistics	http://www.gesis.org
2001-2014	Federal Ministry of Food and Agriculture, Statistical Yearbooks on Food, Agriculture and Forestry	http://www.bmel-statistik.de

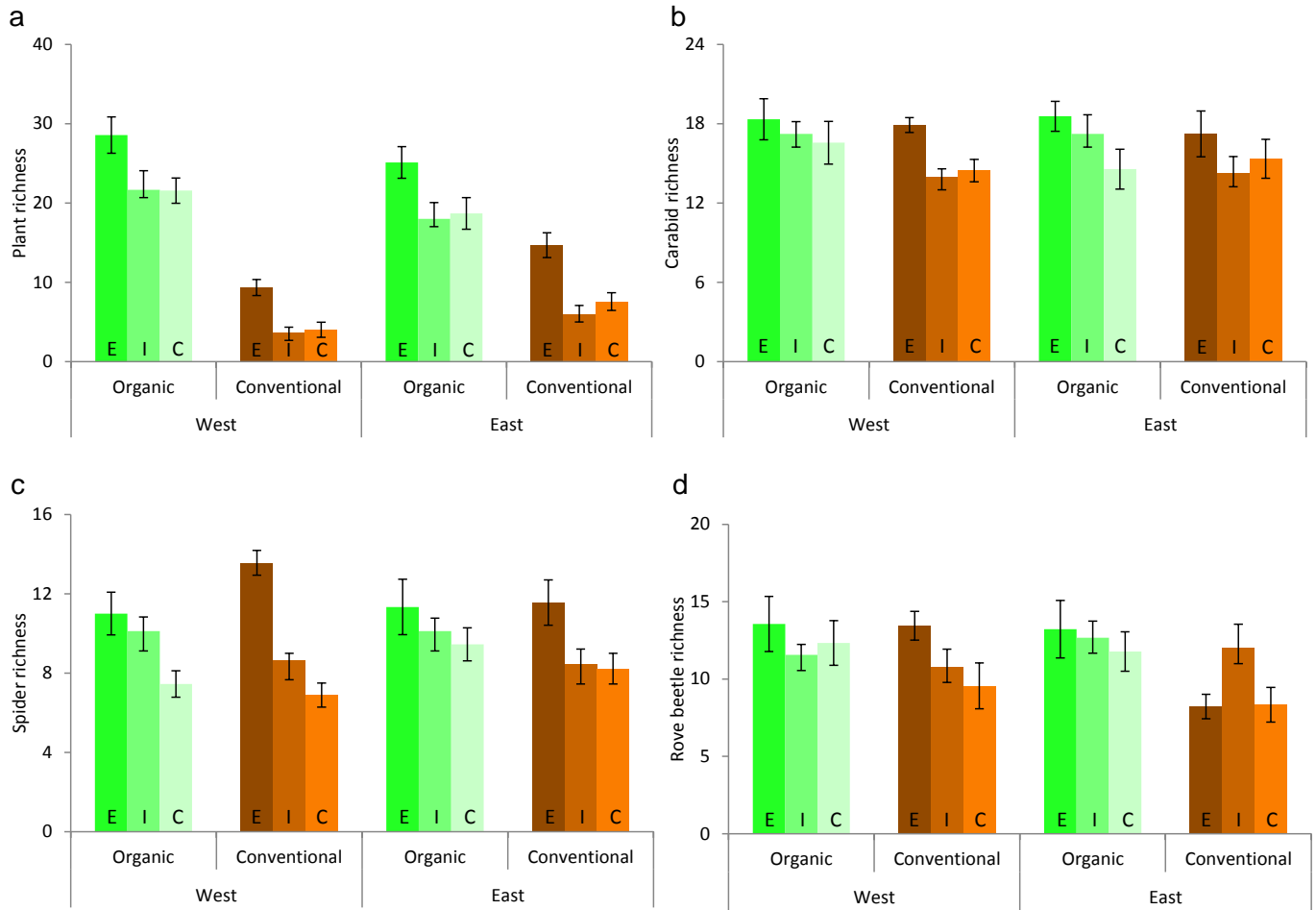
Supplementary Figure 2: Map (1:500 000) of the study area showing paired organic (green) and conventional winter wheat fields (orange) in West and East Germany along the former iron curtain (red) in 2013. In the large-scale agricultural system (East) individual fields can be relatively well identified at this resolution in contrast to the small-scale agricultural system (West). Yellow colour shows the border of (former and also current) German states. *Italic text shows the two largest cities of the study area.*



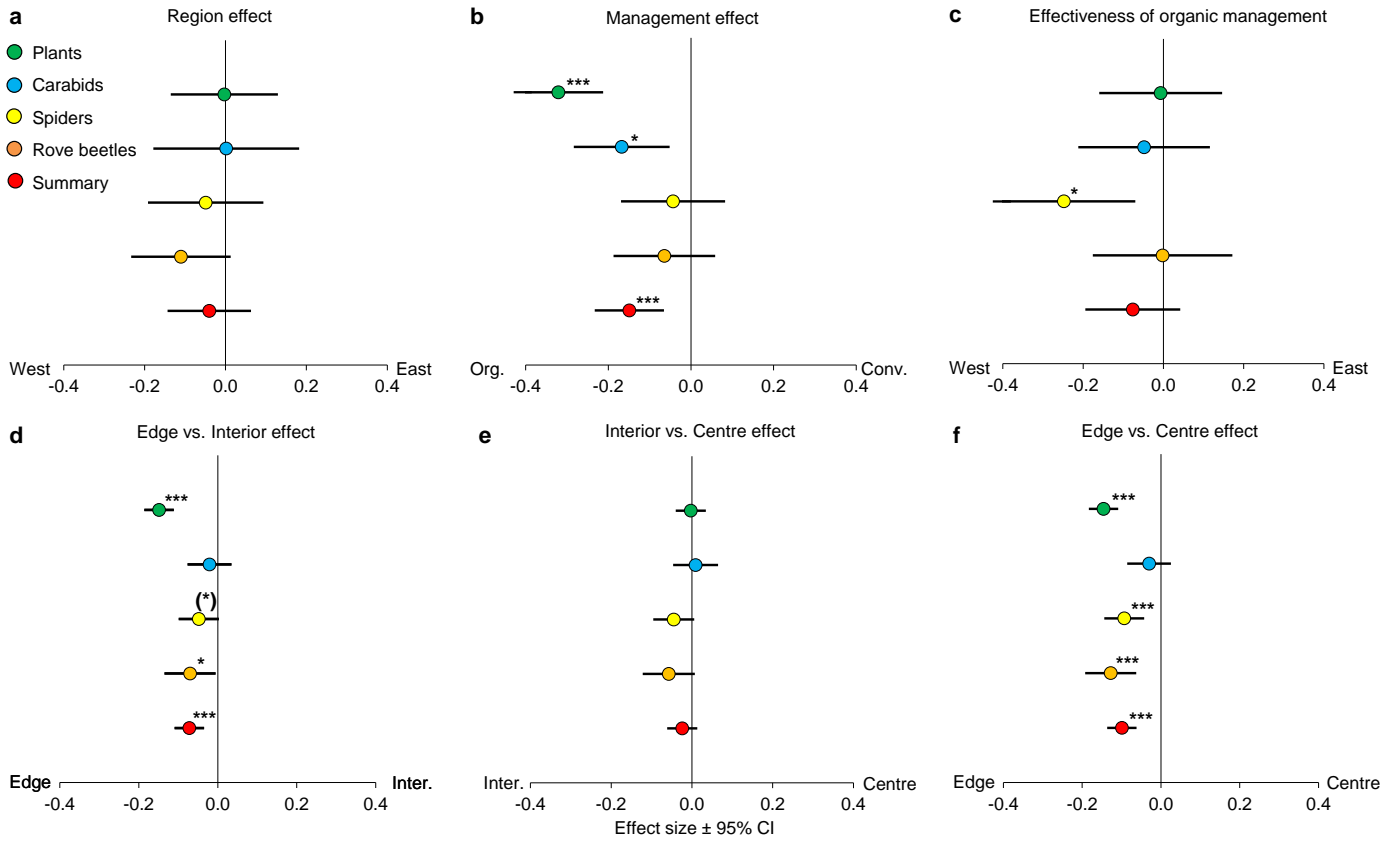
Supplementary Figure 3: Conceptual figure reflecting the partially crossed nested study design with farmer and pair both nested in village. We worked on either one or two pairs of organic and conventional fields per village. In the latter case, both fields of one management type belonged to the same farmer, respectively. The figure shows a village with two field pairs of organic (green) and conventional (red) fields.



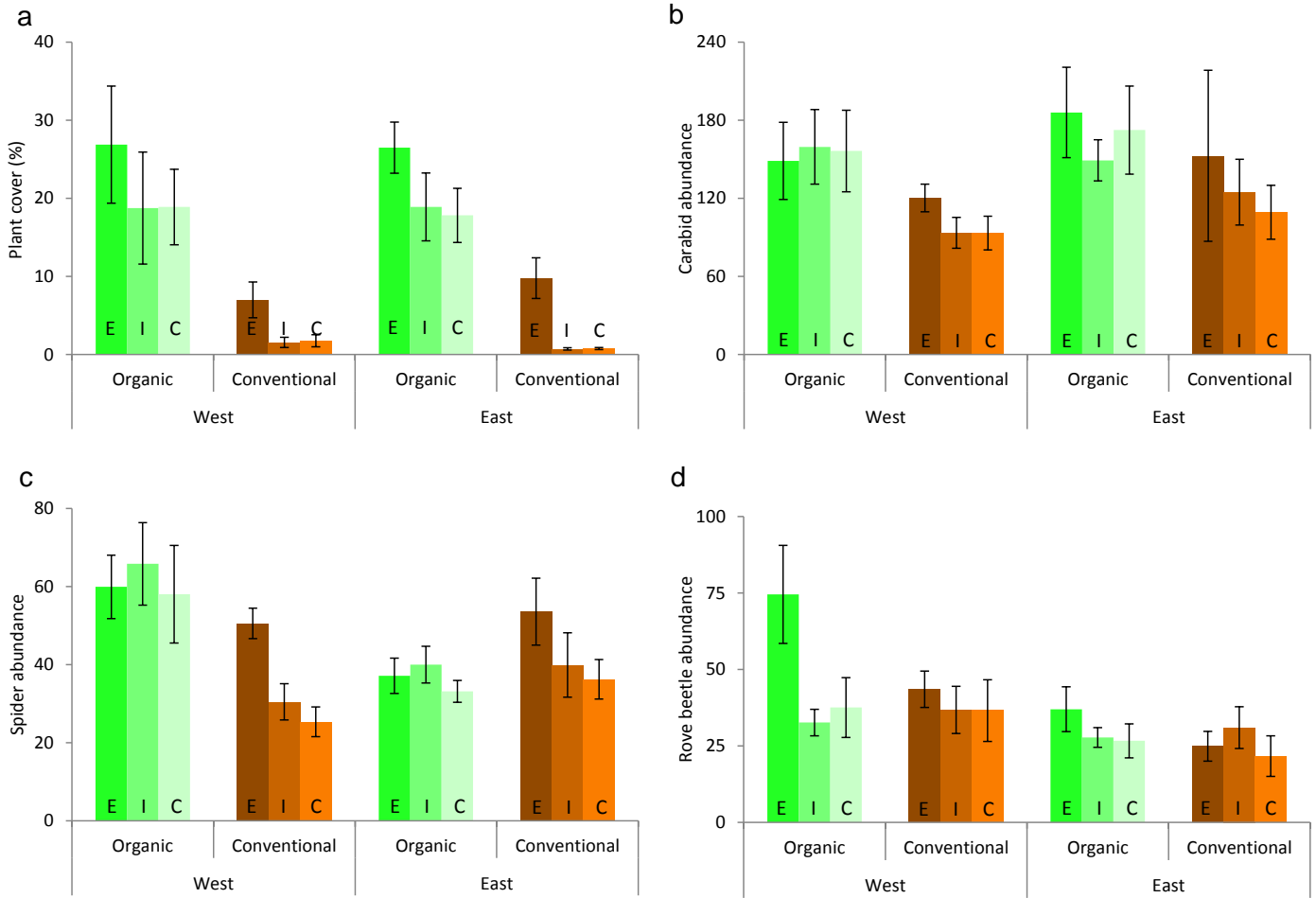
Supplementary Figure 4: Species richness of (a) plants, (b) carabids, (c) spiders and (d) rove beetles in East and West Germany with organic and conventional management in 2013 (n=36 fields). Letters in bars depict transect position within field: E = edge, I = interior, C = centre. Bars represent mean \pm SEM.



Supplementary Figure 5: Effects of region (a) and management (b), their interaction (c), i.e. effectiveness of organic management, and edge effect (edge vs. interior (d), interior vs. centre (e), edge vs. centre (f)) on plant cover and arthropod abundance as well as summary effect from meta-analysis, expressed as effect estimate \pm 95% CI (n = 36 fields). Plant cover was logit transformed, and carabid and rove beetle abundances were log transformed. Org.: organic; Conv.: conventional; Inter.: interior. Significance levels: (*): <0.1, *: <0.05, **: <0.01, *: <0.001.**



Supplementary Figure 6: Cover of (a) plants and abundance of (b) carabids, (c) spiders and (d) rove beetles in East and West Germany with organic and conventional management in 2013 (n=36 fields). Letters in bars depict transect position within field: E = edge, I = interior, C = centre. Bars represent mean \pm SEM.



Supplementary Table 1: Effects of region (R; West as reference), management (M; conventional as reference) and their interaction on farmers' profit, revenue, cost and farm size. Effect estimates \pm 95% CIs originate from generalized linear mixed-effects models based on negative binomial distribution (profit, revenue, cost; n=28 fields) and from linear regression (farm size square root transformed; n=18 farms participating in economic survey). Significant effects ($P < 0.05$) are marked in bold. The mean \pm SEM of original data are shown in Fig. 2.

Model	Estimate \pm 95% CI		
	Region	Management	R \times M
Profit (€/ha)	-0.75 \pm 0.46	0.74 \pm 0.46	0.47 \pm 0.65
Revenue (€/ha)	-0.12 \pm 0.26	0.51 \pm 0.26	-0.12 \pm 0.37
Cost (€/ha)	0.37 \pm 0.26	0.07 \pm 0.23	-0.52 \pm 0.33
Farm size (ha)	-23.36 \pm 6.80	-15.14 \pm 7.17	13.14 \pm 9.61

Supplementary Table 2: Marginal and conditional R^2 for species richness and abundance models.

Model	R^2	
	marginal	conditional
Species richness		
Plants	0.74	0.90
Carabids	0.13	0.55
Spiders	0.28	0.37
Rove beetles	0.10	0.35
Abundance		
Plants	0.59	0.87
Carabids	0.12	0.69
Spiders	0.23	0.67
Rove beetles	0.18	0.47

Supplementary Table 3: Number of transects with the plant species (138 species in total) presence in organic and conventional wheat fields in West and East Germany.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Acer pseudoplatanus</i>	1	0	1	0
<i>Achillea millefolium</i>	2	0	1	1
<i>Adonis aestivalis</i>	0	0	2	0
<i>Aegopodium podagraria</i>	1	0	1	0
<i>Agrostis capillaris</i>	0	1	0	0
<i>Agrostis stolonifera</i>	0	1	0	0
<i>Allium vineale</i>	0	0	1	0
<i>Alopecurus myosuroides</i>	11	12	9	0
<i>Alopecurus pratensis</i>	2	1	0	0
<i>Anagallis arvensis</i>	2	0	0	4
<i>Anchusa arvensis</i>	3	0	1	0
<i>Anthemis arvensis</i>	2	0	0	1
<i>Anthriscus sylvestris</i>	5	0	0	2
<i>Apera spica-venti</i>	6	0	1	2
<i>Aphanes arvensis</i>	19	2	6	1
<i>Arabidopsis thaliana</i>	3	0	1	0
<i>Arctium tomentosum</i>	0	0	2	3
<i>Arenaria serpyllifolia</i>	3	0	0	1
<i>Armoracia rusticana</i>	0	0	1	0
<i>Arrhenatherum elatius</i>	5	0	2	2
<i>Artemisia vulgaris</i>	1	0	1	0
<i>Brassica napus</i>	1	0	3	1
<i>Bromus arvensis</i>	0	0	0	1
<i>Bromus hordeaceus</i>	2	0	0	0
<i>Bromus secalinus</i>	1	10	0	2
<i>Bromus sterilis</i>	4	6	1	9
<i>Calystegia sepium</i>	1	0	1	0
<i>Camelina sativa</i>	0	0	1	0
<i>Capsella bursa-pastoris</i>	17	1	12	3
<i>Centaurea cyanus</i>	11	0	0	0
<i>Cerastium fontanum</i>	3	0	0	0
<i>Cerastium tomentosum</i>	1	0	0	0
<i>Chaerophyllum aureum</i>	0	0	2	0
<i>Chaerophyllum bulbosum</i>	1	0	0	0
<i>Chenopodium album</i>	17	6	16	3
<i>Chenopodium hybridum</i>	0	0	4	0
<i>Cirsium arvense</i>	20	7	22	7
<i>Cirsium vulgare</i>	0	0	1	1
<i>Consolida regalis</i>	1	0	3	0
<i>Convolvulus arvensis</i>	8	3	10	5
<i>Coriandrum sativum</i>	0	0	2	0
<i>Cornus sanguinea</i>	0	1	0	0
<i>Crepis biennis</i>	2	0	0	0
<i>Dactylis glomerata</i>	6	4	2	1
<i>Descuriania sophia</i>	0	0	6	2
<i>Elymus repens</i>	13	12	9	8
<i>Epilobium roseum</i>	1	0	0	0
<i>Equisetum arvense</i>	4	4	6	1
<i>Erophila verna</i>	0	0	1	0
<i>Euphorbia exigua</i>	2	0	7	2
<i>Euphorbia helioscopia</i>	4	0	6	6
<i>Euphorbia sp.</i>	0	1	0	0
<i>Falcaria vulgaris</i>	0	0	1	0
<i>Fallopia dumetorum</i>	21	7	24	15

Supplementary Table 3: Continued.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Festuca pratensis</i>	2	0	1	0
<i>Festuca sp.</i>	0	0	0	2
<i>Fragaria viridis</i>	1	0	0	0
<i>Fraxinus excelsior</i>	2	0	0	1
<i>Fumaria officinalis</i>	8	0	14	10
<i>Galeopsis tetrahid</i>	1	1	3	2
<i>Galinsoga ciliata</i>	2	0	0	0
<i>Galium aparine</i>	23	16	25	22
<i>Geranium dissectum</i>	4	1	6	3
<i>Geranium molle</i>	1	0	1	0
<i>Geranium pusillum</i>	2	1	4	1
<i>Geranium rotundifolium</i>	2	3	3	8
<i>Geum urbanum</i>	1	0	0	0
<i>Glechoma hederacea</i>	1	0	0	0
<i>Heracleum sphondylium</i>	1	0	2	1
<i>Hordeum vulgare</i>	2	4	5	3
<i>Hypericum perforatum</i>	2	0	0	0
<i>Lactuca virosa</i>	0	0	3	0
<i>Lamium amplexicaule</i>	6	0	20	4
<i>Lamium purpureum</i>	21	1	20	9
<i>Lapsana communis</i>	2	0	3	1
<i>Lathyrus pratensis</i>	0	0	1	0
<i>Lathyrus tuberosus</i>	2	0	3	1
<i>Lolium multiflorum</i>	3	4	3	0
<i>Lolium perenne</i>	9	0	2	0
<i>Matricaria recutita</i>	8	3	3	0
<i>Medicago sativa</i>	1	0	3	0
<i>Myosotis arvensis</i>	22	1	11	5
<i>Myosurus minimus</i>	1	0	0	0
<i>Papaver dubium</i>	0	0	1	0
<i>Papaver hybridum</i>	1	0	4	1
<i>Papaver rhoeas</i>	16	0	13	7
<i>Persicaria lapathifolia</i>	4	4	5	2
<i>Persicaria maculosa</i>	1	0	1	0
<i>Phleum pratense</i>	3	1	2	0
<i>Plantago lanceolata</i>	1	0	0	0
<i>Plantago major</i>	1	1	0	0
<i>Poa annua</i>	2	0	0	1
<i>Poa pratensis</i>	1	1	1	2
<i>Poa sp.</i>	1	0	0	0
<i>Poa trivialis</i>	10	2	8	4
<i>Polygonum aviculare</i>	16	4	21	12
<i>Potentilla anserina</i>	1	0	0	0
<i>Potentilla reptans</i>	1	0	0	0
<i>Prunus avium</i>	0	0	0	1
<i>Ranunculus arvensis</i>	4	0	1	0
<i>Ranunculus auricomus</i>	0	0	1	0
<i>Ranunculus repens</i>	6	0	4	0
<i>Raphanus sativus</i>	1	0	0	0
<i>Rosa sp.</i>	0	1	0	0
<i>Rumex acetosa</i>	1	0	0	0
<i>Rumex crispus</i>	12	1	9	1
<i>Rumex obtusifolius</i>	1	2	0	0
<i>Sambucus nigra</i>	0	0	1	4
<i>Secale cereale</i>	10	2	8	1

Supplementary Table 3: Continued.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Sedum sexangulare</i>	0	0	0	1
<i>Silene noctiflora</i>	0	0	4	0
<i>Sinapis arvensis</i>	15	0	5	0
<i>Solanum tuberosum</i>	2	0	0	0
<i>Sonchus asper</i>	4	0	3	0
<i>Sonchus oleraceus</i>	0	0	1	1
<i>Stachys palustris</i>	1	0	0	0
<i>Stachys sylvatica</i>	0	0	1	0
<i>Stellaria media</i>	19	1	20	6
<i>Taraxacum officinale</i>	6	1	12	1
<i>Thlaspi arvense</i>	19	0	14	3
<i>Thlaspi perfoliatum</i>	0	0	1	0
<i>Trifolium arvense</i>	1	0	0	0
<i>Trifolium pratense</i>	16	0	3	0
<i>Trifolium repens</i>	10	0	4	0
<i>Tripleurospermum maritimum</i>	17	0	21	8
<i>Urtica dioica</i>	2	2	4	1
<i>Valerianella locusta</i>	3	0	2	0
<i>Veronica arvensis</i>	8	0	7	1
<i>Veronica hederifolia</i>	22	5	20	12
<i>Veronica persica</i>	20	4	20	16
<i>Vicia cracca</i>	5	0	1	1
<i>Vicia faba</i>	0	0	2	0
<i>Vicia hirsuta</i>	13	0	5	0
<i>Vicia sepium</i>	2	0	1	0
<i>Vicia sp.</i>	0	0	1	0
<i>Vicia tetrasperma</i>	12	0	3	0
<i>Vicia villosa</i>	0	0	1	0
<i>Viola arvensis</i>	18	7	14	10

Supplementary Table 4: Number of individuals of carabids (89 species and 14986 individuals in total) in organic and conventional wheat fields in West and East Germany.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Abax ovalis</i>	3	0	0	0
<i>Abax parallelus</i>	4	7	1	0
<i>Acupalpus meridianus</i>	9	1	7	20
<i>Agonum muelleri</i>	51	39	8	0
<i>Agonum sexpunctatum</i>	8	0	0	0
<i>Amara aenea</i>	61	1	21	4
<i>Amara apricaria</i>	0	0	1	3
<i>Amara aulica</i>	0	0	0	2
<i>Amara bifrons</i>	0	0	1	3
<i>Amara communis</i>	1	1	0	1
<i>Amara consularis</i>	0	0	0	1
<i>Amara convexior</i>	0	0	2	1
<i>Amara familiaris</i>	98	2	25	2
<i>Amara lunicollis</i>	0	2	1	0
<i>Amara montivaga</i>	2	0	4	3
<i>Amara ovata</i>	31	5	17	68
<i>Amara plebeja</i>	63	20	9	5
<i>Amara similata</i>	54	3	14	18
<i>Anchomenus dorsalis</i>	863	918	924	849
<i>Anisodactylus binotatus</i>	3	0	0	0
<i>Anisodactylus poeciloides</i>	1	0	0	0
<i>Asaphidion flavipes</i>	18	24	6	2
<i>Badister bullatus</i>	1	9	11	5
<i>Badister lacertosus</i>	0	0	1	0
<i>Badister sodalis</i>	1	3	2	7
<i>Bembidion quadrimaculatum</i>	15	0	7	4
<i>Brachinus crepitans</i>	0	1	283	211
<i>Brachinus explodens</i>	20	0	27	24
<i>Calathus fuscipes</i>	5	0	5	12
<i>Calathus melanocephalus</i>	0	0	1	0
<i>Carabus auratus</i>	122	8	272	13
<i>Carabus auronitens</i>	1	0	0	0
<i>Carabus convexus</i>	0	1	4	7
<i>Carabus granulatus</i>	85	43	205	14
<i>Carabus nemoralis</i>	8	3	1	3
<i>Cicindela campestris</i>	1	0	0	0
<i>Clivina fossor</i>	17	20	7	12
<i>Demetrias atricapillus</i>	3	11	3	4
<i>Dolichus halensis</i>	0	0	21	0
<i>Dyschiriodes globosus</i>	39	0	3	0
<i>Epaphius secalis</i>	0	0	10	97
<i>Harpalus affinis</i>	298	119	188	177
<i>Harpalus distinguendus</i>	10	2	47	52
<i>Harpalus latus</i>	8	19	3	6
<i>Harpalus luteicornis</i>	0	0	2	1
<i>Harpalus rubripes</i>	14	0	1	6
<i>Harpalus tardus</i>	1	0	4	3
<i>Leistus ferrugineus</i>	0	1	0	1
<i>Leistus rufomarginatus</i>	0	1	0	1
<i>Limodromus assimilis</i>	3	23	0	6
<i>Loricera pilicornis</i>	47	269	56	106
<i>Metallina lampros</i>	571	232	140	97
<i>Microlestes maurus</i>	1	1	4	12
<i>Molops elatus</i>	0	0	4	27

Supplementary Table 4: Continued.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Molops piceus</i>	1	1	1	0
<i>Nebria brevicollis</i>	3	2	0	0
<i>Nebria salina</i>	4	1	0	1
<i>Notiophilus aestuans</i>	3	3	32	27
<i>Notiophilus biguttatus</i>	7	14	11	10
<i>Notiophilus palustris</i>	10	3	3	2
<i>Ocydromus tetracolus</i>	1	15	0	0
<i>Ophonus azureus</i>	0	0	22	27
<i>Ophonus laticollis</i>	1	0	1	0
<i>Ophonus puncticollis</i>	0	0	0	1
<i>Panagaeus bipustulatus</i>	0	0	0	2
<i>Patrobis atrorufus</i>	0	1	0	25
<i>Philochthus guttula</i>	0	0	5	17
<i>Philochthus lunulatus</i>	0	6	4	0
<i>Philorhizus notatus</i>	0	0	1	0
<i>Phyla obtusa</i>	18	63	51	91
<i>Poecilus cupreus</i>	751	377	474	445
<i>Poecilus versicolor</i>	139	30	47	2
<i>Pseudoophonus rufipes</i>	145	130	925	340
<i>Pterostichus burmeisteri</i>	2	2	2	3
<i>Pterostichus macer</i>	0	0	23	19
<i>Pterostichus madidus</i>	1	0	0	0
<i>Pterostichus melanarius</i>	454	210	512	472
<i>Pterostichus niger</i>	11	17	0	1
<i>Pterostichus oblongopunctatus</i>	1	0	0	0
<i>Pterostichus ovoideus</i>	0	0	1	0
<i>Pterostichus strenuus</i>	4	9	12	12
<i>Pterostichus vernalis</i>	30	23	9	2
<i>Semiophonus signaticornis</i>	2	0	4	0
<i>Stomis pumicatus</i>	12	1	3	2
<i>Syntomus truncatellus</i>	0	0	1	0
<i>Synuchus vivalis</i>	7	6	8	2
<i>Trechoblemus micros</i>	0	2	0	0
<i>Trechus quadristriatus</i>	32	56	61	83
<i>Zabrus tenebrioides</i>	0	0	0	3
Total	4180	2761	4566	3479

Supplementary Table 5: Number of individuals of spiders (71 species and 4769 individuals in total) in organic and conventional wheat fields in West and East Germany.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Agyneta rurestris</i>	3	5	17	6
<i>Alopecosa accentuata</i>	0	0	1	0
<i>Alopecosa cuneata</i>	16	9	11	14
<i>Alopecosa pulverulenta</i>	30	30	34	52
<i>Araeoncus humilis</i>	2	0	0	2
<i>Aulonia albimana</i>	1	0	1	0
<i>Bathypantes gracilis</i>	11	35	13	9
<i>Centromerus sellarius</i>	1	0	0	1
<i>Ceratinella brevis</i>	2	0	0	0
<i>Collinsia inerrans</i>	7	4	9	2
<i>Dicymbium nigrum</i>	1	0	5	0
<i>Diplocephalus picinus</i>	0	1	0	0
<i>Diplostyla concolor</i>	5	5	10	7
<i>Dismodicus bifrons</i>	1	0	0	0
<i>Drassyllus praeficus</i>	0	1	0	2
<i>Drassyllus pusillus</i>	21	10	15	14
<i>Dysdera erythrina</i>	0	1	0	0
<i>Enoplognatha ovata</i>	0	0	1	0
<i>Enoplognatha thoracica</i>	0	0	0	2
<i>Erigone dentipalpis</i>	312	247	203	168
<i>Hahnia pusilla</i>	1	1	2	1
<i>Haplodrassus minor</i>	0	0	4	0
<i>Haplodrassus signifer</i>	0	0	0	6
<i>Harpactea lepida</i>	1	0	0	0
<i>Inermocoelotes inermis</i>	1	1	0	0
<i>Leptorhoptrum robustum</i>	0	2	0	2
<i>Micaria pulicaria</i>	0	0	4	2
<i>Micrargus herbigradus</i>	29	9	11	6
<i>Microneta viaria</i>	0	1	0	0
<i>Oedothorax apicatus</i>	414	152	194	483
<i>Oedothorax retusus</i>	17	10	1	1
<i>Ozyptila praticola</i>	0	0	1	1
<i>Ozyptila simplex</i>	0	0	1	1
<i>Pachygnatha degeeri</i>	170	181	142	116
<i>Pachygnatha listeri</i>	5	18	7	0
<i>Panamomops sulcifrons</i>	0	2	0	0
<i>Pardosa agrestis</i>	2	4	26	21
<i>Pardosa amentata</i>	269	37	98	38
<i>Pardosa palustris</i>	180	24	22	17
<i>Pardosa prativaga</i>	3	0	6	18
<i>Pardosa pullata</i>	31	46	28	51
<i>Pelecopsis parallela</i>	5	0	0	0
<i>Phrurolithus festivus</i>	1	1	2	11
<i>Phrurolithus minimus</i>	1	0	0	0
<i>Phylloneta impressa</i>	0	0	0	1
<i>Pirata uliginosus</i>	0	0	0	3
<i>Piratula latitans</i>	0	0	0	2
<i>Porrhomma microphthalmum</i>	5	25	17	19
<i>Robertus arundineti</i>	0	0	7	4
<i>Robertus neglectus</i>	0	2	0	2
<i>Sintula corniger</i>	0	0	0	1
<i>Talavera petrensis</i>	0	0	1	0
<i>Tapinocyba insecta</i>	0	0	2	0
<i>Tenuiphantes flavipes</i>	16	30	17	12

Supplementary Table 5: Continued.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Tiso vagans</i>	0	1	0	0
<i>Trachyzelotes pedestris</i>	0	1	1	1
<i>Trochosa ruricola</i>	29	8	32	21
<i>Trochosa terricola</i>	51	42	30	33
<i>Troxochrus scabriculus</i>	0	0	0	2
<i>Walckenaeria acuminata</i>	0	1	0	0
<i>Walckenaeria atrotibialis</i>	3	1	2	0
<i>Walckenaeria capito</i>	0	0	0	1
<i>Walckenaeria dysderoides</i>	0	0	2	0
<i>Walckenaeria nudipalpis</i>	1	2	0	0
<i>Walckenaeria unicornis</i>	1	0	0	0
<i>Walckenaeria vigilax</i>	0	1	0	2
<i>Xerolycosa miniata</i>	0	0	1	0
<i>Xysticus cristatus</i>	0	2	1	0
<i>Xysticus kochi</i>	4	2	7	8
<i>Xysticus ulmi</i>	0	1	2	1
<i>Zora spinimana</i>	0	1	1	0
Total	1653	957	992	1167

Supplementary Table 6: Number of individuals of rove beetles (105 species and 3876 individuals in total) in organic and conventional wheat fields in West and East Germany.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Acrotona benicki</i>	0	0	2	0
<i>Aleochara bipustulata</i>	5	1	14	22
<i>Aleochara curtula</i>	0	0	0	1
<i>Aleochara inconspicua</i>	0	0	5	3
<i>Aleochara spadicea</i>	1	2	0	0
<i>Aleochara spissicornis</i>	0	0	0	1
<i>Alevonota gracilentata</i>	1	0	1	0
<i>Aloconota gregaria</i>	153	208	109	151
<i>Amischa analis</i>	22	6	15	5
<i>Anotylus hybridus</i>	23	12	20	4
<i>Anotylus insecatus</i>	9	3	23	22
<i>Anotylus inustus</i>	3	0	3	3
<i>Anotylus rugosus</i>	20	11	18	19
<i>Anotylus tetracarinatus</i>	0	0	0	1
<i>Atheta atomaria</i>	0	1	0	1
<i>Atheta castanoptera</i>	0	0	0	2
<i>Atheta crassicornis</i>	4	0	0	1
<i>Atheta elongatula</i>	0	0	1	0
<i>Atheta gagatina</i>	0	0	1	0
<i>Atheta oblita</i>	1	0	0	0
<i>Atheta palustris</i>	1	1	3	1
<i>Atheta paracrassicornis</i>	0	0	1	0
<i>Atheta sp</i>	0	0	1	0
<i>Atheta triangulum</i>	23	2	1	1
<i>Bisnius sordidus</i>	0	0	3	0
<i>Bledius dissimilis</i>	0	0	1	0
<i>Bolitobius castaneus</i>	5	4	4	2
<i>Cratarea suturalis</i>	0	0	0	1
<i>Dinaraea angustula</i>	25	10	30	23
<i>Drusilla canaliculata</i>	563	84	140	85
<i>Euaesthetus bipunctatus</i>	1	2	1	0
<i>Falagrioma thoracica</i>	6	5	6	18
<i>Gabrius nigrifulus</i>	14	1	1	2
<i>Gabrius osseticus</i>	1	2	4	0
<i>Geostiba circellaris</i>	0	1	1	1
<i>Gyrophypnus angustatus</i>	12	5	1	3
<i>Ilyobates bennetti</i>	35	38	5	6
<i>Ischnopoda umbratica</i>	1	0	0	0
<i>Ischnosoma splendidum</i>	32	38	26	62
<i>Lathrobium fulvipenne</i>	31	63	21	16
<i>Lathrobium longulum</i>	17	6	4	1
<i>Lathrobium pallidum</i>	0	2	7	0
<i>Lesteva longolytrata</i>	3	0	3	5
<i>Liogluta longisucula</i>	0	0	1	0
<i>Liogluta pagana</i>	1	2	1	4
<i>Lobrathium multipunctum</i>	0	0	0	1
<i>Mocyta fungi</i>	6	26	22	30
<i>Mocyta orbata</i>	1	0	0	0
<i>Mycetoporus longulus</i>	7	15	5	6
<i>Ocypus fuscatus</i>	4	1	2	3
<i>Ocypus nitens</i>	24	6	8	1
<i>Ocypus ophthalmicus</i>	0	0	4	0
<i>Olophrum assimile</i>	9	2	11	1
<i>Omalius caesum</i>	7	1	2	0

Supplementary Table 6: Continued.

Scientific name	West		East	
	Organic	Conventional	Organic	Conventional
<i>Omalium rivulare</i>	1	1	3	1
<i>Omalium rugatum</i>	1	0	55	0
<i>Oxypoda acuminata</i>	10	1	2	0
<i>Oxypoda brachyptera</i>	33	43	28	37
<i>Oxypoda brevicornis</i>	2	0	3	0
<i>Oxypoda haemorrhoea</i>	0	0	1	1
<i>Oxypoda opaca</i>	1	0	3	4
<i>Paederus fuscipes</i>	0	1	0	0
<i>Paederus littoralis</i>	0	0	5	0
<i>Paederus schoenherri</i>	0	1	0	0
<i>Parabolitobius formosus</i>	0	0	1	0
<i>Pella funesta</i>	1	0	0	0
<i>Pella limbata</i>	9	0	4	2
<i>Philonthus atratus</i>	16	173	3	10
<i>Philonthus carbonarius</i>	20	15	16	10
<i>Philonthus cogantus</i>	11	35	32	22
<i>Philonthus decorus</i>	0	0	3	0
<i>Philonthus intermedius</i>	0	0	0	1
<i>Philonthus laminatus</i>	0	1	0	1
<i>Philonthus mannerheimi</i>	2	5	5	0
<i>Philonthus scribae</i>	0	0	0	1
<i>Plataraea brunnea</i>	0	5	25	0
<i>Platystethus nitens</i>	0	0	2	0
<i>Pycnota paradoxa</i>	1	0	2	1
<i>Quedius cinctus</i>	1	1	0	0
<i>Quedius fuliginosus</i>	0	0	0	1
<i>Quedius ochripennis</i>	1	0	0	1
<i>Rugilus orbiculatus</i>	3	0	0	0
<i>Rugilus rufipes</i>	0	0	4	0
<i>Rugilus similis</i>	0	2	0	0
<i>Rugilus subtilis</i>	1	0	1	0
<i>Scopaeus sp</i>	0	0	2	0
<i>Sepedophilus marshami</i>	1	4	1	7
<i>Staphylinus caesareus</i>	0	0	0	1
<i>Stenus boops</i>	5	0	0	0
<i>Stenus clavicornis</i>	1	0	4	3
<i>Stenus incrassatus</i>	1	0	0	0
<i>Stenus ludyi</i>	0	0	0	2
<i>Sunius melanocephalus</i>	2	0	2	0
<i>Tachinus corticinus</i>	37	54	4	0
<i>Tachinus fimetarius</i>	0	0	1	4
<i>Tachinus laticollis</i>	5	0	0	0
<i>Tachinus rufipes</i>	28	72	29	28
<i>Tachyporus chrysomelinus</i>	2	5	9	5
<i>Tachyporus hypnorum</i>	13	51	16	20
<i>Tachyporus nitidulus</i>	0	0	7	3
<i>Tachyporus obtusus</i>	12	16	5	4
<i>Tasgius winkleri</i>	1	0	0	0
<i>Tetralaucopora longitarsis</i>	3	0	1	6
<i>Xantholinus elegans</i>	0	2	3	1
<i>Xantholinus longiventris</i>	7	3	9	12
Total	1303	1052	823	698