Liste der im BioDivSoil-Projekt zusammengetragenen Publikationen

Die Liste umfasst Publikationen zu den folgenden Themen:

- Methoden und Standards zur Erfassung der Boden-Biodiversität
- Struktur und Funktion von Boden-Lebensgemeinschaften
- Einfluss landwirtschaftlicher Praktiken auf die Bodenbiodiversität
- Zusammenhänge zwischen Bewirtschaftung, Anbau-Kulturen und Bodenbiozönosen

Literaturangaben

Achtziger, R., Stickroth, H., & Zieschank, R. (2004). Nachhaltigkeitsindikator für die Artenvielfalt - ein Indikator für den Zustand von Natur und Landschaft in Deutschland: F+E-Projekt 'Nachhaltigkeitsindikator für den Naturschutzbereich'; FKZ 802 86 030 (Flur). BfN-Schr.-Vertrieb im Landwirtschaftsverl.

Adhikari, S., & Menalled, F. D. (2018). Impacts of Dryland Farm Management Systems on Weeds and Ground Beetles (Carabidae) in the Northern Great Plains. Sustainability, 10(7), Article 7. https://doi.org/10.3390/su10072146

Adhikari, S., & Menalled, F. D. (2020). Supporting Beneficial Insects for Agricultural Sustainability: The Role of Livestock-Integrated Organic and Cover Cropping to Enhance Ground Beetle (Carabidae) Communities. Agronomy, 1–15.

Ad-hoc AG Boden. (2005). Bodenkundliche Kartieranleitung. (p. 438). Bundesanstalt für Geowissenschaften und Rohstoffe in Zusammenarbeit mit den Staatlichen Geologischen Diensten.

Adl, S. M., Coleman, D. C., & Read, F. (2006). Slow recovery of soil biodiversity in sandy loam soils of Georgia after 25 years of no-tillage management. Agriculture, Ecosystems & Environment, 114(2), 323–334. https://doi.org/10.1016/j.agee.2005.11.019

Aksoy, E., Louwagie, G., Gardi, C., Gregor, M., Schröder, C., & Löhnertz, M. (2017). Assessing soil biodiversity potentials in Europe. Science of The Total Environment, 589, 236–249. https://doi.org/10.1016/j.scitotenv.2017.02.173

Al Hassan, D., Georgelin, E., Delattre, T., Burel, F., Plantegenest, M., Kindlmann, P., & Butet, A. (2013). Does the presence of grassy strips and landscape grain affect the spatial distribution of aphids and their carabid predators? Agricultural and Forest Entomology, 15(1), 24–33. https://doi.org/10.1111/j.1461-9563.2012.00587.x

Albrecht, M., Kleijn, D., Williams, N. M., Tschumi, M., Blaauw, B. R., Bommarco, R., Campbell, A. J., Dainese, M., Drummond, F. A., Entling, M. H., Ganser, D., Arjen de Groot, G., Goulson, D., Grab, H., Hamilton, H., Herzog, F., Isaacs, R., Jacot, K., Jeanneret, P., … Sutter, L. (2020). The effectiveness of flower strips and hedgerows on pest control, pollination services and crop yield: A quantitative synthesis. Ecology Letters, 23(10), 1488–1498. https://doi.org/10.1111/ele.13576

Albrecht, M., Schmid, B., Obrist, M. K., Schüpbach, B., Kleijn, D., & Duelli, P. (2010). Effects of ecological compensation meadows on arthropod diversity in adjacent intensively managed grassland. Biological Conservation, 143(3), 642–649. https://doi.org/10.1016/j.biocon.2009.11.029

Allan, E., Bossdorf, O., Dormann, C. F., Prati, D., Gossner, M. M., Tscharntke, T., Blüthgen, N., Bellach, M., Birkhofer, K., Boch, S., Böhm, S., Börschig, C., Chatzinotas, A., Christ, S., Daniel, R., Diekötter, T., Fischer, C., Friedl, T., Glaser, K., … Fischer, M. (2014). Interannual variation in land-use intensity enhances grassland multidiversity. Proceedings of the National Academy of Sciences, 111(1), 308–313. https://doi.org/10.1073/pnas.1312213111

Allan, E., Manning, P., Alt, F., Binkenstein, J., Blaser, S., Blüthgen, N., Böhm, S., Grassein, F., Hölzel, N., Klaus, V. H., Kleinebecker, T., Morris, E. K., Oelmann, Y., Prati, D., Renner, S. C., Rillig, M. C., Schaefer, M., Schloter, M., Schmitt, B., … Fischer, M. (2015). Land use intensification alters ecosystem multifunctionality via loss of biodiversity and changes to functional composition. Ecology Letters, 18(8), 834–843. https://doi.org/10.1111/ele.12469

Altieri, M. A., Gurr, G. M., & Wratten, S. D. (2004). Chapter 2: Genetic engineering and ecological engineering: A clash of paradigms or scope for synergy? In G. M. Gurr, S. D. Wratten, & M. A. Altieri (Eds.), Ecological Engineering for Pest Management: Advances in Habitat Manipulation for Arthropods (pp. 13–31). CSIRO Publishing.

Altieri, M. A., & Letourneau, D. K. (1982). Vegetation management and biological control in agroecosystems. Crop Protection, 1(4), 405–430. https://doi.org/10.1016/0261-2194(82)90023-0

Altieri, M. A., Nicholls, C. I., & Fritz, M. (2005). Manage insects on your farm: A guide to ecological strategies. Sustainable Agriculture Network.

Altvater, S., Bodle, R., Landgrebe-Trinkunaite, R., Porsch, L., & Roberts, E. (2018). Kosten und Nutzen einer europäischen Bodenrahmen-Richtlinie für Deutschland (UBA Texte, p. 181). Umweltbundesamt.

Alvarez, T., Frampton, G. K., & Goulson, D. (1997). Population dynamics of epigeic Collembola in arable fields: The importance of hedgerow proximity and crop type. Pedobiologia, 41, 110–114.

Ameixa, O., & Kindlmann, P. (2008). Agricultural policy-induced landscape changes: Effects on carabid abundance and their biocontrol potential. European Journal of Entomology, 105, 467–476.

Ameixa, O., & Kindlmann, P. (2011). Biodiversity Drifts in Agricultural Landscapes. In Ecosystems Biodiversity (pp. 315–332). InTech Publishers.

Andersen, A. (1997). Densities of overwintering carabids and staphylinids (Col., Carabidae and Staphylinidae) in cereal and grass fields and their boundaries. Journal of Applied Entomology, 121(1–5), 77–80. https://doi.org/10.1111/j.1439-0418.1997.tb01374.x

Anderson, A., Carnus, T., Helden, A. J., Sheridan, H., & Purvis, G. (2013). The influence of conservation field margins in intensively managed grazing land on communities of five arthropod trophic groups. Insect Conservation and Diversity, 6(3), 201–211. https://doi.org/10.1111/j.1752-4598.2012.00203.x

Anderson, T.-H. (2003). Microbial eco-physiological indicators to asses soil quality. Agriculture, Ecosystems & Environment, 98(1), 285–293. https://doi.org/10.1016/S0167-8809(03)00088-4

Andow, D. A. (1991). Vegetational Diversity and Arthropod Population Response. Annual Review of Entomology, 36(1), 561–586. https://doi.org/10.1146/annurev.en.36.010191.003021

Andrén, O., & Lagerlöf, J. (1983). Soil fauna (microarthropods, enchytraeids, nematodes) in Swedish agricultural cropping systems. Acta Agriculturae Scandinavica, 33, 33–52.

Andrews, S. S., Karlen, D. L., & Cambardella, C. A. (2004). The Soil Management Assessment Framework: A Quantitative Soil Quality Evaluation Method. Soil Science Society of America Journal, 68(6), 1945–1962. https://doi.org/10.2136/sssaj2004.1945

Andriuzzi, W. S. (2015). Ecological functions of earthworms in soil.

Andriuzzi, W. S., Pulleman, M. M., Cluzeau, D., & Pérès, G. (2017). Comparison of two widely used sampling methods in assessing earthworm community responses to agricultural intensification. Applied Soil Ecology, 119, 145–151. https://doi.org/10.1016/j.apsoil.2017.06.011

Anjum-Zubair, M., Schmidt-Entling, M. H., Querner, P., & Frank, T. (2010). Influence of within-field position and adjoining habitat on carabid beetle assemblages in winter wheat. Agricultural and Forest Entomology, no-no. https://doi.org/10.1111/j.1461-9563.2010.00479.x

Apostolakis, A., Schöning, I., Michalzik, B., Klaus, V. H., Boeddinghaus, R. S., Kandeler, E., Marhan, S., Bolliger, R., Fischer, M., Prati, D., Hänsel, F., Nauss, T., Hölzel, N., Kleinebecker, T., & Schrumpf, M. (2022). Drivers of soil respiration across a management intensity gradient in temperate grasslands under drought. Nutrient Cycling in Agroecosystems, 124(1), 101–116. https://doi.org/10.1007/s10705-022-10224-2

Arrouays, D., Jolivet, C., Boulonne, L., Bodineau, G., Saby, N., & Grolleau, E. (2002). A new projection in France: A multi-institutional soil quality monitoring network. Comptes Rendus de l'Académie d'Agriculture de France (France). https://scholar.google.com/scholar_lookup?title=A+new+projection+in+France%3A+a+multi-institutional+soil+quality+monitoring+network&author=Arrouays%2C+D.+%28%28Institut+National+de+la+Recherche+Agronomique%2C+Ardon+%28France%29.+Centre+d%27Orl%C3%A9ans%2C+Unit%C3%A9+Infosol%29%29&publication_year=2002

Arshad, M. A., & Martin, S. (2002). Identifying critical limits for soil quality indicators in agro-ecosystems. Agriculture, Ecosystems & Environment, 88(2), 153–160. https://doi.org/10.1016/S0167-8809(01)00252-3

Aslani, F., Geisen, S., Ning, D., Tedersoo, L., & Bahram, M. (2022). Towards revealing the global diversity and community assembly of soil eukaryotes. Ecology Letters, 25(1), 65–76. https://doi.org/10.1111/ele.13904

Aspetti, G. P., Boccelli, R., Ampollini, D., Del Re, A. A. M., & Capri, E. (2010). Assessment of soil-quality index based on microarthropods in corn cultivation in Northern Italy. Ecological Indicators, 10(2), 129–135. https://doi.org/10.1016/j.ecolind.2009.03.012

Aßmann, T., Buse, J., Drees, C., Homburg, K., & Nolte, D. (2019). Was tun gegen das Insektensterben? Empfehlungen für naturschutzfachlich wertvolle Flächen. Natur Und Landschaft, 94(6+7), 289–293. http://dx.doi.org/10.17433/6.2019.50153709.289-293

Asteraki, E. J., Hanks, C. B., & Clements, R. O. (1995). The influence of different types of grassland field margin on carabid beetle (Coleoptera, Carabidae) communities. Agriculture, Ecosystems & Environment, 54(3), 195–202. https://doi.org/10.1016/0167-8809(95)00596-K

Augenstein, B., Ulrich, W., & Habel, J. C. (2012). Directional temporal shifts in community structure of butterflies and ground beetles in fragmented oligotrophic grasslands of Central Europe. Basic and Applied Ecology, 13(8), 715–724. https://doi.org/10.1016/j.baae.2012.09.004

Aviron, S., Burel, F., Baudry, J., & Schermann, N. (2005). Carabid assemblages in agricultural landscapes: Impacts of habitat features, landscape context at different spatial scales and farming intensity. Agriculture, Ecosystems & Environment, 108(3), 205–217. https://doi.org/10.1016/j.agee.2005.02.004

Aviron, S., Herzog, F., Klaus, I., Luka, H., Pfiffner, L., & Schüpbach, B. (2006). Effects of Swiss agri-environmental measures on arthropod biodiversity in arable landscapes. Aspects of Applied Biology, 81, 10.

Aviron, S., Nitsch, H., Jeanneret, P., Buholzer, S., Luka, H., Pfiffner, L., Pozzi, S., Schüpbach, B., Walter, T., & Herzog, F. (2009). Ecological cross compliance promotes farmland biodiversity in Switzerland. Frontiers in Ecology and the Environment, 7(5), 247–252. https://doi.org/10.1890/070197

Baars, M. A. (1979). Catches in pitfall traps in relation to mean densities of carabid beetles. Oecologia, 41(1), 25–46. https://doi.org/10.1007/BF00344835

Babin, D., Deubel, A., Jacquiod, S., Sørensen, S. J., Geistlinger, J., Grosch, R., & Smalla, K. (2019). Impact of long-term agricultural management practices on soil prokaryotic communities. Soil Biology and Biochemistry, 129, 17–28. https://doi.org/10.1016/j.soilbio.2018.11.002

Bagnall, D. K., Rieke, E. L., Morgan, C. L. S., Liptzin, D. L., Cappellazzi, S. B., & Honeycutt, C. W. (2023). A minimum suite of soil health indicators for North American agriculture. Soil Security, 10, 100084. https://doi.org/10.1016/j.soisec.2023.100084

Baines, M., Hambler, C., Johnson, P. J., Macdonald, D. W., & Smith, H. (1998). The effects of arable field margin management on the abundance and species richness of Araneae (spiders). Ecography, 21(1), 74–86. https://doi.org/10.1111/j.1600-0587.1998.tb00395.x

Bakonyi, G., Szira, F., Kiss, I., Villányi, I., Seres, A., & Székacs, A. (2006). Preference tests with collembolas on isogenic and Bt-maize. European Journal of Soil Biology, 42, S132–S135. https://doi.org/10.1016/j.ejsobi.2006.06.005

Banerjee, S., & Van Der Heijden, M. G. A. (2023). Soil microbiomes and one health. Nature Reviews Microbiology, 21(1), 6–20. https://doi.org/10.1038/s41579-022-00779-w

Baranovská, E., Knapp, M., & Saska, P. (2014). The effects of overwintering, sex, year, field identity and vegetation at the boundary of fields on the body condition of Anchomenus dorsalis (Coleoptera: Carabidae). European Journal of Entomology, 111(5), 608–614. https://doi.org/10.14411/eje.2014.085

Barber, H. S. (1931). Traps for cave-inhabiting insects. Journal of the Elisha Mitchell Scientific Society, 46, 259–266.

Bàrberi, P., Burgio, G., Dinelli, G., Moonen, A. C., Otto, S., Vazzana, C., & Zanin, G. (2010). Functional biodiversity in the agricultural landscape: Relationships between weeds and arthropod fauna. Weed Research, 50(5), 388–401. https://doi.org/10.1111/j.1365-3180.2010.00798.x

Bardgett, R. D., Frankland, J. C., & Whittaker, J. B. (1993). The effects of agricultural management on the soil biota of some upland grasslands. Agriculture, Ecosystems & Environment, 45(1), 25–45. https://doi.org/10.1016/0167-8809(93)90057-V

Bardgett, R. D., Mawdsley, J. L., Edwards, S., Hobbs, P. J., Rodwell, J. S., & Davies, W. J. (1999). Plant species and nitrogen effects on soil biological properties of temperate upland grasslands: Soil biological properties of upland grasslands. Functional Ecology, 13(5), 650–660. https://doi.org/10.1046/j.1365-2435.1999.00362.x

Bardgett, R. D., & van der Putten, W. H. (2014). Belowground biodiversity and ecosystem functioning. Nature, 515(7528), Article 7528. https://doi.org/10.1038/nature13855

Bardgett, R. D., & Wardle, D. A. (2010). Aboveground-Belowground Linkages: Biotic Interactions, Ecosystem Processes, and Global Change. Oxford University Press.

Barnes, A. D., Scherber, C., Brose, U., Borer, E. T., Ebeling, A., Gauzens, B., Giling, D. P., Hines, J., Isbell, F., Ristok, C., Tilman, D., Weisser, W. W., & Eisenhauer, N. (2020). Biodiversity enhances the multitrophic control of arthropod herbivory. Science Advances, 6(45), eabb6603. https://doi.org/10.1126/sciadv.abb6603

Bartlett, M. D., Briones, M. J. I., Neilson, R., Schmidt, O., Spurgeon, D., & Creamer, R. E. (2010). A critical review of current methods in earthworm ecology: From individuals to populations. European Journal of Soil Biology, 46(2), 67–73. https://doi.org/10.1016/j.ejsobi.2009.11.006

Basedow, T. (1987). Einfluss gesteigerter Bewirtschaftungsintensität im Getreidebau auf die Laufkäfer (Coleoptera, Carabidae). Kommissionsverlag P. Parey.

Basedow, T. (1998). Langfristige Bestandsveränderungen von Arthropoden in der Feldflur, ihre Ursachen und deren Bedeutung für den Naturschutz, gezeigt an Laufkäfern (Carabidae) in Schleswig-Holstein, 1971–96. Schriftenreihe Für Landschaftspflege Und Naturschutz, 58, 215–227.

Basedow, T., Borg, \AA, De Clercq, R., Nijveldt, W., & Scherney, F. (1976). Untersuchungen über das Vorkommen der Laufkäfer [Col.: Carabidae] auf europäischen Getreidefeldern. Entomophaga, 21(1), 59–72.

Basedow, T., Rzehak, H., & Voß, K. (1985). Studies on the effect of deltamethrin sprays on the numbers of epigeal predatory arthropods occurring in arable fields. Pesticide Science, 16(4), 325–331. https://doi.org/10.1002/ps.2780160404

Batáry, P., Báldi, A., Ekroos, J., Gallé, R., Grass, I., & Tscharntke, T. (2020). Biologia Futura: Landscape perspectives on farmland biodiversity conservation. Biologia Futura, 71(1), 9–18. https://doi.org/10.1007/s42977-020-00015-7

Batáry, P., Báldi, A., Szél, G., Podlussány, A., Rozner, I., & Erdős, S. (2007). Responses of grassland specialist and generalist beetles to management and landscape complexity. Diversity and Distributions, 13(2), 196–202. https://doi.org/10.1111/j.1472-4642.2006.00309.x

Batáry, P., Holzschuh, A., Orci, K. M., Samu, F., & Tscharntke, T. (2012). Responses of plant, insect and spider biodiversity to local and landscape scale management intensity in cereal crops and grasslands. Agriculture, Ecosystems & Environment, 146(1), 130–136. https://doi.org/10.1016/j.agee.2011.10.018

Batáry, P., Kovács, A., & Báldi, A. (2008). Management effects on carabid beetles and spiders in Central Hungarian grasslands and cereal fields. Community Ecology, 9(2), 247–254. https://doi.org/10.1556/ComEc.9.2008.2.14

Beaumelle, L., Thouvenot, L., Hines, J., Jochum, M., Eisenhauer, N., & Phillips, H. R. P. (2021). Soil fauna diversity and chemical stressors: A review of knowledge gaps and roadmap for future research. Ecography, 44(6), 845–859. https://doi.org/10.1111/ecog.05627

Bécaert, V., & Deschênes, L. (2006). Using Soil Health to Assess Ecotoxicological Impacts of Pollutants on Soil Microflora. In G. W. Ware, D. M. Whitacre, L. A. Albert, P. de Voogt, C. P. Gerba, O. Hutzinger, J. B. Knaak, F. L. Mayer, D. P. Morgan, D. L. Park, R. S. Tjeerdema, R. S. H. Yang, & F. A. Gunther (Eds.), Reviews of Environmental Contamination and Toxicology (Vol. 188, pp. 127–148). Springer New York. https://doi.org/10.1007/978-0-387-32964-2_4

Beck, J., Pfiffner, L., Ballesteros-Mejia, L., Blick, T., & Luka, H. (2013). Revisiting the indicator problem: Can three epigean arthropod taxa inform about each other's biodiversity? Diversity and Distributions, 19(7), 688–699. https://doi.org/10.1111/ddi.12021

Beck, L., & Woas, S. (2005). Oribatiden (Hornmilben). 16–19.

Beckmann, M., Gerstner, K., Akin-Fajiye, M., Ceauşu, S., Kambach, S., Kinlock, N. L., Phillips, H. R. P., Verhagen, W., Gurevitch, J., Klotz, S., Newbold, T., Verburg, P. H., Winter, M., & Seppelt, R. (2019). Conventional land-use intensification reduces species richness and increases production: A global meta-analysis. Global Change Biology, 25(6), 1941–1956. https://doi.org/10.1111/gcb.14606

Beinlich, B., Blick, T., Hill, B., Köstermeyer, H., Wingender, R., & Weddeling, K. (2002). Die Bedeutung der landwirtschaftlichen Nutzung für die Vielfalt wildlebender Tiere und Pflanzen in Deutschland [Literaturstudie]. Bundesministeriums für Verbraucherschutz, Ernährung und Landwirtschaft (BMVEL).

Belaoussoff, S., Kevan, P. G., Murphy, S., & Swanton, C. (2003). Assessing tillage disturbance on assemblages of ground beetles (Coleoptera: Carabidae) by using a range of ecological indices. Biodiversity & Conservation, 12(5), 851–882. https://doi.org/10.1023/A:1022811010951

Bell, J. R., Traugott, M., Sunderland, K. D., Skirvin, D. J., Mead, A., Kravar-Garde, L., Reynolds, K., Fenlon, J. S., & Symondson, W. O. C. (2008). Beneficial links for the control of aphids: The effects of compost applications on predators and prey. Journal of Applied Ecology, 45(4), 1266–1273. https://doi.org/10.1111/j.1365-2664.2008.01479.x

Bell, J. R., Wheater, C. P., & Cullen, W. R. (2001). The implications of grassland and heathland management for the conservation of spider communities: A review. Journal of Zoology, 255(3), 377–387. https://doi.org/10.1017/S0952836901001479

Bender, S. F., & van der Heijden, M. G. A. (2015). Soil biota enhance agricultural sustainability by improving crop yield, nutrient uptake and reducing nitrogen leaching losses. Journal of Applied Ecology, 52(1), 228–239. https://doi.org/10.1111/1365-2664.12351

Bender, S. F., Wagg, C., & van der Heijden, M. G. A. (2016). An Underground Revolution: Biodiversity and Soil Ecological Engineering for Agricultural Sustainability. Trends in Ecology & Evolution, 31(6), 440–452. https://doi.org/10.1016/j.tree.2016.02.016

Benito, J. C. S., & Janssens, F. (2012). Checklist of the Collembola: Key to the species of Mesaphorura. http://collembola.org/key/mesaphor.htm

Benton, T. G., Bieg, C., Harwatt, H., Pudasaini, R., & Wellesley, L. (2021). Food system impacts on biodiversity loss. Three levers for food system transformation in support of nature. 75.

Benton, T. G., Bryant, D. M., Cole, L., & Crick, H. Q. P. (2002). Linking agricultural practice to insect and bird populations: A historical study over three decades: Farming, insect and bird populations. Journal of Applied Ecology, 39(4), 673–687. https://doi.org/10.1046/j.1365-2664.2002.00745.x

Benton, T. G., Vickery, J. A., & Wilson, J. D. (2003). Farmland biodiversity: Is habitat heterogeneity the key? Trends in Ecology & Evolution, 18(4), 182–188. https://doi.org/10.1016/S0169-5347(03)00011-9

Berry, E. C., & Jordan, D. (2001). Temperature and soil moisture content effects on the growth of Lumbricus terrestris (Oligochaeta: Lumbricidae) under laboratory conditions. Soil Biology and Biochemistry, 33(1), 133–136. https://doi.org/10.1016/S0038-0717(00)00112-7

Bertrand, C., Burel, F., & Baudry, J. (2016). Spatial and temporal heterogeneity of the crop mosaic influences carabid beetles in agricultural landscapes. Landscape Ecology, 31(2), 451–466. https://doi.org/10.1007/s10980-015-0259-4

Bertrand, C., Georges, R., Burel, F., & Baudry, J. (2014, December 10). Effects of spatial and temporal heterogeneity of agricultural landscapes on carabid beetles assemblages (Coleoptera: Carabidae).

Beste, A. (2002). Weiterentwicklung und Erprobung der Spatendiagnose als Feldmethode zur Bestimmung ökologisch wichtiger Gefügeeigenschaften landwirtschaftlich genutzter Böden [Zusammenfassung]. Institut für Pflanzenbau und Pflanzenzüchtung, Universität Gießen.

Beste, A. (2015). Down to Earth—Der Boden, von dem wir leben. Zum Zustand der Böden in Europas Landwirtschaft. Die Grünen - EFA - Im Europäischen Parlament, 48.

Beste, A. (2016). Der Boden, von dem wir leben. Zum Zustand der Böden in Europas Landwirtschaft. Bodenschutz, 2, 6. https://doi.org/10.37307/j.1868-7741.2016.02.06

Beste, A. (2023). Carbon Farming – Klimaschutz oder Greenwashing? Eine Analyse der Carbon-Farming-Initiative der Europäischen Kommission. Der Kritische Agrarbericht 2023, 12–16.

Betancur-Corredor, B., Lang, B., & Russell, D. J. (2022). Reducing tillage intensity benefits the soil micro- and mesofauna in a global meta-analysis. agriRxiv 2022:20220266588.

Beylich, A., Beck, L., Brauckmann, H.-J., & et al. (2005). Biologische Charakterisierung von Böden-Ansatz zur Bewertung des Bodens als Lebensraum für Bodenorganismen im Rahmen von Planungsprozessen. Anhang 3: Informationen zur Eignung verschiedener Bodenorganismengruppen zur Bewertung von Böden im Rahmen von Planungsverfahren (Bundesverband Boden e. V., Ed.). Erich Schmidt Verlag, Berlin.

Beylich, A., & Graefe, U. (2007). Lumbriciden in der Boden-Dauerbeobachtung: Darstellung von Referenzbereichen, Base-lines und Veränderungstendenzen an Beispielen aus Norddeutschland. UBA TEXTE 34/07, 33–53.

Beylich, A., & Graefe, U. (2009). Investigations of annelids at soil monitoring sites in Northern Germany: Reference ranges and time-series data. Soil Organisms, 81(2), 175–196.

Beylich, A., & Graefe, U. (2010). Regenwürmer und Kleinringelwürmer als Bioindikatoren im Bodenmonitoring.

Beylich, A., Graefe, U., & Höper, H. (2022). Sandige Ackerböden – eine Herausforderung für Regen- und Kleinringelwürmer? Erste Ergebnisse bodenzoologischer Untersuchungen der niedersächsischen Boden-Dauerbeobachtung. DBG-Tagung, Trier.

Beylich, A., Oberholzer, H.-R., Schrader, S., Höper, H., & Wilke, B.-M. (2010). Evaluation of soil compaction effects on soil biota and soil biological processes in soils. Soil and Tillage Research, 109(2), 133–143. https://doi.org/10.1016/j.still.2010.05.010

BfN. (2019). Einheitlicher Methodenleitfaden „Insektenmonitoring". https://www.bfn.de/sites/default/files/2021-08/methodenleitfaden_insektenmonitoring_2019_0.pdf

BfN Bundesamt für Naturschutz. (2023). Erstellung barrierefreier PDFs. https://www.bfn.de/sites/default/files/2022-07/Erstellung_barrierefreier_PDFs_aus_Word_BfN_Schriften_Stand_2022_07_26.pdf

Bhatti, M. A., Duan, J., Head, G., Jiang, C., Mckee, M. J., Nickson, T. E., Pilcher, C. L., & Pilcher, C. D. (2005). Field Evaluation of the Impact of Corn Rootworm (Coleoptera: Chrysomelidae)–Protected Bt Corn on Ground-Dwelling Invertebrates. ENVIRONMENTAL ENTOMOLOGY, 34(5), 11.

Bianchi, F. J. J. A., Booij, C. J. H., & Tscharntke, T. (2006). Sustainable pest regulation in agricultural landscapes: A review on landscape composition, biodiversity and natural pest control. Proceedings of the Royal Society B: Biological Sciences, 273(1595), 1715–1727. https://doi.org/10.1098/rspb.2006.3530

Bilde, T., & Toft, S. (1998). Quantifying food limitation of arthropod predators in the field. Oecologia, 115(1), 54–58. https://doi.org/10.1007/s004420050490

Birkhofer, K., Bezemer, T., Hedlund, K., & Setälä, H. (2012). Community composition of soil organisms under different wheat farming systems. In D. Wall (Ed.), Microbial Ecology in Sustainable Agroecosystems (Vol. 20121836, pp. 89–111). CRC Press. https://doi.org/10.1201/b12339-6

Birkhofer, K., Bezemer, T. M., Bloem, J., Bonkowski, M., Christensen, S., Dubois, D., Ekelund, F., Fließbach, A., Gunst, L., Hedlund, K., Mäder, P., Mikola, J., Robin, C., Setälä, H., Tatin-Froux, F., Van der Putten, W. H., & Scheu, S. (2008). Long-term organic farming fosters below and aboveground biota: Implications for soil quality, biological control and productivity. Soil Biology and Biochemistry, 40(9), 2297–2308. https://doi.org/10.1016/j.soilbio.2008.05.007

Birkhofer, K., Fevrier, V., Heinrich, A., Rink, K., & Smith, H. (2018). The contribution of CAP greening measures to conservation biological control at two spatial scales. Agriculture, Ecosystems & Environment, 255, 84–94. https://doi.org/10.1016/j.agee.2017.12.026

Birkhofer, K., Fließbach, A., Wise, D. H., & Scheu, S. (2008). Generalist predators in organically and conventionally managed grass-clover fields: Implications for conservation biological control. Annals of Applied Biology, 153(2), 271–280. https://doi.org/10.1111/j.1744-7348.2008.00257.x

Birkhofer, K., Gossner, M. M., Diekötter, T., Drees, C., Ferlian, O., Maraun, M., Scheu, S., Weisser, W. W., Wolters, V., Wurst, S., Zaitsev, A. S., & Smith, H. G. (2017). Land-use type and intensity differentially filter traits in above- and below-ground arthropod communities. Journal of Animal Ecology, 86(3), 511–520. https://doi.org/10.1111/1365-2656.12641

Birkhofer, K., Rusch, A., Andersson, G. K. S., Bommarco, R., Dänhardt, J., Ekbom, B., Jönsson, A., Lindborg, R., Olsson, O., Rader, R., Stjernman, M., Williams, A., Hedlund, K., & Smith, H. G. (2018). A framework to identify indicator species for ecosystem services in agricultural landscapes. Ecological Indicators, 91, 278–286. https://doi.org/10.1016/j.ecolind.2018.04.018

Birkhofer, K., Schöning, I., Alt, F., Herold, N., Klarner, B., Maraun, M., Marhan, S., Oelmann, Y., Wubet, T., Yurkov, A., Begerow, D., Berner, D., Buscot, F., Daniel, R., Diekötter, T., Ehnes, R. B., Erdmann, G., Fischer, C., Foesel, B., … Schrumpf, M. (2012). General Relationships between Abiotic Soil Properties and Soil Biota across Spatial Scales and Different Land-Use Types. PLOS ONE, 7(8), e43292. https://doi.org/10.1371/journal.pone.0043292

Bispo, A., Cluzeau, D., Creamer, R., Dombos, M., Graefe, U., Krogh, P., Sousa, J., Peres, G., Rutgers, M., Winding, A., & Römbke, J. (2009). Indicators for monitoring soil biodiversity. Integr Environ Assess Manag, 5, 717–719.

Bitzer, R. J., Rice, M. E., Pilcher, C. D., Pilcher, C. L., & Lam, W. frankie. (2005). Biodiversity and community structure of epedaphic and euedaphic springtails (Collembola) in transgenic rootworm Bt corn. Environmental Entomology, 34(5), 1346–1376.

Black, H. I. J., Parekh, N. R., Chaplow, J. S., Monson, F., Watkins, J., Creamer, R., Potter, E. D., Poskitt, J. M., Rowland, P., Ainsworth, G., & Hornung, M. (2003). Assessing soil biodiversity across Great Britain: National trends in the occurrence of heterotrophic bacteria and invertebrates in soil. Journal of Environmental Management, 67(3), 255–266. https://doi.org/10.1016/S0301-4797(02)00178-0

Blake, S., Foster, G. N., Eyre, M. D., & Luff, M. L. (1994). Effects of habitat type and grassland management practices on the body size of carabid beetles. Pedobiologia, 38, 502–512.

Blake, S., Foster, G. N., Fisher, G. E. J., & Ligertwood, G. L. (1996). Effects of management practices on the carabid faunas of newly established wildflower meadows in southern Scotland. 33.

Blakemore, R. J. (2018). Critical Decline of Earthworms from Organic Origins under Intensive, Humic SOM-Depleting Agriculture. Soil Systems, 2(2), Article 2. https://doi.org/10.3390/soilsystems2020033

Blanchart, E., Marilleau, N., Chotte, J.-L., Drogoul, A., Perrier, E., & Cambier, C. (2009). SWORM: An agent-based model to simulate the effect of earthworms on soil structure. European Journal of Soil Science, 60(1), 13–21.

Blankinship, J. C., Niklaus, P. A., & Hungate, B. A. (2011). A meta-analysis of responses of soil biota to global change. Oecologia, 165(3), 553–565. https://doi.org/10.1007/s00442-011-1909-0

Błaszkiewicz, M., & Schwerk, A. (2013). Carabid beetle (Coleoptera: Carabidae) diversity in agricultural and post-agricultural areas in relation to the surrounding habitats. 12.

Blick, T. (1999). Spinnentiere. In Handbuch landschaftsökologischer Leistungen (pp. 147–160).

Blick, T., Finch, O. D., Harms, K. H., Kiechle, J., Kielhorn, K. H., Kreuels, M., Malten, A., Martin, D., Muster, C., & Nährig, D. (2016). Rote Liste und Gesamtartenliste der Spinnen (Arachnida: Araneae) Deutschlands. In Rote Liste gefährdeter Tiere, Pflanzen und Pilze Deutschlands, Band 4: Wirbellose Tiere (Teil 2) (Vol. 70, pp. 383–510).

Blitzer, E. J., Dormann, C. F., Holzschuh, A., Klein, A.-M., Rand, T. A., & Tscharntke, T. (2012). Spillover of functionally important organisms between managed and natural habitats. Agriculture, Ecosystems & Environment, 146(1), 34–43. https://doi.org/10.1016/j.agee.2011.09.005

Blouin, M., Hodson, M. E., Delgado, E. A., Baker, G., Brussaard, L., Butt, K. R., Dai, J., Dendooven, L., Peres, G., Tondoh, J. E., Cluzeau, D., & Brun, J.-J. (2013). A review of earthworm impact on soil function and ecosystem services. European Journal of Soil Science, 64(2), 161–182. https://doi.org/10.1111/ejss.12025

Blüthgen, N., Dormann, C. F., Prati, D., Klaus, V. H., Kleinebecker, T., Hölzel, N., Alt, F., Boch, S., Gockel, S., Hemp, A., Müller, J., Nieschulze, J., Renner, S. C., Schöning, I., Schumacher, U., Socher, S. A., Wells, K., Birkhofer, K., Buscot, F., … Weisser, W. W. (2012). A quantitative index of land-use intensity in grasslands: Integrating mowing, grazing and fertilization. Basic and Applied Ecology, 13(3), 207–220. https://doi.org/10.1016/j.baae.2012.04.001

BMEL (Ed.). (2017). Nationaler Aktionsplan zur nachhaltigen Anwendung von Pflanzenschutzmitteln. 100.

BMUV. (n.d.). Nationale Strategie zur biologischen Vielfalt 2030—Diskussionsvorschläge des BMUV. Retrieved 6 February 2024, from https://dialog.bmuv.de/bmu/de/home/file/fileId/810/name/Ziele-%20&%20Ma%C3%9Fnahmenkatalog%20zur%20NBS%202030.pdf

BMUV. (2023). Aktionsprogramm Natürlicher Klimaschutz: Kabinettsbeschluss vom 29. März 2023. 80.

Boatman, N. D., Parry, H. R., Bishop, J. D., & Cuthbertson, A. G. S. (2007). Impacts of Agricultural Change on Farmland Biodiversity in the UK. Issues in Environmental Science and Technology. No. 25. Biodiversity under Threat, 33.

Bodenhausen, N., Hess, J., Valzano, A., Deslandes-Hérold, G., Waelchli, J., Furrer, R., van der Heijden, M. G. A., & Schlaeppi, K. (2023). Predicting soil fungal communities from chemical and physical properties. Journal of Sustainable Agriculture and Environment, 2(3), 225–237. https://doi.org/10.1002/sae2.12055

Boetzl, F. A., Sponsler, D., Albrecht, M., Batáry, P., Birkhofer, K., Knapp, M., Krauss, J., Maas, B., Martin, E. A., Sirami, C., Sutter, L., Bertrand, C., Baillod, A. B., Bota, G., Bretagnolle, V., Brotons, L., Frank, T., Fusser, M., Giralt, D., … Schirmel, J. (2024). Distance functions of carabids in crop fields depend on functional traits, crop type and adjacent habitat: A synthesis. Proceedings of the Royal Society B: Biological Sciences, 291(2014), 20232383. https://doi.org/10.1098/rspb.2023.2383

Bohan, D. A., Caron-Lormier, G., Muggleton, S., Raybould, A., & Tamaddoni-Nezhad, A. (2011). Automated Discovery of Food Webs from Ecological Data Using Logic-Based Machine Learning. PLOS ONE, 6(12), e29028. https://doi.org/10.1371/journal.pone.0029028

Bohmann, K., Evans, A., Gilbert, M. T. P., Carvalho, G. R., Creer, S., Knapp, M., Yu, D. W., & de Bruyn, M. (2014). Environmental DNA for wildlife biology and biodiversity monitoring. Trends in Ecology & Evolution, 29(6), 358–367. https://doi.org/10.1016/j.tree.2014.04.003

Boivin, G., & Hance, T. (2003). Ground beetle assemblages in cultivated organic soil and adjacent habitats: Temporal dynamics of microspatial changes. Pedobiologia, 47(2), 193–202. https://doi.org/10.1078/0031-4056-00182

Bommarco, R. (1998a). Reproduction and Energy Reserves of a Predatory Carabid Beetle Relative to Agroecosystem Complexity. Ecological Applications, 8(3), 846–853. https://doi.org/10.1890/1051-0761(1998)008[0846:RAEROA]2.0.CO;2

Bommarco, R. (1998b). Stage Sensitivity to Food Limitation for a Generalist Arthropod Predator, Pterostichus cupreus(Coleoptera: Carabidae). Environmental Entomology, 27(4), 863–869. https://doi.org/10.1093/ee/27.4.863

Bommarco, R. (1999). Feeding, Reproduction and Community Impact of a Predatory Carabid in Two Agricultural Habitats. Oikos, 87, 89. https://doi.org/10.2307/3546999

Bongers, T. (1990). The maturity index: An ecological measure of environmental disturbance based on nematode species composition. Oecologia, 83(1), 14–19. https://doi.org/10.1007/BF00324627

Bongiorno, G. (2020). Novel soil quality indicators for the evaluation of agricultural management practices: A biological perspective.

Bonkowski, M., Griffiths, B. S., & Ritz, K. (2000). Food preferences of earthworms for soil fungi. Pedobiologia, 44(6), 666–676. https://doi.org/10.1078/S0031-4056(04)70080-3

Booij, C. J. H., & Noorlander, J. (1992). Farming systems and insect predators. Agriculture, Ecosystems & Environment, 40(1), 125–135. https://doi.org/10.1016/0167-8809(92)90088-S

Booij, K. (1994). Diversity patterns in carabid assemblages in relation to crops and farming systems. In K. Desender, M. Dufrêne, M. Loreau, M. L. Luff, & J.-P. Maelfait (Eds.), Carabid Beetles: Ecology and Evolution (pp. 425–431). Springer Netherlands. https://doi.org/10.1007/978-94-017-0968-2_64

Bosch, J. (1987). Der Einfluß einiger dominanter Ackerunkräuter auf Nutz- und Schadarthropoden in einem Zuckerrübenfeld / The influence of some dominating weeds on beneficial arthropods and pests in a sugar beet field. Zeitschrift Für Pflanzenkrankheiten Und Pflanzenschutz / Journal of Plant Diseases and Protection, 94(4), 398–408.

Boscutti, F., Sigura, M., Gambon, N., Lagazio, C., Krüsi, B. O., & Bonfanti, P. (2015). Conservation Tillage Affects Species Composition But Not Species Diversity: A Comparative Study in Northern Italy. Environmental Management, 55(2), 443–452. https://doi.org/10.1007/s00267-014-0402-z

Bottinelli, N., Hedde, M., Jouquet, P., & Capowiez, Y. (2020). An explicit definition of earthworm ecological categories – Marcel Bouché's triangle revisited. Geoderma, 372, 114361. https://doi.org/10.1016/j.geoderma.2020.114361

Bouché, M. B. (1992). Earthworm species and ecotoxicological studies. Ecotoxicology of Earthworms, 20–35. Scopus.

Bouchez, T., Blieux, A. L., Dequiedt, S., Domaizon, I., Dufresne, A., Ferreira, S., Godon, J. J., Hellal, J., Joulian, C., Quaiser, A., Martin-Laurent, F., Mauffret, A., Monier, J. M., Peyret, P., Schmitt-Koplin, P., Sibourg, O., D'oiron, E., Bispo, A., Deportes, I., … Ranjard, L. (2016). Molecular microbiology methods for environmental diagnosis. Environmental Chemistry Letters, 14(4), 423–441. https://doi.org/10.1007/s10311-016-0581-3

Bourassa, S., Cárcamo, H. A., Larney, F. J., & Spence, J. R. (2008). Carabid Assemblages (Coleoptera: Carabidae) in a Rotation of Three Different Crops in Southern Alberta, Canada: A Comparison of Sustainable and Conventional Farming. Environmental Entomology, 37(5), 1214–1223. https://doi.org/10.1093/ee/37.5.1214

Bowie, M. H., Klimaszewski, J., Vink, C. J., Hodge, S., & Wratten, S. D. (2014). Effect of boundary type and season on predatory arthropods associated with field margins on New Zealand farmland. New Zealand Journal of Zoology, 41(4), 268–284. https://doi.org/10.1080/03014223.2014.953552

Bradford, M. A., Jones, T. H., Bardgett, R. D., Black, H. I. J., Boag, B., Bonkowski, M., Cook, R., Eggers, T., Gange, A. C., Grayston, S. J., Kandeler, E., McCaig, A. E., Newington, J. E., Prosser, J. I., Setälä, H., Staddon, P. L., Tordoff, G. M., Tscherko, D., & Lawton, J. H. (2002). Impacts of Soil Faunal Community Composition on Model Grassland Ecosystems. Science, 298(5593), 615–618. https://doi.org/10.1126/science.1075805

Brami, C., Glover, A. R., Butt, K. R., & Lowe, C. N. (2017). Effects of silver nanoparticles on survival, biomass change and avoidance behaviour of the endogeic earthworm Allolobophora chlorotica. Ecotoxicology and Environmental Safety, 141, 64–69. https://doi.org/10.1016/j.ecoenv.2017.03.015

Braun, M., Simon, E., Fábián, I., & Tóthmérész, B. (2009). The effects of ethylene glycol and ethanol on the body mass and elemental composition of insects collected with pitfall traps. Chemosphere, 77, 1447–1452.

Bretfeld, G. (1999). Synopses on Palaearctic Collembola. Volume 2. Symphypleona (Vol. 71).

Breure, A. M. (2004). Soil Biodiversity: Measurements, Indicators, Threats and Soil Functions. International Conference: Soil and Compost Eco-Biology.

Breure, A. M., Rutgers, M., Bloem, J., Brussaard, L., Didden, E., Ch, M., Schouten, A. J., & van Wijnen, H. J. (2003). Ecologische kwaliteit van de bodem.

Briemle, G. (2007). Empfehlungen zu Erhalt und Management von Extensiv- und Biotopgrünland. Landinfo, 2, 16–22.

Briones, M. J. I., & Schmidt, O. (2017). Conventional tillage decreases the abundance and biomass of earthworms and alters their community structure in a global meta-analysis. Global Change Biology, 23(10), 4396–4419. https://doi.org/10.1111/gcb.13744

Brooks, D. R., Bater, J. E., Clark, S. J., Monteith, D. T., Andrews, C., Corbett, S. J., Beaumont, D. A., & Chapman, J. W. (2012). Large carabid beetle declines in a United Kingdom monitoring network increases evidence for a widespread loss in insect biodiversity. Journal of Applied Ecology, 49(5), 1009–1019. https://doi.org/10.1111/j.1365-2664.2012.02194.x

Brooks, D. R., Firbank, L. G., Bohan, D. A., Champion, G. T., Clark, S. J., Dewar, A. M., Haughton, A. J., Heard, M. S., May, M. J., Osborne, J. L., Perry, J. N., Rothery, P., Roy, D. B., Scott, R. J., & Woiwod, I. P. (2007). The Implications of Genetically Modified Herbicide-Tolerant Crops for UK Farmland Biodiversity: A Summary of the Results of the Farm Scale Evaluations Project. 21.

Brown, G. R., & Matthews, I. M. (2016). A review of extensive variation in the design of pitfall traps and a proposal for a standard pitfall trap design for monitoring ground-active arthropod biodiversity. Ecology and Evolution, 6(12), 3953–3964. https://doi.org/10.1002/ece3.2176

Bru, D., Ramette, A., Saby, N. P. A., Dequiedt, S., Ranjard, L., Jolivet, C., Arrouays, D., & Philippot, L. (2011). Determinants of the distribution of nitrogen-cycling microbial communities at the landscape scale. The ISME Journal, 5(3), Article 3. https://doi.org/10.1038/ismej.2010.130

Brühl, C. A., & Zaller, J. G. (2019). Biodiversity Decline as a Consequence of an Inappropriate Environmental Risk Assessment of Pesticides. Frontiers in Environmental Science, 7, 177. https://doi.org/10.3389/fenvs.2019.00177

Brühl, C., Alscher, A., Hahn, M., & et al. (2015). Protection of Biodiversity in the Risk Assessment and Risk Management of Pesticides (Plant Protection Products & Biocides) with a Focus on Arthropods, Soil Organisms and Amphibians. UBA Texte, 76, 259.

Buijs, J., & Mantingh, M. (2020). Insektenschwund und Pestizidbelastung in Naturschutzgebieten in Nordrhein-Westfalen und Rheinland-Pfalz. WECF e.V. München, Deutschland.

Bundesamt für Landwirtschaft (Ed.). (2013). Agrarbericht 2013.

Bundesanstalt für Landwirtschaft und Ernährung (BLE) (Ed.). (2022). Gute fachliche Praxis – Bodenfruchtbarkeit.

Bundesministerium für Land- und Forstwirtschaft. (1995). Pflanzenschutzberichte.: Vol. 55 (2). Dachs-Verlag-GmbH. https://www.zobodat.at/pdf/Pflanzenschutzberichte_55_1995_2_0073-0148.pdf

Bundesverband Boden e. V. (2005). Biologische Charakterisierung von Böden Ansatz zur Bewertung des Bodens als Lebensraum für Bodenorganismen im Rahmen von Planungsprozessen. Erich Schmidt Verlag.

Bünemann, E. K., Bongiorno, G., Bai, Z., Creamer, R. E., De Deyn, G., de Goede, R., Fleskens, L., Geissen, V., Kuyper, T. W., Mäder, P., Pulleman, M., Sukkel, W., van Groenigen, J. W., & Brussaard, L. (2018). Soil quality – A critical review. Soil Biology and Biochemistry, 120, 105–125. https://doi.org/10.1016/j.soilbio.2018.01.030

Bünemann, E. K., Schwenke, G. D., & Van Zwieten, L. (2006). Impact of agricultural inputs on soil organisms—A review. Soil Research, 44(4), 379. https://doi.org/10.1071/SR05125

Burel, F., Aviron, S., Baudry, J., Le Féon, V., & Vasseur, C. (2013). The Structure and Dynamics of Agricultural Landscapes as Drivers of Biodiversity. In B. Fu & K. B. Jones (Eds.), Landscape Ecology for Sustainable Environment and Culture (pp. 285–308). Springer Netherlands. https://doi.org/10.1007/978-94-007-6530-6_14

Burel, F., & Baudry, J. (1995). Species biodiversity in changing agricultural landscapes: A case study in the Pays d'Auge, France. Agriculture, Ecosystems and Environment, 55, 193–200.

Burel, F., & Baudry, J. (2005). Habitat quality and connectivity in agricultural landscapes: The role of land use systems at various scales in time. Ecological Indicators, 5(4), 305–313. https://doi.org/10.1016/j.ecolind.2005.04.002

Burel, F., Baudry, J., Butet, A., Clergeau, P., Delettre, Y., Le Coeur, D., Dubs, F., Morvan, N., Paillat, G., Petit, S., Thenail, C., Brunel, E., & Lefeuvre, J.-C. (1998). Comparative biodiversity along a gradient of agricultural landscapes. Acta Oecologica, 19(1), 47–60. https://doi.org/10.1016/S1146-609X(98)80007-6

Burel, F., Butet, A., Delettre, Y. R., & Millàn de la Peña, N. (2004). Differential response of selected taxa to landscape context and agricultural intensification. Landscape and Urban Planning, 67(1), 195–204. https://doi.org/10.1016/S0169-2046(03)00039-2

Burmeister, J. (2013). Erste Ergebnisse zum Einfluss der Gärrestdüngung auf die Laufkäferfauna auf vier bayerischen Versuchsflächen. Angewandte Carabidologie, 10(2013), 3–11.

Burmeister, J. (2021). Promotion of ground beetles by integrating perennial energy crops into existing agricultural landscapes. Biomass and Bioenergy, 146, 105973. https://doi.org/10.1016/j.biombioe.2021.105973

Burmeister, J., Kreuter, T., & Walter, R. (2016). Der Einfluss langjährig differenzierter Bodenbearbeitung auf die Laufkäferfauna eines Feldversuches in Bayern. Angewandte Carabidologie, 11(2016), 21–30.

Butt, K. R. (1993). Reproduction and growth of three deep-burrowing earthworms (Lumbricidae) in laboratory culture in order to assess production for soil restoration. Biology and Fertility of Soils, 16(2), 135–138. https://doi.org/10.1007/BF00369415

Butt, K. R. (2009). Addition of earthworms to soil in soil ecological field experiments.

Butt, K. R., Frederickson, J., & Morris, R. M. (1992). The intensive production of Lumbricus terrestris L. for soil amelioration. Soil Biology and Biochemistry, 24(12), 1321–1325. https://doi.org/10.1016/0038-0717(92)90112-B

Butt, K. R., & Grigoropoulou, N. (2010). Basic Research Tools for Earthworm Ecology. Applied and Environmental Soil Science, 2010. https://doi.org/10.1155/2010/562816

Butts, R. A., Floate, K. D., David, M., Blackshaw, R. E., & Burnett, P. A. (2003). Influence of Intercropping Canola or Pea with Barley on Assemblages of Ground Beetles (Coleoptera: Carabidae). Environmental Entomology, 32(3), 535–541. https://doi.org/10.1603/0046-225X-32.3.535

Caballero-López, B., Bommarco, R., Blanco-Moreno, J. M., Sans, F. X., Pujade-Villar, J., Rundlöf, M., & Smith, H. G. (2012). Aphids and their natural enemies are differently affected by habitat features at local and landscape scales. Biological Control, 63(2), 222–229. https://doi.org/10.1016/j.biocontrol.2012.03.012

Cameron, E. K., Martins, I. S., Lavelle, P., Mathieu, J., Tedersoo, L., Bahram, M., Gottschall, F., Guerra, C. A., Hines, J., Patoine, G., Siebert, J., Winter, M., Cesarz, S., Ferlian, O., Kreft, H., Lovejoy, T. E., Montanarella, L., Orgiazzi, A., Pereira, H. M., … Eisenhauer, N. (2019). Global mismatches in aboveground and belowground biodiversity. Conservation Biology, 33(5), 1187–1192. https://doi.org/10.1111/cobi.13311

Cameron, K. H., & Leather, S. R. (2012). How good are carabid beetles (Coleoptera, Carabidae) as indicators of invertebrate abundance and order richness? Biodiversity and Conservation, 21(3), 763–779. https://doi.org/10.1007/s10531-011-0215-9

Campbell, C. D., Chapman, S. J., Cameron, C. M., Davidson, M. S., & Potts, J. M. (2003). A Rapid Microtiter Plate Method To Measure Carbon Dioxide Evolved from Carbon Substrate Amendments so as To Determine the Physiological Profiles of Soil Microbial Communities by Using Whole Soil. Applied and Environmental Microbiology, 69(6), 3593–3599. https://doi.org/10.1128/AEM.69.6.3593-3599.2003

Capowiez, Y. (2000). Differences in burrowing behaviour and spatial interaction between the two earthworm species Aporrectodea nocturna and Allolobophora chlorotica. Biology and Fertility of Soils, 30(4), 341–346. https://doi.org/10.1007/s003740050013

Capowiez, Y., Bottinelli, N., Sammartino, S., Michel, E., & Jouquet, P. (2015). Morphological and functional characterisation of the burrow systems of six earthworm species (Lumbricidae). Biology and Fertility of Soils, 51(7), 869–877. https://doi.org/10.1007/s00374-015-1036-x

Capowiez, Y., Monestiez, P., & Belzunces, L. (2001). Burrow systems made by Aporrectodea nocturna and Allolobophora chlorotica in artificial cores: Morphological differences and effects of interspecific interactions. Applied Soil Ecology, 16(2), 109–120. https://doi.org/10.1016/S0929-1393(00)00110-4

Capowiez, Y., Rault, M., Costagliola, G., & Mazzia, C. (2005). Lethal and sublethal effects of imidacloprid on two earthworm species (Aporrectodea nocturna and Allolobophora icterica). Biology and Fertility of Soils, 41(3), 135–143. https://doi.org/10.1007/s00374-004-0829-0

Capowiez, Y., Sammartino, S., & Michel, E. (2014). Burrow systems of endogeic earthworms: Effects of earthworm abundance and consequences for soil water infiltration. Pedobiologia, 57(4–6), 303–309. https://doi.org/10.1016/j.pedobi.2014.04.001

Caprio, E., Nervo, B., Isaia, M., Allegro, G., & Rolando, A. (2015). Organic versus conventional systems in viticulture: Comparative effects on spiders and carabids in vineyards and adjacent forests. Agricultural Systems, 136, 61–69. https://doi.org/10.1016/j.agsy.2015.02.009

Cardarelli, E., & Bogliani, G. (2014). Effects of grass management intensity on ground beetle assemblages in rice field banks. Agriculture, Ecosystems and Environment, 195, 120–126.

Cardinale, B. J., Duffy, J. E., Gonzalez, A., Hooper, D. U., Perrings, C., Venail, P., Narwani, A., Mace, G. M., Tilman, D., Wardle, D. A., Kinzig, A. P., Daily, G. C., Loreau, M., Grace, J. B., Larigauderie, A., Srivastava, D. S., & Naeem, S. (2012). Biodiversity loss and its impact on humanity. Nature, 486(7401), 59–67. https://doi.org/10.1038/nature11148

Cardinale, B. J., Srivastava, D. S., Emmett Duffy, J., Wright, J. P., Downing, A. L., Sankaran, M., & Jouseau, C. (2006). Effects of biodiversity on the functioning of trophic groups and ecosystems. Nature, 443(7114), 989–992. https://doi.org/10.1038/nature05202

Cardoso, P., Barton, P. S., Birkhofer, K., Chichorro, F., Deacon, C., Fartmann, T., Fukushima, C. S., Gaigher, R., Habel, J. C., Hallmann, C. A., Hill, M. J., Hochkirch, A., Kwak, M. L., Mammola, S., Ari Noriega, J., Orfinger, A. B., Pedraza, F., Pryke, J. S., Roque, F. O., … Samways, M. J. (2020). Scientists' warning to humanity on insect extinctions. Biological Conservation, 242, 108426. https://doi.org/10.1016/j.biocon.2020.108426

Carmona, D. M., & Landis, D. A. (1999). Influence of Refuge Habitats and Cover Crops on Seasonal Activity-Density of Ground Beetles (Coleoptera: Carabidae) in Field Crops. Environmental Entomology, 28(6), 1145–1153. https://doi.org/10.1093/ee/28.6.1145

Carr, P. M., Mäder, P., Creamer, N. G., & Beeby, J. S. (2012). Editorial: Overview and comparison of conservation tillage practices and organic farming in Europe and North America. Renewable Agriculture and Food Systems, 27(1), 2–6. https://doi.org/10.1017/S1742170511000536

Carter, P. E., & Rypstra, A. L. (1995). Top-Down Effects in Soybean Agroecosystems: Spider Density Affects Herbivore Damage. Oikos, 72(3), 433–439. https://doi.org/10.2307/3546129

Caruso, T., Taormina, M., & Migliorini, M. (2012). Relative role of deterministic and stochastic determinants of soil animal community: A spatially explicit analysis of oribatid mites. Journal of Animal Ecology, 81(1), 214–221. https://doi.org/10.1111/j.1365-2656.2011.01886.x

Cavigelli, M. A., Maul, J. E., & Szlaveczs, K. (2012). Managing Soil Biodiversity and Ecosystem Services. In D. H. Wall, R. D. Bardgett, V. Behan-Pelletier, J. E. Herrick, T. H. Jones, K. Ritz, J. Six, D. R. Strong, & W. H. van der Putten (Eds.), Soil Ecology and Ecosystem Services (pp. 337–356). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199575923.003.0030

Cenci, R. M., & Sena, F. (Eds.). (2006). Bio-Bio Project: Based on conclusions from the International Workshop on Biodiversity-Bioindication to evaluate soil health, ISPRA 22 June 2006 Sala Michelangelo - ed. 26. Office for Official Publications of the European Communities.

Chagnon, M., Kreutzweiser, D., Mitchell, E. A. D., Morrissey, C. A., Noome, D. A., & Van der Sluijs, J. P. (2015). Risks of large-scale use of systemic insecticides to ecosystem functioning and services. Environmental Science and Pollution Research, 22(1), 119–134. https://doi.org/10.1007/s11356-014-3277-x

Chateil, C., Goldringer, I., Tarallo, L., Kerbiriou, C., Le Viol, I., Ponge, J.-F., Salmon, S., Gachet, S., & Porcher, E. (2013). Crop genetic diversity benefits farmland biodiversity in cultivated fields. Agriculture, Ecosystems & Environment, 171, 25–32. https://doi.org/10.1016/j.agee.2013.03.004

Chauvat, M., Wolters, V., & Dauber, J. (2007). Response of collembolan communities to land-use change and grassland succession. Ecography, 30(2), 183–192. https://doi.org/10.1111/j.0906-7590.2007.04888.x

Chisholm, P. J., Gardiner, M. M., Moon, E. G., & Crowder, D. W. (2014). Tools and techniques for investigating impacts of habitat complexity on biological control. Biological Control, 75, 48–57. https://doi.org/10.1016/j.biocontrol.2014.02.003

Chiverton, P. A. (1984). Pitfall-trap catches of the carabid beetle Pterostichus melanarius, in relation to gut contents and prey densities, in insecticide treated and untreated spring barley. Entomologia Experimentalis et Applicata, 36(1), 23–30. https://doi.org/10.1111/j.1570-7458.1984.tb03402.x

Chiverton, P. A., & Sotherton, N. W. (1991). The Effects of Beneficial Arthropods of the Exclusion of Herbicides from Cereal Crop Edges. Journal of Applied Ecology, 28(3), 1027–1039. https://doi.org/10.2307/2404223

Christensen, O. M., & Mather, J. G. (2004). Pesticide-induced surface migration by lumbricid earthworms in grassland: Life-stage and species differences. Ecotoxicology and Environmental Safety, 57(1), 89–99. https://doi.org/10.1016/j.ecoenv.2003.08.007

Christian, E., & Zicsi, A. (1999). Ein synoptischer Bestimmungsschlüssel der Regenwürmer Österreichs (Oligochaeta: Lumbricidae). 11.

Christou, P., Capell, T., Kohli, A., Gatehouse, J. A., & Gatehouse, A. M. R. (2006). Recent developments and future prospects in insect pest control in transgenic crops. Trends in Plant Science, 11(6), 302–308. https://doi.org/10.1016/j.tplants.2006.04.001

Clark, M. S., Luna, J. M., & Youngman, R. R. (1995). Estimation of adult carabid absolute densities in a no-till corn field by removal sampling. Applied Soil Ecology, 2, 185–193.

Clausing, P. (2021, March 15). Pestizide in der Luft, Quelle von Kontaminationen.

Clough, Y., Holzschuh, A., Gabriel, D., Purtauf, T., Kleijn, D., Kruess, A., Steffan-Dewenter, I., & Tscharntke, T. (2007). Alpha and beta diversity of arthropods and plants in organically and conventionally managed wheat fields. Journal of Applied Ecology, 44(4), 804–812. https://doi.org/10.1111/j.1365-2664.2007.01294.x

Clough, Y., Kruess, A., & Tscharntke, T. (2007). Organic versus conventional arable farming systems: Functional grouping helps understand staphylinid response. Agriculture, Ecosystems & Environment, 118(1), 285–290. https://doi.org/10.1016/j.agee.2006.05.028

Cluzeau, D., Guernion, M., Chaussod, R., Martin-Laurent, F., Villenave, C., Cortet, J., Ruiz-Camacho, N., Pernin, C., Mateille, T., Philippot, L., Bellido, A., Rougé, L., Arrouays, D., Bispo, A., & Pérès, G. (2012). Integration of biodiversity in soil quality monitoring: Baselines for microbial and soil fauna parameters for different land-use types. European Journal of Soil Biology, 49, 63–72. https://doi.org/10.1016/j.ejsobi.2011.11.003

Cole, L. J., Brocklehurst, S., Elston, D. A., & McCracken, D. I. (2012). Riparian field margins: Can they enhance the functional structure of ground beetle (Coleoptera: Carabidae) assemblages in intensively managed grassland landscapes? Journal of Applied Ecology, 49(6), 1384–1395. https://doi.org/10.1111/j.1365-2664.2012.02200.x

Cole, L. J., McCracken, D. I., Dennis, P., Downie, I. S., Griffin, A. L., Foster, G. N., Murphy, K. J., & Waterhouse, T. (2002). Relationships between agricultural management and ecological groups of ground beetles (Coleoptera: Carabidae) on Scottish farmland. Agriculture, Ecosystems & Environment, 93(1–3), 323–336. https://doi.org/10.1016/S0167-8809(01)00333-4

Cole, L. J., McCracken, D. I., Downie, I. S., Dennis, P., Foster, G. N., Waterhouse, T., Murphy, K. J., Griffin, A. L., & Kennedy, M. P. (2005). Comparing the effects of farming practices on ground beetle (Coleoptera: Carabidae) and spider (Araneae) assemblages of Scottish farmland. Biodiversity and Conservation, 14, 441–460.

Cole, L. J., Pollock, M. L., Robertson, D., Holland, J. P., & McCracken, D. I. (2006). Carabid (Coleoptera) assemblages in the Scottish uplands: The influence of sheep grazing on ecological structure. Entomologica Fennica, 17, 229–240.

Coleman, D. C. (2008). From peds to paradoxes: Linkages between soil biota and their influences on ecological processes. Soil Biology and Biochemistry, 40(2), 271–289. https://doi.org/10.1016/j.soilbio.2007.08.005

Collins, K. L., Boatman, N. D., Wilcox, A., & Holland, J. M. (2003a). A 5-year comparison of overwintering polyphagous predator densities within a beetle bank and two conventional hedgebanks. Annals of Applied Biology, 143(1), 63–71. https://doi.org/10.1111/j.1744-7348.2003.tb00270.x

Collins, K. L., Boatman, N. D., Wilcox, A., & Holland, J. M. (2003b). Effects of different grass treatments used to create overwintering habitat for predatory arthropods on arable farmland. Agriculture, Ecosystems & Environment, 96(1–3), 59–67. https://doi.org/10.1016/S0167-8809(03)00032-X

Collins, K. L., Boatman, N. D., Wilcox, A., Holland, J. M., & Chaney, K. (2002). Influence of beetle banks on cereal aphid predation in winter wheat. Agriculture, Ecosystems and Environment, 93, 337–350.

Concepción, E. D., Díaz, M., & Baquero, R. A. (2008). Effects of landscape complexity on the ecological effectiveness of agri-environment schemes. Landscape Ecology, 23(2), 135–148. https://doi.org/10.1007/s10980-007-9150-2

Cook, S. M. E., & Linden, D. R. (1996). Effect of food type and placement on earthworm (Aporrectodea tuberculata) burrowing and soil turnover. Biology and Fertility of Soils, 21(3), 201–206. https://doi.org/10.1007/BF00335936

Coombes, D. S., & Sotherton, N. W. (1986). The dispersal and distribution of polyphagous predatory Coleoptera in cereals. Annals of Applied Biology, 108(3), 461–474.

Corredor, B. B., Lang, B., & Russell, D. (2022). Effects of nitrogen fertilization on soil fauna in a global meta-analysis [Preprint]. In Review. https://doi.org/10.21203/rs.3.rs-1438491/v1

Cowan, R., & Gunby, P. (1996). Sprayed to Death: Path Dependence, Lock-in and Pest Control Strategies. The Economic Journal, 106(436), 521. https://doi.org/10.2307/2235561

Creamer, R. E., Hannula, S. E., Leeuwen, J. P. V., Stone, D., Rutgers, M., Schmelz, R. M., Ruiter, P. C. de, Hendriksen, N. B., Bolger, T., Bouffaud, M. L., Buee, M., Carvalho, F., Costa, D., Dirilgen, T., Francisco, R., Griffiths, B. S., Griffiths, R., Martin, F., Silva, P. M. da, … Lemanceau, P. (2016). Ecological network analysis reveals the inter-connection between soil biodiversity and ecosystem function as affected by land use across Europe. Applied Soil Ecology, 97, 112–124. https://doi.org/10.1016/j.apsoil.2015.08.006

Crossley, D. A., Mueller, B. R., & Perdue, J. C. (1992). Biodiversity of microarthropods in agricultural soils: Relations to processes. Agriculture, Ecosystems and Environment, 40, 37–46.

Crowther, T. W., Van Den Hoogen, J., Wan, J., Mayes, M. A., Keiser, A. D., Mo, L., Averill, C., & Maynard, D. S. (2019). The global soil community and its influence on biogeochemistry. Science, 365(6455), eaav0550. https://doi.org/10.1126/science.aav0550

Csaszar, P., Torma, A., Galle-Szpisjak, N., Tolgyesi, C., & Galle, R. (2018). Efficiency of pitfall traps with funnels and/or roofs in capturing ground-dwelling arthropods. European Journal of Entomology, 115, 15–24. https://doi.org/10.14411/eje.2018.003

Csuzdi, C., & Zicsi, A. (2003). Earthworms of Hungary (Annelida: Oligochaeta, Lumbricidae). Hungarian Natural History Museum. https://doi.org/10.5281/zenodo.4309820

Culman, S. W., Young-Mathews, A., Hollander, A. D., Ferris, H., Sánchez-Moreno, S., O'Geen, A. T., & Jackson, L. E. (2010). Biodiversity is associated with indicators of soil ecosystem functions over a landscape gradient of agricultural intensification. Landscape Ecology, 25(9), 1333–1348. https://doi.org/10.1007/s10980-010-9511-0

Curry, J. P., Byrne, D., & Boyle, K. E. (1995). The earthworm population of a winter cereal field and its effects on soil and nitrogen turnover. Biology and Fertility of Soils, 19(2–3), 166–172. https://doi.org/10.1007/BF00336154

Curry, J. P., & Schmidt, O. (2007). The feeding ecology of earthworms – A review. Pedobiologia, 50(6), 463–477. https://doi.org/10.1016/j.pedobi.2006.09.001

Dachbrodt-Saaydeh, S., Sellmann, J., & Roßberg, D. (2019). Cluster zur regionalen Erhebung und Analyse der Pflanzenschutzintensität (CEPI) im Ackerbau. Journal für Kulturpflanzen, 264-270 Seiten. https://doi.org/10.5073/JFK.2019.10.02

Daghighi Masouleh, E. (2017). Soil Ecology: Long-term development of Collembola communities on a former rubble deposit [PhD Thesis]. Universität Bremen.

Dahms, H., Mayr, S., Birkhofer, K., Chauvat, M., Melnichnova, E., Wolters, V., & Dauber, J. (2010). Contrasting diversity patterns of epigeic arthropods between grasslands of high and low agronomic potential. Basic and Applied Ecology, 11(1), 6–14. https://doi.org/10.1016/j.baae.2009.06.004

Daly, T., & Buntin, G. D. (2005). Effect of Bacillus thuringiensis Transgenic Corn for Lepidopteran Control on Nontarget Arthropods. ENVIRONMENTAL ENTOMOLOGY, 34(5), 10.

Daniel, O. (1991). Leaf-litter consumption and assimilation by juveniles of Lumbricus terrestris L. (Oligochaeta, Lumbricidae) under different environmental conditions. Biology and Fertility of Soils, 12(3), 202–208. https://doi.org/10.1007/BF00337203

Daniel, O. (1992). Population dynamics of Lumbricus terrestris L. (oligochaeta:lumbricidae) in a meadow. Soil Biology and Biochemistry, 24(12), 1425–1431. https://doi.org/10.1016/0038-0717(92)90128-K

Dauber, J., Purtauf, T., Allspach, A., Frisch, J., Voigtländer, K., & Wolters, V. (2005). Local vs. landscape controls on diversity: A test using surface-dwelling soil macroinvertebrates of differing mobility. Global Ecology and Biogeography, 14(3), 213–221. https://doi.org/10.1111/j.1466-822X.2005.00150.x

Davey, J. S., Vaughan, I. P., King, R. A., Bell, J. R., Bohan, D. A., Bruford, M. W., Holland, J. M., & Symondson, W. O. C. (2013). Intraguild predation in winter wheat: Prey choice by a common epigeal carabid consuming spiders. Journal of Applied Ecology, 50(1), 271–279. https://doi.org/10.1111/1365-2664.12008

de Bello, F., Lavorel, S., Díaz, S., Harrington, R., Cornelissen, J. H. C., Bardgett, R. D., Berg, M. P., Cipriotti, P., Feld, C. K., Hering, D., Martins da Silva, P., Potts, S. G., Sandin, L., Sousa, J. P., Storkey, J., Wardle, D. A., & Harrison, P. A. (2010). Towards an assessment of multiple ecosystem processes and services via functional traits. Biodiversity and Conservation, 19(10), 2873–2893. https://doi.org/10.1007/s10531-010-9850-9

De Cáceres, M., & Legendre, P. (n.d.). Associations between species and groups of sites: Indices and statistical inference. Ecology, 90, 3566–3574.

De Deyn, G. B., Raaijmakers, C. E., Zoomer, H. R., Berg, M. P., de Ruiter, P. C., Verhoef, H. A., Bezemer, T. M., & van der Putten, W. H. (2003). Soil invertebrate fauna enhances grassland succession and diversity. Nature, 422(6933), 711–713. https://doi.org/10.1038/nature01548

De Graaff, M.-A., Adkins, J., Kardol, P., & Throop, H. L. (2015). A meta-analysis of soil biodiversity impacts on the carbon cycle. SOIL, 1(1), 257–271. https://doi.org/10.5194/soil-1-257-2015

de Graaff, M.-A., Hornslein, N., Throop, H. L., Kardol, P., & van Diepen, L. T. A. (2019). Chapter One - Effects of agricultural intensification on soil biodiversity and implications for ecosystem functioning: A meta-analysis. In D. L. Sparks (Ed.), Advances in Agronomy (Vol. 155, pp. 1–44). Academic Press. https://doi.org/10.1016/bs.agron.2019.01.001

de la Poza, M., Pons, X., Farinós, G. P., López, C., Ortego, F., Eizaguirre, M., Castañera, P., & Albajes, R. (2005). Impact of farm-scale Bt maize on abundance of predatory arthropods in Spain. Crop Protection, 24(7), 677–684. https://doi.org/10.1016/j.cropro.2004.12.003

de Ridder-Duine, A. S., Smant, W., van der Wal, A., van Veen, J. A., & de Boer, W. (2006). Evaluation of a simple, non-alkaline extraction protocol to quantify soil ergosterol. Pedobiologia, 50(4), 293–300. https://doi.org/10.1016/j.pedobi.2006.03.004

de Vaufleury, A., Kramarz, P. E., Binet, P., Cortet, J., Caul, S., Andersen, M. N., Plumey, E., Coeurdassier, M., & Krogh, P. H. (2007). Exposure and effects assessments of Bt-maize on non-target organisms (gastropods, microarthropods, mycorrhizal fungi) in microcosms. Pedobiologia, 51(3), 185–194. https://doi.org/10.1016/j.pedobi.2007.04.005

De Wandeler, H., Sousa-Silva, R., Ampoorter, E., Bruelheide, H., Carnol, M., Dawud, S. M., Dănilă, G., Finer, L., Hättenschwiler, S., Hermy, M., Jaroszewicz, B., Joly, F.-X., Müller, S., Pollastrini, M., Ratcliffe, S., Raulund-Rasmussen, K., Selvi, F., Valladares, F., Van Meerbeek, K., … Muys, B. (2016). Drivers of earthworm incidence and abundance across European forests. Soil Biology and Biochemistry, 99, 167–178. https://doi.org/10.1016/j.soilbio.2016.05.003

Decaëns, T. (2010). Macroecological patterns in soil communities: Soil community macroecology. Global Ecology and Biogeography, 19(3), 287–302. https://doi.org/10.1111/j.1466-8238.2009.00517.x

Dedeyn, G., & Vanderputten, W. (2005). Linking aboveground and belowground diversity. Trends in Ecology & Evolution, 20(11), 625–633. https://doi.org/10.1016/j.tree.2005.08.009

Dehelean, S.-B., Houdt, C. V., Bree, E. D., Faraji, F., Delhem, R., Grove, A., Roig, J., & Bakker, F. (2016). Stratification of soil arthropods in top soil layers. https://doi.org/10.13140/RG.2.1.1661.1444

Delgado-Baquerizo, M., Reich, P. B., Trivedi, C., Eldridge, D. J., Abades, S., Alfaro, F. D., Bastida, F., Berhe, A. A., Cutler, N. A., Gallardo, A., García-Velázquez, L., Hart, S. C., Hayes, P. E., He, J.-Z., Hseu, Z.-Y., Hu, H.-W., Kirchmair, M., Neuhauser, S., Pérez, C. A., … Singh, B. K. (2020). Multiple elements of soil biodiversity drive ecosystem functions across biomes. Nature Ecology & Evolution, 4(2), 210–220. https://doi.org/10.1038/s41559-019-1084-y

Den Boer, P. J., & Van Dijk, T. S. (1994). Carabid beetles in a changing environment. Wageningen Agricultural University Papers, 94(6), 30.

Dennis, P., & Fry, G. L. A. (1992). Field margins: Can they enhance natural enemy population densities and general arthropod diversity on farmland? Agriculture, Ecosystems & Environment, 40(1), 95–115. https://doi.org/10.1016/0167-8809(92)90086-Q

Dennis, P., Thomas, M. B., & Sotherton, N. W. (1994). Structural Features of Field Boundaries Which Influence the Overwintering Densities of Beneficial Arthropod Predators. The Journal of Applied Ecology, 31(2), 361. https://doi.org/10.2307/2404550

Denys, C., & Tscharntke, T. (2002). Plant-insect communities and predator-prey ratios in field margin strips, adjacent crop fields, and fallows. Oecologia, 130(2), 315–324. https://doi.org/10.1007/s004420100796

Desender, K., & Alderweireldt, M. (1988). Population dynamics of adult and larval Carabid beetles in a maize field and its boundary. Journal of Applied Entomology, 106(1–5), 13–19. https://doi.org/10.1111/j.1439-0418.1988.tb00559.x

Desender, K., Alderweireldt, M., & Pollet, M. (1989). Field edges and their importance for polyphagous predatory arthropods. Med. Fac. Landbouww. Rijksuniv. Gent, 54, 823–833.

Desender, K., & Turin, H. (1989). Loss of habitats and changes in the composition of the ground and tiger beetle fauna in four West European countries since 1950 (Coleoptera: Carabidae, cicindelidae). Biological Conservation, 48(4), 277–294. https://doi.org/10.1016/0006-3207(89)90103-1

Dewar, A. M., May, M. J., Woiwod, I. P., Haylock, L. A., Champion, G. T., Garner, B. H., Sands, R. J. N., Qi, A., & Pidgeon, J. D. (2003). A novel approach to the use of genetically modified herbicide tolerant crops for environmental benefit. Proceedings of the Royal Society of London. Series B: Biological Sciences, 270(1513), 335–340. https://doi.org/10.1098/rspb.2002.2248

Di Giulio, M., Edwards, P. J., & Meister, E. (2001). Enhancing insect diversity in agricultural grasslands: The roles of management and landscape structure: Insect diversity in agricultural grasslands. Journal of Applied Ecology, 38(2), 310–319. https://doi.org/10.1046/j.1365-2664.2001.00605.x

Díaz, S., Lavorel, S., McINTYRE, S., Falczuk, V., Casanoves, F., Milchunas, D. G., Skarpe, C., Rusch, G., Sternberg, M., Noy-Meir, I., Landsberg, J., Zhang, W., Clark, H., & Campbell, B. D. (2007). Plant trait responses to grazing? A global synthesis. Global Change Biology, 13(2), 313–341. https://doi.org/10.1111/j.1365-2486.2006.01288.x

Diekötter, T., Billeter, R., & Crist, T. O. (2008). Effects of landscape connectivity on the spatial distribution of insect diversity in agricultural mosaic landscapes. Basic and Applied Ecology, 9(3), 298–307. https://doi.org/10.1016/j.baae.2007.03.003

Diekötter, T., Wamser, S., Wolters, V., & Birkhofer, K. (2010). Landscape and management effects on structure and function of soil arthropod communities in winter wheat. Agriculture, Ecosystems & Environment, 137(1), 108–112. https://doi.org/10.1016/j.agee.2010.01.008

Ditner, N., Balmer, O., Beck, J., Blick, T., Nagel, P., & Luka, H. (2013). Effects of experimentally planting non-crop flowers into cabbage fields on the abundance and diversity of predators. Biodiversity and Conservation, 22(4), 1049–1061. https://doi.org/10.1007/s10531-013-0469-5

Dittbrenner, N., Moser, I., Triebskorn, R., & Capowiez, Y. (2011). Assessment of short and long-term effects of imidacloprid on the burrowing behaviour of two earthworm species (Aporrectodea caliginosa and Lumbricus terrestris) by using 2D and 3D post-exposure techniques. Chemosphere, 84(10), 1349–1355. https://doi.org/10.1016/j.chemosphere.2011.05.011

Dittbrenner, N., Triebskorn, R., Moser, I., & Capowiez, Y. (2010). Physiological and behavioural effects of imidacloprid on two ecologically relevant earthworm species (Lumbricus terrestris and Aporrectodea caliginosa). Ecotoxicology, 19(8), 1567–1573. https://doi.org/10.1007/s10646-010-0542-8

Dittmer, S., & Schrader, S. (2000). Longterm effects of soil compaction and tillage on Collembola and straw decomposition in arable soil. Pedobiologia, 44(3–4), 527–538. https://doi.org/10.1078/S0031-4056(04)70069-4

Ditzler, C. A., & Tugel, A. J. (2002). Soil Quality Field Tools. Agronomy Journal, 94(1), 33–38. https://doi.org/10.2134/agronj2002.3300

Donn, S., Neilson, R., Griffiths, B. S., & Daniell, T. J. (2012). A novel molecular approach for rapid assessment of soil nematode assemblages – variation, validation and potential applications. Methods in Ecology and Evolution, 3(1), 12–23. https://doi.org/10.1111/j.2041-210X.2011.00145.x

Doran, J. W., & Parkin, T. B. (1997). Quantitative Indicators of Soil Quality: A Minimum Data Set. In Methods for Assessing Soil Quality (pp. 25–37). John Wiley & Sons, Ltd. https://doi.org/10.2136/sssaspecpub49.c2

Doran, J. W., & Zeiss, M. R. (2000). Soil health and sustainability: Managing the biotic component of soil quality. Applied Soil Ecology, 15(1), 3–11. https://doi.org/10.1016/S0929-1393(00)00067-6

Döring, T. F., Hiller, A., Wehke, S., Schulte, G., & Broll, G. (2003). Biotic indicators of carabid species richness on organically and conventionally managed arable fields. Agriculture, Ecosystems & Environment, 98(1–3), 133–139. https://doi.org/10.1016/S0167-8809(03)00075-6

Döring, T. F., & Kromp, B. (2003). Which carabid species benefit from organic agriculture?—A review of comparative studies in winter cereals from Germany and Switzerland. Agriculture, Ecosystems & Environment, 98(1), 153–161. https://doi.org/10.1016/S0167-8809(03)00077-X

Dorow, W. H. O., Blick, T., Pauls, S. U., & Schneider, A. (2019). Waldbindung ausgewählter Tiergruppen Deutschlands. Bundesamt für Naturschutz. https://doi.org/10.19217/skr544

Doube, B. M., Schmidt, O., & Correll, R. (1997). Influence of mineral soil on the palatability of organic matter for lumbricid earthworms: A simple food preference study. Soil Biology and Biochemistry, 29(3), 569–575.

Drapela, T., Moser, D., Zaller, J. G., & Frank, T. (2008). Spider assemblages in winter oilseed rape affected by landscape and site factors. Ecography, 31(2), 254–262. https://doi.org/10.1111/j.0906-7590.2008.5250.x

Drexler, S., Broll, G., & Don, A. (2020). Standorttypische Humusgehalte landwirtschaftlich genutzter Böden Deutschlands. Johann Heinrich von Thünen-Institut. https://doi.org/10.3220/REP1583152694000

Drobnik, J., Finck, P., & Riecken, U. (2013). Die Bedeutung von Korridoren im Hinblick auf die Umsetzung des länderübergreifenden Biotopverbundes in Deutschland (Flur). BfN Bundesamt für Naturschutz.

Dudley, N., & Alexander, S. (2017). Agriculture and biodiversity: A review. Biodiversity, 18(2–3), 45–49. https://doi.org/10.1080/14888386.2017.1351892

Dudley, N., Attwood, S. J., Goulson, D., Jarvis, D., Bharucha, Z. P., & Pretty, J. (2017). How should conservationists respond to pesticides as a driver of biodiversity loss in agroecosystems? Biological Conservation, 209, 449–453. https://doi.org/10.1016/j.biocon.2017.03.012

Duelli, P., & Obrist, M. K. (2003). Regional biodiversity in an agricultural landscape: The contribution of seminatural habitat islands. Basic and Applied Ecology, 4(2), 129–138. https://doi.org/10.1078/1439-1791-00140

Duelli, P., Obrist, M. K., & Schmatz, D. R. (1999). Biodiversity evaluation in agricultural landscapes: Above-ground insects. Agriculture, Ecosystems & Environment, 74(1), 33–64. https://doi.org/10.1016/S0167-8809(99)00029-8

Duelli, P., Studer, M., Marchand, I., & Jakob, S. (1990). Population movements of arthropods between natural and cultivated areas. Biological Conservation, 54(3), 193–207. https://doi.org/10.1016/0006-3207(90)90051-P

Duflot, R., Aviron, S., Ernoult, A., Fahrig, L., & Burel, F. (2015). Reconsidering the role of 'semi-natural habitat' in agricultural landscape biodiversity: A case study. Ecological Research, 30(1), 75–83. https://doi.org/10.1007/s11284-014-1211-9

Duflot, R., Ernoult, A., Burel, F., & Aviron, S. (2016). Landscape level processes driving carabid crop assemblage in dynamic farmlands. Population Ecology, 58(2), 265–275. https://doi.org/10.1007/s10144-015-0534-x

Dufrêne, M., & Legendre, P. (1997). Species Assemblages and Indicator Species:the Need for a Flexible Asymmetrical Approach. Ecological Monographs, 67(3), 345–366. https://doi.org/10.1890/0012-9615(1997)067[0345:SAAIST]2.0.CO;2

Durner, W. (2012). Bodenansprache und Probenahme. Institut für Geoökologie, Abteilung Bodenkunde und Bodenphysik, TU Braunschweig. http://www.soil.tu-bs.de/lehre/Skripte/2012.Skript.Probenahme.Boku.pdf

Eckert, J., Schuphan, U. D. I., & Bartsch, P. D. D. (2006). Effekte des Anbaus von Bt-Mais auf Nichtzielarthropoden der Krautschichtfauna–Monitoringorganismen und praktikable Erfassungsmethoden [PhD Thesis]. Dissertation RWTH-Aachen.

Edwards, C. A., & Bohlen, P. J. (1996). Biology and Ecology of Earthworms. Springer Science & Business Media.

Edwards, C. A., & Lofty, J. R. (1977). Biology of earthworms (2. ed). Chapman and Hall.

Edwards, C. A., & Thompson, A. R. (1973). Pesticides and the soil fauna. In F. A. Gunther & J. D. Gunther (Eds.), Residue Reviews: Residues of Pesticides and Other Contaminants in the Total Environment (pp. 1–79). Springer. https://doi.org/10.1007/978-1-4615-8493-3_1

EEA. (1999). Environmental indicators: Typology and overview (Technical Report No 25). European Environment Agency. https://www.eea.europa.eu/publications/TEC25

EEA. (2023). Soil monitoring in Europe – Indicators and thresholds for soil health assessments—European Environment Agency. https://www.eea.europa.eu/publications/soil-monitoring-in-europe

EFSA. (2010). Scientific Opinion on the development of a soil ecoregions concept using distribution data on invertebrates: Development of a soil ecoregions concept. EFSA Journal, 8(10), 1820. https://doi.org/10.2903/j.efsa.2010.1820

EFSA. (2015). Peer review of the pesticide risk assessment of the active substance glyphosate. EFSA Journal 2015, 13(11), 107 pp. https://doi.org/10.2903/j.efsa.2015.4302

EFSA PPR Panel. (2017). Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms. EFSA Journal, 15(2). https://doi.org/10.2903/j.efsa.2017.4690

Eggleton, P., Inward, K., Smith, J., Jones, D. T., & Sherlock, E. (2009). A six year study of earthworm (Lumbricidae) populations in pasture woodland in southern England shows their responses to soil temperature and soil moisture. Soil Biology and Biochemistry, 41(9), 1857–1865. https://doi.org/10.1016/j.soilbio.2009.06.007

Eichenberg, D., Bowler, D. E., Bonn, A., Bruelheide, H., Grescho, V., Harter, D., Jandt, U., May, R., Winter, M., & Jansen, F. (2021). Widespread decline in Central European plant diversity across six decades. Global Change Biology, 27(5), 1097–1110. https://doi.org/10.1111/gcb.15447

Eisenhauer, N. (2010). The action of an animal ecosystem engineer: Identification of the main mechanisms of earthworm impacts on soil microarthropods. Pedobiologia, 53(6), 343–352. https://doi.org/10.1016/j.pedobi.2010.04.003

Eisenhauer, N., Bonn, A., & A. Guerra, C. (2019). Recognizing the quiet extinction of invertebrates. Nature Communications, 10(1), 50. https://doi.org/10.1038/s41467-018-07916-1

Eisenhauer, N., Cesarz, S., Koller, R., Worm, K., & Reich, P. B. (2012). Global change belowground: Impacts of elevated CO2, nitrogen, and summer drought on soil food webs and biodiversity. Global Change Biology, 18(2), 435–447. https://doi.org/10.1111/j.1365-2486.2011.02555.x

Eisenhauer, N., Reich, P. B., & Isbell, F. (2012). Decomposer diversity and identity influence plant diversity effects on ecosystem functioning. Ecology, 93(10), 2227–2240. https://doi.org/10.1890/11-2266.1

Ekroos, J., Olsson, O., Rundlöf, M., Wätzold, F., & Smith, H. G. (2014). Optimizing agri-environment schemes for biodiversity, ecosystem services or both? Biological Conservation, 172, 65–71. https://doi.org/10.1016/j.biocon.2014.02.013

Ekschmitt, K., Weber, M., & Wolters, V. (1997). Spiders, Carabids, and Staphylinids: The Ecological Potential of Predatory Macroarthropods. In Fauna in Soil Ecosystems. CRC Press.

Ellis, S. R., Hodson, M. E., & Wege, P. (2007). The influence of different artificial soil types on the acute toxicity of carbendazim to the earthworm Eisenia fetida in laboratory toxicity tests. European Journal of Soil Biology, 43, S239–S245. https://doi.org/10.1016/j.ejsobi.2007.08.023

Erdmann, G., Scheu, S., & Maraun, M. (2012). Regional factors rather than forest type drive the community structure of soil living oribatid mites (Acari, Oribatida). Experimental and Applied Acarology, 57(2), 157–169. https://doi.org/10.1007/s10493-012-9546-9

Eriksen-Hamel, N. S., & Whalen, J. K. (2006). Growth rates of Aporrectodea caliginosa (Oligochaetae: Lumbricidae) as influenced by soil temperature and moisture in disturbed and undisturbed soil columns. Pedobiologia, 50(3), 207–215. https://doi.org/10.1016/j.pedobi.2005.10.008

Eriksen-Hamel, N. S., & Whalen, J. K. (2007). Competitive interactions affect the growth of Aporrectodea caliginosa and Lumbricus terrestris (Oligochaeta: Lumbricidae) in single- and mixed-species laboratory cultures. European Journal of Soil Biology, 43(3), 142–150. https://doi.org/10.1016/j.ejsobi.2006.11.005

Eschen, R., Brook, A. J., Maczey, N., Bradbury, A., Mayo, A., Watts, P., Buckingham, D., Wheeler, K., & Peach, W. J. (2012). Effects of reduced grazing intensity on pasture vegetation and invertebrates. Agriculture, Ecosystems & Environment, 151, 53–60. https://doi.org/10.1016/j.agee.2012.01.017

Eskelson, M. J., Chapman, E. G., Archbold, D. D., Obrycki, J. J., & Harwood, J. D. (2011). Molecular identification of predation by carabid beetles on exotic and native slugs in a strawberry agroecosystem. Biological Control, 56(3), 245–253. https://doi.org/10.1016/j.biocontrol.2010.11.004

European Commission. (2020). MISSION CARING FOR SOIL IS CARING FOR LIFE. Ensure 75% of soils are healthy by 2030 for healthy food, people, nature and climate. 40.

European Commission. (2022). A Soil Deal for Europe. 100 living labs and lighthouses to lead the transition towards healthy soils by 2030. Implementation Plan.

European Commission & Directorate-General for the Environment. (2010). Soil biodiversity: Functions, threats and tools for policy makers. Final report. European Commission. http://dx.publications.europa.eu/10.2779/14571

European Environment Agency & Museum national d'Histoire naturelle (MNHN). (2014). Terrestrial habitat mapping in Europe: An overview. Publications Office. https://data.europa.eu/doi/10.2800/11055

European Network of Heads of Nature Conservation Agencies (ENCA). (2023). Integrating Soil Biodiversity Conservation into Sustainable Land Use. ENCA Engagement piece.

Ewald, J. A., Potts, G. R., Aebischer, N. J., Moreby, S. J., Wheatley, C. J., & Burrell, R. A. (2024). Fifty years of monitoring changes in the abundance of invertebrates in the cereal ecosystem of the Sussex Downs, England. Insect Conservation and Diversity, icad.12742. https://doi.org/10.1111/icad.12742

Ewald, J. A., Wheatley, C. J., Aebischer, N. J., Moreby, S. J., Duffield, S. J., Crick, H. Q. P., & Morecroft, M. B. (2015). Influences of extreme weather, climate and pesticide use on invertebrates in cereal fields over 42 years. Global Change Biology, 21(11), 3931–3950. https://doi.org/10.1111/gcb.13026

Eyre, M. D., Luff, M. L., Atlihan, R., & Leifert, C. (2012). Ground beetle species (Carabidae, Coleoptera) activity and richness in relation to crop type, fertility management and crop protection in a farm management comparison trial. Annals of Applied Biology, 161, 169–179.

Eyre, M. D., Luff, M. L., & Leifert, C. (2013). Crop, field boundary, productivity and disturbance influences on ground beetles (Coleoptera, Carabidae) in the agroecosystem. Agriculture, Ecosystems & Environment, 165, 60–67. https://doi.org/10.1016/j.agee.2012.12.009

Eyre, M. D., Rushton, S. P., Luff, M. L., & Telfer, M. G. (2005). Investigating the relationships between the distribution of British ground beetle species (Coleoptera, Carabidae) and temperature, precipitation and altitude: British ground beetles, temperature, precipitation and altitude. Journal of Biogeography, 32(6), 973–983. https://doi.org/10.1111/j.1365-2699.2005.01258.x

Eyre, M. D., Sanderson, R. A., McMillan, S. D., & Critchley, C. N. R. (2016). Crop cover the principal influence on non-crop ground beetle (Coleoptera, Carabidae) activity and assemblages at the farm scale in a long-term assessment. Bulletin of Entomological Research, 106(2), 242–248. https://doi.org/10.1017/S0007485315001054

Faber, J. H., Creamer, R. E., Mulder, C., Römbke, J., Rutgers, M., Sousa, J. P., Stone, D., & Griffiths, B. S. (2013). The practicalities and pitfalls of establishing a policy-relevant and cost-effective soil biological monitoring scheme. Integrated Environmental Assessment and Management, 9(2), 276–284. https://doi.org/10.1002/ieam.1398

Fahrig, L. (2003). Effects of Habitat Fragmentation on Biodiversity. Annual Review of Ecology, Evolution, and Systematics, 34(1), 487–515. https://doi.org/10.1146/annurev.ecolsys.34.011802.132419

Fahrig, L., Baudry, J., Brotons, L., Burel, F. G., Crist, T. O., Fuller, R. J., Sirami, C., Siriwardena, G. M., & Martin, J.-L. (2011). Functional landscape heterogeneity and animal biodiversity in agricultural landscapes. Ecology Letters, 14(2), 101–112. https://doi.org/10.1111/j.1461-0248.2010.01559.x

Fahrig, L., Girard, J., Duro, D., Pasher, J., Smith, A., Javorek, S., King, D., Lindsay, K. F., Mitchell, S., & Tischendorf, L. (2015). Farmlands with smaller crop fields have higher within-field biodiversity. Agriculture, Ecosystems & Environment, 200, 219–234. https://doi.org/10.1016/j.agee.2014.11.018

FAO. (2006). Guidelines for soil description (4th ed.).

FAO, & ITPS. (2017). Global assessment of the impact of plant protection products on soil functions and soil ecosystems (p. 40). FAO. http://www.fao.org/3/i8168en/I8168EN.pdf

FAO, ITPS, GSBI, SCBD, & EC. (2020). State of knowledge of soil biodiversity—Status, challenges and potentialities. FAO. https://doi.org/10.4060/cb1928en

Farinós, G. P., de la Poza, M., Hernández-Crespo, P., Ortego, F., & Castañera, P. (2008). Diversity and seasonal phenology of aboveground arthropods in conventional and transgenic maize crops in Central Spain. Biological Control, 44(3), 362–371. https://doi.org/10.1016/j.biocontrol.2007.11.007

Fartmann, T. (2017). Überleben in fragmentierten Landschaften. Grundlagen für den Schutz der Biodiversität Mitteleuropas in Zeiten des globalen Wandels. Naturschutz Und Landschaftsplanung, 49(9), 277–282.

Fartmann, T., Jedicke, E., Stuhldreher, G., & Streitberger, M. (with Helbing, F., Münsch, T., Poniatowski, D., Seitz, A., Kiel, E.-F., & Kaiser, M.). (2021). Insektensterben in Mitteleuropa: Ursachen und Gegenmaßnahmen (Flur). Eugen Ulmer KG.

Feber, R. E., Bell, J., Johnson, P. J., Firbank, L. G., & MacDonald, D. W. (1998). The Effects of Organic Farming on Surface-Active Spider (Araneae) Assemblages in Wheat in Southern England, UK. The Journal of Arachnology, 26(2), 190–202.

Feehan, J., Gillmor, D. A., & Culleton, N. (2005). Effects of an agri-environment scheme on farmland biodiversity in Ireland. Agriculture, Ecosystems & Environment, 107(2), 275–286. https://doi.org/10.1016/j.agee.2004.10.024

Feit, U., & Korn, H. (Eds.). (2011). Treffpunkt Biologische Vielfalt X. Interdisziplinärer Forschungsaustausch im Rahmen des Übereinkommens über die biologische Vielfalt. BfN-Skripten, 289, 220.

Feld, C. K., Silva, P. M. da, Sousa, J. P., Bello, F. D., Bugter, R., Grandin, U., Hering, D., Lavorel, S., Mountford, O., Pardo, I., Pärtel, M., Römbke, J., Sandin, L., Jones, K. B., & Harrison, P. (2009). Indicators of biodiversity and ecosystem services: A synthesis across ecosystems and spatial scales. Oikos, 118(12), 1862–1871. https://doi.org/10.1111/j.1600-0706.2009.17860.x

Fenchel, T., & Finlay, B. J. (2004). The Ubiquity of Small Species: Patterns of Local and Global Diversity. BioScience, 54(8), 777. https://doi.org/10.1641/0006-3568(2004)054[0777:TUOSSP]2.0.CO;2

Fernandez-Gnecco, G., Covacevich, F., Consolo, V. F., Behr, J. H., Sommermann, L., Moradtalab, N., Maccario, L., Sørensen, S. J., Deubel, A., Schellenberg, I., Geistlinger, J., Neumann, G., Grosch, R., Smalla, K., & Babin, D. (2022). Effect of Long-Term Agricultural Management on the Soil Microbiota Influenced by the Time of Soil Sampling. Frontiers in Soil Science, 2, 837508. https://doi.org/10.3389/fsoil.2022.837508

Ferris, H. (2010). Form and function: Metabolic footprints of nematodes in the soil food web. European Journal of Soil Biology, 46(2), 97–104. https://doi.org/10.1016/j.ejsobi.2010.01.003

Ferris, H., Bongers, T., & de Goede, R. G. M. (2001). A framework for soil food web diagnostics: Extension of the nematode faunal analysis concept. Applied Soil Ecology, 18(1), 13–29. https://doi.org/10.1016/S0929-1393(01)00152-4

Ferris, H., & Tuomisto, H. (2015). Unearthing the role of biological diversity in soil health. Soil Biology and Biochemistry, 85, 101–109. https://doi.org/10.1016/j.soilbio.2015.02.037

FiBL Switzerland. (n.d.). FiBL - Frick trial on preparations and soil. Retrieved 2 December 2021, from https://www.fibl.org/en/locations/switzerland/departments/soil-sciences/bw-projekte/frick-trial-on-preparations

FiBL Switzerland (Ed.). (2001). Bio fördert Bodenfruchtbarkeit und Artenvielfalt (3. ed).

Fierer, N., Barberán, A., & Laughlin, D. C. (2014). Seeing the forest for the genes: Using metagenomics to infer the aggregated traits of microbial communities. Frontiers in Microbiology, 5. https://doi.org/10.3389/fmicb.2014.00614

Filazzola, A., Brown, C., Dettlaff, M. A., Batbaatar, A., Grenke, J., Bao, T., Peetoom Heida, I., & Cahill Jr, J. F. (2020). The effects of livestock grazing on biodiversity are multi-trophic: A meta-analysis. Ecology Letters, 23(8), 1298–1309. https://doi.org/10.1111/ele.13527

Filser, J. (1992). Dynamik der Collembolengesellschaften als Indikatoren für bewirtschaftungsbedingte Bodenbelastungen. Verlag Shaker.

Filser, J. (2000, 3.3). Sinn und Unsinn der Bewertung von Standorteigenschaften mit Mesofaunagemeinschaften. Bewertung von Mesofauna-Gemeinschaften Für Standort-Eigenschaften. 16. Jahrestreffen der AG Bodenmesofauna, Innsbruck, Österreich.

Filser, J., Faber, J. H., Tiunov, A. V., Brussaard, L., Frouz, J., De Deyn, G., Uvarov, A. V., Berg, M. P., Lavelle, P., Loreau, M., Wall, D. H., Querner, P., Eijsackers, H., & Jiménez, J. J. (2016). Soil fauna: Key to new carbon models. SOIL, 2(4), 565–582. https://doi.org/10.5194/soil-2-565-2016

Filser, J., & Fromm, H. (1995). The Vertical Distribution of Collembola in an Agricultural Landscape. Bulletin Entomologique de Pologne, 64, 99–112.

Filser, J., Mebes, K.-H., Winter, K., Lang, A., & Kampichler, C. (2002). Long-term dynamics and interrelationships of soil Collembola and microorganisms in an arable landscape following land use change. Geoderma, 105(3–4), 201–221. https://doi.org/10.1016/S0016-7061(01)00104-5

Finke, D. L., & Denno, R. F. (2004). Predator diversity dampens trophic cascades. Nature, 429(6990), 407–410. https://doi.org/10.1038/nature02554

Finke, D. L., & Denno, R. F. (2006). Spatial refuge from intraguild predation: Implications for prey suppression and trophic cascades. Oecologia, 149(2), 265–275. https://doi.org/10.1007/s00442-006-0443-y

Firbank, L. G. (2005). Striking a new balance between agricultural production and biodiversity. Annals of Applied Biology, 146(2), 163–175. https://doi.org/10.1111/j.1744-7348.2005.040078.x

Firbank, L. G., Perry, J. N., Squire, G. R., Bohan, D. A., Brooks, D. R., Champion, G. T., Clark, S. J., Daniels, R. E., Dewar, A. M., Haughton, A. J., Hawes, C., Heard, M. S., Hill, M. O., May, M. J., Osborne, J. L., Rothery, P., Roy, D. B., Scott, R. J., & Woiwod, I. P. (2003). The implications of spring-sown genetically modified herbicide-tolerant crops for farmland biodiversity. The Stationery Office.

Fischer, C., Roscher, C., Jensen, B., Eisenhauer, N., Baade, J., Attinger, S., Scheu, S., Weisser, W. W., Schumacher, J., & Hildebrandt, A. (2014). How Do Earthworms, Soil Texture and Plant Composition Affect Infiltration along an Experimental Plant Diversity Gradient in Grassland? PLOS ONE, 9(6), e98987. https://doi.org/10.1371/journal.pone.0098987

Fischer, M., Bossdorf, O., Gockel, S., Hänsel, F., Hemp, A., Hessenmöller, D., Korte, G., Nieschulze, J., Pfeiffer, S., Prati, D., Renner, S., Schöning, I., Schumacher, U., Wells, K., Buscot, F., Kalko, E. K. V., Linsenmair, K. E., Schulze, E.-D., & Weisser, W. W. (2010). Implementing large-scale and long-term functional biodiversity research: The Biodiversity Exploratories. Basic and Applied Ecology, 11(6), 473–485. https://doi.org/10.1016/j.baae.2010.07.009

Fjellberg, A. (1998). The Collembola of Fennoscandia and Denmark. Part I: Poduromorpha. In Fauna Entomologica Scandinavica (Vol. 38, p. 184). Brill.

Fjellberg, A. (2007). The Collembola of Fennoscandia and Denmark. Part II: Entomobryomorpha and Symphypleona. In Fauna Entomologica Scandinavica (Vol. 42, p. 264). Brill.

Fließbach, A., Oberholzer, H.-R., Gunst, L., & Mäder, P. (2007). Soil organic matter and biological soil quality indicators after 21 years of organic and conventional farming. Agriculture, Ecosystems & Environment, 118(1), 273–284. https://doi.org/10.1016/j.agee.2006.05.022

Floate, K. D., Cárcamo, H. A., Blackshaw, R. E., Postman, B., & Bourassa, S. (2007). Response of Ground Beetle (Coleoptera: Carabidae) Field Populations to Four Years of Lepidoptera-Specific Bt Corn Production. Environmental Entomology, 36(5), 1269–1274. https://doi.org/10.1603/0046-225X(2007)36[1269:ROGBCC]2.0.CO;2

Fluhr-Meyer, G., & Adelmann, W. (2020). Blühstreifen und Pestizide – Falle oder Lebensraum? 12.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. (2006). Guidelines for soil description (4th ed). Food and Agriculture Organization of the United Nations.

Forister, M. L., Pelton, E. M., & Black, S. H. (2019). Declines in insect abundance and diversity: We know enough to act now. Conservation Science and Practice, 1(8). https://doi.org/10.1111/csp2.80

Forman, R. T. T., & Baudry, J. (1984). Hedgerows and hedgerow networks in landscape ecology. Environmental Management, 8(6), 495–510. https://doi.org/10.1007/BF01871575

Forster, R., & Biologische Bundesanstalt für Land- und Forstwirtschaft in Berlin und Braunschweig (Eds.). (2001). Biozönosen von Saumbiotopen im landwirtschaftlichen Einflussbereich: Beeinflussung durch Pflanzenschutzmitteleinträge? Fachgespräch am 23. und 24. November 1999 in Braunschweig. Fachgespräch, Berlin. Parey.

Förster, T., Creutzburg, F., Anton, E., Weigel, A., & Hartmann, M. (2023). Metabarcoding versus morphologische Identifizierung: Der Herausforderung gewachsen? Entomologische Zeitschrift, 133(2), 103–116.

Foucher, A., Evrard, O., Ficetola, G. F., Gielly, L., Poulain, J., Giguet-Covex, C., Laceby, J. P., Salvador-Blanes, S., Cerdan, O., & Poulenard, J. (2020). Persistence of environmental DNA in cultivated soils: Implication of this memory effect for reconstructing the dynamics of land use and cover changes. Scientific Reports, 10(1), Article 1. https://doi.org/10.1038/s41598-020-67452-1

Fountain, M. T., Brown, V. K., Gange, A. C., Symondson, W. O. C., & Murray, P. J. (2008). Multitrophic effects of nutrient addition in upland grassland. Bulletin of Entomological Research, 98(3), 283–292. https://doi.org/10.1017/S000748530700555X

Fountain, M. T., Brown, V. K., Gange, A. C., Symondson, W. O., & Murray, P. J. (2007). The effects of the insecticide chlorpyrifos on soil invertebrate communities and ecosystem functioning. Pedobiologia, 51(2), Article 2. https://doi.org/10.1016/j.pedobi.2007.03.001

Fountain, M. T., Thomas, R. S., Brown, V. K., Gange, A. C., Murray, P. J., & Symondson, W. O. C. (2009). Effects of nutrient and insecticide treatments on invertebrate numbers and predation on slugs in an upland grassland: A monoclonal antibody-based approach. Agriculture, Ecosystems & Environment, 131(3–4), 145–153. https://doi.org/10.1016/j.agee.2009.01.005

Fournier, E., & Loreau, M. (1999). Effects of newly planted hedges on ground-beetle diversity (Coleoptera, Carabidae) in an agricultural landscape. Ecography, 22(1), 87–97. https://doi.org/10.1111/j.1600-0587.1999.tb00457.x

Fournier, E., & Loreau, M. (2001). Respective roles of recent hedges and forest patch remnants in the maintenance of ground-beetle (Coleopera: Carabidae) diversity in an agricultural landscape. Landscape Ecology, 16, 17–32. https://doi.org/10.1023/A:1008115516551

Fournier, E., Loreau, M., & Havet, P. (1998). Effects of new agricultural management practices on the structure and diversity of ground-beetle communities (Coleoptera, Carabidae). Gibier Faune Sauvage, Game and Wildlife, 15, 43–53.

Fox, C. A., Tarnocai, C., Broll, G., Joschko, M., Kroetsch, D., & Kenney, E. (2014). Enhanced A Horizon Framework and Field Form for detailed field scale monitoring of dynamic soil properties. Canadian Journal of Soil Science, 94(2), 189–208. https://doi.org/10.4141/cjss2013-079

Fox, C. J. S. (1964). The effects of five herbicides on the numbers of certain invertebrate animals in grassland soil. Cn. J. Plant Sci., 44, 405–409.

Frampton, G. K. (1997). The potential of Collembola as indicators of pesticide usage: Evidence and methods from the UK arable ecosystem. Pedobiologia, 41(1), 179–184.

Frampton, G. K. (2000). Recovery responses of soil surface Collembola after spatial and temporal changes in long-term regimes of pesticide use. Pedobiologia, 44(3–4), 489–501. https://doi.org/10.1078/S0031-4056(04)70066-9

Frampton, G. K. (2002). Long-term impacts of an organophosphate-based regime of pesticides on field and field-edge Collembola communities. Pest Management Science, 58(10), 991–1001. https://doi.org/10.1002/ps.580

Frampton, G. K., Çilgi, T., Fry, G. L. A., & Wratten, S. D. (1995). Effects of grassy banks on the dispersal of some carabid beetles (Coleoptera: Carabidae) on farmland. Biological Conservation, 71(3), 347–355. https://doi.org/10.1016/0006-3207(94)00072-X

Frampton, G. K., & Dorne, J. L. C. M. (2007). The effects on terrestrial invertebrates of reducing pesticide inputs in arable crop edges: A meta-analysis. Journal of Applied Ecology, 44(2), 362–373. https://doi.org/10.1111/j.1365-2664.2007.01277.x

Frampton, G. K., & van den Brink, P. J. (2002). Influence of cropping on the species composition of epigeic Collembola in arable fields. Pedobiologia, 46(3–4), 328–337. https://doi.org/10.1078/0031-4056-00140

Frank, T. (1997). Species Diversity of Ground Beetles (Carabidae) in Sown Weed Strips and Adjacent Fields. Biological Agriculture & Horticulture, 15(1–4), 297–307. https://doi.org/10.1080/01448765.1997.9755205

Frank, T., & Nentwig, W. (1995). Artenvielfalt von Laufkäfern (Carabidae), Schwebfliegen (Syrphidae) und Tagfaltern (Rhopalocera) in Ackerkrautstreifen und angrenzenden Feldern. Mitteilungen Der Deutschen Gesellschaft Für Allgemeine Und Angewandte Entomologie, 9, 685–691.

Frank, T., & Reichhart, B. (2004). Staphylinidae and Carabidae overwintering in wheat and sown wildflower areas of different age. Bulletin of Entomological Research, 94(3), 209–217.

Franklin, A. B., Noon, B. R., & George, T. L. (2002). What is habitat fragmentation? Studies in Avian Biology, 25, 20–29.

Freemark, K., & Boutin, C. (1995). Impacts of agricultural herbicide use on terrestrial wildlife in temperate landscapes: A review with special reference to North America. Agriculture, Ecosystems & Environment, 52(2), 67–91. https://doi.org/10.1016/0167-8809(94)00534-L

French, B. W., Chandler, L. D., Ellsbury, M. M., Fuller, B. W., & West, M. (2004). Ground Beetle (Coleoptera: Carabidae) Assemblages in a Transgenic Corn–Soybean Cropping System. Environmental Entomology, 33(3), 554–563. https://doi.org/10.1603/0046-225X-33.3.554

Fridley, J. D. (2001). The influence of species diversity on ecosystem productivity: How, where, and why? Oikos, 93(3), 514–526. https://doi.org/10.1034/j.1600-0706.2001.930318.x

Fries, I. (2015). Ecosystem services, agriculture and neonicotinoids EASAC policy report 26. 62.

Frische, T., Egerer, S., Matezki, S., Pickl, C., & Wogram, J. (2016). 5-Punkte-Programm für einen nachhaltigen Pflanzenschutz. Umweltbundesamt. https://www.umweltbundesamt.de/publikationen/5-punkte-programm-fuer-einen-nachhaltigen-0

Fu, S., Coleman, D. C., Hendrix, P. F., & Crossley, D. A. (2000). Responses of trophic groups of soil nematodes to residue application under conventional tillage and no-till regimes. Soil Biology and Biochemistry, 32(11), 1731–1741. https://doi.org/10.1016/S0038-0717(00)00091-2

Füll, C., Schulte, C., & Kula, C. (2003). Bewertung der Auswirkungen von Pflanzenschutzmitteln auf Regenwürmer. Umweltwissenschaften und Schadstoff-Forschung, 15(2), 78–84. https://doi.org/10.1065/uwsf2001.12.079

Fuller, L., Oxbrough, A., Gittings, T., Irwin, S., Kelly, T. C., & O'Halloran, J. (2014). The response of ground-dwelling spiders (Araneae) and hoverflies (Diptera: Syrphidae) to afforestation assessed using within-site tracking. Forestry, 87(2), 301–312. https://doi.org/10.1093/forestry/cpt049

Fuller, R. J., Norton, L. R., Feber, R. E., Johnson, P. J., Chamberlain, D. E., Joys, A. C., Mathews, F., Stuart, R. C., Townsend, M. C., Manley, W. J., Wolfe, M. S., Macdonald, D. W., & Firbank, L. G. (2005). Benefits of organic farming to biodiversity vary among taxa. Biology Letters, 1(4), 431–434. https://doi.org/10.1098/rsbl.2005.0357

Fürst, J., Bollmann, K., Gossner, M. M., Duelli, P., & Obrist, M. K. (2023). Increased arthropod biomass, abundance and species richness in an agricultural landscape after 32 years. Journal of Insect Conservation, 27(2), 219–232. https://doi.org/10.1007/s10841-022-00445-9

Gailis, J., & Turka, I. (2014). The diversity and structure of ground beetles (Coleoptera: Carabidae) assemblages in differently managed winter wheat fields. Baltic Journal of Coleopterology, 14, 33–46.

Gailis, J., Turka, I., & Ausmane, M. (2017a). Soil tillage and crop rotation differently affect biodiversity and species assemblage of ground beetles inhabiting winter wheat fields. Agronomy Research, 15, 94–111.

Gailis, J., Turka, I., & Ausmane, M. (2017b). The most frequent ground beetles (Coleoptera, Carabidae) are differently affected by main soil treatment and crop rotation in winter wheat fields. Acta Biologica Universitatis Daugavpiliensis, 17, 29–52.

Gámez-Virués, S., Perović, D. J., Gossner, M. M., Börschig, C., Blüthgen, N., de Jong, H., Simons, N. K., Klein, A.-M., Krauss, J., Maier, G., Scherber, C., Steckel, J., Rothenwöhrer, C., Steffan-Dewenter, I., Weiner, C. N., Weisser, W., Werner, M., Tscharntke, T., & Westphal, C. (2015). Landscape simplification filters species traits and drives biotic homogenization. Nature Communications, 6(1), 8568. https://doi.org/10.1038/ncomms9568

Ganser, D., Knop, E., & Albrecht, M. (2019). Sown wildflower strips as overwintering habitat for arthropods: Effective measure or ecological trap? Agriculture, Ecosystems & Environment, 275, 123–131. https://doi.org/10.1016/j.agee.2019.02.010

Gardi, C., Jeffery, S., & Saltelli, A. (2013). An estimate of potential threats levels to soil biodiversity in EU. Global Change Biology, 19(5), 1538–1548. https://doi.org/10.1111/gcb.12159

Gardi, C., Montanarella, L., Arrouays, D., Bispo, A., Lemanceau, P., Jolivet, C., Mulder, C., Ranjard, L., Römbke, J., Rutgers, M., & Menta, C. (2009). Soil biodiversity monitoring in Europe: Ongoing activities and challenges. European Journal of Soil Science, 60(5), 807–819. https://doi.org/10.1111/j.1365-2389.2009.01177.x

Gardi, C., Tomaselli, M., Parisi, V., Petraglia, A., & Santini, C. (2002). Soil quality indicators and biodiversity in northern Italian permanent grasslands. European Journal of Soil Biology, 38(1), 103–110. https://doi.org/10.1016/S1164-5563(01)01111-6

Gardiner, M. M., Prajzner, S. P., Burkman, C. E., Albro, S., & Grewal, P. S. (2014). Vacant land conversion to community gardens: Influences on generalist arthropod predators and biocontrol services in urban greenspaces. Urban Ecosystems, 17(1), 101–122. https://doi.org/10.1007/s11252-013-0303-6

Garratt, M. P. D., Wright, D. J., & Leather, S. R. (2011). The effects of farming system and fertilisers on pests and natural enemies: A synthesis of current research. Agriculture, Ecosystems & Environment, 141(3), 261–270. https://doi.org/10.1016/j.agee.2011.03.014

Ge, Y., Thomasson, J. A., & Sui, R. (2011). Remote sensing of soil properties in precision agriculture: A review. Frontiers of Earth Science, 5(3), 229–238. https://doi.org/10.1007/s11707-011-0175-0

Geiger, F., Bengtsson, J., Berendse, F., Weisser, W. W., Emmerson, M., Morales, M. B., Ceryngier, P., Liira, J., Tscharntke, T., Winqvist, C., Eggers, S., Bommarco, R., Pärt, T., Bretagnolle, V., Plantegenest, M., Clement, L. W., Dennis, C., Palmer, C., Oñate, J. J., … Inchausti, P. (2010). Persistent negative effects of pesticides on biodiversity and biological control potential on European farmland. Basic and Applied Ecology, 11(2), 97–105. https://doi.org/10.1016/j.baae.2009.12.001

Geisen, S., Wall, D. H., & van der Putten, W. H. (2019). Challenges and Opportunities for Soil Biodiversity in the Anthropocene. Current Biology, 29(19), R1036–R1044. https://doi.org/10.1016/j.cub.2019.08.007

Gentsch, N., Boy, J., Batalla, J. D. K., Heuermann, D., von Wirén, N., Schweneker, D., Feuerstein, U., Groß, J., Bauer, B., Reinhold-Hurek, B., Hurek, T., Céspedes, F. C., & Guggenberger, G. (2020). Catch crop diversity increases rhizosphere carbon input and soil microbial biomass. Biology and Fertility of Soils, 56(7), 943–957. https://doi.org/10.1007/s00374-020-01475-8

George, P. B. L., Lallias, D., Creer, S., Seaton, F. M., Kenny, J. G., Eccles, R. M., Griffiths, R. I., Lebron, I., Emmett, B. A., Robinson, D. A., & Jones, D. L. (2019). Divergent national-scale trends of microbial and animal biodiversity revealed across diverse temperate soil ecosystems. Nature Communications, 10(1), 1107. https://doi.org/10.1038/s41467-019-09031-1

Gerard, B. M. (1967). Factors Affecting Earthworms in Pastures. Journal of Animal Ecology, 36(1), 235–252. https://doi.org/10.2307/3024

Gergócs, V., & Hufnagel, L. (2009). Application of Oribatid Mites as Indicators (Review). Applied Ecology and Environmental Research, 7(1), 79–98. https://doi.org/10.15666/aeer/0701_079098

Gerlach, J., Samways, M., & Pryke, J. (2013). Terrestrial invertebrates as bioindicators: An overview of available taxonomic groups. Journal of Insect Conservation, 17(4), 831–850. https://doi.org/10.1007/s10841-013-9565-9

Geschke, J., Vohland, K., Bonn, A., Dauber, J., Gessner, M. O., Henle, K., Nieschulze, J., Schmeller, D., Settele, J., Sommerwerk, N., & Wetzel, F. (2019). Biodiversitätsmonitoring in Deutschland: Wie Wissenschaft, Politik und Zivilgesellschaft ein nationales Monitoring unterstützen können. GAIA - Ecological Perspectives for Science and Society, 28(3), 265–270. https://doi.org/10.14512/gaia.28.3.6

Ghani, A., Dexter, M., & Perrott, K. W. (2003). Hot-water extractable carbon in soils: A sensitive measurement for determining impacts of fertilisation, grazing and cultivation. Soil Biology and Biochemistry, 35(9), 1231–1243. https://doi.org/10.1016/S0038-0717(03)00186-X

Gibson, C. W. D., Hambler, C., & Brown, V. K. (1992). Changes in Spider (Araneae) Assemblages in Relation to Succession and Grazing Management. The Journal of Applied Ecology, 29(1), 132. https://doi.org/10.2307/2404356

Gill, H. K., & Garg, H. (2014). Pesticides: Environmental Impacts and Management Strategies. In Pesticides – toxic aspects (pp. 187–230). InTech.

Gillingham, P. (2010). The relative importance of microclimate and land use to biodiversity. University of York.

Gisin, H. (1984). Collembolenfauna Europas (Flur; 2nd ed.). Museum d' histoire naturelle; Flur.

Gomiero, T., Pimentel, D., & Paoletti, M. (2011). Environmental Impact of Different Agricultural Management Practices: Conventional vs. Organic Agriculture. Critical Reviews in Plant Sciences, 30(1–2), 95–124. https://doi.org/10.1080/07352689.2011.554353

Gonthier, D. J., Ennis, K. K., Farinas, S., Hsieh, H.-Y., Iverson, A. L., Batáry, P., Rudolphi, J., Tscharntke, T., Cardinale, B. J., & Perfecto, I. (2014). Biodiversity conservation in agriculture requires a multi-scale approach. Proceedings of the Royal Society B: Biological Sciences, 281(1791), 20141358. https://doi.org/10.1098/rspb.2014.1358

Gossner, M. M., Lewinsohn, T. M., Kahl, T., Grassein, F., Boch, S., Prati, D., Birkhofer, K., Renner, S. C., Sikorski, J., Wubet, T., Arndt, H., Baumgartner, V., Blaser, S., Blüthgen, N., Börschig, C., Buscot, F., Diekötter, T., Jorge, L. R., Jung, K., … Allan, E. (2016). Land-use intensification causes multitrophic homogenization of grassland communities. Nature, 540(7632), 266–269. https://doi.org/10.1038/nature20575

Gossner, M. M., Simons, N. K., Achtziger, R., Blick, T., Dorow, W. H. O., Dziock, F., Köhler, F., Rabitsch, W., & Weisser, W. W. (2015). A summary of eight traits of Coleoptera, Hemiptera, Orthoptera and Araneae, occurring in grasslands in Germany. Scientific Data, 2(1), 150013. https://doi.org/10.1038/sdata.2015.13

Gossner, M. M., Struwe, J.-F., Sturm, S., Max, S., McCutcheon, M., Weisser, W. W., & Zytynska, S. E. (2016). Searching for the Optimal Sampling Solution: Variation in Invertebrate Communities, Sample Condition and DNA Quality. PLOS ONE, 11(2), e0148247. https://doi.org/10.1371/journal.pone.0148247

Graef, F., Stachow, U., Werner, A., & Schütte, G. (2007). Agricultural practice changes with cultivating genetically modified herbicide-tolerant oilseed rape. Agricultural Systems, 94(2), 111–118. https://doi.org/10.1016/j.agsy.2006.09.008

Graefe, U. (1997). Bodenorganismen als Indikatoren des biologischen Bodenzustands. Mitteilungen Der Deutschen Bodenkundlichen Gesellschaft, 85, 687–690.

Graefe, U., & Beylich, A. (2003). Critical values of soil acidification for annelid species and the decomposer community. Newsletter on Enchytraeidae, 8, 51–55.

Graefe, U., & Beylich, A. (2005). Anneliden (Regenwürmer und Kleinringelwürmer). In Bundesverband Boden e. V. (Ed.), Biologische Charakterisierung von Böden. Ansatz zur Bewertung des Bodens als Lebensraum für Bodenorganismen im Rahmen von Planungsprozessen. Anhang 3: Informationen zur Eignung verschiedener Bodenorganismengruppen zur Bewertung von Böden im Rahmen von Planungsverfahren. (pp. 9–13).

Graefe, U., Gehrmann, J., & Stempelmann, I. (2001). Bodenzoologisches Monitoring auf EU-Level II-Dauerbeobachtungsflächen in Nordrhein-Westfalen. Mitteilung der Deutschen Bodenkundlichen Gesellschaft, 96, 331–332.

Graefe, U., & Schmelz, R. M. (1999). Indicator values, strategy types and life forms of terrestrial Enchytraeidae and other microannelids. Newsletter on Enchytraeidae, 6, 59–67.

Graff, O. (1953). Die Regenwürmer Deutschlands. Forschungsanstalt Für Landwirtschaft Braunschweig-Völkenrode, 7, 1–70.

Greenslade, P. J. M. (1964). Pitfall Trapping as a Method for Studying Populations of Carabidae (Coleoptera). The Journal of Animal Ecology, 33(2), 301. https://doi.org/10.2307/2632

Griffiths, B. S., Caul, S., Thompson, J., Birch, A. N. E., Scrimgeour, C., Andersen, M. N., Cortet, J., Messéan, A., Sausse, C., Lacroix, B., & Krogh, P. H. (2005). A Comparison of Soil Microbial Community Structure, Protozoa and Nematodes in Field Plots of Conventional and Genetically Modified Maize Expressing the Bacillus thuringiens is CryIAb Toxin. Plant and Soil, 275(1–2), 135–146. https://doi.org/10.1007/s11104-005-1093-2

Griffiths, B. S., Caul, S., Thompson, J., Birch, A. N. E., Scrimgeour, C., Cortet, J., Foggo, A., Hackett, C. A., & Krogh, P. H. (2006). Soil Microbial and Faunal Community Responses to Bt Maize and Insecticide in Two Soils. Journal of Environmental Quality, 35(3), 734–741. https://doi.org/10.2134/jeq2005.0344

Griffiths, B. S., Heckmann, L.-H., Caul, S., Thompson, J., Scrimgeour, C., & Krogh, P. H. (2007). Varietal effects of eight paired lines of transgenic Bt maize and near-isogenic non-Bt maize on soil microbial and nematode community structure. Plant Biotechnology Journal, 5(1), 60–68. https://doi.org/10.1111/j.1467-7652.2006.00215.x

Griffiths, B. S., Römbke, J., Schmelz, R. M., Scheffczyk, A., Faber, J. H., Bloem, J., Pérès, G., Cluzeau, D., Chabbi, A., Suhadolc, M., Sousa, J. P., Martins da Silva, P., Carvalho, F., Mendes, S., Morais, P., Francisco, R., Pereira, C., Bonkowski, M., Geisen, S., … Stone, D. (2016). Selecting cost effective and policy-relevant biological indicators for European monitoring of soil biodiversity and ecosystem function. Ecological Indicators, 69, 213–223. https://doi.org/10.1016/j.ecolind.2016.04.023

Griffiths, G. J. K., Holland, J. M., Bailey, A., & Thomas, M. B. (2008). Efficacy and economics of shelter habitats for conservation biological control. Biological Control, 45(2), 200–209. https://doi.org/10.1016/j.biocontrol.2007.09.002

Griffiths, G. J. K., Winder, L., Holland, J. M., Thomas, C. F. G., & Williams, E. (2007). The representation and functional composition of carabid and staphylinid beetles in different field boundary types at a farm-scale. Biological Conservation, 135(1), 145–152. https://doi.org/10.1016/j.biocon.2006.09.016

Griffiths, R. (2004). Mismatches between conservation science and practice. Trends in Ecology & Evolution, 19(11), 564–565. https://doi.org/10.1016/j.tree.2004.09.008

Grillo, O., & Venora, G. (Eds.). (2011). Ecosystems Biodiversity. InTech.

Gruttke, H. (2001). Welche Bedeutung haben Habitatgröße und-isolation für das Vorkommen waldtypischer Laufkäfer in Waldrelikten und Kleingehölzen einer Agrarlandschaft. Angewandte Carabidologie Supplement, 2, 81–98.

Gruttke, H., & Kornacker, P. M. (1995). The development of epigeic fauna in new hedges—A comparison of spatial and temporal trends. Landscape and Urban Planning, 31(1–3), 217–231. https://doi.org/10.1016/0169-2046(94)01048-D

Guerra, C. A., Bardgett, R. D., Caon, L., Crowther, T. W., Delgado-Baquerizo, M., Montanarella, L., Navarro, L. M., Orgiazzi, A., Singh, B. K., Tedersoo, L., Vargas-Rojas, R., Briones, M. J. I., Buscot, F., Cameron, E. K., Cesarz, S., Chatzinotas, A., Cowan, D. A., Djukic, I., Hoogen, J. van den, … Eisenhauer, N. (2021). Tracking, targeting, and conserving soil biodiversity. Science, 371(6526), 239–241. https://doi.org/10.1126/science.abd7926

Gurr, G. M., Wratten, S. D., & Luna, J. M. (2003). Multi-function agricultural biodiversity: Pest management and other benefits. Basic and Applied Ecology, 4(2), 107–116. https://doi.org/10.1078/1439-1791-00122

Gütschow, M., Bartkowski, B., & Felipe-Lucia, M. R. (2021). Farmers' action space to adopt sustainable practices: A study of arable farming in Saxony. Regional Environmental Change, 21(4), 103. https://doi.org/10.1007/s10113-021-01848-1

Haaland, C., Naisbit, R. E., & Bersier, L.-F. (2011). Sown wildflower strips for insect conservation: A review. Insect Conservation and Diversity, 4(1), 60–80. https://doi.org/10.1111/j.1752-4598.2010.00098.x

Habel, J. C., Samways, M. J., & Schmitt, T. (2019). Mitigating the precipitous decline of terrestrial European insects: Requirements for a new strategy. Biodiversity and Conservation, 28(6), 1343–1360. https://doi.org/10.1007/s10531-019-01741-8

Habig, J., & Swanepoel, C. (2015). Effects of Conservation Agriculture and Fertilization on Soil Microbial Diversity and Activity. Environments, 2(4), 358–384. https://doi.org/10.3390/environments2030358

Hackenberger, D. K., & Hackenberger, B. K. (2014). Earthworm community structure in grassland habitats differentiated by climate type during two consecutive seasons. European Journal of Soil Biology, 61, 27–34. https://doi.org/10.1016/j.ejsobi.2014.01.001

Halaj, J., Cady, A. B., & Uetz, G. W. (2000). Modular Habitat Refugia Enhance Generalist Predators and Lower Plant Damage in Soybeans. ENVIRONMENTAL ENTOMOLOGY, 29(2), 11.

Hallin, S., Welsh, A., Stenström, J., Hallet, S., Enwall, K., Bru, D., & Philippot, L. (2012). Soil Functional Operating Range Linked to Microbial Biodiversity and Community Composition Using Denitrifiers as Model Guild. PLOS ONE, 7(12), e51962. https://doi.org/10.1371/journal.pone.0051962

Hanski, I., Von Hertzen, L., Fyhrquist, N., Koskinen, K., Torppa, K., Laatikainen, T., Karisola, P., Auvinen, P., Paulin, L., Mäkelä, M. J., Vartiainen, E., Kosunen, T. U., Alenius, H., & Haahtela, T. (2012). Environmental biodiversity, human microbiota, and allergy are interrelated. Proceedings of the National Academy of Sciences, 109(21), 8334–8339. https://doi.org/10.1073/pnas.1205624109

Häring, A. M., Dabbert, S., & Universität Hohenheim (Eds.). (2004). Organic farming and measures of European agricultural policy. Inst. für Landwirtschaftliche Betriebslehre, Univ. Hohenheim.

Harpole, W. S., Sullivan, L. L., Lind, E. M., Firn, J., Adler, P. B., Borer, E. T., Chase, J., Fay, P. A., Hautier, Y., Hillebrand, H., MacDougall, A. S., Seabloom, E. W., Williams, R., Bakker, J. D., Cadotte, M. W., Chaneton, E. J., Chu, C., Cleland, E. E., D'Antonio, C., … Wragg, P. D. (2016). Addition of multiple limiting resources reduces grassland diversity. Nature, 537(7618), 93–96. https://doi.org/10.1038/nature19324

Harry, I., Höfer, H., Schielzeth, H., & Assmann, T. (2019). Protected habitats of Natura 2000 do not coincide with important diversity hotspots of arthropods in mountain grasslands. Insect Conservation and Diversity, 12(4), 329–338. https://doi.org/10.1111/icad.12349

Hart, J. D., Milsom, T. P., Fisher, G., Wilkins, V., Moreby, S. J., Murray, A. W. A., & Robertson, P. A. (2006). The relationship between yellowhammer breeding performance, arthropod abundance and insecticide applications on arable farmland: Insecticides, arthropods and yellowhammer productivity. Journal of Applied Ecology, 43(1), 81–91. https://doi.org/10.1111/j.1365-2664.2005.01103.x

Hartmann, M., Frey, B., Mayer, J., Mäder, P., & Widmer, F. (2015). Distinct soil microbial diversity under long-term organic and conventional farming. The ISME Journal, 9(5), 1177–1194. https://doi.org/10.1038/ismej.2014.210

Harvey, J. A., Heinen, R., Armbrecht, I., Basset, Y., Baxter-Gilbert, J. H., Bezemer, T. M., Böhm, M., Bommarco, R., Borges, P. A. V., Cardoso, P., Clausnitzer, V., Cornelisse, T., Crone, E. E., Dicke, M., Dijkstra, K.-D. B., Dyer, L., Ellers, J., Fartmann, T., Forister, M. L., … de Kroon, H. (2020). International scientists formulate a roadmap for insect conservation and recovery. Nature Ecology & Evolution, 4(2), 174–176. https://doi.org/10.1038/s41559-019-1079-8

Harwood, J. D., Wallin, W. G., & Obrycki, J. J. (2005). Uptake of Bt endotoxins by nontarget herbivores and higher order arthropod predators: Molecular evidence from a transgenic corn agroecosystem. Molecular Ecology, 14(9), 2815–2823. https://doi.org/10.1111/j.1365-294X.2005.02611.x

Haschek, C., Drapela, T., Schuller, N., Fiedler, K., & Frank, T. (2012). Carabid beetle condition, reproduction and density in winteroilseed rape affected by field and landscape parameters. Journal of Applied Entomology, 136, 665–674.

Hasken, K.-H., & Poehling, H.-M. (1995). Effects of different intensities of fertilisers and pesticides on aphids and aphid predators in winter wheat. Agriculture, Ecosystems & Environment, 52(1), 45–50. https://doi.org/10.1016/0167-8809(94)09008-U

Hassall, M., Hawthorne, A. J., Maudsley, M., White, P., & Cardwell, C. (1992). Effects of headland management on invertebrate communities in cereal fields. Agriculture, Ecosystems and Environment, 40, 155–178.

Hassan, D. A., Parisey, N., Burel, F., Plantegenest, M., Kindlmann, P., & Butet, A. (2012). Relationship between the abundance of aphids and their natural enemies in crop fields and landscape composition. European Journal of Environmental Sciences, 2(2), 89.

Hatten, T. D., Rez, N. A. B.-P., Labonte, J. R., Guy, S. O., & Eigenbrode, S. D. (2007). Effects of Tillage on the Activity Density and Biological Diversity of Carabid Beetles in Spring and Winter Crops. ENVIRONMENTAL ENTOMOLOGY, 36(2), 13.

Haughton, A. J., Bell, J. R., Boatman, N. D., & Wilcox, A. (2001). The effect of the herbicide glyphosate on non-target spiders: Part II. Indirect effects on Lepthyphantes tenuis in field margins. Pest Management Science, 57, 1037–1042.

Haughton, A. J., The American Association for Research into Nervous and Mental Diseases, Champion, G. T., Hawes, C., Heard, M. S., Brooks, D. R., Bohan, D. A., Clark, S. J., Dewar, A. M., Firbank, L. G., Osborne, J. L., Perry, J. N., Rothery, P., Roy, D. B., Scott, R. J., Woiwod, I. P., Birchall, C., Skellern, M. P., Walker, J. H., … Walker, M. J. (2003). Invertebrate responses to the management of genetically modified herbicide–tolerant and conventional spring crops. II. Within-field epigeal and aerial arthropods. Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 358(1439), 1863–1877. https://doi.org/10.1098/rstb.2003.1408

Haukka, J. K. (1987). Growth and survival of Eisenia fetida (Sav.) (Oligochaeta: Lumbricidae) in relation to temperature, moisture and presence of Enchytraeus albidus (Henle) (Enchytraeidae). Biology and Fertility of Soils, 3(1), 99–102. https://doi.org/10.1007/BF00260587

Havlicek, E. (2012). Soil biodiversity and bioindication: From complex thinking to simple acting. European Journal of Soil Biology, 49, 80–84. https://doi.org/10.1016/j.ejsobi.2012.01.009

Hawthorne, A. J., Hassall, M., & Sotherton, N. W. (1998). Effects of cereal headland treatments on the abundance and movements of three species of carabid beetles. Applied Soil Ecology, 9, 417–422.

Haysom, K., McCracken, D. I., Foster, G. N., & Sotherton, N. W. (2004). Developing grassland conservation headlands: Response of carabid assemblage to different cutting regimes in a silage field edge. Agriculture, Ecosystems and Environment, 102, 263–277.

Heckmann, L.-H., Griffiths, B. S., Caul, S., Thompson, J., Pusztai-Carey, M., Moar, W. J., Andersen, M. N., & Krogh, P. H. (2006). Consequences for Protaphorura armata (Collembola: Onychiuridae) following exposure to genetically modified Bacillus thuringiensis (Bt) maize and non-Bt maize. Environmental Pollution, 142(2), 212–216. https://doi.org/10.1016/j.envpol.2005.10.008

Heijbroek, W., & van de Bund, C. F. (1982). The influence of some agricultural practices on soil organisms and plant establishment of sugar beet. Netherlands Journal of Plant Pathology, 88, 1–17.

Heilberg-Rode, G. (2002). Bedeutung der Bodentiere für die Bodenentwicklung. Bedeutung Der Bodentiere Für Die Bodenentwicklung. https://hypersoil.uni-muenster.de/0/07/01.htm

Heimer, S., & Nentwig, W. (1991). Spinnen Mitteleuropas. Parey.

Helenius, J. K., Holopainen, J. K., & Huusela-Veistola, E. (2001). Ground beetle (Coleoptera, Carabidae) diversity in Finnish arable land. Agricultural and Food Science, 10(3), 261–276. https://doi.org/10.23986/afsci.5699

Helliwell, J. R., Sturrock, C. J., Grayling, K. M., Tracy, S. R., Flavel, R. J., Young, I. M., Whalley, W. R., & Mooney, S. J. (2013). Applications of X-ray computed tomography for examining biophysical interactions and structural development in soil systems: A review. European Journal of Soil Science, 64(3), 279–297. https://doi.org/10.1111/ejss.12028

Hendrickx, F., Maelfait, J.-P., Van Wingerden, W., Schweiger, O., Speelmans, M., Aviron, S., Augenstein, I., Billeter, R., Bailey, D., Bukacek, R., Burel, F., Diekötter, T., Dirksen, J., Herzog, F., Liira, J., Roubalova, M., Vandomme, V., & Bugter, R. (2007). How landscape structure, land-use intensity and habitat diversity affect components of total arthropod diversity in agricultural landscapes: Agricultural factors and arthropod biodiversity. Journal of Applied Ecology, 44(2), 340–351. https://doi.org/10.1111/j.1365-2664.2006.01270.x

Hendriksen, N. B., Creamer, R. E., Stone, D., & Winding, A. (2016). Soil exo-enzyme activities across Europe—The influence of climate, land-use and soil properties. Applied Soil Ecology, 97, 44–48. https://doi.org/10.1016/j.apsoil.2015.08.012

Hendrix, P. F., Parmelee, R. W., Crossley, D. A., Coleman, D. C., Odum, E. P., & Groffmann, P. M. (1986). Detritus Food Webs in Conventional and No-tillage Agroecosystems. BioScience, 36, 374–380.

Hermans, S. M., Buckley, H. L., Case, B. S., Curran-Cournane, F., Taylor, M., & Lear, G. (2017). Bacteria as Emerging Indicators of Soil Condition. Applied and Environmental Microbiology, 83(1). https://doi.org/10.1128/AEM.02826-16

Herwig, N., Felgentreu, D., & Hommel, B. (2020). Auswirkungen von natürlichen Standortbedingungen und ackerbaulichen Maßnahmen auf Bodenorganismen – Erhebungen in den Langzeitversuchen des Julius Kühn-Instituts in Dahnsdorf (Hoher Fläming, Land Brandenburg). Journal für Kulturpflanzen, 327-337 Seiten. https://doi.org/10.5073/JFK.2020.07.09

Heydemann, B. (1955). Carabiden der Kulturfelder als ökologische Indikatoren.

Heydemann, B. (1983). Aufbau von Ökosystemen im Agrarbereich und ihre langfristigen Veränderungen. Daten Und Dokumente Zum Umweltschutz, 35, 53–84.

High-level Pan European Conference on Agriculture and Biodiversity (Ed.). (2005). Compendium of background reports. Council of Europe.

Hill, B. T., Beck, L., & Beinlich, B. (2004). Reaktionen der Laufkäferzönose eines brachgefallenen Kalk-Ackers auf extensive Schweinebeweidung. Angewandte Carabidologie Supplement, 3, 3–16.

Hill, M. O., & Gauch, H. G. (1980). Detrended correspondence analysis, an improved ordination technique. Vegetatio, 42, 47–58.

Hoeffner, K., Santonja, M., Cluzeau, D., & Monard, C. (2019). Epi-anecic rather than strict-anecic earthworms enhance soil enzymatic activities. Soil Biology and Biochemistry, 132, 93–100. https://doi.org/10.1016/j.soilbio.2019.02.001

Hof, A. R., & Bright, P. W. (2010). The impact of grassy field margins on macro-invertebrate abundance in adjacent arable fields. Agriculture, Ecosystems & Environment, 139(1), 280–283. https://doi.org/10.1016/j.agee.2010.08.014

Höfer, H., Blick, T., Muster, C., & Paulsch, D. (2010). Artenvielfalt und Diversität der Spinnen (Araneae) auf einem beweideten Allgäuer Grasberg (Alpe Einödsberg) und unbeweideten Vergleichsstandorten im Naturschutzgebiet Allgäuer Hochalpen. Andrias, 18, 53–78.

Hoffmann, J., & Kratz, W. (2018). Nationale Indikatoren mit Bezug zu Pflanzenschutz und Biodiversität in der Agrarlandschaft. Bedarf für die Entwicklung eines Indikators zu Wirkungen von Pflanzenschutzmitteln auf die Biodiversität. Natur Und Landschaft, 93(6), 273–279.

Hole, D. G., Perkins, A. J., Wilson, J. D., Alexander, I. H., Grice, P. V., & Evans, A. D. (2005). Does organic farming benefit biodiversity? Biological Conservation, 122(1), 113–130. https://doi.org/10.1016/j.biocon.2004.07.018

Holland, J., & Fahrig, L. (2000). Effect of woody borders on insect density anddiversity in crop fields: A landscape-scale analysis. Agriculture, Ecosystems and Environment, 78, 115–122.

Holland, J. M. (2002). The Agroecology of Carabid Beetles. Intercept.

Holland, J. M. (2004). The environmental consequences of adopting conservation tillage in Europe: Reviewing the evidence. Agriculture, Ecosystems & Environment, 103(1), 1–25. https://doi.org/10.1016/j.agee.2003.12.018

Holland, J. M., Bianchi, F. J., Entling, M. H., Moonen, A.-C., Smith, B. M., & Jeanneret, P. (2016). Structure, function and management of semi-natural habitats for conservation biological control: A review of European studies. Pest Management Science, 72(9), 1638–1651. https://doi.org/10.1002/ps.4318

Holland, J. M., & Luff, M. L. (2000). The Effects of Agricultural Practices on Carabidae in Temperate Agroecosystems. Integrated Pest Management Reviews, 5(2), 109–129.

Holland, J. M., Oaten, H., Southway, S., & Moreby, S. (2008). The effectiveness of field margin enhancement for cereal aphid control by different natural enemy guilds. Biological Control, 47(1), 71–76. https://doi.org/10.1016/j.biocontrol.2008.06.010

Holland, J. M., Storkey, J., Lutman, P. J. W., Birkett, T. C., Simper, J., & Aebischer, N. J. (2014). Utilisation of agri-environment scheme habitats to enhance invertebrate ecosystem service providers. Agriculture, Ecosystems & Environment, 183, 103–109. https://doi.org/10.1016/j.agee.2013.10.025

Holland, J. M., Winder, L., & Perry, J. N. (2000). The impact of dimethoate on the spatial distribution of beneficial arthropods in winter wheat. Annals of Applied Biology, 136(2), 93–105. https://doi.org/10.1111/j.1744-7348.2000.tb00013.x

Holland, J. M., Winder, L., Woolley, C., Alexander, C. J., & Perry, J. N. (2004). The spatial dynamics of crop and ground active predatory arthropods and their aphid prey in winter wheat. Bulletin of Entomological Research, 94(5), 419–431. https://doi.org/10.1079/BER2004323

Holland, J., Thomas, C. F., Birkett, T., & Southway, S. (2007). Spatio-temporal distribution and emergence of beetles in arable fields in relation to soil moisture. Bulletin of Entomological Research, 97, 89–100. https://doi.org/10.1017/S0007485307004804

Holmstrup, M. (2001). Sensitivity of life history parameters in the earthworm Aporrectodea caliginosa to small changes in soil water potential. Soil Biology and Biochemistry, 33(9), 1217–1223. https://doi.org/10.1016/S0038-0717(01)00026-8

Holmstrup, M. (2003). Overwintering adaptations in earthworms: The 7th international symposium on earthworm ecology · Cardiff · Wales · 2002. Pedobiologia, 47(5), 504–510. https://doi.org/10.1078/0031-4056-00220

Hombrecher, K., & Rhiem, S. (2022). Abschlussbericht zum Projekt Monitoring von Pflanzenschutzmitteln in Bioindikatoren, Niederschlagswasser und Heuschrecken (2020—2021).

Hooks, C. R. R., & Johnson, M. W. (2003). Impact of agricultural diversification on the insect community of cruciferous crops. Crop Protection, 22(2), 223–238. https://doi.org/10.1016/S0261-2194(02)00172-2

Hooper, D. U., Bignell, D. E., Brown, V. K., Brussard, L., Mark Dangerfield, J., Wall, D. H., Wardle, D. A., Coleman, D. C., Giller, K. E., Lavelle, P., Van Der Putten, W. H., De Ruiter, P. C., Rusek, J., Silver, W. L., Tiedje, J. M., & Wolters, V. (2000). Interactions between Aboveground and Belowground Biodiversity in Terrestrial Ecosystems: Patterns, Mechanisms, and Feedbacks. BioScience, 50(12), 1049. https://doi.org/10.1641/0006-3568(2000)050[1049:IBAABB]2.0.CO;2

Hooper, D. U., Chapin, F. S., Ewel, J. J., Hector, A., Inchausti, P., Lavorel, S., Lawton, J. H., Lodge, D. M., Loreau, M., Naeem, S., Schmid, B., Setälä, H., Symstad, A. J., Vandermeer, J., & Wardle, D. A. (2005). Effects of Biodiversity on Ecosystem Functioning: A Consensus of Current Knowledge. Ecological Monographs, 75(1), 3–35. https://doi.org/10.1890/04-0922

Hopp, H., & Linder, P. J. (1947). A Principle for Maintaining Earthworms in Farm Soils. Science, 105(2739), 663–664. https://doi.org/10.1126/science.105.2739.663

Hossain, Z., Gurr, G. M., Wratten, S. D., & Raman, A. (2002). Habitat manipulation in lucerne Medicago sativa: Arthropod population dynamics in harvested and 'refuge' crop strips. Journal of Applied Ecology, 39(3), 445–454. https://doi.org/10.1046/j.1365-2664.2002.00729.x

Hötker, H., Brühl, C., Buhk, C., & Oppermann, R. (2018). Biodiversitätsflächen zur Minderung der Umweltauswirkungen von Pflanzenschutzmitteln. UBA Texte, 53/2018, 65.

House, G. J., Worsham, A. D., Sheets, T. J., & Stinner, R. E. (1987). Herbicide effects on soil arthropod dynamics and wheat straw decomposition in a North Carolina no-tillage agroecosystem. Biology and Fertility of Soils, 4(3), 109–114. https://doi.org/10.1007/BF00256982

Huber, S., Prokop, G., Dominique, D., & et al. (2008). Environmental assessment of soil for monitoring. Volume I, Indicators & criteria. Publications Office. https://data.europa.eu/doi/10.2788/93515

Hug, A. S., Gubler, A., Gschwend, F., Widmer, F., Oberholzer, H., Frey, B., & Meuli, R. G. (2018). NABObio – Bodenbiologie in der Nationalen Bodenbeobachtung Ergebnisse 2012–2016 Handlungsempfehlungen und Indikatoren. Agroscope Science, 63, 55.

Hug, A. S., Moll, J., & Gubler, A. (2021). Monitoring Bodenbiologie Auswertung bodenmikrobiologischer Daten von kantonalen und nationalen Bodenbeobachtungsstandorten. Agroscope Science, 110, 35.

Hughes, M. S., Bull, C. M., & Doube, B. M. (1996). Microcosm investigations into the influence of sheep manure on the behaviour of the geophagous earthworms Aporrectodea trapezoides and Microscolex dubuis. Biology and Fertility of Soils, 22(1), 71–75. https://doi.org/10.1007/BF00384435

Hummel, R. L., Walgenbach, J. F., Hoyt, G. D., & Kennedy, G. G. (2002). Effects of vegetable production system on epigeal arthropod populations. Agriculture, Ecosystems & Environment, 93(1–3), 177–188. https://doi.org/10.1016/S0167-8809(01)00346-2

Hurej, M., Twardowski, J., & Łykowski, W. (2014). Diversified habitat as reservoir for ground-dwelling arthropods (Col., Carabidae) – preliminary results. IOBC-WPRS Bulletin, 100, 59–62.

Hussain, R. I., Walcher, R., Brandl, D., Arnberger, A., Zaller, J. G., & Frank, T. (2018). Efficiency of two methods of sampling used to assess the abundance and species diversity of adult Syrphidae (Diptera) in mountainous meadows in the Austrian and Swiss Alps. European Journal of Entomology, 115, 150–156. https://doi.org/10.14411/eje.2018.014

Hussein, I. A. A., Röhricht, C., Ruscher, K., & Hussein, M. L.-A. (2014). Ökologische Bewertung von Energieholzanlagen und einer Naturschutzhecke auf großen Ackerschlägen am Beispiel der Laufkäfer. Angewandte Carabidologie, 87–95.

Hussein, M. L.-A., & Hussein, I. A. A. (2006). Eignung von Webspinnen (Araneae) und Kurzflügelkäfern (Staphylinidae) als Indikatoren zur Bewertung der Auswirkungen von Bewirtschaftungsumstellung von konventionell-intensiven auf ökologisch-extensiven Landbau. Mitteilungen der Deutschen Gesellschaft für Allgemeine und Angewandte Entomologie, 15, 425–428.

Ingrisch, S., Gluck, E., & Wasner, U. (1988). The effect of biodynamic and conventional agriculture on the epigeic fauna of fields. 18, 835–841.

Irmler, U. (2003). The spatial and temporal pattern of carabid beetles on arable fields in northern Germany (Schleswig-Holstein) and their value as ecological indicators. Agriculture, Ecosystems & Environment, 98(1–3), 141–151. https://doi.org/10.1016/S0167-8809(03)00076-8

IRMLER, U. (2006). Ein Bewertungskonzept für Laufkäfer am Beispiel von Grünlandsystemen. Angewandte Carabidologie, 7, 61–69.

Irmler, U. (2007). Long-term fluctuations of ground beetles in a wood-agrarian landscape of northern Germany (Coleoptera: Carabidae). Entomologia Generalis, 13–32.

Irmler, U. (2018a). The succession of Staphylinidae (Coleoptera) after 15 years of conversion from conventional to organic farming. Biodiversity and Conservation, 27(12), 3233–3246. https://doi.org/10.1007/s10531-018-1599-6

Irmler, U. (2018b). Which carabid species (Coleoptera: Carabidae) profit from organic farming after a succession of 15 years? Agriculture, Ecosystems & Environment, 263, 1–6. https://doi.org/10.1016/j.agee.2018.02.019

Irmler, U. (2019). Conversion from conventional to organic land-use on Ritzerau Manor – The winter-active ground beetles –. Angewandte Carabidologie, 13, 25–35.

Irmler, U. (2020). Changes during 15 years succession of the ground beetle fauna (Carabidae) after the conversion from conventional to organic farming on Ritzerau Manor (Vol. 41). Universitätsverlag Kiel | Kiel University Publishing. https://doi.org/10.38072/2699-7770/v41

Irmler, U. (2022a). Seasonal shift in carabid phenology over a period of 18 years. European Journal of Entomology, 119, 183–190. https://doi.org/10.14411/eje.2022.020

Irmler, U. (2022b). Seasonality of Carabid Beetles on an Organic Agricultural Field and Its Effect on Foraging Use. Agriculture, 12(5), Article 5. https://doi.org/10.3390/agriculture12050596

Irmler, U., & Gürlich, S. (2004). Die ökologische Einordnung der Laufkäfer (Coleoptera: Carabidae) in Schleswig-Holstein. Faunistisch-Ökologische Mitteilungen, Supplement 32, 1–117.

Irmler, U., Hanssen, U., Nötzold, R., & Schröter, L. (2000). Biodiversität in der Agrarlandschaft. Bedeutung von Landschaftsstrukturen und Nutzungsänderungen. Mitteilungen Der Deutschen Gesellschaft Für Allgemeine Und Angewandte Entomologie, 12, 311–321.

Irmler, U., & Hoernes, U. (2003). Assignment and evaluation of ground beetle (Coleoptera: Carabidae) assemblages to sites on different scales in a grassland landscape. Biodiversity and Conservation, 12(7), 1405–1419.

Irmler, U., Koop, B., & Schrautzer, J. (2020). Entwicklung der Lebensgemeinschaften nach der Umstellung vom konventionellen zum ökologischen Landbau. Natur Und Landschaft, 95, 253–262.

Irmler, U., Sommer, T., & Neumann, H. (2015). Effect of Green Belts in sandy arable fields on ground beetles of Schleswig-Holstein (northern Germany). Angewandte Carabidologie, 11, 3–11.

ISO Guideline. (2006a). Soil quality—Sampling of soil invertebrates Part 1: Hand-sorting and formalin extraction of earthworms. (ISO Guideline 23611–1).

ISO Guideline. (2006b). Soil quality—Sampling of soil invertebrates Part 2: Sampling and extraction of micro-arthropods (Collembola and Acarina) (23611–2).

ISO Guideline. (2007). Soil quality—Sampling of soil invertebrates. Part 3: Sampling and soil extraction of enchytraeids. (ISO Guideline 23611–3).

ISO Guideline. (2018). Soil quality—Sampling of soil invertebrates—Part 1: Hand-sorting and extraction of earthworms. ISO 23611-1:2018(E).

Ivask, M., Kuu, A., Meriste, M., Truu, J., Truu, M., & Vaater, V. (2008). Invertebrate communities (Annelida and epigeic fauna) in three types of Estonian cultivated soils. European Journal of Soil Biology, 44, 532–540.

Jagers op Akkerhuis, G. A. J. M., de Ley, F., Zwetsloot, H. J. C., Ponge, J.-F., & Brussaard, L. (1988). Soil microarthropods (Acari and Collembola) in two crop rotations on a heavy marine clay soil. Revue d´Ecologie et de Biologie Du Sol, 25(2), 175–202.

Jahn, T., Hötker, H., Oppermann, R., Bleil, R., & Vele, L. (2014). Protection of biodiversity of free living birds and mammals in respect of the effects of pesticides. Umweltbundesamt. https://www.umweltbundesamt.de/publikationen/protection-of-biodiversity-of-free-living-birds

Jänsch, S. (2023). Bewertung der biologischen Vielfalt mittels DNA-Extraktion aus Bodenproben von BDF. Texte, 142.

Jänsch, S., Braaker, S., Römbke, J., Staab, F., & Pamminger, T. (2021). Holistic evaluation of long-term earthworm field studies with a fungicide. https://doi.org/10.1002/ieam.4562.

Jänsch, S., Steffens, L., Höfer, H., Horak, F., Roß-Nickoll, M., Russell, D., Toschki, A., & Römbke, J. (2013). State of knowledge of earthworm communities in German soils as a basis for biological soil quality assessment. 19.

Jeanneret, P., Baumgartner, D. U., Freiermuth Knuchel, R., Koch, B., & Gaillard, G. (2014). An expert system for integrating biodiversity into agricultural life-cycle assessment. Ecological Indicators, 46, 224–231. https://doi.org/10.1016/j.ecolind.2014.06.030

Jeanneret, P., Begg, G., Gosme, M., Alomar, O., Reubens, B., Baudry, J., Guérin, O., Flamm, C. W., & Wäckers, F. (2016). Landscape features to improve pest control in Agriculture. Solutions, 11.

Jeanneret, P., Schüpbach, B., Pfiffner, L., & Walter, T. (2003). Arthropod reaction to landscape and habitat features in agricultural landscapes. Landscape Ecology, 18(3), 253–263.

Jeffery, S., & Gardi, C. (2010). Soil biodiversity under threat—A review. Acta Societatis Zoologicae Bohemicae, 74, 7–12.

Jenkins, D., & Institute of Terrestrial Ecology (Eds.). (1984). Agriculture and the environment: Proceedings of ITE symposium no. 13 held at Monks Wood Experimental Station on 28-29 February and 1 March 1984. Institute of Terrestrial Ecology.

Ji, Y., Ashton, L., Pedley, S. M., Edwards, D. P., Tang, Y., Nakamura, A., Kitching, R., Dolman, P. M., Woodcock, P., Edwards, F. A., Larsen, T. H., Hsu, W. W., Benedick, S., Hamer, K. C., Wilcove, D. S., Bruce, C., Wang, X., Levi, T., Lott, M., … Yu, D. W. (2013). Reliable, verifiable and efficient monitoring of biodiversity via metabarcoding. Ecology Letters, 16(10), 1245–1257. https://doi.org/10.1111/ele.12162

Jmhasly, P., & Nentwig, W. (1995). Habitat management in winter wheat and evaluation of subsequent spider predation on insect pests. Acta Oecologica, 16, 389–403.

Joimel, S., Schwartz, C., Bonfanti, J., Hedde, M., Krogh, P. H., Pérès, G., Pernin, C., Rakoto, A., Salmon, S., Santorufo, L., & Cortet, J. (2021). Functional and Taxonomic Diversity of Collembola as Complementary Tools to Assess Land Use Effects on Soils Biodiversity. Frontiers in Ecology and Evolution, 9. https://www.frontiersin.org/articles/10.3389/fevo.2021.630919

Jones, C. M., Spor, A., Brennan, F. P., Breuil, M.-C., Bru, D., Lemanceau, P., Griffiths, B., Hallin, S., & Philippot, L. (2014). Recently identified microbial guild mediates soil N2O sink capacity. Nature Climate Change, 4(9), 801–805. https://doi.org/10.1038/nclimate2301

Jones, R. J. A., Verheijen, F. G. A., Reuter, H. I., Jones, A. R., European Commission, Joint Research Centre, & Institute for Environment and Sustainability (Eds.). (2008). Environmental assessment of soil for monitoring Volume V: Procedures & protocols. Publications Office.

Jonsson, M., Bommarco, R., Ekbom, B., Smith, H. G., Bengtsson, J., Caballero-Lopez, B., Winqvist, C., & Olsson, O. (2014). Ecological production functions for biological control services in agricultural landscapes. Methods in Ecology and Evolution, 5(3), 243–252. https://doi.org/10.1111/2041-210X.12149

Joos, L., Beirinckx, S., Haegeman, A., Debode, J., Vandecasteele, B., Baeyen, S., Goormachtig, S., Clement, L., & De Tender, C. (2020). Daring to be differential: Metabarcoding analysis of soil and plant-related microbial communities using amplicon sequence variants and operational taxonomical units. BMC Genomics, 21(1), 733. https://doi.org/10.1186/s12864-020-07126-4

Joosse-van Damme, E. N. G. (1965). Pitfall-trapping as a method for studying surface dwelling collembola. Zeitschrift Für Morphologie Und Ökologie Der Tiere, 55(5), 587–596. https://doi.org/10.1007/BF00407477

Jordan, M. E. (2001). Population dynamics of oribatid mites (Acari: Oribatida) on horse pastures of North Central Florida [Master's Thesis]. University of Florida.

Jordana, R. (2012). Capbryinae & Entomobryini. Synopses on Palaearctic Collembola Volume 7/1.

Jowett, K., Milne, A. E., Metcalfe, H., Hassall, K. L., Potts, S. G., Senapathi, D., & Storkey, J. (2019). Species matter when considering landscape effects on carabid distributions. Agriculture, Ecosystems & Environment, 285, 106631. https://doi.org/10.1016/j.agee.2019.106631

Joyce, K. A., Holland, J. M., & Doncaster, C. P. (1999). Influences of hedgerow intersections and gaps on the movement of carabid beetles. Bulletin of Entomological Research, 89, 523–531.

Juen, A., & Traugott, M. (2004). Spatial distribution of epigaeic predators in a small field in relation to season and surrounding crops. Agriculture, Ecosystems & Environment, 103(3), 613–620. https://doi.org/10.1016/j.agee.2003.10.017

Jung, M., Arnell, A., De Lamo, X., García-Rangel, S., Lewis, M., Mark, J., Merow, C., Miles, L., Ondo, I., Pironon, S., Ravilious, C., Rivers, M., Schepashenko, D., Tallowin, O., Van Soesbergen, A., Govaerts, R., Boyle, B. L., Enquist, B. J., Feng, X., … Visconti, P. (2021). Areas of global importance for conserving terrestrial biodiversity, carbon and water. Nature Ecology & Evolution, 5, 1499–1509. https://doi.org/10.1101/2020.04.16.021444

Kajak, A., Kupryjanowicz, J., & Petrov, P. (2000). Long term changes in spider (Araneae) communities in natural and drained fens in the Biebrza River Valley. Ekologia(Bratislava)/Ecology(Bratislava), 19, 55–64.

Kardol, P., Newton, J. S., Bezemer, T. M., Maraun, M., & van der Putten, W. H. (2009). Contrasting diversity patterns of soil mites and nematodes in secondary succession. Acta Oecologica, 35(5), 603–609. https://doi.org/10.1016/j.actao.2009.05.006

Kardol, P., Reynolds, W. N., Norby, R. J., & Classen, A. T. (2011). Climate change effects on soil microarthropod abundance and community structure. Applied Soil Ecology, 47(1), 37–44. https://doi.org/10.1016/j.apsoil.2010.11.001

Karimi, B., Maron, P. A., Chemidlin-Prevost Boure, N., Bernard, N., Gilbert, D., & Ranjard, L. (2017). Microbial diversity and ecological networks as indicators of environmental quality. Environmental Chemistry Letters, 15(2), 265–281. https://doi.org/10.1007/s10311-017-0614-6

Katsiamides, A., & Stürzenbaum, S. R. (2021). Cryptic speciation and blurred species boundaries of the earthworm: A challenge for soil-based toxicological risk assessments. Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology, 239, 108880. https://doi.org/10.1016/j.cbpc.2020.108880

Kaurin, A., Mihelič, R., Kastelec, D., Schloter, M., Suhadolc, M., & Grčman, H. (2015). Consequences of minimum soil tillage on abiotic soil properties and composition of microbial communities in a shallow Cambisol originated from fluvioglacial deposits. Biology and Fertility of Soils, 51(8), 923–933. https://doi.org/10.1007/s00374-015-1037-9

Keck, F., Blackman, R. C., Bossart, R., Brantschen, J., Couton, M., Hürlemann, S., Kirschner, D., Locher, N., Zhang, H., & Altermatt, F. (2022). Meta-analysis shows both congruence and complementarity of DNA and eDNA metabarcoding to traditional methods for biological community assessment. Molecular Ecology, 31(6), 1820–1835. https://doi.org/10.1111/mec.16364

Kibblewhite, M. G., Jones, R. J. A., Baritz, R., Huber, S., Arrouays, D., Micheli, E., & Stephens, M. (2008). ENVASSO final report part I: Scientific and technical activities. ENVASSO Project (Contract 022713) Coordinated by Cranfield University, UK, for Scientific Support to Policy, European Commission 6th Framewortk Research Programme.

Kinnunen, H., & Tiainen, J. (1994). Carabid beetles and landscape structure of agricultural environments – variations at different levels of spatial scale.

Klaiber, J., Altermatt, F., Birrer, S., & et al. (2017). Fauna Indicativa. WSL Berichte, 54. http://www.unine.ch/files/live/sites/cscf/files/Documents_telecharger/fauna_indicativa/Bericht_54_Klaiber_Web.pdf

Kleijn, D., Baquero, R. A., Clough, Y., Díaz, M., Esteban, J., Fernández, F., Gabriel, D., Herzog, F., Holzschuh, A., Jöhl, R., Knop, E., Kruess, A., Marshall, E. J. P., Steffan-Dewenter, I., Tscharntke, T., Verhulst, J., West, T. M., & Yela, J. L. (2006). Mixed biodiversity benefits of agri-environment schemes in five European countries: Biodiversity effects of European agri-environment schemes. Ecology Letters, 9(3), 243–254. https://doi.org/10.1111/j.1461-0248.2005.00869.x

Kleijn, D., Berendse, F., Smit, R., & Gilissen, N. (2001). Agri-environment schemes do not effectively protect biodiversity in Dutch agricultural landscapes. Nature, 413(6857), 723–725. https://doi.org/10.1038/35099540

Kleijn, D., Berendse, F., Smit, R., Gilissen, N., Smit, J., Brak, B., & Groeneveld, R. (2004). Ecological Effectiveness of Agri-Environment Schemes in Different Agricultural Landscapes in The Netherlands. Conservation Biology, 18(3), 775–786. https://doi.org/10.1111/j.1523-1739.2004.00550.x

Kleijn, D., Kohler, F., Báldi, A., Batáry, P., Concepción, E. D., Clough, Y., Díaz, M., Gabriel, D., Holzschuh, A., Knop, E., Kovács, A., Marshall, E. J. P., Tscharntke, T., & Verhulst, J. (2009). On the relationship between farmland biodiversity and land-use intensity in Europe. Proceedings of the Royal Society B: Biological Sciences, 276(1658), 903–909. https://doi.org/10.1098/rspb.2008.1509

Kleijn, D., Nature Conservation and Plant Ecology, PE&RC, Alterra - Spatial knowledge systems, Biometris (PPO/PRI), Alterra - Vegetation, forest and landscape ecology, WIMEK, Alterra - Environmental risk assessment, Alterra - Biodiversity and policy, Bink, R. J., ter Braak, C. J. F., van Grunsven, R., Ozinga, W. A., Roessink, I., Scheper, J. A., Schmidt, A. M., Wallis de Vries, M. F., Wegman, R., van der Zee, F. F., & Zeegers, Th. (2018). Achteruitgang insectenpopulaties in Nederland: Trends, oorzaken en kennislacunes. Wageningen Environmental Research. https://doi.org/10.18174/444039

Kleijn, D., & Sutherland, W. J. (2003). How effective are European agri-environment schemes in conserving and promoting biodiversity? Journal of Applied Ecology, 40(6), 947–969. https://doi.org/10.1111/j.1365-2664.2003.00868.x

Klinger, K. (1987). Auswirkungen eingesäter Randstreifen an einem Winterweizen-Feld auf die Raubarthropodenfauna und den Getreideblattlausbefall. Journal of Applied Entomology, 104(1–5), 47–58. https://doi.org/10.1111/j.1439-0418.1987.tb00495.x

Klok, C., & de Roos, A. M. (1996). Population Level Consequences of Toxicological Influences on Individual Growth and Reproduction in Lumbricus rubellus (Lumbricidae, Oligochaeta). Ecotoxicology and Environmental Safety, 33(2), 118–127. https://doi.org/10.1006/eesa.1996.0015

Knapp, M., & Řezáč, M. (2015). Even the Smallest Non-Crop Habitat Islands Could Be Beneficial: Distribution of Carabid Beetles and Spiders in Agricultural Landscape. PLOS ONE, 10(4), e0123052. https://doi.org/10.1371/journal.pone.0123052

Knapp, M., & Saska, P. (2012). The effects of habitat, density, gender and duration on overwintering success in Bembidion lampros (Coleoptera: Carabidae). Journal of Applied Entomology, 136(3), 225–233. https://doi.org/10.1111/j.1439-0418.2011.01643.x

Knapp, M., Seidl, M., Knappová, J., Macek, M., & Saska, P. (2019). Temporal changes in the spatial distribution of carabid beetles around arable field-woodlot boundaries. Scientific Reports, 9(1), 8967. https://doi.org/10.1038/s41598-019-45378-7

Knauer, N., & Stachow, U. (1987). Aktivitäten von Laufkäfern (Carabidae Col.) in einem intensiv wirtschaftenden Ackerbaubetrieb–Ein Beitrag zur Agrarökosystemanalyse. Journal of Agronomy and Crop Science, 159(2), 131–145. https://doi.org/10.1111/j.1439-037X.1987.tb00621.x

Knop, E., Kleijn, D., Herzog, F., & Schmid, B. (2006). Effectiveness of the Swiss agri-environment scheme in promoting biodiversity: Effectiveness of agri-environment schemes. Journal of Applied Ecology, 43(1), 120–127. https://doi.org/10.1111/j.1365-2664.2005.01113.x

Koivula, M. J. (2011). Useful model organisms, indicators, or both? Ground beetles (Coleoptera, Carabidae) reflecting environmental conditions. ZooKeys, 100, 287–317. https://doi.org/10.3897/zookeys.100.1533

Koivula, M., Kotze, J., Hiisivuori, L., & Rita, H. (2003). Pitfall trap efficiency: Do trap size, collecting fluid and vegetation structure matter? Entomologica Fennica, 14(1), Article 1. https://doi.org/10.33338/ef.84167

Kommission Bodenschutz beim UBA. (2020). Boden und Biodiversität – Forderungen an die Politik. 8.

Kommission Bodenschutz beim Umweltbundesamt (KBU). (2023). Bodenbiodiversität unverzichtbar für den Klimaschutz und die Bereitstellung natürlicher Ressourcen Empfehlungen für ein bundesweites bodenbiologisches Monitoring. 8.

Köninger, J., Lugato, E., Panagos, P., Kochupillai, M., Orgiazzi, A., & Briones, M. J. I. (2021). Manure management and soil biodiversity: Towards more sustainable food systems in the EU. Agricultural Systems, 194, 103251. https://doi.org/10.1016/j.agsy.2021.103251

Köninger, J., Panagos, P., Jones, A., Briones, M. J. I., & Orgiazzi, A. (2022). In defence of soil biodiversity: Towards an inclusive protection in the European Union. Biological Conservation, 268, 109475. https://doi.org/10.1016/j.biocon.2022.109475

Kotze, D. J., Brandmayr, P., Casale, A., Dauffy-Richard, E., Dekoninck, W., Koivula, M. J., Lövei, G. L., Mossakowski, D., Noordijk, J., Paarmann, W., Pizzolotto, R., Saska, P., Schwerk, A., Serrano, J., Szyszko, J., Taboada, A., Turin, H., Venn, S., Vermeulen, R., & Zetto, T. (2011). Forty years of carabid beetle research in Europe – from taxonomy, biology, ecology and population studies to bioindication, habitat assessment and conservation. ZooKeys, 100, 55–148. https://doi.org/10.3897/zookeys.100.1523

Kotze, D. J., & O'Hara, R. B. (2003). Species decline—but why? Explanations of carabid beetle (Coleoptera, Carabidae) declines in Europe. Oecologia, 135(1), 138–148. https://doi.org/10.1007/s00442-002-1174-3

Kováč, L., L'uptáčik, P., Miklisová, D., & Mati, R. (2001). Soil Oribatida and Collembola communities across a land depression in an arable field. European Journal of Soil Biology, 37(4), 285–289. https://doi.org/10.1016/S1164-5563(01)01106-2

Kowatsch, A. (Ed.). (2011). Indikatoren für ein integratives Monitoring in deutschen Großschutzgebieten: Endbericht des gleichnamigen F+E-Vorhabens. Bundesamt für Naturschutz.

Kragten, S., Tamis, W. L. M., Gertenaar, E., Midcap Ramiro, S. M., Van Der Poll, R. J., Wang, J., & De Snoo, G. R. (2011). Abundance of invertebrate prey for birds on organic and conventional arable farms in the Netherlands. Bird Conservation International, 21(1), 1–11. https://doi.org/10.1017/S0959270910000079

Kreckwitz, H. (1980). Untersuchungen zur Fortpflanzungsbiologie und zum jahresperiodischen Verhalten des Carabiden Agonum dorsale Pont. In Temperatur- und Feuchtigkeitsgradienten. Zoologische Jahrbücher. Abteilung Für Systematik, Geographie Und Biologie Der Tiere., 107, 183–234.

Kremen, C. (2005). Managing ecosystem services: What do we need to know about their ecology? Ecology Letters, 8(5), 468–479. https://doi.org/10.1111/j.1461-0248.2005.00751.x

Kretzschmar, A. (1991). Burrowing ability of the earthworm Aporrectodea longa limited by soil compaction and water potential. Biology and Fertility of Soils, 11(1), 48–51. https://doi.org/10.1007/BF00335834

Kretzschmar, A., & Bruchou, C. (1991). Weight response to the soil water potential of the earthworm Aporrectodea longa. Biology and Fertility of Soils, 12(3), 209–212. https://doi.org/10.1007/BF00337204

Kromp, B. (1990). Carabid beetles (Coleoptera, Carabidae) as bioindicators in biological and conventional farming in Austrian potato fields. Biology and Fertility of Soils, 9(2), 182–187. https://doi.org/10.1007/BF00335805

Kromp, B. (1999). Carabid beetles in sustainable agriculture: A review on pest control efficacy, cultivation impacts and enhancement. 42.

Kromp, B., & Steinberger, K.-H. (1992). Grassy field margins and arthropod diversity: A case study on ground beetles and spiders in eastern Austria (Coleoptera: Carabidae; Arachnida: Aranei, Opiliones). Agriculture, Ecosystems & Environment, 40(1), 71–93. https://doi.org/10.1016/0167-8809(92)90085-P

Krück, S., Joschko, M., Schultz-Sternberg, R., Kroschewski, B., & Tessmann, J. (2006). A classification scheme for earthworm populations (Lumbricidae) in cultivated agricultural soils in Brandenburg, Germany. Journal of Plant Nutrition and Soil Science, 169(5), 651–660. https://doi.org/10.1002/jpln.200521903

Kruess, A., & Tscharntke, T. (1994). Habitat Fragmentation, Species Loss, and Biological Control. Science, 264(5165), 1581–1584. https://doi.org/10.1126/science.264.5165.1581

Krüger, I., Chartin, C., van Wesemael, B., Malchair, S., & Carnol, M. (2017). Integrating biological indicators in a Soil Monitoring Network (SMN) to improve soil quality diagnosis – a study case in Southern Belgium (Wallonia). BASE. https://doi.org/10.25518/1780-4507.13482

Kuhlmann, U. (1998). Possibilities for biological control of the western corn rootworm, Diabrotica virgifera virgifera LeConte, in Central Europe. 19(2), 10.

Kujawa, K., Sobczyk, D., & Kajak, A. (2006). Dispersal of Harpalus rufipes (deGeer)(Carabidae) between shelterbelt and cereal field. Polish Journal of Ecology, 54(2), 243–252.

Kunrath, T. R., de Berranger, C., Charrier, X., Gastal, F., de Faccio Carvalho, P. C., Lemaire, G., Emile, J.-C., & Durand, J.-L. (2015). How much do sod-based rotations reduce nitrate leaching in a cereal cropping system? Agricultural Water Management, 150, 46–56. https://doi.org/10.1016/j.agwat.2014.11.015

Kuznetsova, N. A. (2006). Long-term dynamics of Collembola in two contrasting ecosystems. Pedobiologia, 50(2), 157–164. https://doi.org/10.1016/j.pedobi.2005.12.004

Kwak, J. I., & An, Y.-J. (2016). Trophic transfer of silver nanoparticles from earthworms disrupts the locomotion of springtails (Collembola). Journal of Hazardous Materials, 315, 110–116. https://doi.org/10.1016/j.jhazmat.2016.05.005

Labruyere, S., Bohan, D., Biju-Duval, L., Ricci, B., & Petit, S. (2015). Local, neighbor and landscape effects on the abundance of weed seed-eating carabids in arable fields: A nationwide analysis. Basic and Applied Ecology, 17. https://doi.org/10.1016/j.baae.2015.10.008

Lagerlöf, J., & Wallin, H. (1993). The abundance of arthropods along two field margins with different types of vegetation composition: An experimental study. Agriculture, Ecosystems & Environment, 43(2), 141–154. https://doi.org/10.1016/0167-8809(93)90116-7

Lami, F., Boscutti, F., Masin, R., Sigura, M., & Marini, L. (2020). Seed predation intensity and stability in agro-ecosystems: Role of predator diversity and soil disturbance. Agriculture, Ecosystems & Environment, 288, 106720. https://doi.org/10.1016/j.agee.2019.106720

Landis, D. A. (2017). Designing agricultural landscapes for biodiversity-based ecosystem services. Basic and Applied Ecology, 18, 1–12. https://doi.org/10.1016/j.baae.2016.07.005

Landis, D. A., Menalled, F. D., Costamagna, A. C., & Wilkinson, T. K. (2005). Manipulating plant resources to enhance beneficial arthropods in agricultural landscapes. Weed Science, 53, 902–908.

Landis, D. A., Wratten, S. D., & Gurr, G. M. (2000). Habitat Management to Conserve Natural Enemies of Arthropod Pests in Agriculture. Annual Review of Entomology, 45(1), 175–201. https://doi.org/10.1146/annurev.ento.45.1.175

Lang, A. (2000). The pitfalls of pitfalls: A comparison of pitfall trap catches and absolute density estimates of epigeal invertebrate predators in Arable Land. Anzeiger Für Schädlingskunde = Journal of Pest Science, 73(4), 99–106. https://doi.org/10.1007/BF02956438

Lang, A., Arndt, M., Beck, R., & Bauchhenß, J. (2005). Monitoring der Umweltwirkungen des Bt-Gens. Bayerische Landesanstalt Für Landwirtschaft, Freising-Weihenstephan.

Lang, A., & Barthel, J. (2008). Spiders (Araneae) in Arable Land: Species Community, Influence of Land Use on Diversity, and Biocontrol Significance. Perspectives for Agroecosystem Management, 307–326.

Lang, A., Brunzel, S., Dolek, M., Otto, M., & Theißen, B. (2011). Modelling in the light of uncertainty of key parameters: A call to exercise caution in field predictions of Bt -maize effects. Proceedings of the Royal Society B: Biological Sciences, 278(1708), 980–981. https://doi.org/10.1098/rspb.2010.2085

Lange, M., Eisenhauer, N., Sierra, C. A., Bessler, H., Engels, C., Griffiths, R. I., Mellado-Vázquez, P. G., Malik, A. A., Roy, J., Scheu, S., Steinbeiss, S., Thomson, B. C., Trumbore, S. E., & Gleixner, G. (2015). Plant diversity increases soil microbial activity and soil carbon storage. Nature Communications, 6(1), 6707. https://doi.org/10.1038/ncomms7707

Langer, U., Kuhn, K., Weniger, T., & Neubert, E. (2012). 17 Jahre Regenwurmerfassung auf Boden-Dauerbeobachtungsflächen (BDF) in Sachsen-Anhalt. 26.

Langmaack, M., Land, S., & Büchs, W. (2001). Effects of different field management systems on the carabid coenosis in oil seed rape with special respect to ecology and nutritional status of predacious Poecilus cupreus L.(Col., Carabidae). Journal of Applied Entomology, 125(6), 313–320.

Langmaack, M., Röhrig, R., & Schrader, S. (1996). Einfluß der Bodenbearbeitung und Bodenverdichtung auf terrestrische Ologochaeten (Enchytraeidae und Lumbricidae) landwirtschaftlicher Nutzflachen. Braunschweiger Naturkundliche Schriften, 5, 105–123.

Langmaack, M., Schrader, S., Rapp-Bernhardt, U., & Kotzke, K. (1999). Quantitative analysis of earthworm burrow systems with respect to biological soil-structure regeneration after soil compaction. Biology and Fertility of Soils, 28(3), 219–229. https://doi.org/10.1007/s003740050486

Langmaack, M., Schrader, S., Rapp-Bernhardt, U., & Kotzke, K. (2002). Soil structure rehabilitation of arable soil degraded by compaction. Geoderma, 105(1–2), 141–152. https://doi.org/10.1016/S0016-7061(01)00097-0

Langraf, V., Petrovičová, K., & Schlarmannová, J. (2021). The Composition and Seasonal Variation of Epigeic Arthropods in Different Types of Agricultural Crops and Their Ecotones. Agronomy, 11(11), Article 11. https://doi.org/10.3390/agronomy11112276

Lanno, R., Wells, J., Conder, J., Bradham, K., & Basta, N. (2004). The bioavailability of chemicals in soil for earthworms. Ecotoxicology and Environmental Safety, 57(1), 39–47. https://doi.org/10.1016/j.ecoenv.2003.08.014

LANUV. (2022). Klimaindikatoren. Klimaatlas NRW. https://www.klimaatlas.nrw.de/klima-nrw-monitoring/alle-indikatoren

Lavelle, P. (1988). Earthworm activities and the soil system. Biology and Fertility of Soils, 6(3). https://doi.org/10.1007/BF00260820

Lavelle, P., Mathieu, J., Spain, A., Brown, G., Fragoso, C., Lapied, E., De Aquino, A., Barois, I., Barrios, E., Barros, M. E., Bedano, J. C., Blanchart, E., Caulfield, M., Chagueza, Y., Dai, J., Decaëns, T., Dominguez, A., Dominguez, Y., Feijoo, A., … Zhang, C. (2022). Soil macroinvertebrate communities: A world-wide assessment. Global Ecology and Biogeography, 31(7), 1261–1276. https://doi.org/10.1111/geb.13492

Lavelle, P., & Spain, A. (2001). Soil Ecology. Springer Science & Business Media.

Le Couteulx, A., Wolf, C., Hallaire, V., & Pérès, G. (2015). Burrowing and casting activities of three endogeic earthworm species affected by organic matter location. Pedobiologia, 58(2–3), 97–103. https://doi.org/10.1016/j.pedobi.2015.04.004

Le Provost, G., Thiele, J., Westphal, C., Penone, C., Allan, E., Neyret, M., van der Plas, F., Ayasse, M., Bardgett, R. D., Birkhofer, K., Boch, S., Bonkowski, M., Buscot, F., Feldhaar, H., Gaulton, R., Goldmann, K., Gossner, M. M., Klaus, V. H., Kleinebecker, T., … Manning, P. (2021). Contrasting responses of above- and belowground diversity to multiple components of land-use intensity. Nature Communications, 12(1), 3918. https://doi.org/10.1038/s41467-021-23931-1

Lechenet, M., Dessaint, F., Py, G., Makowski, D., & Munier-Jolain, N. (2017). Reducing pesticide use while preserving crop productivity and profitability on arable farms. Nature Plants, 3(3), 17008. https://doi.org/10.1038/nplants.2017.8

Lee, J. C., Menalled, F. D., & Landis, D. A. (2001). Refuge habitats modify impact of insecticide disturbance on carabid beetle communities. Journal of Applied Ecology, 38(2), 472–483. https://doi.org/10.1046/j.1365-2664.2001.00602.x

Lee, K. E. (1985). Earthworms: Their ecology and relationships with soils and land use. Academic Press Inc. https://www.cabdirect.org/cabdirect/abstract/19851998411

Leese, F., Woppowa, L., Bálint, M., Höss, S., Krehenwinkel, H., Lötters, S., Meissner, K., Nowak, C., Rausch, P., Vera, R., Rulik, B., Weigand, A. M., Zimmermann, J., Koschorrek, J., & Zughart, W. (2023). DNA-basierte Biodiversitätsanalysen im Natur- und Umweltschutz: Welche Optionen haben wir für eine Standardisierung? Bundesamt für Naturschutz. https://doi.org/10.19217/skr666

Lehman, R. M., Cambardella, C. A., Stott, D. E., Acosta-Martinez, V., Manter, D. K., & et al. (2015). Understanding and Enhancing Soil Biological Health: The Solution for Reversing Soil Degradation. Sustainability, 7, 988–1027.

Lehmann, A., Zheng, W., & Rillig, M. C. (2017). Soil biota contributions to soil aggregation. Nature Ecology & Evolution, 1(12), 1828–1835. https://doi.org/10.1038/s41559-017-0344-y

Lehmann, J., Bossio, D. A., Kögel-Knabner, I., & Rillig, M. C. (2020). The concept and future prospects of soil health. Nature Reviews. Earth & Environment, 1(10), 544–553. https://doi.org/10.1038/s43017-020-0080-8

Lemanceau, P., Maron, P.-A., Mazurier, S., Mougel, C., Pivato, B., Plassart, P., Ranjard, L., Revellin, C., Tardy, V., & Wipf, D. (2015). Understanding and managing soil biodiversity: A major challenge in agroecology. Agronomy for Sustainable Development, 35(1), 67–81. https://doi.org/10.1007/s13593-014-0247-0

Lemic, D., Cacija, M., Viric Gasparic, H., Drmić, Z., Bažok, R., & Pajač Živković, I. (2017). The ground beetle (Coleoptera: Carabidae) community in an intensively managed agricultural landscape. Applied Ecology and Environmental Research, 15, 661–674. https://doi.org/10.15666/aeer/1504_661674

Lennartz, G. (2003). Der biozönologisch-soziologische Klassifikationsansatz und dessen Anwendung in der Naturschutzpraxis: Dargestellt am Beispiel der Borstgrasrasen (Violion) der Eifel unter Berücksichtigung der Laufkäfer, Spinnen, Heuschrecken, Tagfalter und Schwebfliegen (Flur). Shaker.

Lenoir, L., & Lennartsson, T. (2010). Effects of Timing of Grazing on Arthropod Communities in Semi-Natural Grasslands. Journal of Insect Science, 10(60), 1–24. https://doi.org/10.1673/031.010.6001

Leslie, T. W., Biddinger, D. J., Mullin, C. A., & Fleischer, S. J. (2009). Carabidae Population Dynamics and Temporal Partitioning: Response to Coupled Neonicotinoid-transgenic Technologies in Maize. Environmental Entomology, 38(3), 935–943. https://doi.org/10.1603/022.038.0348

Leslie, T. W., Hoheisel, G. A., Biddinger, D. J., Rohr, J. R., & Fleischer, S. J. (2007). Transgenes Sustain Epigeal Insect Biodiversity in Diversified Vegetable Farm Systems. Environmental Entomology, 36(1), 234–244. https://doi.org/10.1603/0046-225X(2007)36[234:TSEIBI]2.0.CO;2

Lessard-Therrien, M., Humbert, J.-Y., Hajdamowicz, I., Stańska, M., Klink, R. van, Lischer, L., & Arlettaz, R. (2018). Impacts of management intensification on ground-dwelling beetles and spiders in semi-natural mountain grasslands. Agriculture, Ecosystems & Environment, 251, 59–66. https://doi.org/10.1016/j.agee.2017.08.025

Leyer, I., & Wesche, K. (2007). Multivariate Statistik in der Ökologie. Eine Einführung. Springer.

Lichtenberg, E. M., Kennedy, C. M., Kremen, C., Batáry, P., Berendse, F., Bommarco, R., Bosque-Pérez, N. A., Carvalheiro, L. G., Snyder, W. E., Williams, N. M., Winfree, R., Klatt, B. K., Åström, S., Benjamin, F., Brittain, C., Chaplin-Kramer, R., Clough, Y., Danforth, B., Diekötter, T., … Crowder, D. W. (2017). A global synthesis of the effects of diversified farming systems on arthropod diversity within fields and across agricultural landscapes. Global Change Biology, 23(11), 4946–4957. https://doi.org/10.1111/gcb.13714

Liess, M. (Ed.). (2005). Effects of pesticides in the field (Flur). EU & SETAC Europe Workshop, [Pensacola, FL. Society of Environmental Toxicology and Chemistry.

Liess, M., Foit, K., Knillmann, S., Schäfer, R. B., & Liess, H.-D. (2016). Predicting the synergy of multiple stress effects. Scientific Reports, 6(1), 32965. https://doi.org/10.1038/srep32965

Liess, M., Pieters, B. J., & Duquesne, S. (2006). Long-term signal of population disturbance after pulse exposure to an insecticide: Rapid recovery of abundance, persistent alteration of structure. Environmental Toxicology and Chemistry, 25(5), 1326. https://doi.org/10.1897/05-466R.1

Liess, M., Schäfer, R. B., & Schriever, C. A. (2008). The footprint of pesticide stress in communities—Species traits reveal community effects of toxicants. Science of The Total Environment, 406(3), 484–490. https://doi.org/10.1016/j.scitotenv.2008.05.054

Lindberg, N. (2003). Soil Fauna and Global Change—Responses to Experimental Drought, Irrigation, Fertilisation and Soil Warming [PhD Thesis]. Swedish University of Agricultural Sciences.

Liu, M., Clarke, L. J., Baker, S. C., Jordan, G. J., & Burridge, C. P. (2020). A practical guide to DNA metabarcoding for entomological ecologists. Ecological Entomology, 45, 373–385.

Lofs-Holmin, A. (1983). Earthworm population dynamics in different agricultural rotations. In Earthworm Ecology (pp. 151–160). Springer, Dordrecht. https://doi.org/10.1007/978-94-009-5965-1_12

Lopez, M. D., Prasifka, J. R., Bruck, D. J., & Lewis, L. C. (2005). Utility of Ground Beetle Species in Field Tests of Potential Nontarget Effects of Bt Crops. Environmental Entomology, 34, 1317–1324.

Lori, M., Symnaczik, S., Mäder, P., Deyn, G. D., & Gattinger, A. (2017). Organic farming enhances soil microbial abundance and activity—A meta-analysis and meta-regression. PLOS ONE, 12(7), e0180442. https://doi.org/10.1371/journal.pone.0180442

Losey, J. E., & Denno, R. F. (1998). Positive Predator–Predator Interactions: Enhanced Predation Rates and Synergistic Suppression of Aphid Populations. Ecology, 79(6), 2143–2152. https://doi.org/10.1890/0012-9658(1998)079[2143:PPPIEP]2.0.CO;2

Loureiro, S., Soares, A. M. V. M., & Nogueira, A. J. A. (2005). Terrestrial avoidance behaviour tests as screening tool to assess soil contamination. Environmental Pollution, 138(1), 121–131. https://doi.org/10.1016/j.envpol.2005.02.013

Lövei, G. L., & Toft, S. (2003). European Carabidology 2003 Procedings of the 11th European Carabidologists' Meeting, Århus July 2003. European Carabidology 2003. Proceedings of the 11th European Carabidologist Meeti, 183–208.

Lövei, G., & Magura, T. (2017). Ground beetle (Coleoptera: Carabidae) diversity is higher in narrow hedges composed of a native compared to non-native trees in a Danish agricultural landscape. Insect Conservation and Diversity, 10, 141–150. https://doi.org/10.1111/icad.12210

Loveland, P., & Thompson, T. (2002). Identification and development of a set of national indicators for soil quality.

Lowe, C. N., & Butt, K. R. (2002). Influence of organic matter on earthworm production and behaviour: A laboratory-based approach with applications for soil restoration. European Journal of Soil Biology, 38(2), 173–176. https://doi.org/10.1016/S1164-5563(02)01141-X

Lubbers, I. M., Van Groenigen, K. J., Fonte, S. J., Six, J., Brussaard, L., & Van Groenigen, J. W. (2013). Greenhouse-gas emissions from soils increased by earthworms. Nature Climate Change, 3(3), 187–194. https://doi.org/10.1038/nclimate1692

Lück, D.-B. D., Raskin, D.-B. D., Raskin, D.-B. D. R., Werfling, D.-G. A., Wirooks, D.-B. D. L., & Gutzeit, D.-U. J. (2011). Aachener Artenschutzkonzept (I. Stufe) Auswertung und Beschreibung der Artengruppen mit Identifizierung bedeutsamer Arten. Stadt Aachen.

Ludwig, B. (n.d.). Methodik der statistischen Auswertung von Daten der Boden-Dauerbeobachtung (p. 30) [Abschlussbericht].

Ludwig, M., Wilmes, P., & Schrader, S. (2018). Measuring soil sustainability via soil resilience. Science of The Total Environment, 626, 1484–1493. https://doi.org/10.1016/j.scitotenv.2017.10.043

Ludy, C. (2005). A risk assessment of genetically modified organisms: Potential effects of Bt maize on spiders [PhD Thesis]. Universität Bremen.

Ludy, C., & Lang, A. (2004). How to catch foliage-dwelling spiders (Araneae) in maize fields and their margins: A comparison of two sampling methods. Journal of Applied Entomology, 128(7), 501–509. https://doi.org/10.1111/j.1439-0418.2004.00880.x

Ludy, C., & Lang, A. (2006). A 3-year field-scale monitoring of foliage-dwelling spiders (Araneae) in transgenic Bt maize fields and adjacent field margins. Biological Control, 38(3), 314–324. https://doi.org/10.1016/j.biocontrol.2006.05.010

Luff, M. (2004). Densities of carabid beetle (Coleoptera: Carabidae) larvae in agricultural land in northeast England. Baltic Journal of Coleopterology, 4, 1–4.

Luff, M. L. (1987). Biology of polyphagous ground beetles in agriculture. Agricultural Zoology Reviews, 2, 237–278.

Luff, M. L. (1996). Use of Carabids as environmental indicators in grasslands and cereals. Annales Zoologici Fennici, 11.

Luka, H., Lutz, M., Blick, T., & Pfiffner, L. (2001). Einfluss von eingesäten Wildblumenstreifen auf die epigäischen Laufkäfer und Spinnen (Carabidae und Araneae) in der intensiv genutzten Agrarlandschaft 'Grosses Moos', Schweiz [The influence of sown wildflower strips on ground beetles and spiders (Carabidae & Araneae) in an intensively cultivated agricultural area (Grosses Moos, Switzerland)]. Peckiana, 1, 45–60.

Lundgren, J. G., Hesler, L. S., Clay, S. A., & Fausti, S. F. (2013). Insect communities in soybeans of eastern South Dakota: The effects of vegetation management and pesticides on soybean aphids, bean leaf beetles, and their natural enemies. Crop Protection, 43, 104–118. https://doi.org/10.1016/j.cropro.2012.08.005

Lupi, D., Colombo, M., & Facchini, S. (2007). The ground beetles (Coleoptera: Carabidae) of three horticultural farms in Lombardy, Northern Italy ( ). 17.

Lys, J. A., Zimmermann, M., & Nentwig, W. (1994). Increase in activity density and species number of carabid beetles in cereals as a result of strip-management. Entomologia Experimentalis et Applicata, 73, 1–9. https://doi.org/10.1007/BF02382508

Lys, J.-A., & Nentwig, W. (1991). Surface activity of carabid beetles inhabiting cereal fields. Seasonal phenology and the influence of farming operations on five abundant species. Pedobiologia, 35, 129–138.

Lys, J.-A., & Nentwig, W. (1992). Augmentation of beneficial arthropods by strip-management. Oecologia, 92, 373–382. https://doi.org/10.1007/BF00317463

Ma, W., & Bodt, J. (1993). Differences in toxicity of the insecticide chlorpyrifos to six species of earthworms (Oligochaeta, Lumbricidae) in standardized soil tests. Bulletin of Environmental Contamination and Toxicology, 50(6). https://doi.org/10.1007/BF00209951

MacFadyen, A. (1961). Improved Funnel-Type Extractors for Soil Arthropods. Journal of Animal Ecology, 30(1), 171–184.

Macfadyen, S., Banks, J. E., Stark, J. D., & Davies, A. P. (2014). Using Semifield Studies to Examine the Effects of Pesticides on Mobile Terrestrial Invertebrates. Annual Review of Entomology, 59(1), 383–404. https://doi.org/10.1146/annurev-ento-011613-162109

MacLeod, A., Wratten, S. D., Sotherton, N. W., & Thomas, M. B. (2004). 'Beetle banks' as refuges for beneficial arthropods in farmland: Long-term changes in predator communities and habitat. Agricultural and Forest Entomology, 8.

Mäder, P., Fliessbach, A., Dubois, D., Gunst, L., Jossi, W., Widmer, F., Oberson, A., Frossard, E., Oehl, F., Wiemken, A., Gattinger, A., & Niggli, U. (2006). The DOK experiment (Switzerland). Long-Term Field Experiments in Organic Farming, 41–58.

Maelfait, J.-P., & De Keer, R. (1990). The border zone of an intensively grazed pasture as a corridor for spiders araneae. Biological Conservation, 54(3), 223–238. https://doi.org/10.1016/0006-3207(90)90053-R

Magagnoli, S., Masetti, A., Depalo, L., Sommaggio, D., Campanelli, G., Leteo, F., Lövei, G. L., & Burgio, G. (2018). Cover crop termination techniques affect ground predation within an organic vegetable rotation system: A test with artificial caterpillars. Biological Control, 117, 109–114. https://doi.org/10.1016/j.biocontrol.2017.10.013

Magura, T., Lövei, G., & Tóthmérész, B. (2017). Edge responses are different in edges under natural versus anthropogenic influence: A meta-analysis using ground beetles. Ecology and Evolution, 7, 1009–1017. https://doi.org/10.1002/ece3.2722

Magura, T., Tóthmérész, B., & Molnár, T. (2001). Forest edge and diversity: Carabids along forest-grassland transects. Biodiversity & Conservation, 10(2), 287–300. https://doi.org/10.1023/A:1008967230493

Manning, P., Gossner, M. M., Bossdorf, O., Allan, E., Zhang, Y.-Y., Prati, D., Blüthgen, N., Boch, S., Böhm, S., Börschig, C., Hölzel, N., Jung, K., Klaus, V. H., Klein, A. M., Kleinebecker, T., Krauss, J., Lange, M., Müller, J., Pašalić, E., … Fischer, M. (2015). Grassland management intensification weakens the associations among the diversities of multiple plant and animal taxa. Ecology, 96(6), 1492–1501. https://doi.org/10.1890/14-1307.1

Marc, P., & Canard, A. (1997). Maintaining spider biodiversity in agroecosystems as a tool in pest control. Agriculture, Ecosystems & Environment, 62(2), 229–235. https://doi.org/10.1016/S0167-8809(96)01133-4

Marino, P. C., & Landis, D. A. (1996). Effect of Landscape Structure on Parasitoid Diversity and Parasitism in Agroecosystems. Ecological Applications, 6(1), 276–284. https://doi.org/10.2307/2269571

Marrec, R., Badenhausser, I., Börger, L., Bretagnolle, V., Gaël, C., Plantegenest, M., Vialatte, A., & Gauffre, B. (2014, December 1). Spatiotemporal dynamics of agricultural landscapes drive the distribution and abundance of dominant carabid beetles.

Marrec, R., Badenhausser, I., Bretagnolle, V., Börger, L., Roncoroni, M., Guillon, N., & Gauffre, B. (2014). Crop succession and habitat preferences drive the distribution and abundance of carabid beetles in an agricultural landscape. Agriculture, Ecosystems and Environment, 199, 282–289.

Marrec, R., Caro, G., Miguet, P., Badenhausser, I., Plantegenest, M., Vialatte, A., Bretagnolle, V., & Gauffre, B. (2017). Spatiotemporal dynamics of the agricultural landscape mosaic drives distribution and abundance of dominant carabid beetles. Landscape Ecology, 32(12), 2383–2398. https://doi.org/10.1007/s10980-017-0576-x

Marshall, E. J. P., Brown, V. K., Boatman, N. D., Lutman, P. J. W., Squire, G. R., & Ward, L. K. (2003). The role of weeds in supporting biological diversity within crop fields. Weed Research, 43(2), 77–89. https://doi.org/10.1046/j.1365-3180.2003.00326.x

Marshall, E. J. P., & Moonen, A. C. (2002). Field margins in northern Europe: Their functions and interactions with agriculture. Agriculture, Ecosystems & Environment, 89(1), 5–21. https://doi.org/10.1016/S0167-8809(01)00315-2

Marshall, J., Baudry, J., Burel, F., Joenje, W., Gerowitt, B., Paoletti, M., Thomas, G., Kleijn, D., Le Coeur, D., & Moonen, C. (2001). Field Boundary Habitats for Wildlife, Crop, and Environmental Protection. In L. Ryszkowski (Ed.), Landscape Ecology in Agroecosystems Management (Vol. 20016556). CRC Press. https://doi.org/10.1201/9781420041378.ch9

Marshall, V. G. (1972). Comparison of two methods of estimating efficiency of funnel extractors for soil microarthropods. Soil Biology and Biochemistry, 4(4), 417–426.

Marvier, M., McCreedy, C., Regetz, J., & Kareiva, P. (2007). A Meta-Analysis of Effects of Bt Cotton and Maize on Nontarget Invertebrates. Science, 316(5830), 1475–1477. https://doi.org/10.1126/science.1139208

Marx, M., & Gaul, V. (2021). Gehaltsspannen von organischem Kohlenstoff in Ackerböden. Ergebnisse aus Deutschland. Bodenschutz, 4, 120–127.

Mateos, E. (2008). The European Lepidocyrtus Bourlet, 1839 (Collembola: Entomobryidae). Zootaxa, 1769, 35–59.

Mather, J. G., & Christensen, O. (1988). Surface movements of earthworms in agricultural land. Pedobiologia, 32(5/6), 399–405.

Mathews, J., Glante, F., Berger, M., Broll, G., Eser, U., Faensen-Thiebes, A., Feldwisch, N., König, W., Patzel, N., Sommer, R., & Xylander, W. E. R. (2020). Soil and biodiversity – Demands on politics. SOIL ORGANISMS, 92(2), Article 2. https://doi.org/10.25674/so92iss2pp95

Mauremooto, J. R., Wratten, S. D., Worner, S. P., & Fry, G. L. A. (1995). Permeability of hedgerows to predatory carabid beetles. Agriculture, Ecosystems & Environment, 52(2), 141–148. https://doi.org/10.1016/0167-8809(94)00548-S

McCravy, K. W., & Willand, J. E. (2007). Effects of Pitfall Trap Preservative on Collections of Carabid Beetles (Coleoptera: Carabidae). The Great Lakes Entomologist, 40(3 & 4), 13.

McGeogh, M. A. (1998). The selection, testing and application of terrestrial insects as bioindicators. Biological Reviews, 73(2), 181–201. https://doi.org/10.1111/j.1469-185X.1997.tb00029.x

Mclachlan, A. R. G., & Wratten, S. D. (2003). Abundance and species richness of field-margin and pasture spiders (Araneae) in Canterbury, New Zealand. New Zealand Journal of Zoology, 30(1), 57–67. https://doi.org/10.1080/03014223.2003.9518324

McLaughlin, A., & Mineau, P. (1995). The impact of agricultural practices on biodiversity. Agriculture, Ecosystems & Environment, 55(3), 201–212. https://doi.org/10.1016/0167-8809(95)00609-V

McNamara Manning, K., & Bahlai, C. A. (2021). Experimental calibration of trapping methods for addressing bias in arthropod biodiversity monitoring [Preprint]. Ecology. https://doi.org/10.1101/2021.12.06.471448

Mebes, K.-H. (1999). Collembolengemeinschaften in Agrarökosystemen. Steuerungen durch Umweltfaktoren. Einfluss auf den Stoffumsatz. Technische Universität München, Weihenstephan.

Médiène, S., Valantin-Morison, M., Sarthou, J.-P., de Tourdonnet, S., Gosme, M., Bertrand, M., Roger-Estrade, J., Aubertot, J.-N., Rusch, A., Motisi, N., Pelosi, C., & Doré, T. (2011). Agroecosystem management and biotic interactions: A review. Agronomy for Sustainable Development, 31(3), 491–514. https://doi.org/10.1007/s13593-011-0009-1

Meissle, M., Álvarez-Alfageme, F., Malone, L. A., & Romeis, J. (2012). Establishing a database of bioecological information on non-target arthropod species to support the environmental risk assessment of genetically modified crops in the EU. EFSA Supporting Publications, 9(9). https://doi.org/10.2903/sp.efsa.2012.EN-334

Meissle, M., & Lang, A. (2005). Comparing methods to evaluate the effects of Bt maize and insecticide on spider assemblages. Agriculture, Ecosystems & Environment, 107(4), 359–370. https://doi.org/10.1016/j.agee.2004.12.007

Meissle, M., Vojtech, E., & Poppy, G. M. (2005). Effects of Bt maize-fed prey on the generalist predator Poecilus cupreus L. (Coleoptera: Carabidae). Transgenic Research, 14(2), 123–132. https://doi.org/10.1007/s11248-004-6458-4

Melnychuk, N. A., Olfert, O., Youngs, B., & Gillott, C. (2003). Abundance and diversity of Carabidae (Coleoptera) in different farming systems. Agriculture, Ecosystems & Environment, 95(1), 69–72. https://doi.org/10.1016/S0167-8809(02)00119-6

Menalled, F. D., Lee, J. C., & Landis, D. A. (1999). Manipulating carabid beetle abundance alters prey removal rates in corn fields. BioControl, 43(4), 441–456. https://doi.org/10.1023/A:1009946004251

Menalled, F. D., Smith, R. G., Dauer, J. T., & Fox, T. B. (2007). Impact of agricultural management on carabid communities and weed seed predation. Agriculture, Ecosystems & Environment, 118(1–4), 49–54. https://doi.org/10.1016/j.agee.2006.04.011

Meyer, A., Focks, A., Radl, V., Keil, D., Welzl, G., Schöning, I., Boch, S., Marhan, S., Kandeler, E., & Schloter, M. (2013). Different Land Use Intensities in Grassland Ecosystems Drive Ecology of Microbial Communities Involved in Nitrogen Turnover in Soil. PLOS ONE, 8(9), e73536. https://doi.org/10.1371/journal.pone.0073536

Meyer, M., Ott, D., Götze, P., Koch, H.-J., & Scherber, C. (2019). Crop identity and memory effects on aboveground arthropods in a long-term crop rotation experiment. Ecology and Evolution, 9(12), 7307–7323. https://doi.org/10.1002/ece3.5302

Miao, T., Gao, S., Jiang, S., Kan, G., Liu, P., Wu, X., An, Y., & Yao, S. (2014). A method suitable for DNA extraction from humus-rich soil. Biotechnology Letters, 36(11), 2223–2228. https://doi.org/10.1007/s10529-014-1591-5

Miller, J. N., Brooks, R. P., & Croonquist, M. J. (1997). Effects of landscape patterns on biotic communities. Landscape Ecology, 12, 137–153.

Miller, S. (2009, August). Vergleich von Methoden zur Extraktion von Mikroarthropoden aus Waldböden. RWTH Aachen University.

Milosavljević, I., Esser, A. D., & Crowder, D. W. (2016). Effects of environmental and agronomic factors on soil-dwelling pest communities in cereal crops. Agriculture, Ecosystems & Environment, 225, 192–198. https://doi.org/10.1016/j.agee.2016.04.006

Mommertz, S., Schauer, C., Kösters, N., Lang, A., & Filser, J. (1996). A comparison of D-Vac suction, fenced and unfenced pitfall trap sampling of epigeal arthropods in agroecosystems. Annales Zoologici Fennici, 33(1), 117–124.

Monroy, F., Aira, M., Domínguez, J., & Velando, A. (2006). Seasonal population dynamics of Eisenia fetida (Savigny, 1826) (Oligochaeta, Lumbricidae) in the field. Comptes Rendus Biologies, 329(11), 912–915. https://doi.org/10.1016/j.crvi.2006.08.001

Moreby, S. J., Southway, S., Barker, A., & Holland, J. M. (2001). A comparison of the effect of new and established insecticides on nontarget invertebrates of winter wheat fields. Environmental Toxicology and Chemistry, 20(10), 2243–2254. https://doi.org/10.1002/etc.5620201017

Morecroft, M. D., Bealey, C. E., Beaumont, D. A., Benham, S., Brooks, D. R., Burt, T. P., Critchley, C. N. R., Dick, J., Littlewood, N. A., Monteith, D. T., Scott, W. A., Smith, R. I., Walmsley, C., & Watson, H. (2009). The UK Environmental Change Network: Emerging trends in the composition of plant and animal communities and the physical environment. Biological Conservation, 142(12), 2814–2832. https://doi.org/10.1016/j.biocon.2009.07.004

Morris, M. G. (2000). The effects of structure and its dynamics on the ecology and conservation of arthropods in British grasslands. Biological Conservation, 95(2), 129–142. https://doi.org/10.1016/S0006-3207(00)00028-8

Morvan, X., Saby, N. P. A., Arrouays, D., Le Bas, C., Jones, R. J. A., Verheijen, F. G. A., Bellamy, P. H., Stephens, M., & Kibblewhite, M. G. (2008). Soil monitoring in Europe: A review of existing systems and requirements for harmonisation. Science of The Total Environment, 391(1), 1–12. https://doi.org/10.1016/j.scitotenv.2007.10.046

Mueller, L., Schindler, U., Shepherd, T. G., Ball, B. C., Smolentseva, E., Pachikin, K., Hu, C., Hennings, V., Sheudshen, A. K., Behrendt, A., Eulenstein, F., & Dannowski, R. (2014). The Muencheberg Soil Quality Rating for Assessing the Quality of Global Farmland. In L. Mueller, A. Saparov, & G. Lischeid (Eds.), Novel Measurement and Assessment Tools for Monitoring and Management of Land and Water Resources in Agricultural Landscapes of Central Asia (pp. 235–248). Springer International Publishing. https://doi.org/10.1007/978-3-319-01017-5_13

Mühlethaler, R., Köthe, S., Hörren, T., Sorg, M., Eichler, L., & Lehmann, G. U. C. (2023). Insect biomass of protected habitats under the impact of arable farming in Germany [Preprint]. Ecology. https://doi.org/10.1101/2023.09.24.559203

Mulder, C., Boit, A., Bonkowski, M., De Ruiter, P. C., Mancinelli, G., Van der Heijden, M. G. A., Van Wijnen, H. J., Vonk, J. A., & Rutgers, M. (2011). A Belowground Perspective on Dutch Agroecosystems: How Soil Organisms Interact to Support Ecosystem Services. In Advances in Ecological Research (Vol. 44, pp. 277–357). Elsevier. https://doi.org/10.1016/B978-0-12-374794-5.00005-5

Mulder, Ch., Zwart, D. D., Van Wijnen, H. J., Schouten, A. J., & Breure, A. M. (2003). Observational and simulated evidence of ecological shifts within the soil nematode community of agroecosystems under conventional and organic farming. Functional Ecology, 17(4), 516–525. https://doi.org/10.1046/j.1365-2435.2003.00755.x

Mullin, C. A., Saunders, M. C., Leslie, T. W., Biddinger, D. J., & Fleischer, S. J. (2005). Toxic and Behavioral Effects to Carabidae of Seed Treatments Used on Cry3Bb1- and Cry1Ab/c-Protected Corn. Environmental Entomology, 34(6), 1626–1636. https://doi.org/10.1603/0046-225X-34.6.1626

Mupepele, A.-C., Böhning-Gaese, K., Lakner, S., Plieninger, T., Schoof, N., & Klein, A.-M. (2019). Insect conservation in agricultural landscapes: An outlook for policy-relevant research. GAIA - Ecological Perspectives for Science and Society, 28(4), 342–347. https://doi.org/10.14512/gaia.28.4.5

Muster, C., & Michalik, P. (2020). Cryptic diversity in ant-mimic Micaria spiders (Araneae, Gnaphosidae) and a tribute to early naturalists. Zoologica Scripta, 49(2), 197–209. https://doi.org/10.1111/zsc.12404

Nabel, M., Selig, C., Gundlach, J., Decken, H. von der, & Klein, M. (2021). Biodiversity in agricultural used soils: Threats and options for its conservation in Germany and Europe. SOIL ORGANISMS, 93(1), Article 1. https://doi.org/10.25674/so93iss1pp1

Nabel, M., Selig, C., Gundlach, J., v. d. Decken, H., Klein, M., & Jessel, B. (2021). BfN Bodenreport: Vielfältiges Bodenleben—Grundlage für Naturschutz und nachhaltige Landwirtschaft (Bodenreport, p. 53). BfN. https://www.bfn.de/fileadmin/BfN/landwirtschaft/Dokumente/210108_BodenBioDiv-Report.pdf

NABO. (2020). Bedürfnisse der Kantone und des Bundes rund um ein Monitoring der Ressource Boden Erfassung und Beurteilung von Risiko, Zustand und zeitlicher Entwicklung durch flächenhafte Erhebungen (Kartierung) und langfristige Beobachtung.

NABU. (2022). NABU-Standpunkt Carbon Farming.

Naeem, S., & Li, S. (1997). Biodiversity enhances ecosystem reliability. Nature, 390(6659), Article 6659. https://doi.org/10.1038/37348

Natal-da-Luz, T., Römbke, J., & Sousa, J. P. (2008). Avoidance Tests in Site-Specific Risk Assessment—Influence of Soil Properties on the Avoidance Response of Collembola and Earthworms. Environmental Toxicology and Chemistry, 27(5), 1112. https://doi.org/10.1897/07-386.1

Navntoft, S., Esbjerg, P., Jensen, A.-M. M., Johnsen, I., & Petersen, B. S. (2003). Flora and Fauna Changes During Conversion from Conventional to Organic Farming. Pesticides Research, 74, 1–100.

Navntoft, S., Sigsgaard, L., Nimgaard, R., Esbjerg, P., Kristensen, K., Andresen, L. C., & Johnsen, I. (2009). Buffer zones for biodiversity of plants and arthropods: Is there a compromise on width? Pesticides Research, 127, 192.

Nentwig, W. (1988). Augmentation of beneficial arthropods by strip-management. Oecologia, 76(4), 597–606. https://doi.org/10.1007/BF00397876

Nentwig, W. (1989). Augmentation of beneficial arthropods by strip-management: II. Successional strips in a winter wheat field / Die Förderung von Nutzarthropoden durch Streifenmanagement: II. Sukzessionsstreifen in einem Winterweizenfeld. Zeitschrift Für Pflanzenkrankheiten Und Pflanzenschutz / Journal of Plant Diseases and Protection, 96(1), 89–99.

Newbold, T., Hudson, L. N., Arnell, A. P., Contu, S., De Palma, A., Ferrier, S., Hill, S. L. L., Hoskins, A. J., Lysenko, I., Phillips, H. R. P., Burton, V. J., Chng, C. W. T., Emerson, S., Gao, D., Pask-Hale, G., Hutton, J., Jung, M., Sanchez-Ortiz, K., Simmons, B. I., … Purvis, A. (2016). Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment. Science, 353(6296), 288–291. https://doi.org/10.1126/science.aaf2201

Nielsen, M. N., & Winding, A. (2002). Microorganisms as Indicators of Soil Health. 84.

Nielsen, U. N., Ayres, E., Wall, D. H., & Bardgett, R. D. (2011). Soil biodiversity and carbon cycling: A review and synthesis of studies examining diversity–function relationships. European Journal of Soil Science, 62(1), 105–116. https://doi.org/10.1111/j.1365-2389.2010.01314.x

Nielsen, U. N., Osler, G. H. R., Campbell, C. D., Neilson, R., Burslem, D. F. R. P., & Wal, R. van der. (2010). The Enigma of Soil Animal Species Diversity Revisited: The Role of Small-Scale Heterogeneity. PLOS ONE, 5(7), e11567. https://doi.org/10.1371/journal.pone.0011567

Niggli, U., Riedel, J., Brühl, C., Liess, M., Schulz, R., Altenburger, R., Märländer, B., Bokelmann, W., Heß, J., Reineke, A., & Gerowitt, B. (2020). Pflanzenschutz und Biodiversität in Agrarökosystemen. Berichte über Landwirtschaft - Zeitschrift für Agrarpolitik und Landwirtschaft, 98(1), 39. https://doi.org/10.12767/buel.v98i1.272

Noordijk, J., Musters, C. J. M., van Dijk, J., & de Snoo, G. R. (2010). Invertebrates in field margins: Taxonomic group diversity and functional group abundance in relation to age. Biodiversity and Conservation, 19(11), 3255–3268. https://doi.org/10.1007/s10531-010-9890-1

Noordijk, J., Musters, C. J. M., van Dijk, J., & de Snoo, G. R. (2011). Vegetation development in sown field margins and on adjacent ditch banks. Plant Ecology, 212(1), 157–167. https://doi.org/10.1007/s11258-010-9811-0

Noreika, N., Kotiaho, J. S., Penttinen, J., Punttila, P., Vuori, A., Pajunen, T., Autio, O., Loukola, O. J., & Kotze, D. J. (2015). Rapid recovery of invertebrate communities after ecological restoration of boreal mires. Restoration Ecology, 23(5), 566–579. https://doi.org/10.1111/rec.12237

Norris, S. L., Blackshaw, R. P., Dunn, R. M., Critchley, N. R., Smith, K. E., Williams, J. R., Randall, N. P., & Murray, P. J. (2016). Improving above and below-ground arthropod biodiversity in maize cultivation systems. Applied Soil Ecology, 108(December), Article December. https://doi.org/10.1016/j.apsoil.2016.07.015

Nuria, R., Jérôme, M., Léonide, C., Christine, R., Gérard, H., Etienne, I., & Patrick, L. (2011). IBQS: A synthetic index of soil quality based on soil macro-invertebrate communities. Soil Biology and Biochemistry, S0038071711002252. https://doi.org/10.1016/j.soilbio.2011.05.019

Nyffeler, M., & Benz, G. (1979). Zur ökologischen Bedeutung der Spinnen der Vegetationsschicht von Getreide- und Rapsfeldern bei Zürich (Schweiz)1. Zeitschrift für Angewandte Entomologie, 87(1–4), 348–376. https://doi.org/10.1111/j.1439-0418.1978.tb02461.x

Nyffeler, M., & Breene, R. G. (1990). Spiders associated with selected European hay meadows, and the effects of habitat disturbance, with the predation ecology of the crab spiders, Xysticus spp. (Araneae, Thomisidae). Journal of Applied Entomology, 110(1–5), 149–159. https://doi.org/10.1111/j.1439-0418.1990.tb00108.x

Obrist, L. B., Dutton, A., Albajes, R., & Bigler, F. (2006). Exposure of arthropod predators to Cry1Ab toxin in Bt maize fields. Ecological Entomology, 31(2), 143–154. https://doi.org/10.1111/j.0307-6946.2006.00762.x

O'Callaghan, M., Glare, T. R., Burgess, E. P. J., & Malone, L. A. (2005). Effects of plants genetically modified for insect resistance on nontarget organisms. Annual Review of Entomology, 50(1), 271–292. https://doi.org/10.1146/annurev.ento.50.071803.130352

Oehl, F., Sieverding, E., Mäder, P., Dubois, D., Ineichen, K., Boller, T., & Wiemken, A. (2004). Impact of long-term conventional and organic farming on the diversity of arbuscular mycorrhizal fungi. Oecologia, 138(4), 574–583. https://doi.org/10.1007/s00442-003-1458-2

Oellers, J., Fürste, A., Hannig, K., Koslowski, S., Miller, S., Peeters, S., Theves, F., & Toschki, A. (2022). Standardisierte Erfassung der Laufkäfer (Coleoptera: Carabidae) und der Biomasse der Bodenarthropoden auf Ackerflächen – ein Beitrag aus dem landesweiten Insektenmonitoring in Baden-Württemberg. Naturschutz und Landschaftspflege Baden-Württemberg, 81, 60.

Oertel, C., Matschullat, J., Zurba, K., Zimmermann, F., & Erasmi, S. (2016). Greenhouse gas emissions from soils—A review. Geochemistry, 76(3), 327–352. https://doi.org/10.1016/j.chemer.2016.04.002

Oksanen, J., Simpson, G. L., Blanchet, F. G., Kindt, R., Legendre, P., Minchin, P. R., O'Hara, R. B., Solymos, P., Stevens, M. H. H., Szoecs, E., Wagner, H., Barbour, M., Bedward, M., Bolker, B., Borcard, D., Carvalho, G., Chirico, M., De Caceres, M., Durand, S., … Weedon, J. (2022). vegan: Community Ecology Package. R package version 2.6-4 (p. 2.6-8) [Dataset]. <https://CRAN.R-project.org/package=vegan>

Oppermann, R., & Luick, R. (1999). Extensive Beweidung und Naturschutz. Charakterisierung einer dynamischen und naturverträglichen Landnutzung. Natur Und Landschaft, 74(10), 411–419.

Orgiazzi, A., Ballabio, C., Panagos, P., Jones, A., & Fernández-Ugalde, O. (2018). LUCAS Soil, the largest expandable soil dataset for Europe: A review. European Journal of Soil Science, 69(1), 140–153. https://doi.org/10.1111/ejss.12499

Orgiazzi, A., Dunbar, M. B., Panagos, P., de Groot, G. A., & Lemanceau, P. (2015). Soil biodiversity and DNA barcodes: Opportunities and challenges. Soil Biology and Biochemistry, 80, 244–250. https://doi.org/10.1016/j.soilbio.2014.10.014

Orgiazzi, A., Panagos, P., Fernández-Ugalde, O., Wojda, P., Labouyrie, M., Ballabio, C., Franco, A., Pistocchi, A., Montanarella, L., & Jones, A. (2022). LUCAS Soil Biodiversity and LUCAS Soil Pesticides, new tools for research and policy development. European Journal of Soil Science, 73(5), e13299. https://doi.org/10.1111/ejss.13299

Orgiazzi, A., Panagos, P., Yigini, Y., Dunbar, M. B., Gardi, C., Montanarella, L., & Ballabio, C. (2016). A knowledge-based approach to estimating the magnitude and spatial patterns of potential threats to soil biodiversity. Science of The Total Environment, 545–546, 11–20. https://doi.org/10.1016/j.scitotenv.2015.12.092

Orr, D. (2009). Chapter 9. Biological Control and Integrated Pest Management. In Integrated Pest Management: Innovation-Development Process. https://www.academia.edu/26031140/Biological_Control_and_Integrated_Pest_Management

Östman, Ö., Ekbom, B., & Bengtsson, J. (2001). Landscape heterogeneity and farming practice influence biological control. Basic and Applied Ecology, 2(4), 365–371. https://doi.org/10.1078/1439-1791-00072

Östman, Ö., Ekbom, B., & Bengtsson, J. (2003). Yield increase attributable to aphid predation by ground-living polyphagous natural enemies in spring barley in Sweden. Ecological Economics, 45(1), 149–158. https://doi.org/10.1016/S0921-8009(03)00007-7

Östman, Ö., Ekbom, B., Bengtsson, J., & Weibull, A.-C. (2001). Landscape Complexity and Farming Practice Influence the Condition of Polyphagous Carabid Beetles. Ecological Applications, 11(2), 480–488. https://doi.org/10.1890/1051-0761(2001)011[0480:LCAFPI]2.0.CO;2

Ottermanns, R., Ratte, H. T., & Roß-Nickoll, M. (2010). Darstellung maskierter Nutzungseffekte auf naturraumspezifische Artengemeinschaften grasiger Feldraine mithilfe von Restvarianzmustern. Environmental Sciences Europe, 22(1), 20–35. https://doi.org/10.1007/s12302-009-0099-4

Ottow, J. C. G. (2011). Mikrobiologie von Böden. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-00824-5

Paoletti, M. G. (1999). Using bioindicators based on biodiversity to assess landscape sustainability. In M. G. Paoletti (Ed.), Invertebrate Biodiversity as Bioindicators of Sustainable Landscapes (pp. 1–18). Elsevier. https://doi.org/10.1016/B978-0-444-50019-9.50004-2

Parisi, V., Menta, C., Gardi, C., Jacomini, C., & Mozzanica, E. (2005). Microarthropod communities as a tool to assess soil quality and biodiversity: A new approach in Italy. Agriculture, Ecosystems & Environment, 105(1), 323–333. https://doi.org/10.1016/j.agee.2004.02.002

Patoine, G., Eisenhauer, N., Cesarz, S., Phillips, H. R. P., Xu, X., Zhang, L., & Guerra, C. A. (2022). Drivers and trends of global soil microbial carbon over two decades. Nature Communications, 13(1), 4195. https://doi.org/10.1038/s41467-022-31833-z

Paz-Ferreiro, J., & Fu, S. (2016). Biological Indices for Soil Quality Evaluation: Perspectives and Limitations. Land Degradation & Development, 27(1), 14–25. https://doi.org/10.1002/ldr.2262

Pearce, J. L., & Venier, L. A. (2006). The use of ground beetles (Coleoptera: Carabidae) and spiders (Araneae) as bioindicators of sustainable forest management: A review. Ecological Indicators, 6(4), 780–793. https://doi.org/10.1016/j.ecolind.2005.03.005

Pearson, K. (1901). On lines and planes of closest fit to a system of points in space. The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, 6(2), 559–572. https://doi.org/10.1080/14786440109462720.

Pelosi, C., Barot, S., Capowiez, Y., Hedde, M., & Vandenbulcke, F. (2014). Pesticides and earthworms. A review. Agronomy for Sustainable Development, 34(1), 199–228. https://doi.org/10.1007/s13593-013-0151-z

Pelosi, C., & Römbke, J. (2016). Are Enchytraeidae (Oligochaeta, Annelida) good indicators of agricultural management practices? Soil Biology and Biochemistry, 100, 255–263. https://doi.org/10.1016/j.soilbio.2016.06.030

Pérès, G., Vandenbulcke, F., Guernion, M., Hedde, M., Beguiristain, T., Douay, F., Houot, S., Piron, D., Richard, A., Bispo, A., Grand, C., Galsomies, L., & Cluzeau, D. (2011). Earthworm indicators as tools for soil monitoring, characterization and risk assessment. An example from the national Bioindicator programme (France). Pedobiologia, 54, S77–S87. https://doi.org/10.1016/j.pedobi.2011.09.015

Perner, J., & Malt, S. (2003). Assessment of changing agricultural land use: Response of vegetation, ground-dwelling spiders and beetles to the conversion of arable land into grassland. Agriculture, Ecosystems & Environment, 98(1), 169–181. https://doi.org/10.1016/S0167-8809(03)00079-3

Perreault, J. M., & Whalen, J. K. (2006). Earthworm burrowing in laboratory microcosms as influenced by soil temperature and moisture. Pedobiologia, 50(5), 397–403. https://doi.org/10.1016/j.pedobi.2006.07.003

Peshin, R., & Dhawan, A. K. (Eds.). (2009). Integrated Pest Management: Innovation-Development Process. Springer Netherlands. https://doi.org/10.1007/978-1-4020-8992-3

Petchey, O. L., McPhearson, P. T., Casey, T. M., & Morin, P. J. (1999). Environmental warming alters food-web structure and ecosystem function. Nature, 402(6757), 69–72. https://doi.org/10.1038/47023

Petersen, H., Jucevica, E., & Gjelstrup, P. (2004). Long-term changes in collembolan communities in grazed and non-grazed abandoned arable fields in Denmark. Pedobiologia, 48(5–6), 559–573. https://doi.org/10.1016/j.pedobi.2004.06.003

Petersen, H., & Luxton, M. (1982). A Comparative Analysis of Soil Fauna Populations and Their Role in Decomposition Processes. Oikos, 39(3), 288–388. https://doi.org/10.2307/3544689

Peterson, J. A., Lundgren, J. G., & Harwood, J. D. (2011). Interactions of transgenic Bacillus thuringiensis insecticidal crops with spiders (Araneae). Journal of Arachnology, 39(1), 1–21. https://doi.org/10.1636/M10-98.1

Petit, S., & Burel, F. (1998). Effects of landscape dynamics on the metapopulation of a ground beetle (Coleoptera, Carabidae) in a hedgerow network. Agriculture, Ecosystems & Environment, 69(3), 243–252. https://doi.org/10.1016/S0167-8809(98)00111-X

Pey, B., Nahmani, J., Auclerc, A., Capowiez, Y., Cluzeau, D., Cortet, J., Decaëns, T., Deharveng, L., Dubs, F., Joimel, S., Briard, C., Grumiaux, F., Laporte, M.-A., Pasquet, A., Pelosi, C., Pernin, C., Ponge, J.-F., Salmon, S., Santorufo, L., & Hedde, M. (2014). Current use of and future needs for soil invertebrate functional traits in community ecology. Basic and Applied Ecology, 15(3), 194–206. https://doi.org/10.1016/j.baae.2014.03.007

Pfiffner, L. (1996). Welche Anbaumethoden fördern die Vielfalt der Kleintierfauna? Agrarforschung, 527–530.

Pfiffner, L. (2004). Impact of different farming systems on epigeic beneficial arthropods and earthworm fauna in arable crops [Universität Bern]. https://orgprints.org/id/eprint/2754/1/pfiffner-2004-Dissertation.pdf

Pfiffner, L., & Luka, H. (1996). Laufkäfer-Förderung durch Ausgleichsflächen. Auswirkungen neu angelegter Grünstreifen und einer Hecke im Ackerland. Naturschutz Und Landschaftsplanung, 28(5), 145–151.

Pfiffner, L., & Luka, H. (2000). Overwintering of arthropods in soils of arable fields and adjacent semi-natural habitats. Agriculture, Ecosystems and Environment, 78, 215–222.

Pfiffner, L., & Luka, H. (2003). Effects of low-input farming systems on carabids and epigeal spiders – a paired farm approach. Basic and Applied Ecology, 4, 117–127.

Pfiffner, L., & Luka, H. (2007). Earthworm populations in two low-input cereal farming systems. Applied Soil Ecology, 37(3), 184–191. https://doi.org/10.1016/j.apsoil.2007.06.005

Pfiffner, L., & Mäder, P. (1997). Effects of Biodynamic, Organic and Conventional Production Systems on Earthworm Populations. Biological Agriculture & Horticulture, 15(1–4), 2–10. https://doi.org/10.1080/01448765.1997.9755177

Pfiffner, L., & Niggli, U. (1996). Effects of Bio-dynamic, Organic and Conventional Farming on Ground Beetles (Col. Carabidae) and Other Epigaeic Arthropods in Winter Wheat. Biological Agriculture & Horticulture, 12(4), 353–364. https://doi.org/10.1080/01448765.1996.9754758

Pfiffner, L., & Wyss, E. (2004). Chapter 11: Use of sown wildflower strips to enhance natural enemies of agricultural pests. In G. M. Gurr, S. D. Wratten, & M. A. Altieri (Eds.), Ecological engineering for pest management (pp. 167–188). CABI-Publishing. https://orgprints.org/id/eprint/17819/

Phillips, H. R. P., Beaumelle, L., Eisenhauer, N., Hines, J., & Smith, L. C. (2020). Lessons from the WBF2020: Extrinsic and intrinsic value of soil organisms. Soil Organisms, 92(2), 121–127. https://doi.org/10.25674/so92iss2pp121

Phillips, H. R. P., Beaumelle, L., Tyndall, K., Burton, V. J., Cameron, E. K., Eisenhauer, N., & Ferlian, O. (2019). The effects of global change on soil faunal communities: A meta-analytic approach. Research Ideas and Outcomes, 5, e36427.

Phillips, H. R. P., Cameron, E. K., Ferlian, O., Türke, M., Winter, M., & Eisenhauer, N. (2017). Red list of a black box. Nature Ecology & Evolution, 1(4), 0103. https://doi.org/10.1038/s41559-017-0103

Phillips, H. R. P., Guerra, C. A., Bartz, M. L. C., Briones, M. J. I., Brown, G., Crowther, T. W., Ferlian, O., Gongalsky, K. B., Krebs, J., Orgiazzi, A., Routh, D., Schwarz, B., Bach, E. M., Bennett, J., Brose, U., Decaëns, T., König-Ries, B., Loreau, M., Mathieu, J., … Nuzzo, V. (2019). Global distribution of earthworm diversity. Science, 366, 480–485.

Phillips, I. D., & Cobb, T. P. (2005). Effects of Habitat Structure and Lid Transparency on Pitfall Catches. Environmental Entomology, 34(4), 875–882. https://doi.org/10.1603/0046-225X-34.4.875

Pisa, L. W., Amaral-Rogers, V., Belzunces, L. P., Bonmatin, J. M., Downs, C. A., Goulson, D., Kreutzweiser, D. P., Krupke, C., Liess, M., McField, M., Morrissey, C. A., Noome, D. A., Settele, J., Simon-Delso, N., Stark, J. D., Van der Sluijs, J. P., Van Dyck, H., & Wiemers, M. (2015). Effects of neonicotinoids and fipronil on non-target invertebrates. Environmental Science and Pollution Research, 22(1), 68–102. https://doi.org/10.1007/s11356-014-3471-x

Pižl, V. (1992). Effect of soil compaction on earthworms (lumbricidae) in apple orchard soil. Soil Biology and Biochemistry, 24(12), 1573–1575. https://doi.org/10.1016/0038-0717(92)90152-N

Plassart, P., Terrat, S., Thomson, B., Griffiths, R., Dequiedt, S., Lelievre, M., Regnier, T., Nowak, V., Bailey, M., Lemanceau, P., Bispo, A., Chabbi, A., Maron, P.-A., Mougel, C., & Ranjard, L. (2012). Evaluation of the ISO Standard 11063 DNA Extraction Procedure for Assessing Soil Microbial Abundance and Community Structure. PLOS ONE, 7(9), e44279. https://doi.org/10.1371/journal.pone.0044279

Platen, R. (1993). A method to develop an "indicator value" system for spiders using canonical correspondence analysis (CCA). Mem Queensl Museum. Brisbane: Proceedings of the 12th International Congress of Arachnology. https://www.researchgate.net/profile/Ralph-Platen/publication/321608880_A_method_to_develop_an_indicator_value'_system_for_spiders_using_canonical_correspondence_analysis_CCA/links/5ab492eba6fdcc1bc0c410e1/A-method-to-develop-an-indicator-value-system-for-spiders-using-canonical-correspondence-analysis-CCA.pdf

Plećaš, M., Gagić, V., Janković, M., Petrović-Obradović, O., Kavallieratos, N. G., Tomanović, Ž., Thies, C., Tscharntke, T., & Ćetković, A. (2014). Landscape composition and configuration influence cereal aphid–parasitoid–hyperparasitoid interactions and biological control differentially across years. Agriculture, Ecosystems & Environment, 183, 1–10. https://doi.org/10.1016/j.agee.2013.10.016

Plum, N. (2005). Terrestrial invertebrates in flooded grassland: A literature review. Wetlands, 25(3), 721–737. https://doi.org/10.1672/0277-5212(2005)025[0721:TIIFGA]2.0.CO;2

Pocock, M. J. O., & Jennings, N. (2008). Testing biotic indicator taxa: The sensitivity of insectivorous mammals and their prey to the intensification of lowland agriculture. Journal of Applied Ecology, 45(1), 151–160. https://doi.org/10.1111/j.1365-2664.2007.01361.x

Poier, K. R., & Richter, J. (1992). Spatial distribution of earthworms and soil properties in an arable loess soil. Soil Biology and Biochemistry, 24(12), 1601–1608. https://doi.org/10.1016/0038-0717(92)90157-S

Pollard, K. A., & Holland, J. M. (2006). Arthropods within the woody element of hedgerows and their distribution pattern. Agricultural and Forest Entomology, 8(3), 203–211. https://doi.org/10.1111/j.1461-9563.2006.00297.x

Pomorski, R. J. (1990). Morphological-systematic studies on the variability of pseudocelli and some morphological characters in Onychiurus of the "armatus-group" (Collembola, Onychiuridae). Part II. On synonyms within the "armatus-group", with special reference to diagnostic characters. Annales Zoologici, 43, 535–575.

Ponce, C., Bravo, C., de León, D. G., Magaña, M., & Alonso, J. C. (2011). Effects of organic farming on plant and arthropod communities: A case study in Mediterranean dryland cereal. Agriculture, Ecosystems & Environment, 141(1–2), 193–201. https://doi.org/10.1016/j.agee.2011.02.030

Pons, X., Nunez, E., Lumbierres, B., & Albajes, R. (2005). Epigeal aphidophagous predators and the role of alfalfa as a reservoir of aphid predators for arable crops. European Journal of Entomology, 102(3), 519–525. https://doi.org/10.14411/eje.2005.074

Postma-Blaauw, M. B., de Goede, R. G. M., Bloem, J., Faber, J. H., & Brussaard, L. (2010). Soil biota community structure and abundance under agricultural intensification and extensification. Ecology, 91(2), 460–473. https://doi.org/10.1890/09-0666.1

Potapov, A. M., Guerra, C. A., Hoogen, J. van den, Babenko, A., Bellini, B. C., Berg, M. P., Chown, S. L., Deharveng, L., Kováč, Ľ., Kuznetsova, N. A., Ponge, J.-F., Potapov, M. B., Russell, D. J., Alexandre, D., Alatalo, J. M., Arbea, J. I., Bandyopadhyay, I., Bernava, V., Bokhorst, S., … Scheu, S. (2022). Globally invariant metabolism but density-diversity mismatch in springtails (p. 2022.01.07.475345). bioRxiv. https://doi.org/10.1101/2022.01.07.475345

Potapov, M. (2001). Synopses on Palaearctic Collembola. Volume 3. Isotomidae. (Vol. 73).

Power, A. G. (2010). Ecosystem services and agriculture: Tradeoffs and synergies. Philosophical Transactions of the Royal Society B: Biological Sciences, 365(1554), 2959–2971. https://doi.org/10.1098/rstb.2010.0143

Prasad, R. P., & Snyder, W. E. (2006). Diverse Trait-Mediated Interactions in a Multi-Predator, Multi-Prey Community. Ecology, 87(5), 1131–1137. https://doi.org/10.1890/0012-9658(2006)87[1131:DTIIAM]2.0.CO;2

Prasifka, J. R., Hellmich, R. L., Dively, G. P., Higgins, L. S., Dixon, P. M., & Duan, J. J. (2008). Selection of Nontarget Arthropod Taxa for Field Research on Transgenic Insecticidal Crops: Using Empirical Data and Statistical Power. Environmental Entomology, 37(1), 1–10. https://doi.org/10.1603/0046-225X(2008)37[1:SONATF]2.0.CO;2

Prasifka, J. R., Hellmich, R. L., Dively, G. P., & Lewis, L. C. (2005). Assessing the Effects of Pest Management on Nontarget Arthropods: The Influence of Plot Size and Isolation. ENVIRONMENTAL ENTOMOLOGY, 34(5), 12.

Prasifka, J. R., Schmidt, N. P., Kohler, K. A., O'Neal, M. E., Hellmich, R. L., & Singer, J. W. (2006). Effects of Living Mulches on Predator Abundance and Sentinel Prey in a Corn–Soybean–Forage Rotation. ENVIRONMENTAL ENTOMOLOGY, 35(5), 9.

Pretty, J. N. (Ed.). (2005). The pesticide detox: Towards a more sustainable agriculture. Earthscan.

Priesnitz, K. U., & Schuphan, U. D. I. (2010). Potential impact of Diabrotica resistant Bt-maize expressing Cry3Bb1 on ground beetles (Coleoptera: Carabidae) [PhD Thesis]. Hochschulbibliothek der Rheinisch-Westfälischen Technischen Hochschule Aachen.

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Soil Monitoring and Resilience (Soil Monitoring Law) (2023).

Provost, G. L., Badenhausser, I., Bagousse-Pinguet, Y. L., Clough, Y., Henckel, L., Violle, C., Bretagnolle, V., Roncoroni, M., Manning, P., & Gross, N. (2020). Land-use history impacts functional diversity across multiple trophic groups. Proceedings of the National Academy of Sciences, 117(3), 1573–1579. https://doi.org/10.1073/pnas.1910023117

Pulleman, M., Creamer, R., Hamer, U., Helder, J., Pelosi, C., Pérès, G., & Rutgers, M. (2012). Soil biodiversity, biological indicators and soil ecosystem services—An overview of European approaches. Current Opinion in Environmental Sustainability, 4(5), 529–538. https://doi.org/10.1016/j.cosust.2012.10.009

Purtauf, T., Dauber, J., & Wolters, V. (2005). The response of carabids to landscape simplification differs between trophic groups. Oecologia, 142(3), 458–464. https://doi.org/10.1007/s00442-004-1740-y

Purtauf, T., Roschewitz, I., Dauber, J., Thies, C., Tscharntke, T., & Wolters, V. (2005). Landscape context of organic and conventional farms: Influences on carabid beetle diversity. Agriculture, Ecosystems & Environment, 108(2), 165–174. https://doi.org/10.1016/j.agee.2005.01.005

Purvis, G., & Curry, J. P. (1980). Successional Changes in the Arthropod Fauna of a New Ley Pasture Established on Previously Cultivated Arable Land. The Journal of Applied Ecology, 17(2), 309. https://doi.org/10.2307/2402327

Purvis, G., Fadl, A., & Bolger, T. (2001). A multivariate analysis of cropping effects on Irish ground beetle assemblages (Coleoptera: Carabidae) in mixed arable and grass farmland. Annals of Applied Biology, 139(3), 351–360. https://doi.org/10.1111/j.1744-7348.2001.tb00149.x

Radermacher, W., Zieschank, R., Hoffmann-Kroll, R., van Nouhuys, J., Schäfer, D., & Seibel, S. (1998). Entwicklung eines Indikatorensystems für den Zustand der Umwelt in der Bundesrepublik Deutschland mit Praxistest für ausgewählte Indikatoren und Bezugsräume Kap. 8.3.3 Stichprobenziehung. Beiträge Zu Den Umweltökonomischen Gesamtrechnungen, 5, 189–191.

Rahmann, G. (2011). Biodiversity and Organic farming: What do we know? Landbauforschung - vTI Agriculture and Forestry Research, 3(61), 189–208.

Rainio, J., & Niemelä, J. (2003). Ground beetles (Coleoptera: Carabidae) as bioindicators. Biodiversity & Conservation, 12(3), 487–506. https://doi.org/10.1023/A:1022412617568

Ranjha, M. H., & Irmler, U. (2014). Movement of carabids from grassy strips to crop land in organic agriculture. Journal of Insect Conservation, 18(3), 457–467. https://doi.org/10.1007/s10841-014-9657-1

Ranjha, M., & Irmler, U. (2013a). Age of grassy strips influences biodiversity of ground beetles in organic agro-ecosystems. Agricultural Sciences, 04(05), 209–218. https://doi.org/10.4236/as.2013.45030

Ranjha, M., & Irmler, U. (2013b). Which carabid species benefit from grassy strips in organic agriculture? Angewandte Carabidologie, 10(13–6), 13–22.

Raskin, R. (1994). Die Wirkung pflanzenschutzmittelfreier Ackerrandstreifen auf die Entomofauna von Wintergetreidefeldern und angrenzenden Saumbiotopen (Flur; Als Ms. gedr). Shaker; Exemplar bei Johanna; ggf. auch Bibliothe gaiac?

Ratnadass, A., Fernandes, P., Avelino, J., & Habib, R. (2012). Plant species diversity for sustainable management of crop pests and diseases in agroecosystems: A review. Agronomy for Sustainable Development, 32(1), 273–303. https://doi.org/10.1007/s13593-011-0022-4

Ratschker, U. M., & Roth, M. (2000). Studies on ground dwelling spiders (Araneae) of agrarian habitat types in Northeast Germany: Ecological and nature conservation aspects. Ekologia(Bratislava)/Ecology(Bratislava), 19, 213–225.

Raworth, D. A., Robertson, M. C., & Bittman, S. (2004). Effects of dairy slurry application on carabid beetles in tall fescue, British Columbia, Canada. Agriculture, Ecosystems & Environment, 103(3), 527–534. https://doi.org/10.1016/j.agee.2003.11.004

Renner, K. (1980). Faunistisch-ökologische Untersuchungen der Käferfauna pflanzensoziologisch unterschiedlicher Biotope im Evessel-Bruch bei Bielefeld-Sennestadt. Berichte Des Naturwissenschaftlichen Vereins Für Bielefeld Und Umgegend, Sonderheft 2, 145–176.

Řezáč, M., Pekár, S., & Kocourek, F. (2010). Effect of Bt-maize on epigeic spiders (Araneae) and harvestmen (Opiliones). Plant Protection Science, 42(No. 1), 1–8. https://doi.org/10.17221/2689-PPS

Ribera, I., Dolédec, S., Downie, I. S., & Foster, G. N. (2001). Effect of Land Disturbance and Stress on Species Traits of Ground Beetle Assemblages. Ecology, 82(4), 1112–1129. https://doi.org/10.1890/0012-9658(2001)082[1112:EOLDAS]2.0.CO;2

Rickerl, D. H., Curl, E. A., & Touchton, J. T. (1989). Tillage and rotation effects on Collembola populations and Rhizoctonia infestation. Soil Tillage and Research, 15(1), 41–49. https://doi.org/10.1016/0167-1987(89)90062-7

Riedo, J., Wettstein, F. E., Rösch, A., Herzog, C., Banerjee, S., Büchi, L., Charles, R., Wächter, D., Martin-Laurent, F., Bucheli, T. D., Walder, F., & Van Der Heijden, M. G. A. (2021). Widespread Occurrence of Pesticides in Organically Managed Agricultural Soils—The Ghost of a Conventional Agricultural Past? Environmental Science & Technology, 55(5), 2919–2928. https://doi.org/10.1021/acs.est.0c06405

Rillig, M. C., Ryo, M., & Lehmann, A. (2021). Classifying human influences on terrestrial ecosystems. Global Change Biology, 27(11), 2273–2278. https://doi.org/10.1111/gcb.15577

Rillig, M. C., Ryo, M., Lehmann, A., Aguilar-Trigueros, C. A., Buchert, S., Wulf, A., Iwasaki, A., Roy, J., & Yang, G. (2019). The role of multiple global change factors in driving soil functions and microbial biodiversity. Science, 366(6467), 886–890. https://doi.org/10.1126/science.aay2832

Ritz, K., Black, H. I. J., Campbell, C. D., Harris, J. A., & Wood, C. (2009). Selecting biological indicators for monitoring soils: A framework for balancing scientific and technical opinion to assist policy development. Ecological Indicators, 9(6), 1212–1221. https://doi.org/10.1016/j.ecolind.2009.02.009

Ritz, K., & Trudgill, D. L. (1999). Utility of nematode community analysis as an integrated measure of the functional state of soils: Perspectives and challenges. Plant and Soil, 212(1), 1–11. https://doi.org/10.1023/A:1004673027625

Roberts, M. J. (1985a). The Spiders of Great Britain and Ireland, Vol. 1, Atypidae to Theridiosomatidae. Harley Books.

Roberts, M. J. (1985b). The Spiders of Great Britain and Ireland, Vol. 3, Colour Plates Atypidae toLinyphiidae. Harley Books.

Roberts, M. J. (1987). The Spiders of Great Britain and Ireland, Vol. 2, Linyphiidae and Check List. Harley Books.

Roberts, M. J. (1993). The Spiders of Great Britain and Ireland – Supplement, Appendix to Volumes 1 and 2. Harley Books.

Roberts, M. J. (1995). Spiders of Britain and Northern Europe—Collins field guide. Harper Collins.

Robinson, J. V. (1981). The Effect of Architectural Variation in Habitat on a Spider Community: An Experimental Field Study. Ecology, 62(1), 73–80. https://doi.org/10.2307/1936670

Römbke, J. (2014). The feeding activity of invertebrates as a functional indicator in soil. Plant and Soil, 383(1), 43–46. https://doi.org/10.1007/s11104-014-2195-5

Römbke, J., Beck, L., Förster, B., Fründ, H. C., Horak, F., Ruf, A., Rosciczweski, C., Scheurig, M., & Woas, S. (1997). Boden als Lebensraum für Bodenorganismen bodenbiologische Standortklassifikation (Literaturstudie).

Römbke, J., Bernard, J., & Martin-Laurent, F. (2018). Standard methods for the assessment of structural and functional diversity of soil organisms: A review: Standard Methods for Soil Biodiversity. Integrated Environmental Assessment and Management, 14(4), 463–479. https://doi.org/10.1002/ieam.4046

Römbke, J., Burkhardt, U., Höfer, H., Horak, F., Jänsch, S., Roß-Nickoll, M., Russell, D., Schmitt, H., & Toschki, A. (2013). Die Beurteilung der Boden-Biodiversität: Ergebnisse eines UBA-Vorhabens. Bodenschutz, 3, 4. https://doi.org/10.37307/j.1868-7741.2013.03.04

Römbke, J., Dreher, P., Beck, L., Hund-Rinke, K., Jänsch, S., Kratz, W., Pieper, S., Ruf, A., Spelda, J., & Woas, S. (2002). Entwicklung von bodenbiologischen Bodengüteklassen für Acker- und Grünlandstandorte. UBA TEXTE, 20, 222 + Anhang.

Römbke, J., Gardi, C., Creamer, R., & Miko, L. (2016). Soil biodiversity data: Actual and potential use in European and national legislation. Applied Soil Ecology, 97, 125–133. https://doi.org/10.1016/j.apsoil.2015.07.003

Römbke, J., Jänsch, S., & Didden, W. (2005). The use of earthworms in ecological soil classification and assessment concepts. Ecotoxicology and Environmental Safety, 62(2), 249–265. https://doi.org/10.1016/j.ecoenv.2005.03.027

Römbke, J., Jänsch, S., Höfer, H., Horak, F., Roß-Nickoll, M., Russell, D., & Toschki, A. (2013). State of knowledge of enchytraeid communities in German soils as a basis for biological soil quality assessment. 24.

Römbke, J., Jänsch, S., Roß-Nickoll, M., & Toschki, A. (2014). Nutzungsmöglichkeiten der Boden-Dauerbeobachtung der Länder für das Monitoring der Umweltwirkungen gentechnisch veränderter Pflanzen. BfN-Skripten 369.

Römbke, J., Jänsch, S., Ross-Nickoll, M., Toschki, A., Höfer, H., Horak, F., Russell, D., Burkhardt, U., & Schmitt, Heike. (2012). Erfassung und Analyse des Bodenzustands im Hinblick auf die Umsetzung und Weiterentwicklung der Nationalen Biodiversitätsstrategie. UBA Texte, 33, 392.

Römbke, J., Sousa, J.-P., Schouten, T., & Riepert, F. (2006). Monitoring of soil organisms: A set of standardized field methods proposed by ISO. European Journal of Soil Biology, 42, S61–S64. https://doi.org/10.1016/j.ejsobi.2006.07.016

Römbke, J., van der Veen, A., Ebke, P., & Stegger, P. (2022). Effects of calcium cyanamide on Collembola in a standardized field study. Part 2: Lessons learned for chemical risk assessment in field studies with soil invertebrates. Environmental Sciences Europe, 34(1), 87. https://doi.org/10.1186/s12302-022-00648-6

Romeis, J., Meissle, M., & Bigler, F. (2006). Transgenic crops expressing Bacillus thuringiensis toxins and biological control. Nature Biotechnology, 24(1), 63–71. https://doi.org/10.1038/nbt1180

Romeu, F., Stone, D., Creamer, R. E., Sousa, J. P., & Morais, P. V. (2016). European scale analysis of phospholipid fatty acid composition of soils to establish operating ranges. Applied Soil Ecology, 97, 49–60. https://doi.org/10.1016/j.apsoil.2015.09.001

Ronchi, S., Salata, S., Arcidiacono, A., Piroli, E., & Montanarella, L. (2019). Policy instruments for soil protection among the EU member states: A comparative analysis. Land Use Policy, 82, 763–780. https://doi.org/10.1016/j.landusepol.2019.01.017

Roots, B. I. (1956). The water relations of earthworms: II. Resistance to desiccation and immersion, and behaviour when submerged and when allowed a choice of environment. Journal of Experimental Biology, 33(1), 29–44.

Rose, R., & Dively, G. P. (2007). Effects of Insecticide-Treated and Lepidopteran-Active Bt Transgenic Sweet Corn on the Abundance and Diversity of Arthropods. Environmental Entomology, 36(5), 1254–1268. https://doi.org/10.1603/0046-225X(2007)36[1254:EOIALB]2.0.CO;2

Roß-Nickoll, M., Fürste, A., Mause, R., Ottermanns, R., Schäfer, S., Smolis, M., Theißen, B., Toschki, A., & Ratte, H. T. (2004). Die Arthropodenfauna von Nichtzielflächen und die Konsequenzen für die Bewertung der Auswirkungen von Pflanzenschutzmitteln auf den terrestrischen Bereich des Naturhaushaltes. UBA Texte, 10/04, 169.

Rüdisser, J., Tasser, E., Peham, T., Meyer, E., & Tappeiner, U. (2015). The dark side of biodiversity: Spatial application of the biological soil quality indicator (BSQ). Ecological Indicators, 53, 240–246. https://doi.org/10.1016/j.ecolind.2015.02.006

Ruf, A., Beck, L., Dreher, P., Hund-Rinke, K., Römbke, J., & Spelda, J. (2003). A biological classification concept for the assessment of soil quality: "Biological soil classification scheme" (BBSK). Agriculture, Ecosystems & Environment, 98(1–3), 263–271. https://doi.org/10.1016/S0167-8809(03)00086-0

Ruf, A., Beylich, A., Blick, T., Buechs, W., Glante, F., Hoess, S., Roß-Nikoll, M., Ruess, L., Russell, D. J., Römke, J., Römke, J., Seitz, H., Theißen, B., Toschki, A., Weinmann, C., & Zueghart, W. (2013). Soil organisms as an essential element of a monitoring plan to identify the effects of GMO cultivation. Requirements – Methodology – Standardisation. BioRisk, 8, 73–87. https://doi.org/10.3897/biorisk.8.3255

Ruiz, S., Or, D., & Schymanski, S. J. (2015). Soil Penetration by Earthworms and Plant Roots—Mechanical Energetics of Bioturbation of Compacted Soils. PLOS ONE, 10(6), e0128914. https://doi.org/10.1371/journal.pone.0128914

Rusch, A., Bommarco, R., Chiverton, P., Öberg, S., Wallin, H., Wiktelius, S., & Ekbom, B. (2013). Response of ground beetle (Coleoptera, Carabidae) communities to changes in agricultural policies in Sweden over two decades. Agriculture, Ecosystems & Environment, 176, 63–69. https://doi.org/10.1016/j.agee.2013.05.014

Rusch, A., Valantin-Morison, M., Sarthou, J. P., & Roger-Estrade, J. (2010a). Integrating Crop and Landscape Management into New Crop Protection Strategies to Enhance Biological Control of Oilseed Rape Insect Pests. In I. H. Williams (Ed.), Biocontrol-Based Integrated Management of Oilseed Rape Pests (pp. 415–448). Springer Netherlands. https://doi.org/10.1007/978-90-481-3983-5_17

Rusch, A., Valantin-Morison, M., Sarthou, J.-P., & Roger-Estrade, J. (2010b). Biological Control of Insect Pests in Agroecosystems. In Advances in Agronomy (Vol. 109, pp. 219–259). Elsevier. https://doi.org/10.1016/B978-0-12-385040-9.00006-2

Rutgers, M. (2018). Key Indicators and Management Strategies for Soil Biodiversity and Habitat Provisioning. https://www.researchgate.net/profile/Aneta-Ivanovska/publication/329238096_Key_indicators_and_management_strategies_for_soil_biodiversity_and_habitat_provisioning/links/5bfe489f92851c78dfafd5b5/Key-indicators-and-management-strategies-for-soil-biodiversity-and-habitat-provisioning.pdf

Rutgers, M., Mulder, C., Schouten, A. J., Bloem, J., Bogte, J. J., Am, B., L, B., Rgm, de G., Jh, F., Gajm, J. op A., H, K., Gw, K., Fw, S., C, ten B., & N, van E. (2008). Soil ecosystem profiling in the Netherlands with ten references for biological soil quality [Report]. Rijksinstituut voor Volksgezondheid en Milieu RIVM. https://rivm.openrepository.com/handle/10029/260810

Rutgers, M., Orgiazzi, A., Gardi, C., Römbke, J., Jänsch, S., Keith, A. M., Neilson, R., Boag, B., Schmidt, O., Murchie, A. K., Blackshaw, R. P., Pérès, G., Cluzeau, D., Guernion, M., Briones, M. J. I., Rodeiro, J., Piñeiro, R., Cosín, D. J. D., Sousa, J. P., … Zwart, D. de. (2016). Mapping earthworm communities in Europe. Applied Soil Ecology, 97, 98–111. https://doi.org/10.1016/j.apsoil.2015.08.015

Rutgers, M., Schouten, A. J., Bloem, J., Van Eekeren, N., De Goede, R. G. M., Jagersop Akkerhuis, G. A. J. M., Van der Wal, A., Mulder, C., Brussaard, L., & Breure, A. M. (2009). Biological measurements in a nationwide soil monitoring network. European Journal of Soil Science, 60(5), 820–832. https://doi.org/10.1111/j.1365-2389.2009.01163.x

Rypstra, A. L., Carter, P. E., Balfour, R. A., & Marshall, S. D. (1999). Architectural features of agricultural habitats and their impact on the spider inhabitants. Journal of Arachnology, 371–377.

Rzeszowski, K., & Sterzyńska, M. (2016). Changes through time in soil Collembola communities exposed to urbanization. Urban Ecosystems, 19(1), 143–158. https://doi.org/10.1007/s11252-015-0478-0

Sabatini, M. A., Rebecchi, L., Cappi, C., Bertolani, R., & Fratello, B. (1997). Long-term effects of three different continuous tillage practices on Collembola populations. Pedobiologia, 41, 185–193.

Sachverständigenrat für Umweltfragen. (2018). Für einen flächenwirksamen Insektenschutz. Stellungnahme Oktober 2018.

Salako, G., Russell, D., Stucke, A., & Eberhardt, E. (2023). Erarbeitung von Referenzwerten für Bodenorganismen für die Böden in Deutschland. Abschlussbericht. UBA Texte, 103.

Salamon, J.-A., Schaefer, M., Alphei, J., Schmid, B., & Scheu, S. (2004). Effects of plant diversity on Collembola in an experimental grassland ecosystem. Oikos, 106(1), 51–60. https://doi.org/10.1111/j.0030-1299.2004.12905.x

Samways, M. J., Barton, P. S., Birkhofer, K., Chichorro, F., Deacon, C., Fartmann, T., Fukushima, C. S., Gaigher, R., Habel, J. C., Hallmann, C. A., Hill, M. J., Hochkirch, A., Kaila, L., Kwak, M. L., Maes, D., Mammola, S., Noriega, J. A., Orfinger, A. B., Pedraza, F., … Cardoso, P. (2020). Solutions for humanity on how to conserve insects. Biological Conservation, 242, 108427. https://doi.org/10.1016/j.biocon.2020.108427

Sánchez-Bayo, F. (2011). Impacts of Agricultural Pesticides on Terrestrial Ecosystems. In F. Sánchez-Bayo, P. J. van den Brink, & R. M. Mann (Eds.), Ecological Impacts of Toxic Chemicals (Open Access) (pp. 63–87). BENTHAM SCIENCE PUBLISHERS. https://doi.org/10.2174/978160805121210063

Sánchez-Bayo, F., & Wyckhuys, K. A. G. (2019). Worldwide decline of the entomofauna: A review of its drivers. Biological Conservation, 232, 8–27. https://doi.org/10.1016/j.biocon.2019.01.020

Sánchez-Moreno, S., Nicola, N. L., Ferris, H., & Zalom, F. G. (2009). Effects of agricultural management on nematode–mite assemblages: Soil food web indices as predictors of mite community composition. Applied Soil Ecology, 41(1), 107–117. https://doi.org/10.1016/j.apsoil.2008.09.004

Santorufo, L., Van Gestel, C. A. M., Rocco, A., & Maisto, G. (2012). Soil invertebrates as bioindicators of urban soil quality. Environmental Pollution, 161, 57–63. https://doi.org/10.1016/j.envpol.2011.09.042

Sanvido, O., Stark, M., Romeis, J., & Bigler, F. (2006). Ecological impacts of genetically modified crops—Experiences from ten years of experimental field research and commercial cultivation. ART-Schriftenreihe, 1, 108.

Sarthou, J.-P., Badoz, A., Vaissière, B., Chevallier, A., & Rusch, A. (2014). Local more than landscape parameters structure natural enemy communities during their overwintering in semi-natural habitats. Agriculture, Ecosystems & Environment, 194, 17–28. https://doi.org/10.1016/j.agee.2014.04.018

Saska, P., Makowski, D., Bohan, D. A., & van der Werf, W. (2021). The effects of trapping effort and sources of variability on the estimation of activity-density and diversity of carabids in annual field crops by pitfall trapping; a meta-analysis. Entomologia Generalis, 41(6), 553–566. https://doi.org/10.1127/entomologia/2021/1211

Saska, P., Němeček, J., Koprdová, S., Skuhrovec, J., & Káš, M. (2014). Weeds determine the composition of carabid assemblage in maize at a fine scale. Scientia Agriculturae Bohemica, 2014(2), 85–92. https://doi.org/10.7160/sab.2014.450202

Saska, P., Vodde, M., Heijerman, T., Westerman, P., & van der Werf, W. (2007). The significance of a grassy field boundary for the spatial distribution of carabids within two cereal fields. Agriculture, Ecosystems & Environment, 122(4), 427–434. https://doi.org/10.1016/j.agee.2007.02.013

Schaeffer, A., Amelung, W., Hollert, H., Kaestner, M., Kandeler, E., Kruse, J., Miltner, A., Ottermanns, R., Pagel, H., Peth, S., Poll, C., Rambold, G., Schloter, M., Schulz, S., Streck, T., & Roß-Nickoll, M. (2016). The impact of chemical pollution on the resilience of soils under multiple stresses: A conceptual framework for future research. Science of The Total Environment, 568, 1076–1085. https://doi.org/10.1016/j.scitotenv.2016.06.161

Scheidler, M. (1990). Influence of habitat structure and vegetation architecture on spiders. Zoologischer Anzeiger, 225, 333–340.

Scherney, F. (1961). Beiträge zur Biologie und ökonomischen Bedeutung räuberisch lebender Käferarten. Zeitschrift Für Angewandte Entomologie, 48(1–4), 163–175. https://doi.org/10.1111/j.1439-0418.1961.tb03796.x

Scheu, S. (2001). Plants and generalist predators as links between the below-ground and above-ground system. Basic and Applied Ecology, 2(1), 3–13. https://doi.org/10.1078/1439-1791-00031

Scheunemann, N., Maraun, M., Scheu, S., & Butenschoen, O. (2015). The role of shoot residues vs. Crop species for soil arthropod diversity and abundance of arable systems. Soil Biology and Biochemistry, 81, 81–88. https://doi.org/10.1016/j.soilbio.2014.11.006

Schipanski, M., & Barbercheck, M. (2010). Weed Management, Environmental Quality and Profitability in Organic Feed and Forage Production Systems. Russell E. Larson Agricultural Research Center. https://www.researchgate.net/profile/Mary-Barbercheck/publication/267252451_Weed_Management_Environmental_Quality_and_Profitability_in_Organic_Feed_and_Forage_Production_Systems/links/54807bfa0cf2ccc7f8bd0695/Weed-Management-Environmental-Quality-and-Profitability-in-Organic-Feed-and-Forage-Production-Systems.pdf

Schlatter, D., Kinkel, L., Thomashow, L., Weller, D., & Paulitz, T. (2017). Disease Suppressive Soils: New Insights from the Soil Microbiome. Phytopathology®, 107(11), 1284–1297. https://doi.org/10.1094/PHYTO-03-17-0111-RVW

Schloter, M., Nannipieri, P., Sørensen, S. J., & van Elsas, J. D. (2018). Microbial indicators for soil quality. Biology and Fertility of Soils, 54(1), 1–10. https://doi.org/10.1007/s00374-017-1248-3

Schlüter, S., Großmann, C., Diel, J., Wu, G.-M., Tischer, S., Deubel, A., & Rücknagel, J. (2018). Long-term effects of conventional and reduced tillage on soil structure, soil ecological and soil hydraulic properties. Geoderma, 332, 10–19. https://doi.org/10.1016/j.geoderma.2018.07.001

Schmelz, R. M., & Collado, R. (2010). A guide to European terrestrial and freshwater species of Enchytraeidae (Oligochaeta). Soil Organisms, 82(1), 1–176.

Schmidt, M. H. (2004). Spinnen in Agrarlandschaften und die biologische Kontrolle von Getreideblattläusen [PhD Thesis]. Niedersächsische Staats-und Universitätsbibliothek Göttingen.

Schmidt, M. H., Clough, Y., Schulz, W., Westphalen, A., & Tscharntke, T. (2006). Capture efficiency and preservation attributes of different fluids in pitfall traps. Journal of Arachnology, 34(1), 159–162. https://doi.org/10.1636/T04-95.1

Schmidt, M. H., Lauer, A., Purtauf, T., Thies, C., Schaefer, M., & Tscharntke, T. (2003). Relative importance of predators and parasitoids for cereal aphid control. Proceedings of the Royal Society of London. Series B: Biological Sciences, 270(1527), 1905–1909. https://doi.org/10.1098/rspb.2003.2469

Schmidt, M. H., Roschewitz, I., Thies, C., & Tscharntke, T. (2005). Differential effects of landscape and management on diversity and density of ground-dwelling farmland spiders. Journal of Applied Ecology, 42(2), 281–287. https://doi.org/10.1111/j.1365-2664.2005.01014.x

Schmidt, M. H., Thewes, U., Thies, C., & Tscharntke, T. (2004). Aphid suppression by natural enemies in mulched cereals. Entomologia Experimentalis et Applicata, 113(2), 87–93. https://doi.org/10.1111/j.0013-8703.2004.00205.x

Schmitzberger, I., Wrbka, Th., Steurer, B., Aschenbrenner, G., Peterseil, J., & Zechmeister, H. G. (2005). How farming styles influence biodiversity maintenance in Austrian agricultural landscapes. Agriculture, Ecosystems & Environment, 108(3), 274–290. https://doi.org/10.1016/j.agee.2005.02.009

Schneiders, A., Van Daele, T., Van Landuyt, W., & Van Reeth, W. (2012). Biodiversity and ecosystem services: Complementary approaches for ecosystem management? Ecological Indicators, 21, 123–133. https://doi.org/10.1016/j.ecolind.2011.06.021

Scholz-Starke, B. (2006). Model Ecosystems for the Terrestrial Environment and Microarthropod Communities of Agricultural Landscapes—A Literature Survey on Behalf of the Bayer Cropscience AG.

Scholz-Starke, B. (2013). Assessing the risks of pesticides to soil communities using terrestrial model ecosystems [PhD Thesis]. Hochschulbibliothek der Rheinisch-Westfälischen Technischen Hochschule Aachen.

Schrader, S., Schmelz, R. M., & International Symposium on Enchytraeidae (Eds.). (2012). Proceedings of the 9th International Symposium on Enchytraeidae, 14—16 July 2010, Braunschweig, Germany. International Symposium on Enchytraeidae; 9 (Braunschweig), Braunschweig. vTI.

Schröter, L., & Irmler, U. (2013). Organic cultivation reduces barrier effect of arable fields on species diversity. Agriculture, Ecosystems & Environment, 164, 176–180. https://doi.org/10.1016/j.agee.2012.09.018

Schwartz, M. W., Brigham, C. A., Hoeksema, J. D., Lyons, K. G., Mills, M. H., & van Mantgem, P. J. (2000). Linking biodiversity to ecosystem function: Implications for conservation ecology. Oecologia, 122(3), 297–305. https://doi.org/10.1007/s004420050035

Schwerk, A., & Kitka, M. A. (2016). Influence of mowing measures on carabid beetle fauna (Coleoptera: Carabidae) in a post-agricultural area. Periodicum Biologorum, 118(3), Article 3. https://hrcak.srce.hr/ojs/index.php/periodicum_biologorum/article/view/3919

Scott, W. A., & Anderson, R. (2003). Temporal and spatial variation in carabid assemblages from the United Kingdom Environmental Change Network. Biological Conservation, 110(2), 197–210. https://doi.org/10.1016/S0006-3207(02)00189-1

Seibold, S., Gossner, M. M., Simons, N. K., Blüthgen, N., Müller, J., Ambarlı, D., Ammer, C., Bauhus, J., Fischer, M., Habel, J. C., Linsenmair, K. E., Nauss, T., Penone, C., Prati, D., Schall, P., Schulze, E.-D., Vogt, J., Wöllauer, S., & Weisser, W. W. (2019). Arthropod decline in grasslands and forests is associated with landscape-level drivers. Nature, 574(7780), 671–674. https://doi.org/10.1038/s41586-019-1684-3

Shackelford, G., Steward, P. R., Benton, T. G., Kunin, W. E., Potts, S. G., Biesmeijer, J. C., & Sait, S. M. (2013). Comparison of pollinators and natural enemies: A meta-analysis of landscape and local effects on abundance and richness in crops. Biological Reviews, 88(4), 1002–1021. https://doi.org/10.1111/brv.12040

Shah, P. A., Brooks, D. R., Ashby, J. E., Perry, J. N., & Woiwod, I. P. (2003). Diversity and abundance of the coleopteran fauna from organic and conventional management systems in southern England. Agricultural and Forest Entomology, 5(1), 51–60. https://doi.org/10.1046/j.1461-9563.2003.00162.x

Shao, Y., Zhang, W., Shen, J., Zhou, L., Xia, H., Shu, W., Ferris, H., & Fu, S. (2008). Nematodes as indicators of soil recovery in tailings of a lead/zinc mine. Soil Biology and Biochemistry, 40(8), 2040–2046. https://doi.org/10.1016/j.soilbio.2008.04.014

Shipitalo, M., & Le Bayon, R.-C. (2004). Quantifying the Effects of Earthworms on Soil Aggregation and Porosity. In C. Edwards (Ed.), Earthworm Ecology (pp. 183–200). CRC Press. https://doi.org/10.1201/9781420039719.pt5

Siepel, H. (1996). Biodiversity of soil microarthropods: The filtering of species. Biodiversity and Conservation, 5(2), 251–260. https://doi.org/10.1007/BF00055834

Simmons, B. I., Blyth, P. S. A., Blanchard, J. L., Clegg, T., Delmas, E., Garnier, A., Griffiths, C. A., Jacob, U., Pennekamp, F., Petchey, O. L., Poisot, T., Webb, T. J., & Beckerman, A. P. (2021). Refocusing multiple stressor research around the targets and scales of ecological impacts. Nature Ecology & Evolution, 5(11), 1478–1489. https://doi.org/10.1038/s41559-021-01547-4

Simon, S., Bouvier, J.-C., Debras, J.-F., & Sauphanor, B. (2010). Biodiversity and pest management in orchard systems. A review. Agronomy for Sustainable Development, 139–152.

Simons, N. K., Gossner, M. M., Lewinsohn, T. M., Boch, S., Lange, M., Müller, J., Pašalić, E., Socher, S. A., Türke, M., Fischer, M., & Weisser, W. W. (2014). Resource-Mediated Indirect Effects of Grassland Management on Arthropod Diversity. PLOS ONE, 9(9), e107033. https://doi.org/10.1371/journal.pone.0107033

Simons, N. K., Gossner, M. M., Lewinsohn, T. M., Lange, M., Türke, M., & Weisser, W. W. (2015). Effects of land-use intensity on arthropod species abundance distributions in grasslands. Journal of Animal Ecology, 84(1), 143–154. https://doi.org/10.1111/1365-2656.12278

Sims, R. W., & Gerard, B. M. (1999). Earthworms. In Kermack, D. M. & Barnes S. K. (Eds.), Synopses of the British Fauna (pp. 1–171). Brill/Backhuys.

Sirami, C., Gross, N., Baillod, A. B., Bertrand, C., Carrié, R., Hass, A., Henckel, L., Miguet, P., Vuillot, C., Alignier, A., Girard, J., Batáry, P., Clough, Y., Violle, C., Giralt, D., Bota, G., Badenhausser, I., Lefebvre, G., Gauffre, B., … Fahrig, L. (2019). Increasing crop heterogeneity enhances multitrophic diversity across agricultural regions. Proceedings of the National Academy of Sciences, 116(33), 16442–16447. https://doi.org/10.1073/pnas.1906419116

Sjursen, H., Michelsen, A., & Jonasson, S. (2005). Effects of long-term soil warming and fertilisation on microarthropod abundances in three sub-arctic ecosystems. Applied Soil Ecology, 30(3), 148–161. https://doi.org/10.1016/j.apsoil.2005.02.013

Skarzynski, D. (2000). A redescription of Ceratophysella stercoraria (STACH, 1963) (Collembola: Hypogastruridae). Genus, 11(1), 1–6.

Skvarla, M. J., Larson, J. L., & Dowling, A. P. G. (2014). Pitfalls and preservatives: A review. The Journal of the Entomological Society of Ontario, 145. https://journal.lib.uoguelph.ca/index.php/eso/article/view/3734

Smith, J., Wolfe, M., Woodward, L., Pearce, B., Lampkin, N., Marshall, H., & Rg, B. (2011). Organic Farming and Biodiversity: A review of the literature.

Socher, S. A., Prati, D., Boch, S., Müller, J., Klaus, V. H., Hölzel, N., & Fischer, M. (2012). Direct and productivity-mediated indirect effects of fertilization, mowing and grazing on grassland species richness. Journal of Ecology, 100(6), 1391–1399. https://doi.org/10.1111/j.1365-2745.2012.02020.x

Soliveres, S., van der Plas, F., Manning, P., Prati, D., Gossner, M. M., Renner, S. C., Alt, F., Arndt, H., Baumgartner, V., Binkenstein, J., Birkhofer, K., Blaser, S., Blüthgen, N., Boch, S., Böhm, S., Börschig, C., Buscot, F., Diekötter, T., Heinze, J., … Allan, E. (2016). Biodiversity at multiple trophic levels is needed for ecosystem multifunctionality. Nature, 536(7617), 456–459. https://doi.org/10.1038/nature19092

Sotherton, N. W. (1984). The distribution and abundance of predatory arthropods overwintering on farmland. Annals of Applied Biology, 105(3), 423–429.

Sotherton, N. W. (1985). The distribution and abundance of predatory Coleoptera overwintering in field boundaries. Annals of Applied Biology, 106(1), 17–21. https://doi.org/10.1111/j.1744-7348.1985.tb03089.x

Soto-Gómez, D., Pérez-Rodríguez, P., Vázquez-Juiz, L., López-Periago, J. E., & Paradelo, M. (2018). Linking pore network characteristics extracted from CT images to the transport of solute and colloid tracers in soils under different tillage managements. Soil and Tillage Research, 177, 145–154. https://doi.org/10.1016/j.still.2017.12.007

Sousa, J. P., Rodrigues, J. M. L., Loureiro, S., Soares, A. M. V. M., Jones, S. E., Förster, B., & Van Gestel, C. A. M. (2004). Ring-Testing and Field-validation of a Terrestrial Model Ecosystem (TME) – An Instrument for Testing Potentially Harmful Substances: Effects of Carbendazim on Soil Microbial Parameters. Ecotoxicology, 13(1), 43–60. https://doi.org/10.1023/B:ECTX.0000012404.08568.e2

Speight, M. R., & Lawton, J. H. (1976). The influence of weed-cover on the mortality imposed on artificial prey by predatory ground beetles in cereal fields. Oecologia, 23(3), 211–223. https://doi.org/10.1007/BF00361237

Spurgeon, D. J., & Hopkin, S. P. (1996). The effects of metal contamination on earthworm populations around a smelting works: Quantifying species effects. Applied Soil Ecology, 4(2), 147–160. https://doi.org/10.1016/0929-1393(96)00109-6

Spurgeon, D. J., Keith, A. M., Schmidt, O., Lammertsma, D. R., & Faber, J. H. (2013). Land-use and land-management change: Relationships with earthworm and fungi communities and soil structural properties. BMC Ecology, 13(1), 46. https://doi.org/10.1186/1472-6785-13-46

Spurgeon, D. J., Weeks, J. M., & Van Gestel, C. A. M. (2003). A summary of eleven years progress in earthworm ecotoxicology. Pedobiologia, 47(5–6), 588–606. https://doi.org/10.1078/0031-4056-00234

Stein-Bachinger, K., Gottwald, F., Haub, A., & Schmidt, E. (2021). To what extent does organic farming promote species richness and abundance in temperate climates? A review. Organic Agriculture, 11(1), 1–12. https://doi.org/10.1007/s13165-020-00279-2

Stephens, E. J., Losey, J. E., Allee, L. L., DiTommaso, A., Bodner, C., & Breyre, A. (2012). The impact of Cry3Bb Bt-maize on two guilds of beneficial beetles. Agriculture, Ecosystems & Environment, 156, 72–81. https://doi.org/10.1016/j.agee.2012.05.002

Stoate, C., Báldi, A., Beja, P., Boatman, N. D., Herzon, I., van Doorn, A., de Snoo, G. R., Rakosy, L., & Ramwell, C. (2009). Ecological impacts of early 21st century agricultural change in Europe – A review. Journal of Environmental Management, 91(1), 22–46. https://doi.org/10.1016/j.jenvman.2009.07.005

Stoate, C., Boatman, N. D., Borralho, R. J., Carvalho, C. R., Snoo, G. R. de, & Eden, P. (2001). Ecological impacts of arable intensification in Europe. Journal of Environmental Management, 63(4), 337–365. https://doi.org/10.1006/jema.2001.0473

Stockdale, E., Hargreaves, P., & Bhogal, A. (2021). Developing soil health indicators for improved soil management on farm. In Cranfield University, UK Advances & W. Otten (Eds.), Burleigh Dodds Series in Agricultural Science (pp. 289–328). Burleigh Dodds Science Publishing. https://doi.org/10.19103/AS.2020.0079.22

Stoeckle, B. C., Dworschak, K., Gossner, M. M., & Kuehn, R. (2010). Influence of arthropod sampling solutions on insect genotyping reliability. Entomologia Experimentalis et Applicata, 135, 217–223. https://doi.org/10.1111/j.1570-7458.2010.00977.x

Stone, D., Blomkvist, P., Hendriksen, N. B., Bonkowski, M., Jørgensen, H. B., Carvalho, F., Dunbar, M. B., Gardi, C., Geisen, S., Griffiths, R., Hug, A. S., Jensen, J., Laudon, H., Mendes, S., Morais, P. V., Orgiazzi, A., Plassart, P., Römbke, J., Rutgers, M., … Creamer, R. E. (2016). A method of establishing a transect for biodiversity and ecosystem function monitoring across Europe. Applied Soil Ecology, 97, 3–11. https://doi.org/10.1016/j.apsoil.2015.06.017

Stone, D., Costa, D., Daniell, T. J., Mitchell, S. M., Topp, C. F. E., & Griffiths, B. S. (2016). Using nematode communities to test a European scale soil biological monitoring programme for policy development. Applied Soil Ecology, 97, 78–85. https://doi.org/10.1016/j.apsoil.2015.08.017

Stone, D., Ritz, K., Griffiths, B. G., Orgiazzi, A., & Creamer, R. E. (2016). Selection of biological indicators appropriate for European soil monitoring. Applied Soil Ecology, 97, 12–22. https://doi.org/10.1016/j.apsoil.2015.08.005

Strandberg, B., Bruus Pedersen, M., & Elmegaard, N. (2005). Weed and arthropod populations in conventional and genetically modified herbicide tolerant fodder beet fields. Agriculture, Ecosystems & Environment, 105(1–2), 243–253. https://doi.org/10.1016/j.agee.2004.03.005

Suding, K. N., Collins, S. L., Gough, L., Clark, C., Cleland, E. E., Gross, K. L., Milchunas, D. G., & Pennings, S. (2005). Functional- and abundance-based mechanisms explain diversity loss due to N fertilization. Proceedings of the National Academy of Sciences, 102(12), 4387–4392. https://doi.org/10.1073/pnas.0408648102

Sunderland, K. (1999). Mechanisms Underlying the Effects of Spiders on Pest Populations. The Journal of Arachnology, 27(1), 308–316.

Sunderland, K. D., Crook, N. E., Stacey, D. L., & Fuller, B. J. (1987). A study of feeding by polyphagous predators on cereal aphids using ELISA and gut dissection. Journal of Applied Ecology, 24, 907–933.

Sunderland, K., & Samu, F. (2000). Effects of agricultural diversification on the abundance, distribution, and pest control potential of spiders: A review. Entomologia Experimentalis et Applicata, 95(1), 1–13. https://doi.org/10.1046/j.1570-7458.2000.00635.x

Svendsen, T. S., Hansen, P. E., Sommer, C., Martinussen, T., Grønvold, J., & Holter, P. (2005). Life history characteristics of Lumbricus terrestris and effects of the veterinary antiparasitic compounds ivermectin and fenbendazole. Soil Biology and Biochemistry, 37(5), 927–936. https://doi.org/10.1016/j.soilbio.2004.10.014

Svobodová, Z., Habuštová, O., Sehnal, F., Holec, M., & Hussein, H. M. (2013). Epigeic spiders are not affected by the genetically modified maize MON 88017. Journal of Applied Entomology, 137(1–2), 56–67. https://doi.org/10.1111/j.1439-0418.2012.01727.x

Swift, M. J., Izac, A.-M. N., & van Noordwijk, M. (2004). Biodiversity and ecosystem services in agricultural landscapes—Are we asking the right questions? Agriculture, Ecosystems & Environment, 104(1), 113–134. https://doi.org/10.1016/j.agee.2004.01.013

Syrbe, R.-U., Schorcht, M., Grunewald, K., & Meinel, G. (2018). Indicators for a nationwide monitoring of ecosystem services in Germany exemplified by the mitigation of soil erosion by water. Ecological Indicators, 94, 46–54. https://doi.org/10.1016/j.ecolind.2017.05.035

Taberlet, P., Coissac, E., Pompanon, F., Brochmann, C., & Willerslev, E. (2012). Towards next-generation biodiversity assessment using DNA metabarcoding. Molecular Ecology, 21(8), 2045–2050. https://doi.org/10.1111/j.1365-294X.2012.05470.x

Tamburini, G., Pevere, I., Fornasini, N., Simone, S. D., Sigura, M., Boscutti, F., & Marini, L. (2016). Conservation tillage reduces the negative impact of urbanisation on carabid communities. Insect Conservation and Diversity, 9(5), 438–445. https://doi.org/10.1111/icad.12181

Tamutis, V., Monsevičius, V., & Pekarskas, J. (2004). Ground and rove beetles (Coleoptera: Carabidae, Staphylinidae) in ecological and conventional winter wheat fields. Baltic Journal of Coleopterology, 4, 31–40.

Tardy, V., Spor, A., Mathieu, O., Lévèque, J., Terrat, S., Plassart, P., Regnier, T., Bardgett, R. D., van der Putten, W. H., Roggero, P. P., Seddaiu, G., Bagella, S., Lemanceau, P., Ranjard, L., & Maron, P.-A. (2015). Shifts in microbial diversity through land use intensity as drivers of carbon mineralization in soil. Soil Biology and Biochemistry, 90, 204–213. https://doi.org/10.1016/j.soilbio.2015.08.010

Taylor, M. E., & Morecroft, M. D. (2009). Effects of agri-environment schemes in a long-term ecological time series. Agriculture, Ecosystems & Environment, 130(1–2), 9–15. https://doi.org/10.1016/j.agee.2008.11.004

Terrat, S., Horrigue, W., Dequietd, S., Saby, N. P. A., Lelièvre, M., Nowak, V., Tripied, J., Régnier, T., Jolivet, C., Arrouays, D., Wincker, P., Cruaud, C., Karimi, B., Bispo, A., Maron, P. A., Prévost-Bouré, N. C., & Ranjard, L. (2017). Mapping and predictive variations of soil bacterial richness across France. PLOS ONE, 12(10), e0186766. https://doi.org/10.1371/journal.pone.0186766

Thakur, M. P., Phillips, H. R. P., Brose, U., De Vries, F. T., Lavelle, P., Loreau, M., Mathieu, J., Mulder, C., Van der Putten, W. H., Rillig, M. C., Wardle, D. A., Bach, E. M., Bartz, M. L. C., Bennett, J. M., Briones, M. J. I., Brown, G., Decaëns, T., Eisenhauer, N., Ferlian, O., … Cameron, E. K. (2020). Towards an integrative understanding of soil biodiversity. Biological Reviews, 95(2), 350–364. https://doi.org/10.1111/brv.12567

Theißen, B. (2010). Die Collembolenzönosen ausgewählter Feldraine in drei unterschiedlichen Agrarlandschaften Deutschlands und die Bedeutung der Bodenfauna in der ökologischen Risikobewertung stofflicher Beeinträchtigungen aus der Agrarpaxis. Shaker.

Theißen, B., & Russell, D. J. (2009). Zur Bedeutung von Collembolen im GVO-Monitoring. Gefahrstoffe-Reinhaltung Der Luft, 69(10), 391.

Theves, F. (2013). Laufkäfer (Col., Carabidae) in Feldhecken Südwestdeutschlands: Vergesellschaftung und Biodiversität in Abhängigkeit von der Habitatqualität.

Thibaud, J.-M., Schulz, H.-J., & Da Gama Assalino, M. M. (2004). Synopses on Palaearctic Collembola. Volume 4. Hypogastruridae. (Vol. 75).

Thiele-Bruhn, S., Schloter, M., Wilke, B.-M., Beaudette, L. A., Martin-Laurent, F., Cheviron, N., Mougin, C., & Römbke, J. (2020). Identification of new microbial functional standards for soil quality assessment. SOIL, 6(1), 17–34. https://doi.org/10.5194/soil-6-17-2020

Thies, C., & Tscharntke, T. (1999). Landscape Structure and Biological Control in Agroecosystems. Science, 285(5429), 893–895. https://doi.org/10.1126/science.285.5429.893

Thies, J. E., & Grossman, J. M. (2006). The Soil Habitat and Soil Ecology. In Biological Approaches to Sustainable Systems. Taylor & Francis.

Thomas, C. F. G., Brown, N. J., & Kendall, D. A. (2006). Carabid movement and vegetation density: Implications for interpreting pitfall trap data from split-field trials. Agriculture, Ecosystems & Environment, 113(1), 51–61. https://doi.org/10.1016/j.agee.2005.08.033

Thomas, C. F. G., Holland, J. M., & Brown, N. J. (2002). THE SPATIAL DISTRIBUTION OF CARABID BEETLES IN AGRICULTURAL LANDSCAPES. In J. M. Holland (Ed.), The Agroecology of Carabid Beetles (pp. 305–344). Intercept.

Thomas, C. F. G., & Jepson, P. C. (1997). Field-scale effects of farming practices on linyphiid spider populations in grass and cereals. Entomologia Experimentalis et Applicata, 84(1), 59–69. https://doi.org/10.1046/j.1570-7458.1997.00198.x

Thomas, C. F. G., Parkinson, L., Griffiths, G. J. K., Garcia, A. F., & Marshall, E. J. P. (2001). Aggregation and temporal stability of carabid beetle distributions in field and hedgerow habitats. Journal of Applied Ecology, 38(1), 100–116. https://doi.org/10.1046/j.1365-2664.2001.00574.x

Thomas, C. F., & Marshall, E. (1999). Arthropod Abundance and Diversity in Differently Vegetated Margins of Arable Fields. Agriculture, Ecosystems & Environment, 72, 131–144. https://doi.org/10.1016/S0167-8809(98)00169-8

Thomas, J. A., Telfer, M. G., Roy, D. B., Preston, C. D., Greenwood, J. J. D., Asher, J., Fox, R., Clarke, R. T., & Lawton, J. H. (2004). Comparative Losses of British Butterflies, Birds, and Plants and the Global Extinction Crisis. Science, 303(5665), 1879–1881. https://doi.org/10.1126/science.1095046

Thomas, M. B., Mitchell, H. J., & Wratten, S. D. (1992). Abiotic and biotic factors influencing the winter distribution of predatory insects. Oecologia, 89(1), 78–84. https://doi.org/10.1007/BF00319018

Thomas, M. B., Wratten, S. D., & Sotherton, N. W. (1991). Creation of 'Island' Habitats in Farmland to Manipulate Populations of Beneficial Arthropods: Predator Densities and Emigration. The Journal of Applied Ecology, 28(3), 906. https://doi.org/10.2307/2404216

Thomas, M. B., Wratten, S. D., & Sotherton, N. W. (1992). Creation of `Island' Habitats in Farmland to Manipulate Populations of Beneficial Arthropods: Predator Densities and Species Composition. Journal of Applied Ecology, 524–531.

Thompson, K. A., & Newmaster, S. G. (2014). Molecular taxonomic tools provide more accurate estimates of species richness at less cost than traditional morphology-based taxonomic practices in a vegetation survey. Biodiversity and Conservation, 23(6), 1411–1424. https://doi.org/10.1007/s10531-014-0672-z

Thomson, B. C., Tisserant, E., Plassart, P., Uroz, S., Griffiths, R. I., Hannula, S. E., Buée, M., Mougel, C., Ranjard, L., Van Veen, J. A., Martin, F., Bailey, M. J., & Lemanceau, P. (2015). Soil conditions and land use intensification effects on soil microbial communities across a range of European field sites. Soil Biology and Biochemistry, 88, 403–413. https://doi.org/10.1016/j.soilbio.2015.06.012

Thomson, L. J., & Hoffmann, A. A. (2013). Spatial scale of benefits from adjacent woody vegetation on natural enemies within vineyards. Biological Control, 64(1), 57–65. https://doi.org/10.1016/j.biocontrol.2012.09.019

Thorbek, P., & Bilde, T. (2004). Reduced numbers of generalist arthropod predators after crop management. Journal of Applied Ecology, 41, 526–538.

Tilman, D. (2001). Diversity and Productivity in a Long-Term Grassland Experiment. Science, 294(5543), 843–845. https://doi.org/10.1126/science.1060391

Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R., & Polasky, S. (2002). Agricultural sustainability and intensive production practices. Nature, 418(6898), 671–677. https://doi.org/10.1038/nature01014

Tischler, W. (1958). Synokologische untersuchungen an der fauna der Felder und Feldgeholze. Zeitschrift für Morphologie und Ökologie der Tiere, 47(1), 54–114. https://doi.org/10.1007/BF00407187

Tooming, E., Merivee, E., Must, A., Sibul, I., & Williams, I. (2014). Sub-lethal effects of the neurotoxic pyrethroid insecticide Fastac® 50EC on the general motor and locomotor activities of the non-targeted beneficial carabid beetle Platynus assimilis (Coleoptera: Carabidae). Pest Management Science, 70(6), 959–966. https://doi.org/10.1002/ps.3636

Topoliantz, S., Ponge, J.-F., & Viaux, P. (2000). Earthworm and enchytraeid activity under different arable farming systems, as exemplified by biogenic structures. Plant and Soil, 225, 39–51.

Topping, C. J., Craig, P. S., de Jong, F., Klein, M., Laskowski, R., Manachini, B., Pieper, S., Smith, R., Sousa, J. P., Streissl, F., Swarowsky, K., Tiktak, A., & van der Linden, T. (2015). Towards a landscape scale management of pesticides: ERA using changes in modelled occupancy and abundance to assess long-term population impacts of pesticides. Science of The Total Environment, 537, 159–169. https://doi.org/10.1016/j.scitotenv.2015.07.152

Topping, C. J., & Lagisz, M. (2012). Spatial Dynamic Factors Affecting Population-Level Risk Assessment for a Terrestrial Arthropod: An Agent-Based Modeling Approach. Human and Ecological Risk Assessment: An International Journal, 18(1), 168–180. https://doi.org/10.1080/10807039.2012.632292

Torres, J. B., & Ruberson, J. R. (2005). Canopy- and Ground-Dwelling Predatory Arthropods in Commercial Bt and non-Bt Cotton Fields: Patterns and Mechanisms. ENVIRONMENTAL ENTOMOLOGY, 34(5), 15.

Torres, J. B., & Ruberson, J. R. (2006). Spatial and temporal dynamics of oviposition behavior of bollworm and three of its predators in Bt and non-Bt cotton fields. Entomologia Experimentalis et Applicata, 120(1), 11–22. https://doi.org/10.1111/j.1570-7458.2006.00422.x

Toschki, A. (2008). Eignung unterschiedlicher Monitoring-Methoden als Grundlage zum Risk Assessment für Agrarsysteme—Am Beispiel einer biozönologischen Reihenuntersuchung und einer Einzelfallstudie - (Flur).

Toschki, A., Burkhardt, U., Haase, H., Höfer, H., Jänisch, S., Oellers, J., Römbke, J., Roß-Nickoll, M., Salamon, J.-A., Schmelz, R. M., Scholz-Starke, B., & Russell, D. (2021). Die Edaphobase-Länderstudien. Synökologische Untersuchungen von Bodenorganismen in einem Biotop- und Standortgradienten in Deutschland 2014–2018. Peckiana, 14, 380.

Toschki, A., Hothorn, L. A., & Roß-Nickoll, M. (2007). Effects of Cultivation of Genetically Modified Bt Maize on Epigeic Arthropods (Araneae; Carabidae). ENVIRONMENTAL ENTOMOLOGY, 36(4), 15.

Toschki, A., Jänsch, S., Roß-Nickoll, M., Römbke, J., & Züghart, W. (2015). Possibilities of using the German Federal States' permanent soil monitoring program for the monitoring of potential effects of genetically modified organisms (GMO). Environmental Sciences Europe, 27(1), 26. https://doi.org/10.1186/s12302-015-0057-2

Trautner, J., & Aßmann, T. (1998). Bioindikation durch Laufkäfer—Beispiele und Möglichkeiten. Laufener Seminarbeiträge, 8, 169–182.

Traxler, A. (Ed.). (2000). Ökologisches Monitoring von gentechnisch veränderten Organismen. Umweltbundesamt.

Trdan, S. (2013). Insecticides: Development of Safer and More Effective Technologies. BoD – Books on Demand.

Treier, K., Kovács, G., Kaasik, R., Männiste, M., & Veromann, E. (2017). The abundance of overwintered predatory arthropods in agricultural landscape elements. IOBC-WPRS Bulletin, 122, 68–73.

Triebel, D. (2016). Diversity Workbench Einführung. Diversity Workbench Workshop, München.

Tscharntke, T., Batáry, P., & Dormann, C. F. (2011). Set-aside management: How do succession, sowing patterns and landscape context affect biodiversity? Agriculture, Ecosystems & Environment, 143(1), 37–44. https://doi.org/10.1016/j.agee.2010.11.025

Tscharntke, T., & Greiler, H. J. (1995). Insect Communities, Grasses, and Grasslands. Annual Review of Entomology, 40(1), 535–558.

Tscharntke, T., Klein, A. M., Kruess, A., Steffan-Dewenter, I., & Thies, C. (2005). Landscape perspectives on agricultural intensification and biodiversity – ecosystem service management. Ecology Letters, 8(8), 857–874. https://doi.org/10.1111/j.1461-0248.2005.00782.x

Tscharntke, T., Steffan-Dewenter, I., Kruess, A., & Thies, C. (2002). Characteristics of insect populations on habitat fragments: A mini review: Insect populations and habitat fragments. Ecological Research, 17(2), 229–239. https://doi.org/10.1046/j.1440-1703.2002.00482.x

Tsiafouli, M. A., Thébault, E., Sgardelis, S. P., de Ruiter, P. C., van der Putten, W. H., Birkhofer, K., Hemerik, L., de Vries, F. T., Bardgett, R. D., Brady, M. V., Bjornlund, L., Jørgensen, H. B., Christensen, S., Hertefeldt, T. D., Hotes, S., Gera Hol, W. H., Frouz, J., Liiri, M., Mortimer, S. R., … Hedlund, K. (2015). Intensive agriculture reduces soil biodiversity across Europe. Global Change Biology, 21(2), 973–985. https://doi.org/10.1111/gcb.12752

Tuck, S. L., Winqvist, C., Mota, F., Ahnström, J., Turnbull, L. A., & Bengtsson, J. (2014). Land-use intensity and the effects of organic farming on biodiversity: A hierarchical meta-analysis. Journal of Applied Ecology, 51(3), 746–755. https://doi.org/10.1111/1365-2664.12219

Turbé, A., De Toni, A., Benito, P., Lavelle, P., Lavelle, P., Camacho, N. R., Van Der Putten, W. H., Labouze, E., & Mudgal, S. (2010). Soil biodiversity: Functions, threats and tools for policy makers. Bio Intelligence Service, IRD, and NIOO, Report for European Commission (DG Environment), 250.

Turin, H., & Den Boer, P. J. (1988). Changes in the distribution of carabid beetles in The Netherlands since 1880. II. Isolation of habitats and long-term time trends in the occurence of carabid species with different powers of dispersal (Coleoptera, Carabidae). Biological Conservation, 44(3), 179–200.

Ulrich, W., Buszko, J., & Czarnecki, A. (2004). The contribution of poplar plantations to regional diversity of ground beetles (Coleoptera: Carabidae) in agricultural landscapes. Ann. Zool. Fennici, 41, 501–512.

Umweltbundesamt (Ed.). (2007). Bodenbiologische Bewertung von Boden-Dauerbeobachtungsflächen (BDF) anhand von Lumbriciden. UBA TEXTE, 34/07, 158.

Uphoff, N., Ball, A. S., Fernandes, E., Herren, H., Husson, O., Laing, M., Palm, C., Pretty, J., Sanchez, P., Sanginga, N., & Thies, J. (2006). Biological Approaches to Sustainable Soil Systems. CRC Press.

Urban, D. L. (2005). Modeling Ecological Processes Across Scales. Ecology, 86(8), 1996–2006. https://doi.org/10.1890/04-0918

Urhan, R., Katılmış, Y., & Kahveci, A. Ö. (2006). Vertical distribution of oribatid mites (Acari: Oribatida) and some ecological parameters affecting the distribution pattern in south-west Turkey. Zoology in the Middle East, 37(1), 99–105. https://doi.org/10.1080/09397140.2006.10638153

Valckx, J., Pina, A. C., Govers, G., Hermy, M., & Muys, B. (2011). Food and habitat preferences of the earthworm Lumbricus terrestris L. for cover crops. Pedobiologia, 54, S139–S144. https://doi.org/10.1016/j.pedobi.2011.07.004

Van Buskirk, J., & Willi, Y. (2004). Enhancement of Farmland Biodiversity within Set-Aside Land. Conservation Biology, 18(4), 987–994. https://doi.org/10.1111/j.1523-1739.2004.00359.x

van Capelle, C., Schrader, S., & Brunotte, J. (2012). Tillage-induced changes in the functional diversity of soil biota – A review with a focus on German data. European Journal of Soil Biology, 50, 165–181. https://doi.org/10.1016/j.ejsobi.2012.02.005

van den Berge, S. (2021). Role of hedgerow systems for biodiversity and ecosystem services in agricultural landscapes. [Ghent University]. https://www.researchgate.net/profile/Sanne-Van-Den-Berge/publication/348713835_Role_of_hedgerow_systems_for_biodiversity_and_ecosystem_services_in_agricultural_landscapes/links/600c27a992851c13fe303785/Role-of-hedgerow-systems-for-biodiversity-and-ecosystem-services-in-agricultural-landscapes.pdf?origin=searchReact&_iepl%5BgeneralViewId%5D=OJ8LHn6YTSU1RLngIdGo2hHojgzFJsf7ZsfX&_iepl%5Bcontexts%5D%5B0%5D=searchReact&_iepl%5BviewId%5D=9W0VLYgy12LnEUq302vkS8xDyWqrKD0IDwLb&_iepl%5BsearchType%5D=publication&_iepl%5Bdata%5D%5BcountLessEqual20%5D=1&_iepl%5Bdata%5D%5BinteractedWithPosition2%5D=1&_iepl%5Bdata%5D%5BwithEnrichment%5D=1&_iepl%5Bposition%5D=2&_iepl%5BrgKey%5D=PB%3A348713835&_iepl%5BinteractionType%5D=publicationDownload

Van der Putten, W. H. (2012). Climate Change, Aboveground-Belowground Interactions, and Species' Range Shifts. Annual Review of Ecology, Evolution, and Systematics, 43(1), 365–383. https://doi.org/10.1146/annurev-ecolsys-110411-160423

van der Zanden, E. H., Levers, C., Verburg, P. H., & Kuemmerle, T. (2016). Representing composition, spatial structure and management intensity of European agricultural landscapes: A new typology. Landscape and Urban Planning, 150, 36–49. https://doi.org/10.1016/j.landurbplan.2016.02.005

Van Dijk, T. S. (1985). Changes in the carabid fauna of a previously agricultural field during the first twelve years of impoverishing treatments. Netherlands Journal of Zoology, 36(4), 413–437.

Van Dijk, T. S. (1987). The long-term effects on the carabid fauna of nutrient impoverishment of a previously arable field. Acta Phytopathologica et Entomologica Hungarica, 22(1–4), 103–118.

van Eekeren, N., Bommelé, L., Bloem, J., Schouten, T., Rutgers, M., de Goede, R., Reheul, D., & Brussaard, L. (2008). Soil biological quality after 36 years of ley-arable cropping, permanent grassland and permanent arable cropping. Applied Soil Ecology, 40(3), 432–446. https://doi.org/10.1016/j.apsoil.2008.06.010

van Emden, H. F. (1964). The role of uncultivated land in the biology of crop pests and beneficial insects. Scientific Horticulture, 17, 121–136.

van Emden, H. F., & Williams, G. F. (1974). Insect Stability and Diversity in Agro-Ecosystems. Annual Review of Entomology, 19(1), 455–475. https://doi.org/10.1146/annurev.en.19.010174.002323

van Gestel, C. A. M., Kruidenier, M., & Berg, M. P. (2003). Suitability of wheat straw decomposition, cotton strip degradation and bait-lamina feeding tests to determine soil invertebrate activity. Biology and Fertility of Soils, 37(2), 115–123. https://doi.org/10.1007/s00374-002-0575-0

van Groenigen, J. W., Lubbers, I. M., Vos, H. M. J., Brown, G. G., De Deyn, G. B., & van Groenigen, K. J. (2014). Earthworms increase plant production: A meta-analysis. Scientific Reports, 4(1), Article 1. https://doi.org/10.1038/srep06365

van Rijssel, S. Q., Veen, G. F. (Ciska), Koorneef, G. J., Bakx-Schotman, J. M. T. (Tanja), ten Hooven, F. C., Geisen, S., & van der Putten, W. H. (2022). Soil microbial diversity and community composition during conversion from conventional to organic agriculture. Molecular Ecology, 31(15), 4017–4030. https://doi.org/10.1111/mec.16571

van Straalen, N. M. (1998). Evaluation of bioindicator systems derived from soil arthropod communities. Applied Soil Ecology, 9(1), 429–437. https://doi.org/10.1016/S0929-1393(98)00101-2

Vandewalle, M., de Bello, F., Berg, M. P., Bolger, T., Dolédec, S., Dubs, F., Feld, C. K., Harrington, R., Harrison, P. A., Lavorel, S., da Silva, P. M., Moretti, M., Niemelä, J., Santos, P., Sattler, T., Sousa, J. P., Sykes, M. T., Vanbergen, A. J., & Woodcock, B. A. (2010). Functional traits as indicators of biodiversity response to land use changes across ecosystems and organisms. Biodiversity and Conservation, 19(10), 2921–2947. https://doi.org/10.1007/s10531-010-9798-9

Varis, A.-L., Holopainen, J. K., & Koponen, M. (1984). Abundance and seasonal occurrence of adult Carabidae (Coloeptera) in cabbage, sugar beet and timothy fields in southern Finland. Zeitschrift Für Angewandte Entomologie, 98, 62–73.

Vasseur, C., Joannon, A., Aviron, S., Burel, F., Meynard, J.-M., & Baudry, J. (2013). The cropping systems mosaic: How does the hidden heterogeneity of agricultural landscapes drive arthropod populations? Agriculture, Ecosystems & Environment, 166, 3–14. https://doi.org/10.1016/j.agee.2012.08.013

VDI. (2014). Monitoring der Wirkungen von gentechnisch veränderten Organismen (GVO) Wirkungen auf Bodenorganismen.

Velasquez, E., Lavelle, P., & Andrade, M. (2007). GISQ, a multifunctional indicator of soil quality. Soil Biology and Biochemistry, 39(12), 3066–3080. https://doi.org/10.1016/j.soilbio.2007.06.013

Veresoglou, S. D., Halley, J. M., & Rillig, M. C. (2015). Extinction risk of soil biota. Nature Communications, 6(1), Article 1. https://doi.org/10.1038/ncomms9862

Vervoort, M. T. W., Vonk, J. A., Mooijman, P. J. W., Elsen, S. J. J. V. den, Megen, H. H. B. V., Veenhuizen, P., Landeweert, R., Bakker, J., Mulder, C., & Helder, J. (2012). SSU Ribosomal DNA-Based Monitoring of Nematode Assemblages Reveals Distinct Seasonal Fluctuations within Evolutionary Heterogeneous Feeding Guilds. PLOS ONE, 7(10), e47555. https://doi.org/10.1371/journal.pone.0047555

Veselý, M., & Sarapatka, B. (2008). Effects of Conversion to Organic Farming on Carabid Beetles (Carabidae) in Experimental Fields in the Czech Republic. Biological Agriculture and Horticulture, 25, 289–309.

Vician, V., Svitok, M., Kočík, K., & Stašiov, S. (2015). The influence of agricultural management on the structure of ground beetle (Coleoptera: Carabidae) assemblages. Biologia, 70, 240–251. https://doi.org/10.1515/biolog-2015-0028

Vogel, K. (1979). Entwicklung und Erprobung von softwaregestützten Methoden des Biodiversitätsmanagements auf landwirtschaftlichen Betrieben [PhD Thesis]. Gottfried Wilhelm Leibniz Universität.

Vogel, S., Inauen, N., & Benz, R. (2013). Handlungsfeld Landwirtschaft des Aktionsplans Strategie Biodiversität Schweiz: Ergebnisse des partizipativen Prozesses zur Erarbeitung von Massnahmen (p. 68).

Volkmar, C. (2006). Zur Biodiversität von Spinnen (Araneae) und Laufkäfern (Carabidae) auf sächsischen Ackerflächen.

von Berg, K., Traugott, M., & Scheu, S. (2012). Scavenging and active predation in generalist predators: A mesocosm study employing DNA-based gut content analysis. Pedobiologia, 55(1), 1–5. https://doi.org/10.1016/j.pedobi.2011.07.001

Vries, F. T. de, Thébault, E., Liiri, M., Birkhofer, K., Tsiafouli, M. A., Bjørnlund, L., Jørgensen, H. B., Brady, M. V., Christensen, S., Ruiter, P. C. de, d'Hertefeldt, T., Frouz, J., Hedlund, K., Hemerik, L., Hol, W. H. G., Hotes, S., Mortimer, S. R., Setälä, H., Sgardelis, S. P., … Bardgett, R. D. (2013). Soil food web properties explain ecosystem services across European land use systems. Proceedings of the National Academy of Sciences, 110(35), 14296–14301. https://doi.org/10.1073/pnas.1305198110

Wadsworth, R. A., Carey, P. D., Heard, M. S., Hill, M. O., Hinsley, S. A., James, K. L., Meek, W. R., Pannell, D. J., Ponder, V., & Renwick, A. W. (2003). A Review of Research into the Environmental and Socio-Economic Impacts of Contemporary and Alternative Arable Cropping Systems. 91.

Wagener, F., Heck, P., Böhmer, J., Sutterer, N., & et al. (2013). Nachwachsende Rohstoffe als Option für den Naturschutz... Naturschutz durch Landbau? Schlussbericht zu ELKE III (Schlussbericht Zu ELKE III FKZ 220 077 09; pp. 341–475, 549).

Wagner, D. L. (2020). Insect Declines in the Anthropocene. Annual Review of Entomology, 65(1), 457–480. https://doi.org/10.1146/annurev-ento-011019-025151

Wall, D. H., Behan-Pelletier, V., Ritz, K., Herrick, J. E., Jones, T. H., Six, J., Strong, D. R., & Putten, W. H. van der. (2012). Soil Ecology and Ecosystem Services. OUP Oxford.

Wallace, S. K. (2004). Molecular gut analysis of carabids (Coleoptera: Carabidae) using aphid primers [Master Thesis].

Wallin, H. (1989). Habitat selection, reproduction and survival of two small carabid species on arable land: A comparison between Trechus secalis and Bembidion lampros. Ecography, 12(3), 193–200. https://doi.org/10.1111/j.1600-0587.1989.tb00838.x

Wallin, H., & Ekbom, B. S. (1988). Movements of carabid beetles (Coleoptera: Carabidae) inhabiting cereal fields: a field tracing study. Oecologia, 77(1), 39–43. https://doi.org/10.1007/BF00380922

Walter, R., & Burmeister, J. (2019). Regenwürmer in bayerischen Ackerböden [Merkblatt]. https://www.lfl.bayern.de/mam/cms07/publikationen/daten/merkblaetter/regenwuermer-ackerboeden_lfl-merkblatt.pdf

Walter, R., Burmeister, J., Wolfrum, S., & Brandhuber, R. (2017). Leistungen der Regenwürmer im Boden trotz Klimawandel erhalten? Kulturlandschaftstag Freising, Freising.

Walter, T., Eggenberg, S., Gonseth, Y., Fivaz, F., & et al. (2013). Operationalisierung der Umweltziele Landwirtschaft. Bereich Ziel- und Leitarten, Lebensräume (OPAL). 136.

Walton, V. M., Daane, K. M., & Addison, P. (2012). Biological Control of Arthropods and Its Application in Vineyards. In N. J. Bostanian, C. Vincent, & R. Isaacs (Eds.), Arthropod Management in Vineyards: (pp. 91–117). Springer Netherlands. https://doi.org/10.1007/978-94-007-4032-7_5

Ward, D. F., New, T. R., & Yen, A. L. (2001). Effects of pitfall trap spacing on the abundance, richness andcomposition of invertebrate catches. Journal of Insect Conservation, 5(1), 47–53. https://doi.org/10.1023/A:1011317423622

Wardle, D. A., Bardgett, R. D., Klironomos, J. N., Setälä, H., Van Der Putten, W. H., & Wall, D. H. (2004). Ecological Linkages Between Aboveground and Belowground Biota. Science, 304(5677), 1629–1633. https://doi.org/10.1126/science.1094875

Wardle, D. A., Nicholson, K. S., Bonner, K. I., & Yeates, G. W. (1999). Effects of agricultural intensification on soil-associated arthropod population dynamics, community structure, diversity and temporal variability over a seven-year period. Soil Biology and Biochemistry, 31(12), 1691–1706. https://doi.org/10.1016/S0038-0717(99)00089-9

Weber, G. (1983). Die Carabidenfauna intensiv bewirtschafteter Felder des Versuchsguts Dikopshof. Universität Bonn.

Weber, G. (1984). Die Carabidenfauna landwirtschaftlicher Nutzflächen bei Bonn (Coleoptera, Carabidae). Decheniana (Bonn), 137, 112–124.

Weibull, A.-C., Östman, Ö., & Granqvist, Å. (2003). Species richness in agroecosystems: The effect of landscape, habitat and farm management. Biodiversity & Conservation, 12(7), 1335–1355. https://doi.org/10.1023/A:1023617117780

Weigmann, G. (2006). Hornmilben (Oribatida) (Flur; Vol. 76).

Weißbecker, C. (2021). Grundlagen des Metabarcoding: Am Beispiel der Erfassung von Bodenpilzen.

Weisser, W. W. (2021, March 15). Insektensterben und die Suche nach den Ursachen.

Wesseler, J., Scatasta, S., & Nillesen, E. (2007). Literature survey of Bt maize cultivation 2006-2007 (economic analysis and environmental impact analysis).

Wessén, E., & Hallin, S. (2011). Abundance of archaeal and bacterial ammonia oxidizers – Possible bioindicator for soil monitoring. Ecological Indicators, 11(6), 1696–1698. https://doi.org/10.1016/j.ecolind.2011.04.018

Wessén, E., Söderström, M., Stenberg, M., Bru, D., Hellman, M., Welsh, A., Thomsen, F., Klemedtson, L., Philippot, L., & Hallin, S. (2011). Spatial distribution of ammonia-oxidizing bacteria and archaea across a 44-hectare farm related to ecosystem functioning. The ISME Journal, 5(7), Article 7. https://doi.org/10.1038/ismej.2010.206

White, E. R. (2019). Minimum Time Required to Detect Population Trends: The Need for Long-Term Monitoring Programs. BioScience, 69(1), 40–46. https://doi.org/10.1093/biosci/biy144

Wickenbrock, L., & Heisler, C. (1997). Influence of earthworm activity on the abundance of collembola in soil. Soil Biology and Biochemistry, 29(3), 517–521. https://doi.org/10.1016/S0038-0717(96)00175-7

Wiedemeier, P., & Duelli, P. (1993). Bedeutung ökologischer Ausgleichsflächen für die Überwinterung von Arthropoden im Intensivkulturland. Verhandlungen Der Gesellschaft Für Ökologie, 22, 5.

Wiesmeier, M., Hübner, R., Spörlein, P., Geuß, U., Hangen, E., Reischl, A., Schilling, B., von Lützow, M., & Kögel-Knabner, I. (2014). Carbon sequestration potential of soils in southeast Germany derived from stable soil organic carbon saturation. Global Change Biology, 20(2), 653–665. https://doi.org/10.1111/gcb.12384

Wilby, A., & Thomas, M. B. (2002). Natural enemy diversity and pest control: Patterns of pest emergence with agricultural intensification. Ecology Letters, 5(3), 353–360. https://doi.org/10.1046/j.1461-0248.2002.00331.x

Wilby, A., Villareal, S. C., Lan, L. P., Heong, K. L., & Thomas, M. B. (2005). Functional benefits of predator species diversity depend on prey identity. Ecological Entomology, 30(5), 497–501. https://doi.org/10.1111/j.0307-6946.2005.00717.x

Wilcox, T. M., McKelvey, K. S., Young, M. K., Jane, S. F., Lowe, W. H., Whiteley, A. R., & Schwartz, M. K. (2013). Robust Detection of Rare Species Using Environmental DNA: The Importance of Primer Specificity. PLOS ONE, 8(3), e59520. https://doi.org/10.1371/journal.pone.0059520

Wilson, J. D., Morris, A. J., Arroyo, B. E., Clark, S. C., & Bradbury, R. B. (1999). A review of the abundance and diversity of invertebrate and plant foods of granivorous birds in northern Europe in relation to agricultural change. Agriculture, Ecosystems & Environment, 75(1–2), 13–30. https://doi.org/10.1016/S0167-8809(99)00064-X

Winqvist, C. (2011). Biodiversity and Biological Control. Effects of Agricultural Intensity at the Farm and Landscape Scale. Faculty of Natural Resources and Agricultural Sciences Department of Ecology.

Winqvist, C., Bengtsson, J., Aavik, T., Berendse, F., Clement, L. W., Eggers, S., Fischer, C., Flohre, A., Geiger, F., Liira, J., Pärt, T., Thies, C., Tscharntke, T., Weisser, W. W., & Bommarco, R. (2011). Mixed effects of organic farming and landscape complexity on farmland biodiversity and biological control potential across Europe. Journal of Applied Ecology, 48(3), 570–579. https://doi.org/10.1111/j.1365-2664.2010.01950.x

Wissinger, S. A. (1997). Cyclic Colonization in Predictably Ephemeral Habitats: A Templatefor Biological Control in Annual Crop Systems. Biological Control, 10, 4–15.

Wolfenbarger, L. L., Naranjo, S. E., Lundgren, J. G., Bitzer, R. J., & Watrud, L. S. (2008). Bt Crop Effects on Functional Guilds of Non-Target Arthropods: A Meta-Analysis. PLoS ONE, 3(5), e2118. https://doi.org/10.1371/journal.pone.0002118

Wolters, V. (Ed.). (1997). Functional implications of biodiversity in soil: Proceedings of a workshop organized by the Department of Animal Ecology (University of Gießen) within the framework of the TERI science plan 14 to 20 September 1996, Schloß Rauischholz, Germany (Flur). European Commission.

Wolters, V. (1998). Long-term dynamics of a collembolan community. Applied Soil Ecology, 9(1–3), 221–227. https://doi.org/10.1016/S0929-1393(98)00079-1

Woodcock, B. A., Harrower, C., Redhead, J., Edwards, M., Vanbergen, A. J., Heard, M. S., Roy, D. B., & Pywell, R. F. (2014). National patterns of functional diversity and redundancy in predatory ground beetles and bees associated with key UK arable crops. Journal of Applied Ecology, 51(1), 142–151. https://doi.org/10.1111/1365-2664.12171

Woodcock, B. A., Redhead, J., Vanbergen, A. J., Hulmes, L., Hulmes, S., Peyton, J., Nowakowski, M., Pywell, R. F., & Heard, M. S. (2010). Impact of habitat type and landscape structure on biomass, species richness and functional diversity of ground beetles. Agriculture, Ecosystems & Environment, 139(1–2), 181–186. https://doi.org/10.1016/j.agee.2010.07.018

Wu, L., Zhang, Y., Guo, X., Ning, D., Zhou, X., Feng, J., Yuan, M. M., Liu, S., Guo, J., Gao, Z., Ma, J., Kuang, J., Jian, S., Han, S., Yang, Z., Ouyang, Y., Fu, Y., Xiao, N., Liu, X., … Zhou, J. (2022). Reduction of microbial diversity in grassland soil is driven by long-term climate warming. Nature Microbiology, 7(7), 1054–1062. https://doi.org/10.1038/s41564-022-01147-3

Wu, T., Milner, H., Díaz-Pérez, J. C., & Ji, P. (2015). Effects of soil management practices on soil microbial communities and development of southern blight in vegetable production. Applied Soil Ecology, 91, 58–67. https://doi.org/10.1016/j.apsoil.2015.02.011

Wubs, E. R. J., Van Der Putten, W. H., Bosch, M., & Bezemer, T. M. (2016). Soil inoculation steers restoration of terrestrial ecosystems. Nature Plants, 2(8), 16107. https://doi.org/10.1038/nplants.2016.107

Xu, X., Qin, C., & Zhu, Y. (2022). Developing the agri-environment biodiversity index for the assessment of eco-friendly farming systems. Ecological Indicators, 142, 109220. https://doi.org/10.1016/j.ecolind.2022.109220

Yadav, R. S., Panwar, J., Meena, H. N., Thirumalaisamy, P. P., & Meena, R. L. (2015). Developing Disease-Suppressive Soil Through Agronomic Management. In M. K. Meghvansi & A. Varma (Eds.), Organic Amendments and Soil Suppressiveness in Plant Disease Management (Vol. 46, pp. 61–94). Springer International Publishing. https://doi.org/10.1007/978-3-319-23075-7_4

Yan, S., Singh, A. N., Fu, S., Liao, C., Wang, S., Li, Y., Cui, Y., & Hu, L. (2012). A soil fauna index for assessing soil quality. Soil Biology and Biochemistry, 47, 158–165. https://doi.org/10.1016/j.soilbio.2011.11.014

Yang, G., Ryo, M., Roy, J., Lammel, D. R., Ballhausen, M.-B., Jing, X., Zhu, X., & Rillig, M. C. (2022). Multiple anthropogenic pressures eliminate the effects of soil microbial diversity on ecosystem functions in experimental microcosms. Nature Communications, 13(1), 4260. https://doi.org/10.1038/s41467-022-31936-7

Yeates, G. W., Wardle, D. A., & Watson, R. N. (1993). Relationships between nematodes, soil microbial biomass and weed-management strategies in maize and asparagus cropping systems. Soil Biology and Biochemistry, 25(7), 869–876. https://doi.org/10.1016/0038-0717(93)90089-T

Yin, R., Eisenhauer, N., Schmidt, A., Gruss, I., Purahong, W., Siebert, J., & Schädler, M. (2019). Climate change does not alter land-use effects on soil fauna communities. Applied Soil Ecology, 140, 1–10. https://doi.org/10.1016/j.apsoil.2019.03.026

Yin, R., Kardol, P., Thakur, M. P., Gruss, I., Wu, G.-L., Eisenhauer, N., & Schädler, M. (2020). Soil functional biodiversity and biological quality under threat: Intensive land use outweighs climate change. Soil Biology & Biochemistry, 147, 107847. https://doi.org/10.1016/j.soilbio.2020.107847

Ysnel, F., & Canard, A. (2000). Spider biodiversity in connection with the vegetation structure and the foliage orientation of hedges. The Journal of Arachnology, 28(1), 107–114. https://doi.org/10.1636/0161-8202(2000)028[0107:SBICWT]2.0.CO;2

Zahn, D. A., & Lang, D. A. (2000). Faunistische Untersuchungen zu den Auswirkungen der Rinderbeweidung auf eine Feuchtbrache und eine Kiesgrube im Landkreis Mühldorf. Unveröff. Gutachten iA des Bund Naturschutz, nürnberg, 5(6), 19.

Zaitsev, A. S., Wolters, V., Waldhardt, R., & Dauber, J. (2006). Long-term succession of oribatid mites after conversion of croplands to grasslands. Applied Soil Ecology, 34(2–3), 230–239. https://doi.org/10.1016/j.apsoil.2006.01.005

Zaller, J. G., Moser, D., Drapela, T., & Frank, T. (2009). Ground-dwelling predators can affect within-field pest insect emergence in winter oilseed rape fields. BioControl, 54(2), 247–253. https://doi.org/10.1007/s10526-008-9167-8

Zaller, J. G., Simmer, L., Santer, N., Tabi Tataw, J., Formayer, H., Murer, E., Hösch, J., & Baumgarten, A. (2014). Future rainfall variations reduce abundances of aboveground arthropods in model agroecosystems with different soil types. Frontiers in Environmental Science, 2. https://doi.org/10.3389/fenvs.2014.00044

Zangger, A. (1994). The positive influence of strip-management on carabid beetles in a cereal field: Accessibility of food and reproduction in Poecilus cupreus. In K. Desender, M. Dufrêne, M. Loreau, M. L. Luff, & J.-P. Maelfait (Eds.), Carabid Beetles: Ecology and Evolution (pp. 469–472). Springer Netherlands. https://doi.org/10.1007/978-94-017-0968-2_71

Zehnder, G., Gurr, G. M., Kühne, S., Wade, M. R., Wratten, S. D., & Wyss, E. (2007). Arthropod Pest Management in Organic Crops. Annual Review of Entomology, 52(1), 57–80. https://doi.org/10.1146/annurev.ento.52.110405.091337

Zeiss, R., Eisenhauer, N., Orgiazzi, A., Rillig, M., Buscot, F., Jones, A., Lehmann, A., Reitz, T., Smith, L., & Guerra, C. A. (2022). Challenges of and opportunities for protecting European soil biodiversity. Conservation Biology, 36(5), e13930. https://doi.org/10.1111/cobi.13930

Zeng, J., Liu, X., Song, L., Lin, X., Zhang, H., Shen, C., & Chu, H. (2016). Nitrogen fertilization directly affects soil bacterial diversity and indirectly affects bacterial community composition. Soil Biology and Biochemistry, 92, 41–49. https://doi.org/10.1016/j.soilbio.2015.09.018

Zimdars, B., & Dunger, W. (1994). Synopses on Palaearctic Collembola. Volume I. Tullbergiinae (Vol. 68).

Zirbes, L., Mescher, M., Vrancken, V., Wathelet, J.-P., Verheggen, F. J., Thonart, P., & Haubruge, E. (2011). Earthworms Use Odor Cues to Locate and Feed on Microorganisms in Soil. PLoS ONE, 6(7). https://doi.org/10.1371/journal.pone.0021927

Zitzmann, F., Stern, M., Schmidt, M., & Schirmel, J. (2024). Carabid beetles in solar parks: Assemblages under solar panels are severely impoverished compared to gaps between panel rows and edge areas. Journal of Insect Conservation. https://doi.org/10.1007/s10841-024-00597-w

Zühart, W., Benzler, A., Berhorn, F., Sukopp, U., & Graef, F. (2008). Determining indicators, methods and sites for monitoring potential adverse effects of genetically modified plants to the environment: The legal and conceptional framework for implementation. Euphytica, 164(3), 845–852. https://doi.org/10.1007/s10681-007-9475-6

Zühart, W., & Breckling, B. (2009). Konzeptionelle Entwicklung eines Monitoring von Umweltwirkungen transgener Kulturpflanzen—Teil 1. Umweltbundesamt. https://www.umweltbundesamt.de/en/publikationen/konzeptionelle-entwicklung-eines-monitoring-von

Zühart, W., Raps, A., Wust-Saucy, A. G., Dolezel, M., & Eckerstorfer, M. (2011). Monitoring of genetically modified organisms. A Policy Paper Representing the View of the National Environment Agencies in Austria and Switzerland and the Federal Agency for Nature Conservation in Germany. Umweltbundesamt GmbH, Vienna, Austria.

Zulka, K. P., Abensperg-Traun, M., Milasowszky, N., Bieringer, G., Gereben-Krenn, B.-A., Holzinger, W., Hölzler, G., Rabitsch, W., Reischütz, A., Querner, P., Sauberer, N., Schmitzberger, I., Willner, W., Wrbka, T., & Zechmeister, H. (2014). Species richness in dry grassland patches of eastern Austria: A multi-taxon study on the role of local, landscape and habitat quality variables. Agriculture, Ecosystems & Environment, 182, 25–36. https://doi.org/10.1016/j.agee.2013.11.016

Zwahlen, C., & Andow, D. A. (2005). Field evidence for the exposure of ground beetles to Cry1Ab from transgenic corn. Environmental Biosafety Research, 4(2), 113–117. https://doi.org/10.1051/ebr:2005014

Zwahlen, C., Hilbeck, A., Howald, R., & Nentwig, W. (2003). Effects of transgenic Bt corn litter on the earthworm Lumbricus terrestris. Molecular Ecology, 12(4), 1077–1086. https://doi.org/10.1046/j.1365-294X.2003.01799.x