Supplementary materials

Table S1. Papers on arthropods, bats and birds used to understand how green roofs and walls can contribute to urban biodiversity.

Paper Type	Year	Reference	Green roofs	Green walls
Case study	2006	Schrader, S. & Boning, M. Soil formation on green roofs and its contribution to urban biodiversity with emphasis on Collembolans. Pedobiologia. [39]	1	0
Review	2010	Fernandez-Canero, R. & Gonzalez-Redondo, P. Green Roofs as a Habitat for Birds: A Review. Journal of Animal and Veterinary Advances. [40]	1	0
Case study	2011	Tonietto, R. et al. A comparison of bee communities of Chicago green roofs, parks and prairies. Landscape and Urban Planning. [30]	1	0
Case study	2011	MacIvor, J.S. & Lundholm, J. Insect species composition and diversity on intensive green roofs and adjacent level-ground habitats. Urban Ecosystems. [41]	1	0
Case study	2011	Snep, R.P.H. et al. Conservation where people work: A role for business districts and industrial areas in enhancing endangered butterfly populations? Landscape and Urban Planning. [42]	1	0
Case study	2012	Pearce, H., & Walters, C. L. Do green roofs provide habitat for bats in urban areas? Acta Chiropterologica. [43]	1	0
Case study	2013	Chiquet, C. et al. Birds and the urban environment: the value of green walls. Urban Ecosystems. [18]	0	1
Case study	2013	Rumble, H. & Gange, A.C. Soil microarthropod community dynamics in extensive green roofs. Ecological Engineering. [44]	1	0
Case study	2013	Madre, F. et al. A comparison of 3 types of green roof as habitats for arthropods. Ecological Engineering. [45]	1	0
Case study	2014	Benvenuti, S. Wildflower green roofs for urban landscaping, ecological sustainability and biodiversity. Landscape and Urban Planning. [46]	1	0
Case study	2014	Nagase, A. & Nomura, M. An evaluation of one example of biotope roof in Japan: Plant development and invertebrate colonisation after 8 years. Urban Forestry & Urban Greening. [47]	1	0
Case study	2014	Muller, J.N. et al. Diverse urban plantings managed with sufficient resource availability can increase plant productivity and arthropod diversity. Frontiers in Plant Science. [48]	1	0
Review	2014	Williams, N. et al. Do green roofs help urban biodiversity conservation? Journal of Applied Ecology. [49]	1	0

Paper Type (cont.)	Year	Reference	Green roofs	Green walls
Case study	2014	Braaker, S. et al. Habitat connectivity shapes urban arthropod communities: the key role of green roofs. Ecology. [50]	1	0
Case study	2015	Madre, F. et al. Building biodiversity: Vegetated facades as habitats for spider and beetle assemblages. Global Ecology and Conservation. [35]	0	1
Case study	2015	Eakin Carly, J. et al. Avian response to green roofs in urban landscapes in the Midwestern USA. Wildlife Society Bulletin. [25]	1	0
Case study	2015	Parkins, K. L., & Clark, J. A. Green roofs provide habitat for urban bats. Global Ecology and Conservation. [51]	1	0
Case study	2016	Nash, C. et al. Initial insights on the biodiversity potential of biosolar roofs: a London Olympic Park green roof case study. Israel Journal of Ecology & Evolution. [52]	1	0
Case study	2016	MacIvor, J.S. Building height matters: nesting activity of bees and wasps on vegetated roofs. Israel Journal of Ecology & Evolution. [53]	1	0
Case study	2016	Washburn Brian, E. et al. Composition and diversity of avian communities using a new urban habitat: green roofs. Environmental Management. [54]	1	0
Case study	2016	Wong Gwendolyn. K.L. & Jim, C.Y. Do vegetated rooftops attract more mosquitoes? Monitoring disease vector abundance on urban green roofs. Science of the Total Environment. [55]	1	0
Case study	2017	Deng, H.J. & Jim, C.Y. Spontaneous plant colonization and bird visits of tropical extensive green roof. Urban Ecosystems. [24]	1	0
Case study	2017	Wang, J.W. et al. Building biodiversity: drivers of bird and butterfly diversity on tropical urban roof gardens. Ecosphere. [33]	1	0
Case study	2017	Fairbrass, A.J. et al. Biases of acoustic indices measuring biodiversity in urban areas. Ecological Indicators. [56]	1	0
Case study	2017	Braaker, S. et al. Habitat connectivity and local conditions shape taxonomic and functional diversity of arthropods on green roofs. Journal of Animal Ecology. [29]	1	0
Case study	2017	Rumble, H. & Gange, A.C. Microbial inoculants as a soil remediation tool for extensive green roofs. Ecological Engineering. [57]	1	0
Review	2017	Blank, L. et al. Horizontal and vertical island biogeography of arthropods on green roofs: a review. Urban Ecosystems. [58]	1	1
Case study	2018	Partridge, D.R. & Clark, J.A. Urban green roofs provide habitat for migrating and breeding birds and their arthropod prey. PLOS ONE. [32]	1	0

Paper Type (cont.)	Year	Reference	Green roofs	Green walls
Case study	2018	Kyrö, K. et al. Local habitat characteristics have a stronger effect than the surrounding urban landscape on beetle communities on green roofs. Urban Forestry & Urban Greening. [19]	1	0
Case study	2018	Salman, I.N.A. & Blaustein, L. Vegetation cover drives arthropod communities in Mediterranean/Subtropical green roof habitats. Sustainability. [26]	1	0
Case study	2018	Joimel, S. et al. Are *Collembola* flying onto green roofs? Ecological Engineering. [59]	1	0
Case study	2018	Schindler, B.Y. et al. Green roof and photovoltaic panel integration: Effects on plant and arthropod diversity and electricity production. Journal of Environmental Management. [60]	1	0
Case study	2018	Rumble, H. et al. Green roof soil organisms: Anthropogenic assemblages or natural communities? Applied Soil Ecology. [61]	1	0
Case study	2018	Kratschmer, S. et al. Buzzing on top: Linking wild bee diversity, abundance and traits with green roof qualities. Urban Ecosystems. [62]	1	0
Case study	2018	Petremand, G. et al. Ground beetle (Coleoptera: Carabidae) communities on green roofs in Switzerland: synthesis and perspectives. Urban Ecosystems. [63]	1	0
Case study	2018	Nagase, A. et al. Patterns in urban butterflies and spontaneous plants across a university campus in Japan. Pan-Pacific Entomologist. [64]	1	0
Review	2018	Hofmann Michaela, M. et al. Bee species recorded between 1992 and 2017 from green roofs in Asia, Europe, and North America, with key characteristics and open research questions. Apidologie. [65]	1	0
Case study	2018	Wong, G. K., & Jim, C. Y. Abundance of urban male mosquitoes by green infrastructure types: implications for landscape design and vector management. Landscape ecology. [66]	1	0
Case study	2019	Belcher, R.N. et al. Vegetation on and around large-scale buildings positively influences native tropical bird abundance and bird species richness. Urban Ecosystems. [31]	1	1
Case study	2019	Schindler, B.Y. et al. Fine-scale substrate heterogeneity does not affect arthropod communities on green roofs. PeerJ. [67]	1	0
Case study	2019	Ksiazek-Mikenas, K. et al. Pollinator-mediated gene flow connects green roof populations across the urban matrix: A paternity analysis of the self-compatible forb *Penstemon hirsutus*. Frontiers in Ecology and Evolution. [68]	1	0
Review	2019	Filazzola, A.et al. The contribution of constructed green infrastructure to urban biodiversity: A synthesis and meta-analysis. Journal of Applied Ecology. [21]	1	1

Paper Type (cont.)	Year	Reference	Green roofs	Green walls

Case study	2020	Dominguez, M.V.S. et al. Arthropod diversity and ecological processes on green roofs in a semi-rural area of Argentina: Similarity to neighbour ground habitats and landscape effects. Landscape and Urban Planning. [69]	1	0
Case study	2020	Partridge, D.R. et al. Bat activity correlates with moth abundance on an urban green roof. Northeastern Naturalist [70]	1	0
Case study	2020	Passaseo, A. et al. Pollinator emerging from extensive green roofs: wild bees (Hymenoptera, Antophila) and hoverflies (Diptera, Syrphidae) in Geneva (Switzerland). Urban Ecosystems. [71]	1	0
Case study	2020	Dusza, Y. et al. Plant-pollinator interactions on green roofs are mediated by substrate characteristics and plant community composition. Acta Oecologica-International Journal of Ecology. [72]	1	0
Case study	2020	Kyrö, K. et al. Vegetated roofs in boreal climate support mobile open habitat arthropods, with differentiation between meadow and succulent roofs. Urban Ecosystems. [27]	1	0
Case study	2021	Fabian, D. et al. Towards the design of biodiverse green roofs in Argentina: Assessing key elements for different functional groups of arthropods. Urban Forestry & Urban Greening. [73]	1	0
Case study	2021	Baek, K. Y. et al. Analysis of changes in suitable habitat areas of Paridae through rooftop greening simulation—Case study of Suwon-si, Gyeonggi-do, Republic of Korea. Sustainability. [74]	1	0
Case study	2022	Partridge, D.R.R. & Clark, J.A. Small urban green roof plots near larger green spaces may not provide additional habitat for birds. Frontiers in Ecology and Evolution. [36]	1	0
Case study	2022	Baek, K.Y. & Kim, H.G. Analyzing the efficiency of increasing suitable habitat area for Paridae by roof greening method based on building type: Case study of Suwon City, Republic of Korea. Sensor and Materials. [75]	1	0
Case study	2022	Ivan, E.S. et al. Green wall impact on beneficial insects in an urban fruit ecosystem. Scientifc Papers-Series B-Horticulture. [34]	0	1
Review	2022	Wang, L.W. et al. The relationship between green roofs and urban biodiversity: a systematic review. Biodiversity and Conservation. [76]	1	0
Case study	2022	Rumble, H. et al. Can microbial inoculants boost soil food webs and vegetation development on newly constructed extensive green roofs? Urban Forestry & Urban Greening. [77]	1	0
Case study	2022	Diethelm, A.C. & Masta, S.E. Urban green roofs can support a diversity of parasitoid wasps. Frontiers in Ecology and Evolution. [78]	1	0
Case study	2022	Joimel, S. et al. One green roof type, one Technosol, one ecological community. Ecological Enginnering [79]	1	0
Case study	2022	Wooster, E.I.F. et al. Urban green roofs promote metropolitan biodiversity: A comparative case study. Building and Environment. [80]	1	0
Paper Type (cont.)	**Year**	**Reference**	**Green roofs**	**Green walls**

Case study	2022	Gonsalves, S. et al. The effect of urban green roof design on beetle biodiversity. Urban Ecosystems. [81]	1	0
Case study	2022	Jacobs, J. et al. Biodiversity of collembola on green roofs: A case study of three cities in Belgium. Ecological Engineering. [82]	1	0
Case study	2022	Lin, B.S. & Chen, T.W. The plant and faunal species composition and diversity on rooftop farms: Seasonal variation and the effects of site and surrounding characteristics. Landscape and Urban Planning. [83]	1	0
Case study	2022	Kyrö, K. et al. Arthropod communities on young vegetated roofs are more similar to each other than to communities at ground level. Frontiers in Ecology and Evolution. [37]	1	0
Case study	2022	Ridzuan, N.H. et al. Insect biodiversity of urban green spaces in Penang Island, Malaysia. International Journal of Tropical Insect Science. [84]	1	1
Case study	2023	Boeing, J. et al. Ant species richness in the urban mosaic: size is more important than location. Urban Ecosystems. [85]	1	0
Case study	2023	Jacobs, J. et al. Macro-invertebrate abundance on green roofs versus ground level sites in the city of Antwerp, Belgium. Belgian Journal of Zoology. [86]	1	0
Case study	2023	Riehn Jordyn, K. et al. Bee diversity on urban rooftop food gardens. Frontiers in Sustainable Cities. [87]	1	0
Case study	2023	Hussain, R.I. et al. More insect species are supported by green roofs near public gardens. Journal of Insect Conservation. [88]	1	0
Case study	2023	Fenoglio, M.S. et al. Native plants on experimental urban green roofs support higher community-level insect abundance than exotics. Urban Forestry & Urban Greening. [89]	1	0
Case study	2023	Berthon, K. et al. Floral resources encourage colonisation and use of green roofs by invertebrates. Urban Ecosystems. [90]	1	0
Case study	2023	MacKinnon, M. et al. Improving urban habitat connectivity for native birds: using least-cost path analyses to design urban green infrastructure networks. Land. [91]	1	0
Case study	2023	Van Dijck, T. et al. Sedum as host plants for caterpillars? Introducing gut content metabarcoding to green roof research. Urban Ecosystems. [92]	1	0
Case study	2023	Jacobs, J. et al. Green roofs and pollinators, useful green spots for some wild bee species (Hymenoptera: Anthophila), but not so much for hoverflies (Diptera: Syrphidae). Scientific Reports. [93]	1	0
Case study	2023	Durà, V.B. et al. Contribution of green roofs to urban arthropod biodiversity in a Mediterranean climate: A case study in València, Spain. Building and Environment. [94]	1	0

Paper Type (cont.)	**Year**	**Reference**	**Green roofs**	**Green walls**

Review	2023	Coulibaly, S.F. et al. The role of green roofs as urban habitats for biodiversity modulated by their design: A review. Environmental Research Letters. [22]	1	0
Case study	2024	McNamara Manning, K. et al. Insect pollinator and natural enemy communities in green roof and ground-level urban habitats. Urban Ecosystems. [95]	1	0