

## Data Paper

# Epigeic spiders (Arachnida: Araneae) in urban green spaces in Westphalia

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## Introduction

This dataset documents epigeic spider (Arachnida, Araneae) assemblages sampled from May to June 2025 in urban green spaces across 15 cities (two plots per city) of the Münsterland region, North Rhine-Westphalia, Germany. The cities range from medium-sized towns to the large city of Münster, which are representative of typical urban settlements in north-western Germany (Bundesamt für Bauwesen und Raumordnung 2003).

Spiders were collected in public parks using standardized pitfall traps, a widely used method for sampling epigeic arthropods (Schuch et al. 2020). In total, 2599 adult individuals and 418 juveniles belonging to 90 species from 22 families were recorded across all sampling sites.

All recorded species are classified as not endangered according to the Red List of North Rhine-Westphalia (Buchholz et al. 2010). However, *Harpactea rubicunda* (C. L. Koch, 1838), *Centromerus leruthi* Fage, 1933, *Porrhomma errans* (Blackwall, 1841), and *Zodarion italicum* (Canestrini, 1868) are categorized as rare in terms of frequency and are therefore particularly noteworthy (Buchholz et al. 2010).

The data were collected to test the urban biotic homogenization hypothesis (McKinney 2006, Lokatis & Jeschke 2022). Urban green spaces such as public parks represent structurally comparable habitats within cities and are therefore well suited for assessing similarities in species composition among urban areas (Kabisch et al. 2016).

The dataset includes plot-level activity-density data and associated metadata. It provides a basis for analysing beta diversity and species composition of urban spider assemblages and contributes to addressing the underrepresentation of arthropods in studies of urban biotic homogenization.

**Keywords:** Araneae, Germany, North Rhine-Westphalia, spider assemblages, urban biotic homogenization, urban green spaces

## **Metadata**

**Data set identity.** The dataset contains activity density data of epigeic spider species sampled with pitfall traps in public parks of 15 cities in the Münsterland region, Germany.

## **Overall project description**

**Identity.** Master's thesis: Testing the Urban Biotic Homogenization Hypothesis: Spider Communities in Urban Green Spaces of Münsterland

**Objectives of original study.** The project aims to test the urban ecological hypothesis of urban biotic homogenisation by comparing the species composition and beta diversity of epigeic spider communities in urban green spaces in several cities in the Münsterland region.

**Principal Investigator.** Kolina Büll

**Involved persons.** Prof. Dr. Sascha Buchholz, Denise Betha, Franziska Wolf

**Contracting authority or source of funding.** Animal Ecology Research Group, Institute of Landscape Ecology, University of Münster, Germany

**Data Source Institution.** Animal Ecology Research Group, Institute of Landscape Ecology, University of Münster, Germany

**Period of study or time extent.** May to June 2025

## **Survey design**

**Site description.** All sampling sites were located in urban public parks in 15 cities of the Münsterland region of North Rhine-Westphalia, Germany. These sites consisted of managed lawns interspersed with scattered trees, shrubs, and footpaths. In each city, two plots with four pitfall traps were placed in green areas experiencing minimal direct disturbance, resulting in a total of 120 pitfall traps. Although four pitfall traps were initially installed per plot, not all traps remained active throughout the sampling period due to disturbance or loss. Consequently, the number of functioning traps per plot was occasionally reduced to three or fewer. In the case of the second plot in Bocholt (BOC), no traps remained active for the entire sampling period, and thus this plot is missing from the dataset (for detailed information, see the accompanying dataset "Buell2025\_obsdata.csv", field "Event Notes").

The Münsterland landscape is generally flat with gentle relief and dominated by sediment deposits from the Westphalian Bight, resulting in low to moderate elevations. Urban parks in the region are regularly managed, including mowing and path maintenance, and are subject to recreational activities such as sports, picnics, and dog walking, causing a moderate level of ongoing disturbance. The climate is temperate and oceanic, characterized by mild winters and moderate summers.

**Tab. 1:** Overview of the study sites and parks with population size, area size, sealing (Area for settlement and transport, including residential, industrial, and commercial areas; mining land and spoil heaps; sports, leisure, and recreation areas; cemetery areas; transportation areas; and areas for other uses) and green spaces (Agricultural land, moorland, heathland, marshland, and wasteland), Data status as of 31. Dec. 2022 (Information und Technik Nordrhein-Westfalen 2025)

City	District	Population size	City size (km <sup>2</sup> )	Sealing (km <sup>2</sup> )	Green spaces (km <sup>2</sup> )	Park
Münster		307.071	303.28	100.22	139.38	Schlossgarten
Rheine	Steinfurt	76.735	145.00	40.03	71.78	Stadtpark
Steinfurt	Steinfurt	34.527	111.67	19.86	73.79	Tiggelsee
Ibbenbüren	Steinfurt	51.807	108.87	32.40	52.05	Heldermannpark
Warendorf	Warendorf	37.654	176.88	26.27	120.76	Emsseepark
Ahlen	Warendorf	53.003	123.13	25.36	82.32	Stadtpark
Beckum	Warendorf	37.068	111.46	23.57	71.33	Westpark
Coesfeld	Coesfeld	38.007	141.36	24.30	90.61	Stadtpark
Dülmen	Coesfeld	47.738	184.83	28.62	122.02	Vorpark
Lüdinghausen	Coesfeld	25.008	140.54	18.35	93.25	Parc de Taverny
Borken	Borken	42.840	153.24	28.71	97.86	Stadtpark
Bocholt	Borken	72.893	119.40	32.66	74.80	Langenbergpark
Gronau	Borken	50.279	78.82	24.59	43.08	Stadtpark
Dorsten	Recklinghausen	76.103	171.20	37.25	82.53	Bürgerpark
Haltern	Recklinghausen	38.109	59.03	26.46	46.91	Kardinal-Graf-von-Galen-Park

**Methods of data collection.** Plastic cups with a 10 cm opening diameter and 0.5 l holding capacity were used as pitfall traps. Four traps were placed at the corners of each 5 × 5 m plot. Two plots per park were established with a minimum distance of 100 m. The traps were active during a sampling period from 6. May 2025 to 17. Jun. 2025 and were emptied every 21 days.

Each trap was filled to approximately one third with a trapping solution consisting of a 1:1 mixture of propylene glycol and water, with a small amount of detergent to reduce surface tension.

**Methods of sample processing, storage and identification.** The sampled spiders were stored in 70 % ethanol. All adult spiders were determined to species level. Identification was done by K. Büll, using Spinnen-Forum-Wiki (Wiki der Arachnologischen Gesellschaft e. V. 2026), Spinnen Europas (Nentwig et al. 2026) and Les araignées de Belgique et de France (Oger 2026). Nomenclature followed the World Spider Catalogue (2026).

**Vouchers/Material deposited.** Voucher specimens were verified by S. Buchholz and are stored in a reference collection at the University of Münster.

## DATA SET STATUS AND ACCESSIBILITY

### STATUS

**Data submitted:** 2026-01-15, **Data accepted:** 2026-04-17

**Academic editor:** Alexander Bach

**Data editor:** Florian Raub

**Latest data update:** 15.01.2026

**Latest metadata update:** 15.01.2026

### ACCESSIBILITY

**Storage location and medium.** Metadata and data files are stored by the Arachnologische Gesellschaft, data are included in the ARAMOB database using the database framework Diversity Workbench (<https://diversityworkbench.net/>), data are accessible via <https://aramob.de/en/data/data-exploitation/> Filter: Project ARAMIT\_Buell2026

**Copyright or proprietary restrictions.** This data set is freely available for non-commercial scientific use, given the appropriate citation. There are no copyright or proprietary restrictions for research or teaching purposes.

**DOI:** 10.30963/aramit710xx

## DATA STRUCTURAL DESCRIPTORS

### Data Set Files

Buell2025\_obsdata.csv, 119 KB, Spider abundance data set

Buell2025\_plotdata.csv, 5 KB, locations and characteristics of the sampling sites

### Authentication procedures

MD5 hash checksums generated by WinHash v. 1.6.6787:

Buell2025\_obsdata.csv: 78B5F21566FDD72E016F45AE8A86E6B9

Buell2025\_plotdata.csv: 69796FC7ED24E74E5E08ECD41C0C4530

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