

# 14<sup>th</sup> Newsletter of the UFZ Green Roof Research



04 May 2023



## Research green roof

at the Helmholtz Centre for Environmental Research – UFZ



Europäische Union

Europa fördert Sachsen.



This construction measure is co-financed by tax funds on the basis of the budget passed by the members of the Saxon state parliament.

## Research partners:



UNIVERSITÄT  
LEIPZIG



## Practice partners:



Stadt Leipzig  
Amt für Umweltschutz

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## Working group „Biodiversity“

New plant growth has started on Leipzig's green roofs after the hibernation. “Formation and Striving“ are photographically documented.



A



B

Figure 1A: Every year, the marsh marigold (*Caltha palustris*), which provides the first nectar and pollen for insects, opens the flower dance on the marsh plant roof of the UFZ (Photo: P. Otto)

Figure 1B: A soil and root ball of purple loosestrife (*Lythrum salicaria*) was colonized within 3 years by another 5 species of seed plants and 2 species of moss fighting for dominance (Photo: P. Otto).

For the perennial plant species on green roofs, it is not only the summer heat that poses an existential threat, but also a strong climatic change between mild, wet periods and frost in the winter months. Thyme species and heather carnations in particular have been severely damaged in recent months, sometimes even fatally. Thanks to the abundant rainfall in March 2023, there is now a strong emergence of seedlings in many green roof plants.



Figure 2: After the death of a Quendel thyme (*Thymus pulegioides*), a new generation develops under the remains of the mother plant in the germ bed of mosses (Photo: P. Otto).

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## WG „Biodiversity“

The **sorting of insects** from catches on the UFZ Research Green Roof from last year is ongoing. Compared to the initial survey in 2020, significantly fewer species and individuals were found despite the same methodology and number of traps. Strong annual changes in the occurrence of insects are not surprising. Climatic differences as well as fluctuations in food supply, predators or parasites are the main reasons for this.

At the Berufsbildungswerk (BBW) für Hör- und Sprachgeschädigte gGmbH (Vocational Training Centre for the Hearing and Speech Impaired) in Leipzig-Knauthain, plants for green roofs have been cultivated and sold at favourable prices for several years. Of particular importance are species contained in the Leipzig seed mixtures for green roofs, which are provided free of charge to citizens by the city's Environmental Information Centre (UIZ). Currently, the plants in Knauthain are still in the strengthening phase, but will be available to interested parties in a few weeks.



Figure 3: The green roof plant cultivation area of the BBW for the hearing and speech impaired. Master gardener Steffen Stein and the horticulture training team are responsible for the highly appreciated activities (Photo: P. Otto).

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## WG „Biodiversity“

The passenger shelters at tram and bus stops in Leipzig currently have green roofs in about 450 cases. In cooperation with the owner of the passenger shelters, RBL Media GmbH, and with the support of the City of Leipzig, selected roofs are currently being examined botanically and climatically. This is being done as part of a special learning achievement (BeLL) supervised by the Institute of Biology at the University of Leipzig by pupil Finn Neiding from the Kreativitätsgymnasium.



Figure 4: With the help of a camera attached to a telescopic pole, the roof surfaces of passenger shelters that cannot be accessed for static reasons are photographed for the creation of vegetation maps. The picture shows a four-part section of about one square metre from the roof of the terminal stop of bus line 80 in Leipzig-Thekla. You can see mainly thick-leaved plants and deciduous mosses in the structurally and colourfully diverse mosaic (Photo: F. Neiding).

## Working Group „Green Roofs as a Pollutant Sink“

On 2 May 2023, the Working Group “Green Roofs as a Pollutant Sink” presented their research at the IP Day. Exhibition items with polymer-degrading microbes were presented at the Science Fair together with two posters on the FINEST project and the presentation of the isotope laboratory and its importance for research into transformation processes in complex systems, such as those found on green roofs.



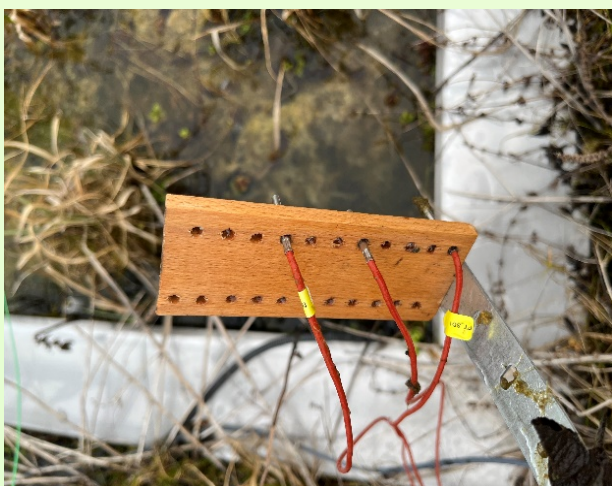
Photo: Lucie Moeller, UFZ

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## Working group „Climate study and climate modelling of the impact of green roofs on buildings and cities“

Since April 2023, Moritz Kossmann (Uni Leipzig) is writing his master's thesis in the field of meteorology on ground heat fluxes and heat storage in green roofs. The thesis is looking for an analytical solution of the heat equation adequately describing the heat conduction in green roofs.

This solution is going to be validated using measurements of the soil temperature profile and ground heat flux plates. In addition, the different heat storage behavior of the green roof segments will be examined. Thus, the attenuation of heat penetrating through the roof can be determined.



Photos: Niels Wollschläger, UFZ

## Working group „ Process-related indicators of different green roof variants“

The **Leipziger BlauGrün II** project started on 1 January 2023, as part of which potential analyzes are being carried out in preparation for investment plans for the BlueGreen upgrading of existing districts. The “Process-related indicators of different green roof variants” working group supports the modeling work by providing the necessary data.



More information: [www.ufz.de/leipzigerblaugruen/](http://www.ufz.de/leipzigerblaugruen/)

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## Working Group „Process-related indicators of different green roof variants“

On 27 April 2023, the **Girls' and Boys' Day** on the topic "Use of the "Sense-Box" environmental measuring station to collect climate data on green roofs" took place on the UFZ Research Green Roof. Six boys and girls were first introduced to the basics of greening buildings and the importance of sensors in Citizen Science. In the afternoon program, the participants then had the opportunity to put together a Sense box themselves and install it on the Research Green Roof together with data transmission.

We thank the Department MET for the pleasant cooperation!



Photos: Lucie Moeller, UFZ

## Announcement

On May 10, 2023, the UFZ research green roof will be visited as part of the **67th Leipzig Nature Conservation Week**. In connection with the presentation of different types of greening, references to suitable plants and their importance for urban nature conservation are given. Registration is possible via the Environmental Information Center (UiZ) of the City of Leipzig.

**More information on the UFZ Green Roof Research:**

<https://www.ufz.de/forschungsgruendach>

**Questions to the UFZ Green Roof Research:**

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