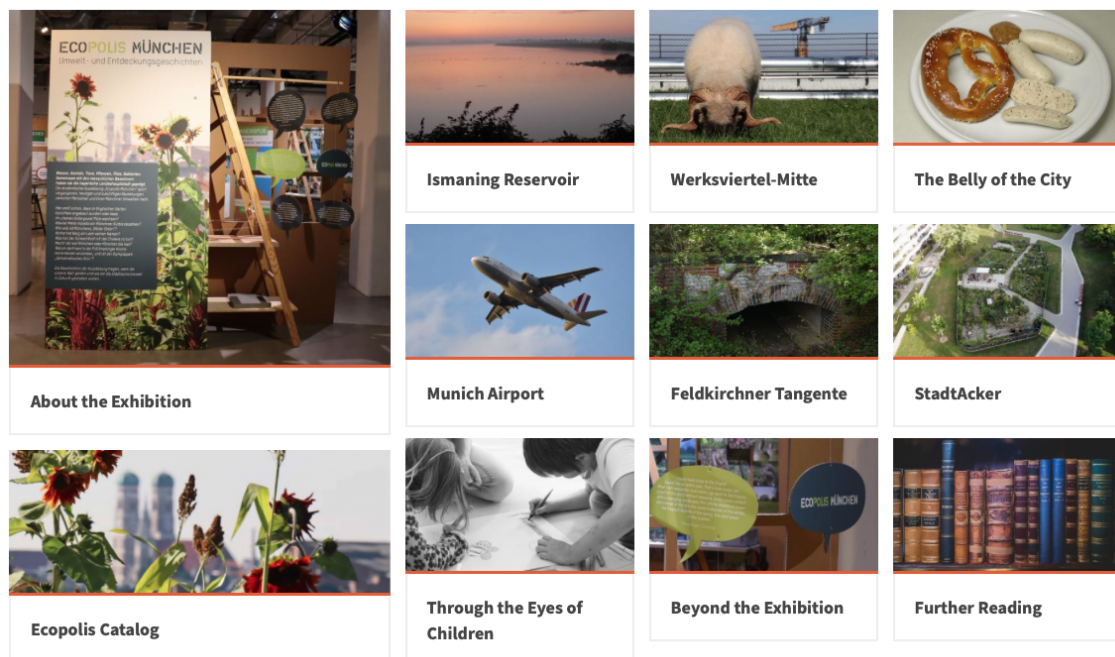


Ecopolis München 2019: Environmental Stories of Discovery

Ecopolis München 2019: Environmental Stories of Discovery is an exhibition on Munich's environmental histories. It showcases the final projects of students in the [Environmental Studies Certificate Program](#) of the [Rachel Carson Center for Environment and Society](#). The stories told in this exhibition ask: to whom does the urban world belong and what do we want the urban environment of the future to look like?



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<https://orcid.org/0000-0002-9719-3413>

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About the Exhibition

1. [Rediscovering Munich's environment: Introduction by Christof Mauch](#)
2. [Environmental stories of discovery: Impressions from the exhibition](#)
3. [Behind the scenes](#)
4. [The Ecopolis München 2019 Team](#)
5. [Acknowledgements](#)



View of the start of the October 2019 exhibition at whiteBOX, a venue near Ostbahnhof in Munich.

Photograph by Laura Kuen, 2019.



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One of the [Rachel Carson Center for Environment and Society](#)'s graduate programs is the [Environmental](#)

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[Studies Certificate Program](#) . The certificate program is open to all master’s students, Diplom students, and those studying *Lehramt* and towards their *Staatsexamen*. The program provides students with the opportunity to gain an additional interdisciplinary qualification in environmental studies. Ecopolis, an exhibition on Munich’s environmental histories, showcases the work of students in the RCC’s Environmental Studies Certificate Program. The first Ecopolis München exhibition, titled Ecopolis München: Environmental Histories of a City, was also organized by students from the Environmental Studies Certificate Program and took place in 2017. A virtual exhibition about the Ecopolis München 2017 exhibition can be found [here](#). This second Ecopolis München exhibition is titled Ecopolis München 2019: Environmental Stories of Discovery.

Water and stone, animals, plants, fungi, bacteria: together with the human inhabitants they have left their mark on the Bavarian capital. Ecopolis Munich sets out in search of the past, present, and future relations between humans and their Munich environments.

Whoever knew that [potatoes were once cultivated in the English Garden](#) or that [mushrooms grow in the urban underground](#) ? How wild is [Munich’s “Wild East”](#) ? How did [Berg am Laim get its name](#) ? What is the connection between the [city slaughterhouse and cholera](#) ? [Does the Isar shape Munich](#) , or Munich the Isar? Why is it forbidden to light candles in [the Fröttmaning church](#) , and is [the Olympic Park a “democratic green space”](#) ?

The stories told in this exhibition ask: to whom does the urban world belong? What do we want the urban environment of the future to look like?

Students formed multidisciplinary groups and prepared exhibits and presentations for the 2019 event in collaboration with the course leaders from the Rachel Carson Center. Mentors and lecturers include experts from different disciplines including Dr. Nina Möllers (program manager BIOTOPIA); Prof. Christof Mauch (environmental historian and Director of the Rachel Carson Center for Environment and Society), and many others.

In 2019, the RCC’s Environmental Studies Certificate Program has been awarded the LMU Munich’s Prize for Innovative Teaching for their work on the interactive and interdisciplinary exhibition “Ecopolis Munich: Environmental Stories of Discovery.” The exhibition is the end result of a rich and diverse seminar taught by lecturers from different disciplines, as well as close cooperation between students and professional designers and curators. The Program received the prize money of 10,000 Euro for future developments and presented the project at the University’s official end-of-year award ceremony. The focus of the event in 2019 was recognizing the importance of high-quality and accessible higher education.

1. Rediscovering Munich’s environment: Introduction by Christof Mauch

At first glance, Munich seems to be a very green city: the English Garden and the beaches along the Isar River, the park grounds around Nymphenburg Palace and the Olympic Park. While these features catch the eye, in reality, no other German city has so great a percentage of land sealed beneath concrete. And at first glance, Munich also seems to be a wealthy city. But the “Hauptstadt mit Herz,” the “capital with a heart” in which international tourists can find just about any aspect of German culture they desire—palaces and pork roast, dirndls, lederhosen and glockenspiel, BMW and beer—in fact only achieved this prosperity relatively recently.

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If one wants to understand how Munich came to be the city it is today, a (historical) look at the relationship between humans and the environment will reveal many surprising insights. Precisely this is the ambition of the student exhibition “Ecopolis Munich.” The title reminds us that cities are not just political entities, but also complex ecosystems—including inanimate materials like stones and living organisms such as plants, animals, and bacteria. Without the Isar River the material used to build Munich’s infrastructure—wood, coal, and stone—could never have been transported from the Alps where it originated. Without the peat from the bogland of Erding, where the Munich airport is located today, the breweries would not have had access to inexpensive fuel, and without the slow movements of earth and stone during the glacial period tens of thousands of years ago that formed the Munich Gravel Plain, the glaciers whose pure runoff feeds Munich’s water supply would not exist, nor would the city’s underground system of streams and wastewater, nor the deep cellars for storing beer and potatoes, nor the underground tunnels that were at times used to grow mushrooms.

The 12 stations of “Ecopolis Munich” show how much natural factors affect everyday urban reality. And they demonstrate the ways that human planning and politics determine how our city functions and to what degree (and for whom) it provides socially just and sustainable living conditions. Why does the landscaping of the English Garden attempt to obscure the view of the city? What political ideas shaped the plans for the Olympic Park? Why is there an alpine sheep pasture in the middle of Munich and where does one find it? Why was an entire village buried beneath a mountain of rubbish? What significance does the Ismaning Reservoir have for the residents of Munich and for the local bird life? The students who created this exhibition set out as environmental detectives to answer these questions and others, and in the process, through keen observation, passion, and insight, they solved a number of perplexing mysteries.

“Ecopolis Munich” takes a close look at Munich’s past and present. The futuristic note of “ecopolis” reminds us that a good and responsibly lived life in the city can only be accomplished with the help of creative visions and a view to the future.

The exhibition was created in two stages. The first group of stations was developed in 2016 and 2017. In summer [2017 the exhibition](#) was displayed in the main building of the university. The second group was put together in a fairly short amount of time during the summer semester of 2019. Here I would particularly like to acknowledge the students of the Environmental Studies Certificate Program whose research and ideas are expressed in the Ecopolis project. Additional thanks go to Laura Kuen, who contributed to the first exhibition as a student and to the second as a curator. Without Laura and without Dr. Gesa Lüdecke, the Director of our Graduate Studies, Ecopolis could never have become a reality. Thanks also to Talitta Reitz and Dr. Nina Möllers, who helped to make the seminar project a success, and particular thanks to our designers Katharina “Tinka” Kuhlmann and Alfred “Freddy” Küng, who supported us in 2017 and 2019 with their professional expertise as well as great enthusiasm! Finally, a source of constant gratitude to us is LMU Munich’s willingness to continue to host the Environmental Studies Certificate Program and the Rachel Carson Center, which has perhaps contributed more to interdisciplinary dialog at the university than any other institution.

The exhibition “Ecopolis Munich” could be viewed in person in October 2019 in the Werksviertel. In addition, it will continue to live on as a virtual exhibition on the Rachel Carson Center’s Environment & Society Portal. And maybe—so we hope—it will even serve as a source of inspiration for further projects about Munich’s environment.

Christof Mauch
Director of the Rachel Carson Center

2. Environmental stories of discovery: Impressions from the exhibition



Poster for the exhibition.

This poster was created by Laura Kuen.

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The exhibition ran from 12 October to 20 October 2019 at [whiteBOX](#), a venue in the Werksviertel. The exhibition was part of [Klimaherbst 2019](#). The [Werksviertel-Mittel](#) reported on the event, which can be read [here](#) (in German). They also produced a short video documentary (in German), which gives you an idea of what the physical exhibition was like, you can view it [here](#) or below. It is a creative, urban, and innovative space. It is an urban quarter in Munich that is constantly changing. In the east of Munich, living, working, entertainment, art, and culture blend into unique urban cooperation. It offers a space for grand architecture and digital, creative, and artistic innovations. Every day in the Werksviertel-Mitte, a lively urban culture unfolds, which everybody can actively help to shape and re-experience again and again.

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3. Behind the scenes

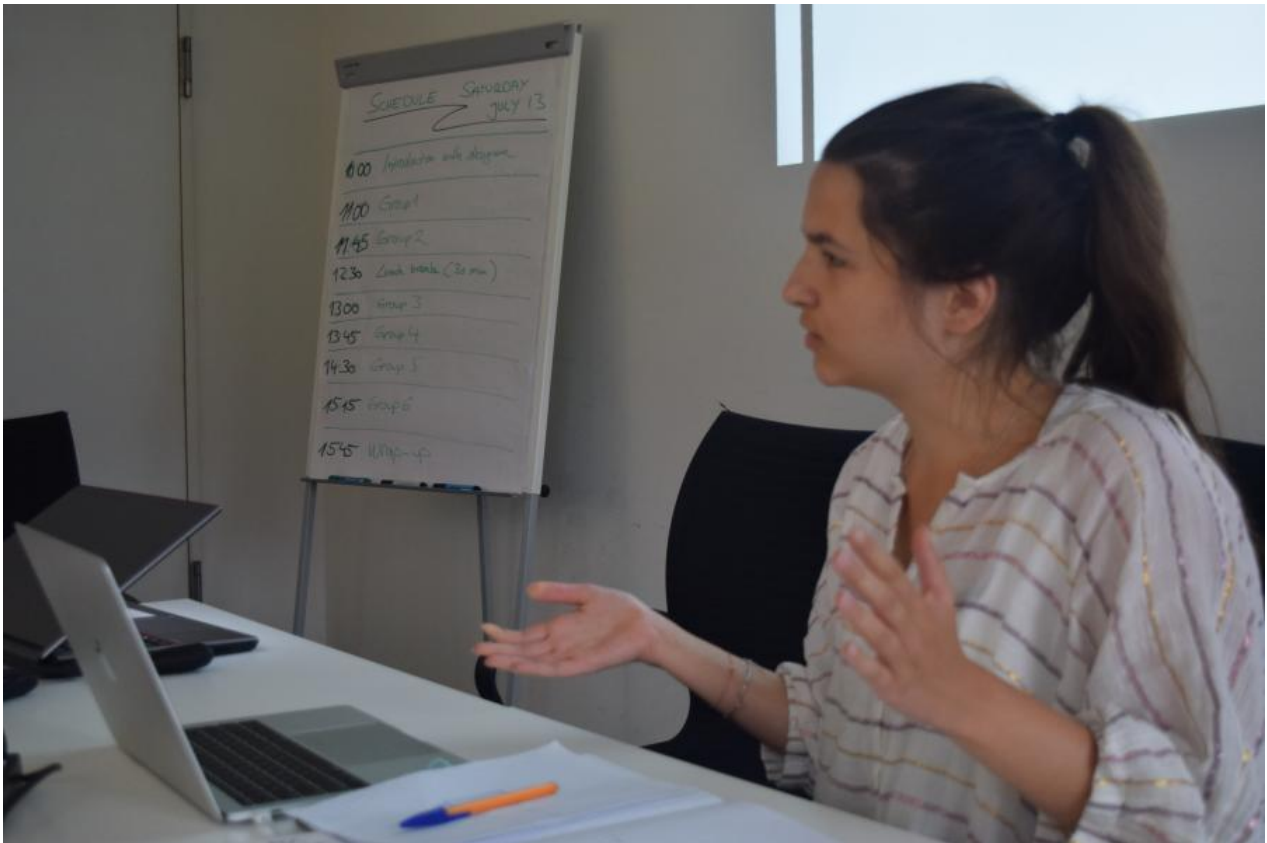
As you can imagine, a lot of work goes into organizing an exhibition like this. Here we want to give you some glimpses behind the scenes and tell you the story of how this exhibition came together. In July 2019, the students in the certificate program met with their mentors, including Christof Mauch, Gesa Lüdecke, Laura Kuen, and the designers Katharina Kuhlmann and Alfred Küng, and presented their ideas of their stations. Later that month, the different groups met with the designers to develop ideas on how to present their ideas to the public.



Planning and designing the Ecopolis München 2019 exhibition

On 13 July 2019, students of the Environmental Studies Certificate Program of the Rachel Carson Center meet with their mentors and the designers to discuss their ideas for the Ecopolis München 2019 exhibition.

Photograph by Laura Kuen. CC BY 4.0 international license.



Here, Alisa Udodik presents her ideas for her station, “The Belly of Munich,” at the Ecopolis München 2019 exhibition. Photograph by Laura Kuen. CC BY 4.0 international license.

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Here, Johanna Mayer and Carolin Pichl discuss their ideas for their “StadtAcker” station with the designers Katharina Kuhlmann and Alfred Küng.

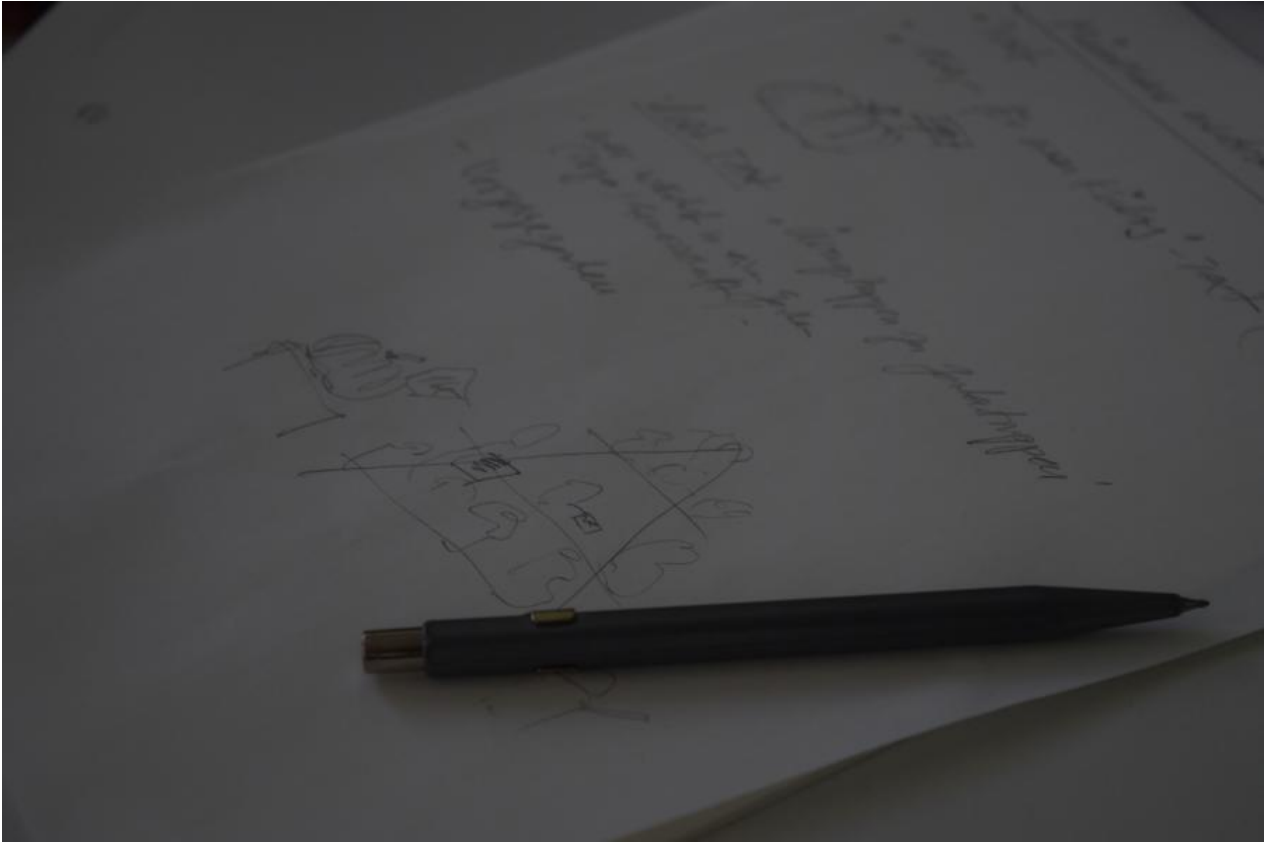
Photograph by Laura Kuen. CC BY 4.0 international license.

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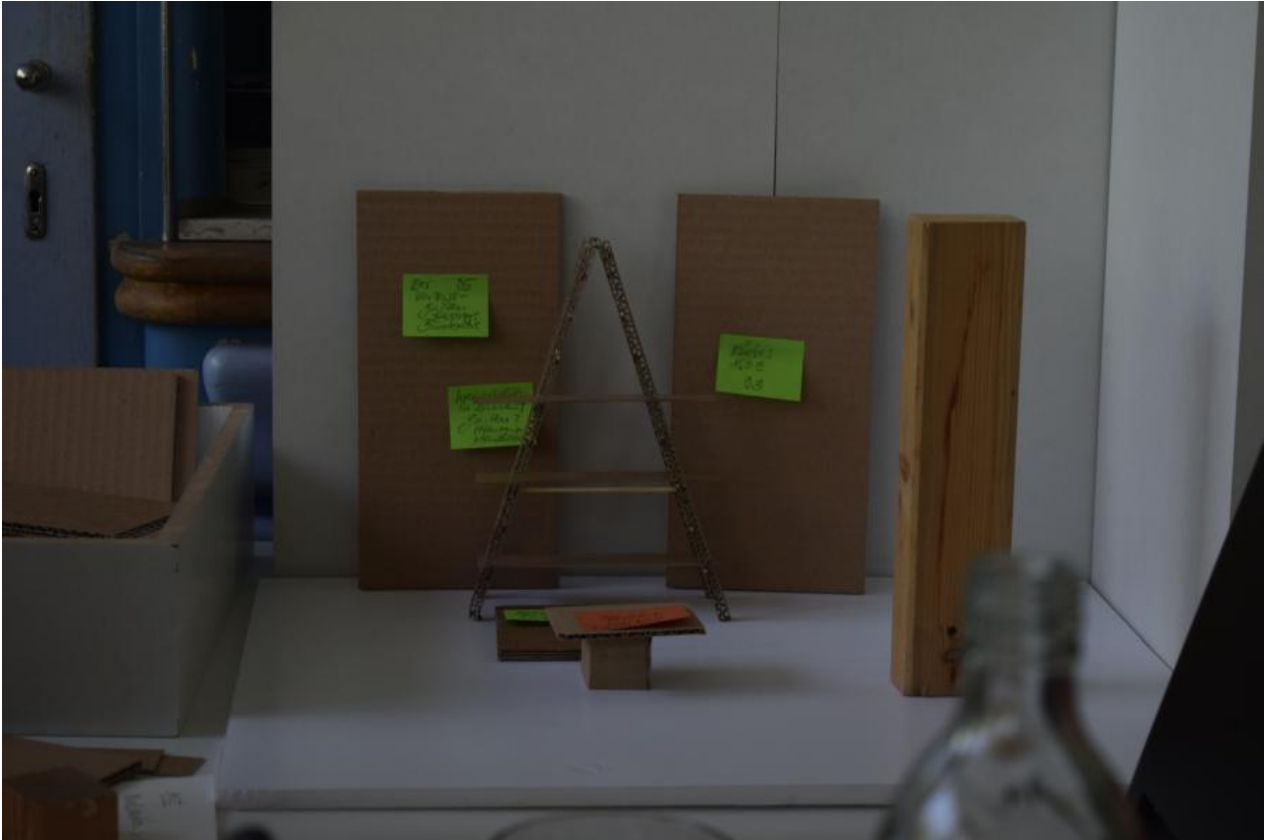
The designers, Katharina Kuhlmann and Alfred Küng, translate the students' ideas into drafts on paper.
Photograph by Laura Kuen. CC BY 4.0 international license.

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The designers Katharina Kuhlmann and Alfred Küng present to the students what their station might look like at the physical Ecopolis München 2019 exhibition.

Photograph by Laura Kuen. CC BY 4.0 international license.

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In a small box, the designers present how the twelve different stations will be arranged at the whiteBOX venue.
Photograph by Laura Kuen. CC BY 4.0 international license.

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The designers Katharina Kuhlmann and Alfred Küng present their ideas to realize the Ecopolis München 2019 exhibition.
Photograph by Laura Kuen. CC BY 4.0 international license.

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Johanna Felber, Hugo Reyes Aldana, and Xiao Wang discuss their ideas for the station “Munich Airport” with the exhibition’s curator Laura Kuen and the designers.
Photograph by Katharina Kuhlmann and Alfred Küng. Used with permission.



The group planning the station about the Werksviertel-Mitte, Helena Held, Vera Klünder, and Talitta Reitz, talk their ideas over with Katharina Kuhlmann and Alfred Küng.

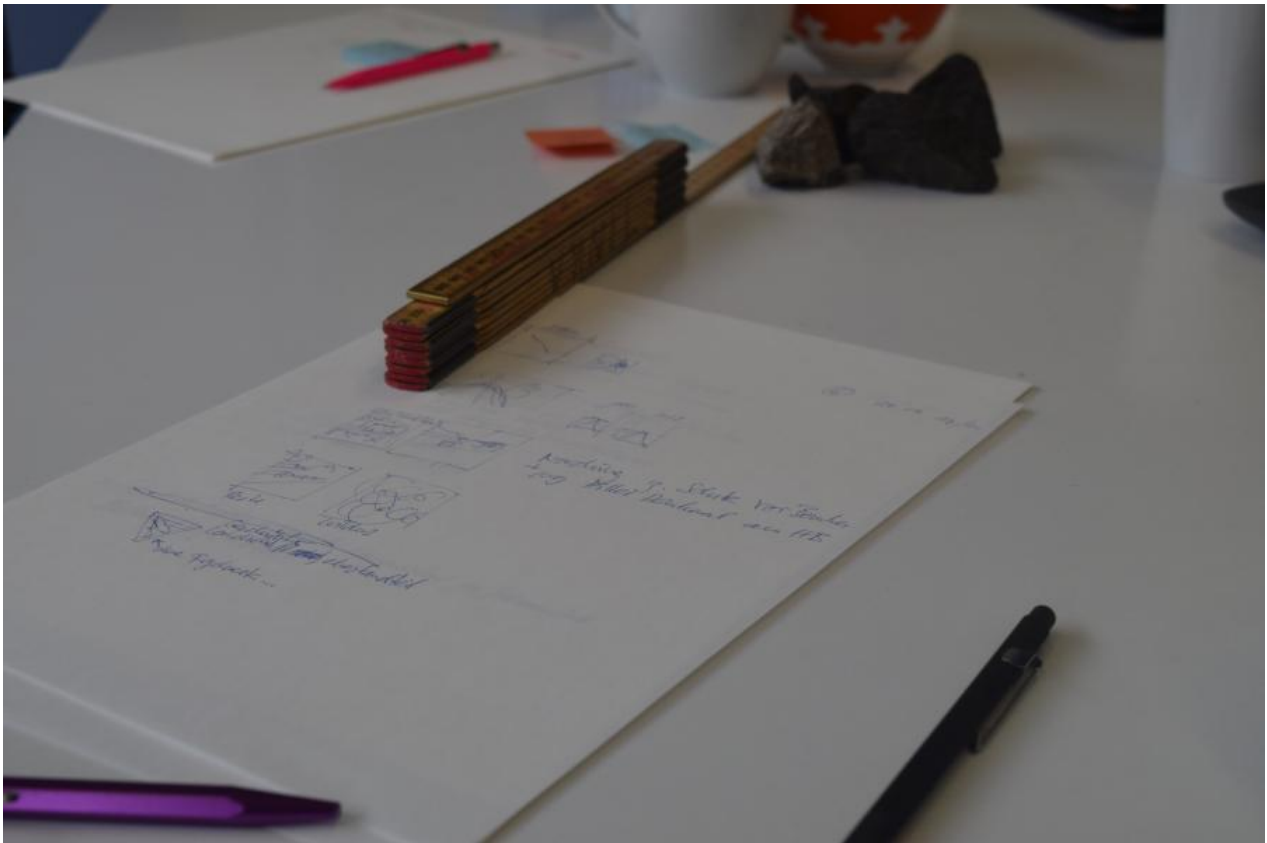
Photograph by Laura Kuen. CC BY 4.0 international license.

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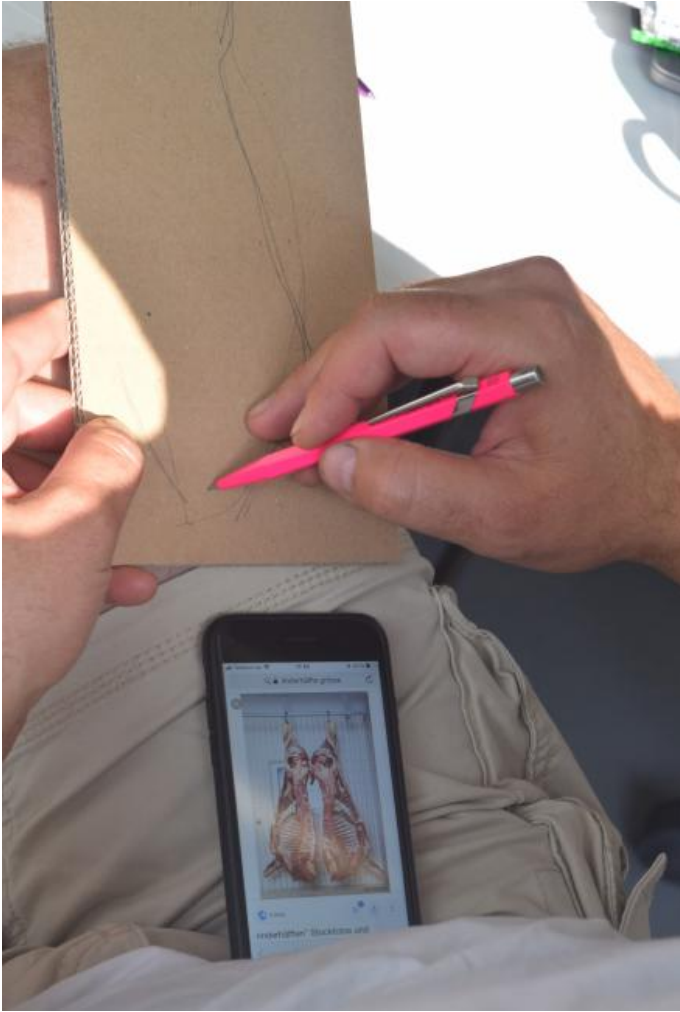
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Design ideas on how to present the students' research during the exhibition.
Photograph by Laura Kuen. CC BY 4.0 international license.



The designers brainstorm with the students and simultaneously draft designs for the exhibits. Here, Alfred Küng drafts how the meat exhibit for the “Belly of Munich” station might look like.

Photograph by Laura Kuen. CC BY 4.0 international license.

The students had visited the places of their research, hiked through the city or the thicket, observed and listened to the animals inhabiting the areas they researched, interviewed experts, and conducted research in books and archives. Once the writing, planning, clearing copyrights, and designing was done, the big day had come: It was time to set up the exhibition and to put the final touches on. All the students came together and put together all the installations and decorations. Now it was time to wait for the visitors to come—and the exhibition was a success.

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All hands on deck: setting up the Ecopolis München 2019 exhibition

Parts of the exhibits that still have to be set up at their right place.
Photograph by Laura Kuen. CC BY 4.0 international license.

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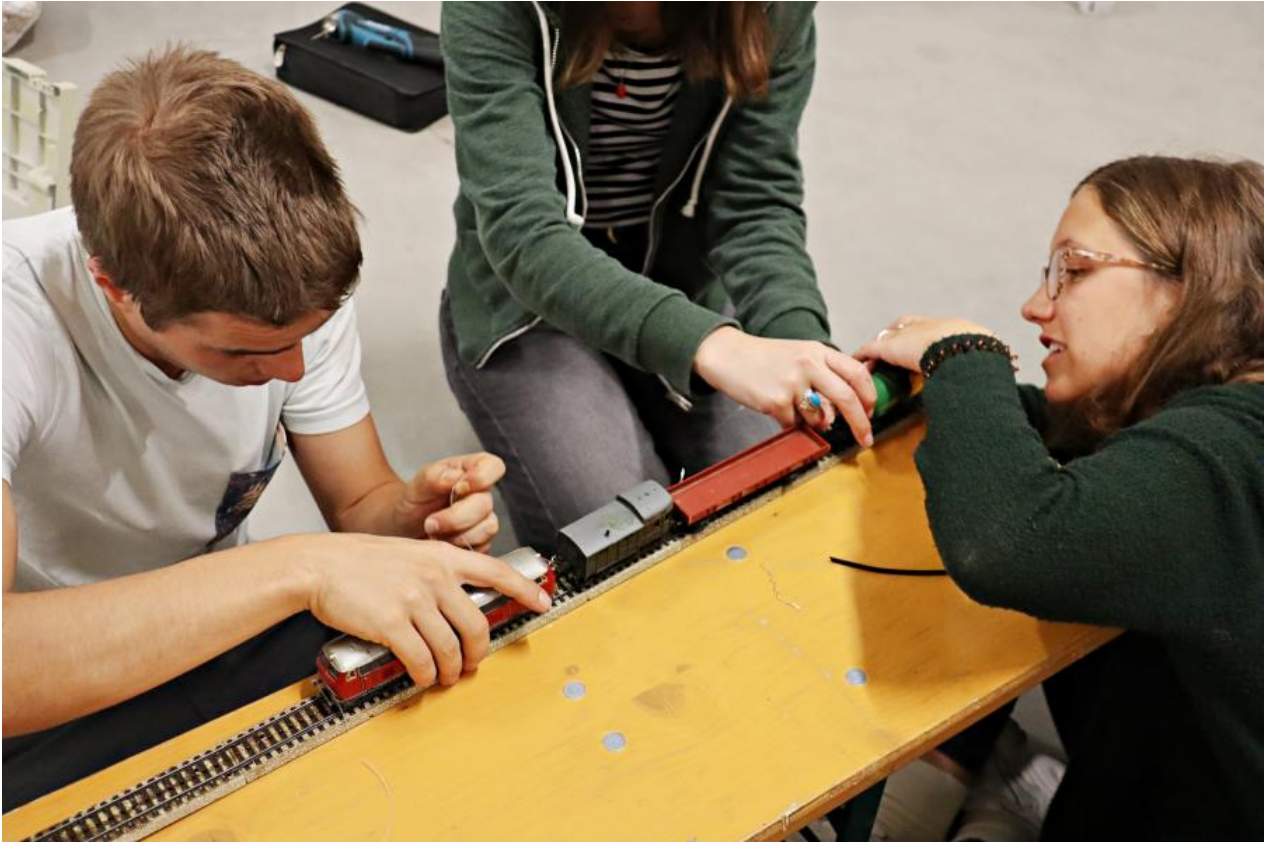
Students are in the process of setting up the exhibits.
Photograph by Laura Kuen. CC BY 4.0 international license.

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Students put together a model train that will accompany the “Former Railway Embankment Feldkirchner Tangente” station.
Photograph by Laura Kuen. CC BY 4.0 international license.



The designer Katharina Kuhlmann helps to set up the exhibits at the whiteBOX venue.
Photograph by Laura Kuen. CC BY 4.0 international license.



Students set up the exhibition at the whiteBOX venue. Here, students and Alfred K ung install the “sky” that will later hold the paper planes for the “Munich Airport” station.

Photograph by Laura Kuen. CC BY 4.0 international license.

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The different stations for the Ecopolis München 2019 have all been set up and the exhibition is now ready for the first visitors. Photograph by Laura Kuen. CC BY 4.0 international license.



Many visitors come to see the Ecopolis München 2019 exhibition at the whiteBOX. Photograph by Anne Schilling. CC BY 4.0 international license.

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whiteBOX, the venue for the Ecopolis München 2019 exhibition.
Photograph by Anne Schilling. CC BY 4.0 international license.



A glimpse of the Ecopolis München 2019 exhibition

Two visitors are reading the exhibits.

Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.

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A glimpse of the physical Ecopolis München 2019 exhibition: This shows the “StadtAcker” station. Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.

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Here, Hugo Reyes Aldana explains the details of the “Munich Airport” station.
Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.

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Paper planes at the “Munich Airport” station simulate the many airplanes that land at or take off from Munich Airport every day. Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.

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While this virtual exhibition highlights the six new stations that were created by student curators as their final projects as part of the Environmental Studies Certificate Program at the Rachel Carson Center, the physical exhibition also showed the six stations that were created for the previous Ecopolis München 2017 exhibition. These stations also represent the final projects of students from the Environmental Studies Certificate Program. Here, the curator Laura Kuen poses in front of the “Democratic Green” station. To learn more about this station, please see [here](#).

Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.

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The “Munich and the Isar” station. To learn more about this station, please see [here](#) .
Photograph by Laura Kuen. CC BY 4.0 international license.

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These items also represent a station titled “Munich and the Isar” that was originally created for the Ecopolis München 2017 exhibition. There were no purification plants along the river Isar. Human feces, food scraps, and the like, all contaminated the water. From left to right, the water becomes clearer due to water purification measures. To learn more about this station, please see [here](#) .
Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.

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Another detail from the “Munich and the Isar” station. To learn more about this station, please see [here](#) .
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A glimpse at the physical Ecopolis München 2019 exhibition: Here you can see the “Munich from Below” station. To learn more about this station, please see [here](#).

Photograph by Laura Kuen. CC BY 4.0 international license.

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Another glimpse at the “Munich from Below” station that was originally created for the Ecopolis München 2017 exhibition. Food is being grown artificially here, without actual sunlight. To learn more about this station, please see [here](#) .
Photograph by Laura Kuen. CC BY 4.0 international license.

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During the war, the subway shaft served as an air-raid shelter, and afterwards as a place for cultivating luxury food: button mushrooms. However, invasive ground water ended mushroom cultivation. To learn more about this station, please see [here](#) .
Photograph by Laura Kuen. CC BY 4.0 international license.



In the foreground, you can see part of the “Stone-Rich” station that had been originally created for the Ecopolis München 2017 exhibition. To learn more about this station, please see [here](#) .
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The “Sound Trail” station was also originally created for the Ecopolis München 2017 exhibition. To learn more about this station, please see [here](#).

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Interactive elements of the Ecopolis München 2019 exhibition

The physical Ecopolis München 2019 exhibition also includes some interactive elements. At the “StadtAcker” station, you could sign up for watering the plants.

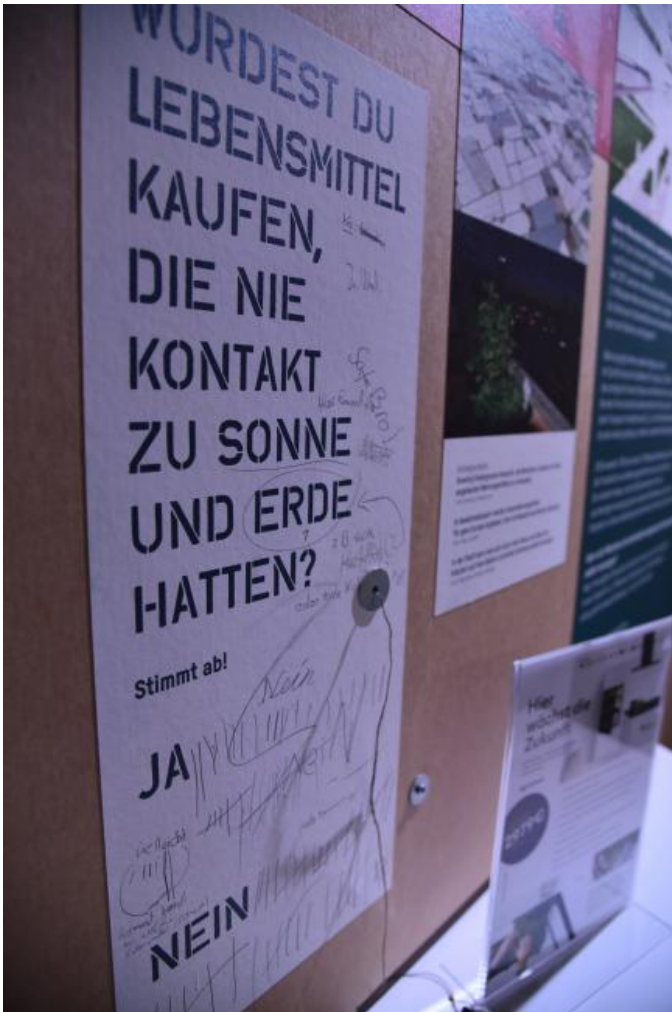
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The physical Ecopolis München 2019 exhibition also includes some interactive elements. At the “Munich from Below” station, visitors could participate in a survey whether or not they would buy groceries that were grown inside buildings or below ground and have never been touched by sunlight or soil.

Photograph by Philipp Thalhammer, LMU Munich, 2019. Used with permission.



The physical Ecopolis München 2019 exhibition also included a station for younger visitors. Every station was told as a story for children. After an adult reads the stories to the children, they could draw their impressions on paper at a nearby table. This station was created by Isabelle Hermannstädter.

Photograph by Laura Kuen. CC BY 4.0 international license.

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4. The Ecopolis München 2019 Team

The Student Curators



A group photo of the Ecopolis München 2019 team.

Hugo Reyes Aldana, Marc Bubeck, Anne Dietrich, Johanna Felber, Helena Held, Isabelle Hermannstädter, Maike Jebasinski, Malin Klinski, Vera Klünder, Laura Kuen, Katharina Kuhlmann, Alfred Küng, Gesa Lüdecke, Christof Mauch, Johanna Mayer, Carolin Pichl, Talitta Reitz, Anne Schilling, Alisa Udodik, and Xiao Wang.

Photograph by Laura Kuen, 2019.



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Project Management



Laura Kuen, MA, curator, Rachel Carson Center for Environment and Society (RCC); Prof. Dr. Christof Mauch, director, RCC; Dr. Gesa Lüdecke, director of graduate programs, RCC.

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The essays and images on this website present an overview of the objects on display in the exhibition *Ecopolis München: Umwelt- und Entdeckungsgeschichten*, which was on view at the whiteBOX October 2019. This digital companion to the exhibition was prepared by Katrin Kleemann for the Environment & Society Portal. The exhibition was in German and all texts (including direct quotes) have been translated into English by Brenda Black.

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Ismaning Reservoir

A wastewater lake changes its feathers?

At the Ismaning Reservoir approximately an hour by bike northeast of Marienplatz the interplay between humans and nature is evident. It is not possible to swim in the lake. But it does more than just store water for Munich power generation facilities. It also provides habitat for many species.



The western part of the lake (Westbecken) during the winter.

Photograph by Peter Dreyer.

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There is no boat rental, no beach, no kiosks or tourism. Built in 1929, the reservoir and the canal connecting it to the Isar River help to regulate the water flow to the nearby hydroelectric plants and for cooling the turbines of the thermal power station Heizkraftwerk Nord. The 95 adjoining ponds of the fish farm Birkenhof purify the city's wastewater through natural means.



Left glass: Large-scale carp breeding started in the wastewater lakes in the 1920s. The wastewater contained so many nutrients that the animals did not need any additional feed.

Right glass: With advancements in technology, Munich's wastewater became cleaner in the 1990s. As a consequence, however, the water contained fewer nutrients.

Photograph by Laura Kuen.



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What fascinates me about the Reservoir is the multitude of different aspects that are coming together: For instance the progressive energy project, the wastewater treatment, the decades-long pond farming, the large bird reservoir, and the positive influence on the groundwater and the climate.

—Rudolf Lukes, local resident

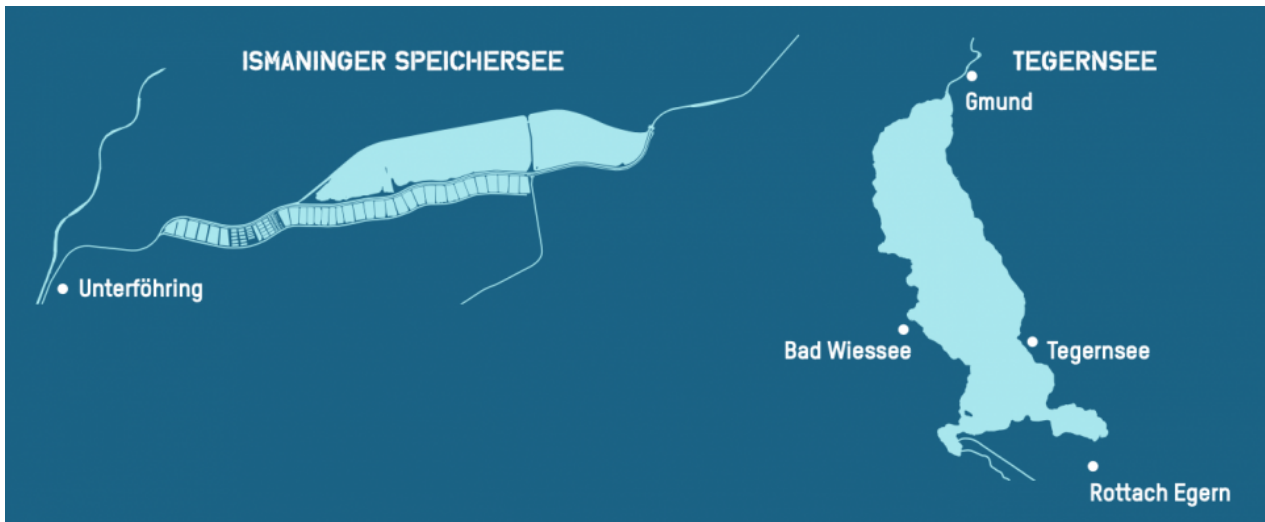
Technological progress has altered the ecosystem of the lake and the ponds and unintentionally created the largest moulting grounds for water birds in central Europe. But is it possible for the wastewater in the ponds to be too clean? And why is the thermal power station good for the rare mercury bluet?

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Although the reservoir is almost the same size as the Tegernsee, which is a popular tourist destination, most people from Munich have never heard about the Ismaning Reservoir.

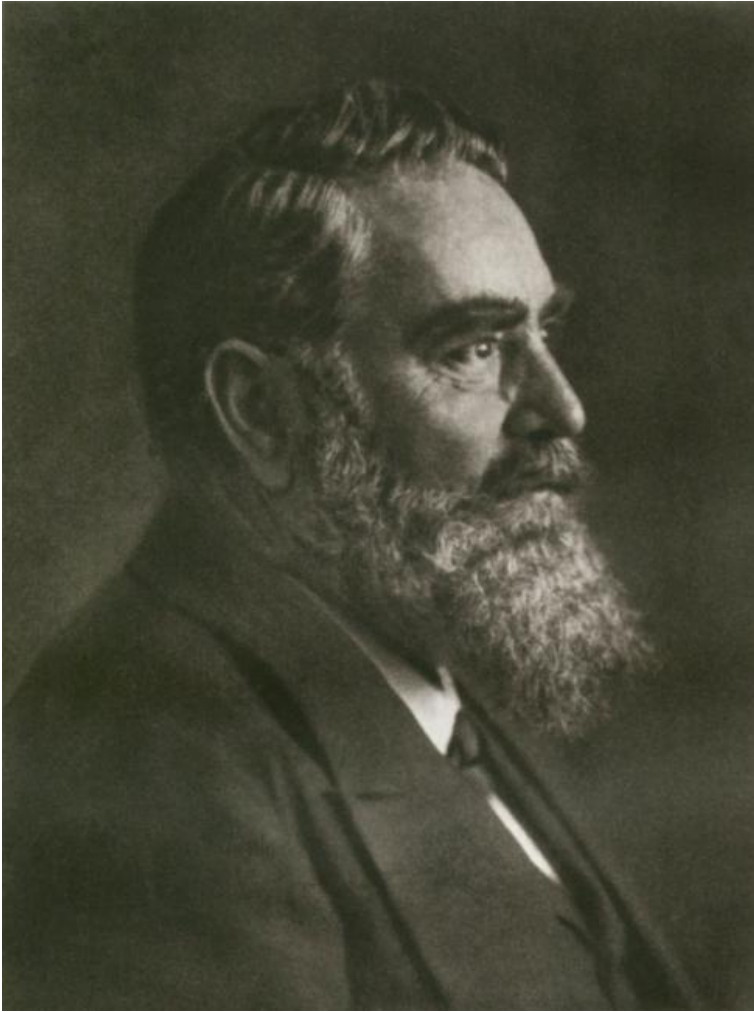
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The dream of electricity from the Isar

The construction of the reservoir was part of a grand vision: the electrification of all of Bavaria. Prior to the construction of the first hydroelectric plants in 1896, only mill wheels were used to produce energy. For the first time, the Ismaning Reservoir and its respective power plants were supposed to supply energy to half a million households in Munich.



A grand vision: the electrification of all of Bavaria

Oskar von Miller, the founder of the Deutsches Museum and a visionary of hydroelectric power, initiated the construction of the Ismaning Reservoir.

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The setup of the Ismaning Reservoir station during the Ecopolis München 2019 exhibition.
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A demonstration of hydroelectric energy powering a light bulb during the Ecopolis exhibition.

A demonstration of hydroelectric energy powering a light bulb during the Ecopolis München 2019 exhibition.
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Wildlife

The Unterföhrung thermal power station cools its turbines with the water from the Isar canal. Afterward, the heated water reaches the Ismaning Reservoir. This contributes to the fact that the lake does not freeze over—even during the deepest winter. One species particularly appreciates this: The mercury bluet (*Coenagrion mercuriale*), which is a protected dragonfly species, finds ideal living conditions because of the existence of the thermal power station.

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A mercury bluet (*Coenagrion mercuriale*).

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In order to create the reservoir a large area of peat bog was drained. Today such a major alteration of the landscape would be met with immense resistance. In addition to the marshland, many villages were destroyed by the project of creating the artificial lake.

My father was a fisherman at the fish ponds. The working conditions were extremely difficult, particularly during the wintertime when the fishing began before Christmas.

—Gerda Lukes, local resident



Many people lost their land as a result of the construction of the reservoir.

Photograph by Gerda Lukes. Photograph supplied by Malin Klinski.

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For others, the power station and the fish farming meant hard work, but also new livelihoods.

Photograph by Gerda Lukes. Photograph supplied by Malin Klinski.

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Where does the water in the reservoir come from? In Oberföhring 150 m³ of water per second is diverted from the Isar through the Mittlerer Isarkanal. As a result of the reduced water level in the Isar, many fish species that once lived in the river have now vanished.

The dream of energy drove the fish out of the Isar; however, the creation of the reservoir also inadvertently created a new habitat for countless birds. In July 2015, a counting showed that 60,000 birds were present at the Ismaning Reservoir.



The Ismaning Reservoir serves as a habitat for many different birds

The eastern part of the reservoir (Ostbecken) at twilight.
Photograph by Erwin Taschner. Used with permission.



Today the reservoir is a habitat for countless birds, such as coot.
Photograph by Erwin Taschner. Used with permission.



Today the reservoir is a habitat for countless birds, such as great chested grebe.
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Today the reservoir is a habitat for countless birds, such as red-crested pochard. Once per year, these birds change their entire feathering at the reservoir.

Photograph by Karin Haas. Used with permission.

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Today the reservoir is a habitat for countless birds. Ducks, swans, and geese appreciate the reservoir. This photo was taken of an island in the eastern part of the lake (Ostbecken).
Photograph by Erwin Taschner. Used with permission.



Today the reservoir is a habitat for countless birds. After three to four weeks of casting their feathers, many water birds leave the area. Photograph by Erwin Taschner. Used with permission.

It is simply fantastic when the summer comes and ducks start to fly in from all around Europe. Out of all places, they come here to cast their feathers. It was an absolutely unintended consequence that an artificial reservoir became a unique port of call for feral water birds from all over Europe. This place should be protected permanently.

—Karin Haas, ornithologist at the Landesbund für Vogelschutz e.V (LBV), an environmental organization that protects birds



The Ismaning Reservoir is home to many different species.

Photograph by Laura Kuen.



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About the curators



Malin Klinski and Anne Schilling.

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Malin Klinski

Malin Klinski received her bachelor's degree in cultural anthropology, with a minor in communication studies, from LMU Munich in 2018. Her interest in environmental studies developed while participating in a seminar on human-environment relations in connection to natural disasters during her exchange semester at the Gadjah Mada University in Yogyakarta, Indonesia. She is currently pursuing her master's degree in intercultural communication at LMU. Being born in Munich, she has never stopped being enthusiastic about exploring unknown aspects of the environment of her hometown.

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Anne Schilling

Anne Schilling became part of the Ecopolis München 2019 team when she was still quite new in Munich. It was a wonderful chance for her to get to know the city as a whole, detecting different interrelated stories and challenges. Anne joined the Environmental Studies Certificate Program because she was always interested in green spaces and nature per se. Now she had the chance to learn about and discuss highly relevant topics regarding the environment and society in a very interdisciplinary and enriching academic environment.

The artificially created lake seemed like a green oasis to us. Flowers were in bloom at the shores and water birds covered the ponds like carpets. The birds were not really interested in the ponds without the wastewater. Thanks to Karin Haas we were even able to see the areas of the reservoir where access is usually restricted.

—Malin Klinski and Anne Schilling

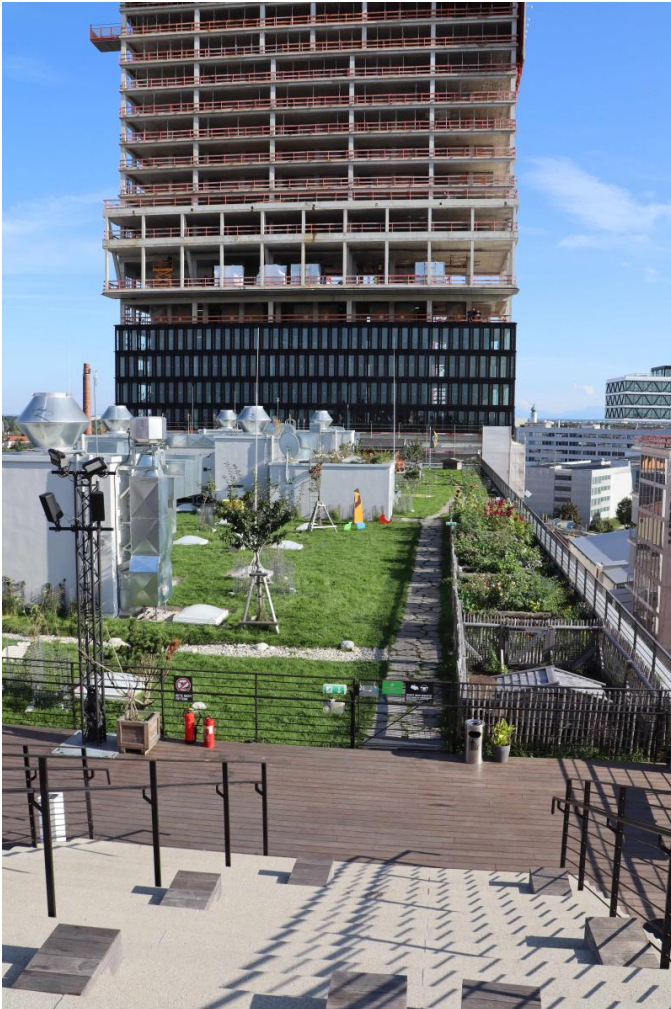
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Werksviertel-Mitte

A showcase for nature in the Ostbahnhof neighborhood?



A rooftop in the Werksviertel.

Photograph by Laura Kuen.



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In the Werksviertel the urban future of Munich is being reinvented. The development of the former industrial district is based on a social vision: inclusion and bringing together diverse elements. The site—once home to the potato factory Pfanni—hosts experimental projects alongside tried-and-true, a youth hostel beside a hotel, people in the pub and sheep on the roof. It is planned with a view to people and city. But equally clear is the desire for nature. One of the stairways houses an ant colony in a glass pipe, graffiti animals romp about on dumpsters and walls. Is it also possible to find “pristine” nature here? How fresh is the air of the neighborhood? Where can we find traces of the Munich loam deposit? And what is a potato washing road? The Werksviertel has a rich history,

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and the plans for the future are ambitious. Is it possible to find a successful balance between past and future, between city and nature?



The Werksviertel-Mitte has many green areas. One example are these mobile plots, which are used to plant herbs and fruit.

Photograph by Laura Kuen.

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Apart from a few trees, more than 90% of the grounds in the Werksviertel-Mitte are sealed. In fact, Munich is the city in Germany that has the most sealed areas. In total, about 47% of the city area is sealed. The Werksviertel is no exception.

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Chimneys, pipes, and old train tracks



In the past, this street transported and washed potatoes, that were then processed into dumplings and purée. Today, grids cover the street.

Photograph by Laura Kuen.

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A collection of odd objects tell the history of a village and a potato empire. Today a district of Munich, the first recorded mention of Berg am Laim is from 812, where it is referred to as the hill (Berg) along the clay field (Lehm). It was not incorporated into Munich until 1913, when the growing city was in urgent need of space. Industries emerged. The largest industry to occupy the district after the Second World War was Pfanni, a dumpling and mashed-potato production factory. Each year, 1,200 workers processed up to three million centners of potatoes from the Munich region. To enable the tubers to be stored for long periods, the water was extracted from them—a global innovation. After food manufacturing within the city ceased and was transferred elsewhere in 1993, the Pfanni factory closed its doors in 1996. It was replaced by cultural centers—the Kunstpark Ost and Kultfabrik. Urban gardens, compost heaps and raised beds—showcases of nature—have replaced industrial food production. A journey of discovery through this district still reveals remnants of the old potato washing facility. Tracks, canals, and pipes reveal the manufacturing activities of the past.

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The laws of nature are being turned upside down in the Werkviertel

Here, sheep live on the rooftop, whales on the walls, and ants in pipes. On the roof of WERK3, there is an alpine pasture school. School classes come here, so students can learn conscious interactions with the environment.



Alpine pasture life on a rooftop in the Werksviertel

Valais blacknose sheep live on a rooftop in the Werksviertel.
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Miniature alpine pasture: Chicken, bees, a hut, and Valais blacknose sheep reside on top of the 2500 square meter rooftop of WERK3.
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Chickens are also residents on the rooftop of WERK3.
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Chickens are also part of the rooftop alpine pasture.
Photograph by Laura Kuen. CC BY 4.0 international license.



More than one-third of the Bavarian bees are residing in urban areas. In Munich, in addition to the honeybee, there are 192 different species of wild bees. In the Werksviertel, most bees are primarily the alpine pasture school's honeybees.
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Honeybees on the rooftop of WERK3 in the Werksviertel.
Photograph by Laura Kuen. CC BY 4.0 international license.



A close-up photo of honeybees.
Photograph by Laura Kuen. CC BY 4.0 international license.



In the Werksviertel, you can see real honeybees, but you can also encounter artistic depictions of them on the walls of the Werksviertel, like this mural that was created by Loomit.

Photograph by Helena Held. CC BY 4.0 international license.

Graffiti by [Loomit](#).

However, the sheep and chicken are not the first encounters with animals when one visits the Werksviertel. Colorful graffiti of animals can be found on walls and on containers; they create the impression of a world rich in wildlife. Is this displayed nature the only one that can be found here? Which animals do come here, apart from ants, nocturnal rats and foxes?

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Animals and art in the Werksviertel

The artist Loomit has created a depiction of the ants in a staircase.
Photograph by Helena Held. CC BY 4.0 international license.
Graffiti by [Loomit](#).



Giant leafcutter ants, originally from South America, are living in the Werksviertel, too.
Photograph by Laura Kuen. CC BY 4.0 international license.



Giant leafcutter ants, originally from South America, are living in the Werksviertel, too. Here they are climbing up a pipe that leads to the alpine pasture school on the rooftop. These ants are better suited for this habitat because they travel further than native ants. Photograph by Laura Kuen. CC BY 4.0 international license.

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The artist Mr. Woodland has created this artwork of a bird in a tree.
Photograph by Helena Held. CC BY 4.0 international license.
Graffiti by [Mr. Woodland](#).



A depiction of a rat that was created by the artists Sain & Lesie.

Photograph by Laura Kuen. CC BY 4.0 international license.

Graffiti by Sain & Lesie. Sain's Instagram profile can be found [here](#) . Lesie's website can be found [here](#) ; Lesie's Instagram profile can be found [here](#) .

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A fox can also be sighted on the grounds of the Werksviertel. This artwork was created by Loomit. Photograph by Laura Kuen. CC BY 4.0 international license. Graffiti by [Loomit](#).

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Snakes can also be found—on the walls of the Werksviertel, created by ATE.
Photograph by Laura Kuen. CC BY 4.0 international license.
Graffiti by [ATE](#).



The artist Alexandre Puga created this artwork.

Photograph by Helena Held. CC BY 4.0 international license.

Graffiti by Alexandre Puga. Alexandre Puga's website can be found [here](#) and his Instagram profile can be found [here](#).

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Loomit created this depiction of a tapir family.
Photograph by Laura Kuen. CC BY 4.0 international license.
Graffiti by [Loomit](#).



The artist Loomit created this artwork of a whale on the side of a building in the Werksviertel. Photograph by Helena Held. CC BY 4.0 international license. Graffiti by [Loomit](#).



The artist Eliot theSuper created a depiction of fish on a container.

Photograph by Helena Held. CC BY 4.0 international license.

Graffiti by Eliot theSuper. Eliot theSuper's website can be found [here](#) and his Instagram profile can be found [here](#).

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The artist Leslie created a whale. Even the largest animals on the planet are becoming urban roommates.

Photograph by Laura Kuen. CC BY 4.0 international license.

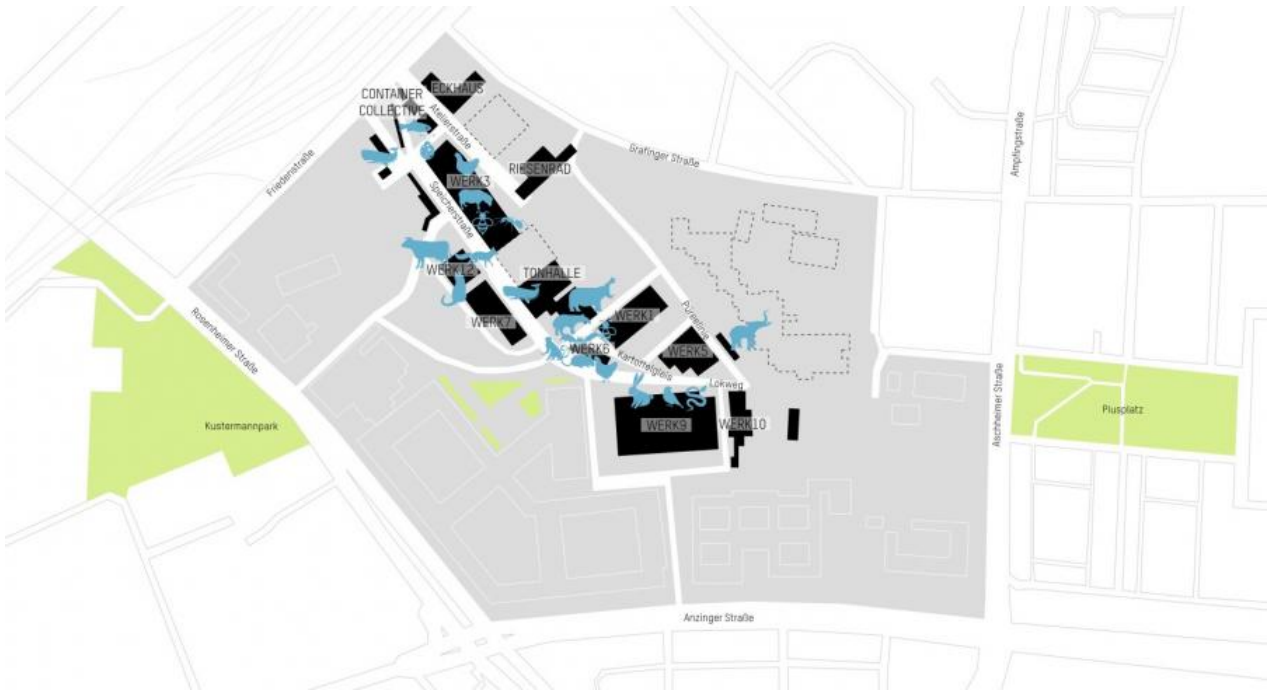
Graffiti by Leslie. Leslie's website can be found [here](#) ; Leslie's Instagram profile can be found [here](#) .

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Throughout the Werksviertel, several different animals are depicted by several artists. This map shows where to find them.

Graphic design by Helena Held and Talitta Reitz. CC BY 4.0 international license.

Google Maps was used as a reference. All icons have a CC BY license by [the Noun Project](https://nounsproject.com/): The bee was created by Syaiful Amri; the sheep by Alena Artemova; the ant by parkjisun; the cat by REVA; L Marco Livolsi; the fish by Baboon designs; the whale by Felix Brönnimann; the chicken by Yugudesign; the hippo by Ed Harrison; the bat by Tatyana; the rat by designer468; the monkey by TkBt; the rabbit by Marina Sas TkBt; the snake by Bakunetsu Kaito; the elephant by Kris Prepiakova; and the tapir by Laura Barretta. All artists have contributed to the Noun Project.

Stone by stone, Berg am Laim became a part of Munich's history

The suburb is located where a “tongue of clay,” an elongated clay deposit, once existed. Princes used this excellent building material for their buildings. The factories in Munich-East delivered bricks, which added to the rapid growth of the city. The technological advancements also multiplied the brick factories. Landowners enriched themselves and began to hire Italian seasonal workers for the strenuous work. The beautiful bricks within Munich's walls are visible to this day. The factors, however, were they were created do not exist anymore. Exploiting the geological clay deposit for centuries resulted in its complete disappearance. Only the name of the suburb, Berg am Laim, refers back to the past of a “hill of clay.”

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The role of clay in Munich's history

About 20,000 years ago, meltwater flowed from the glaciated Alps to the north. On a terrace, loess and dust deposited a geological layer of clay: This created Munich's "tongue of clay."

Drawing by Talitta Reitz. CC BY 4.0 international license.

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Past and future in the Werksviertel-Mitte: The new WERK17 has a brick façade, which reflects the history of clay in the Berg am Laim suburb.

Photograph by Laura Kuen. CC BY 4.0 international license.

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Past and future in the Werksviertel-Mitte: The new WERK17 has a brick façade, which reflects the history of clay in the Berg am Laim suburb.

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Numerous brick buildings have shaped the city of Munich. But only few people in Munich know where the bricks have come from. Photograph by Wikipedia / Tobias Klenze. It can be found [here](#).

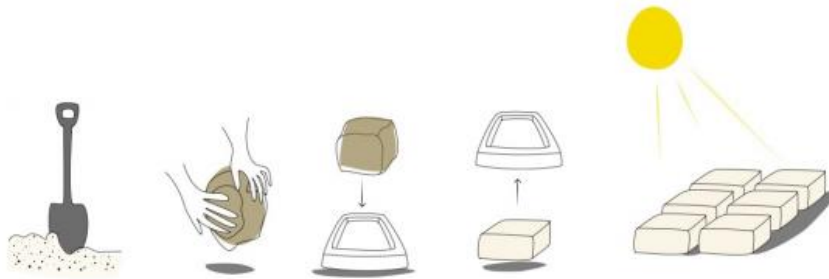
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WIE MAN ZIEGELSTEINE MACHT



MÖCHTEST DU DEINE EIGENE FRAUENKIRCHE BAUEN?
MIT ECHTEM LEHM UND SCHNEIDWERKZEUGEN
KANNST DU DEINE EIGENEN BACKSTEINGEBÄUDE
HERSTELLEN. VIEL SPAB!

At the Ecopolis München 2019 exhibition, visitors were able to make their own bricks. This was the instruction (in German).
Drawing by Talitta Reitz. CC BY 4.0 international license.



The Werksviertel-Mitte station during the Ecopolis München 2019 exhibition.

Photograph by Laura Kuen.



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About the curators

Helena Held



Helena Held studies visual anthropology and is always interested in the interface between anthropology and art. Therefore she presented her outcome of the research of her bachelor thesis in an exhibition. She made a film together with some fellow students about the wool production on the Shetland Islands and presented a short film at the Venice Biennale. She studied at the Venice International University (VIU) and the University of Oslo (UiO), where she visited transdisciplinary courses and worked on environmental topics like food studies and ecofeminism.

Helena Held.

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To me it is really interesting how such a small and constantly changing suburb as the Werksviertel can combine art, culture, and nature in such creative ways. At the same time, we should not lose sight of the fact that the city is also an important habitat for non-human beings.

—Helena Held

Vera Klünder



Vera Klünder.

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Vera Klünder studies public health.

I find it particularly fascinating how large the influence is that greenways and fresh air have onto the urban climate. In a time that is impacted by climate change, measurements of climate regulations such as these are essential.
—Vera Klünder

Talitta Reitz



Talitta Reitz.

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Talitta Reitz is a graduate landscape architect and urbanist, and a certified heritage conservationist from University of Southern California, Los Angeles. Originally from Brazil, she has a background in architecture and urbanism from Federal University of Parana, Curitiba, where she worked for architecture offices and local and federal institutions for heritage conservation. In 2016, she was the recipient of the ASLA “Student Design Merit Award,” and of the Tau Sigma Delta Honor Society in Architecture and Allied Arts “Design Excellence” Medal. Currently, she is an early stage researcher of the Marie Skłodowska-Curie RECOMS Innovative Training Network and a PhD candidate of environmental humanities at the Rachel Carson Center at LMU Munich.

Cities are not just layers on top of the natural environment, but they are influenced by landscapes, societies, and the collective memory. All of it forms an interconnected network that is constantly changing.

—Talitta Reitz

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The Belly of the City

What lies hidden deep within Munich?

Although in many other cities the central slaughterhouses have long since been shut down, animals are still butchered in the middle of Munich even today.



“Butcher Shop,” Lovis Corinth, 1893.

Painting by Lovis Corinth, 1893. It can be found [here](#) .



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There are two slaughtering businesses on the grounds of the Munich slaughterhouse: one is for pigs and one for cattle, there are twelve meat wholesaler and two businesses, which sell on the meat.

Facts about the Munich slaughterhouse:

- * The pigs come from within a radius of 200 kilometers around Munich; the cattle come from as far away as Franconia. The transport to the Munich slaughterhouse takes up to three hours.
- * All animals that are to be slaughtered arrive between midnight and noon.
- * The pigs have a resting time of one to two hours before their slaughter.
- * On average, 1400–2500 pigs and 450–600 cattle are being slaughtered—up to 70 per hour. The Munich slaughterhouse operates five days per week.

Photograph by Laura Kuen.

Graphic design by Katharina Kuhlmann and Alfred Küng.

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Apart from the odor of blood and excrement, the living and dying taking place behind the slaughterhouse walls is invisible to most residents of Munich.

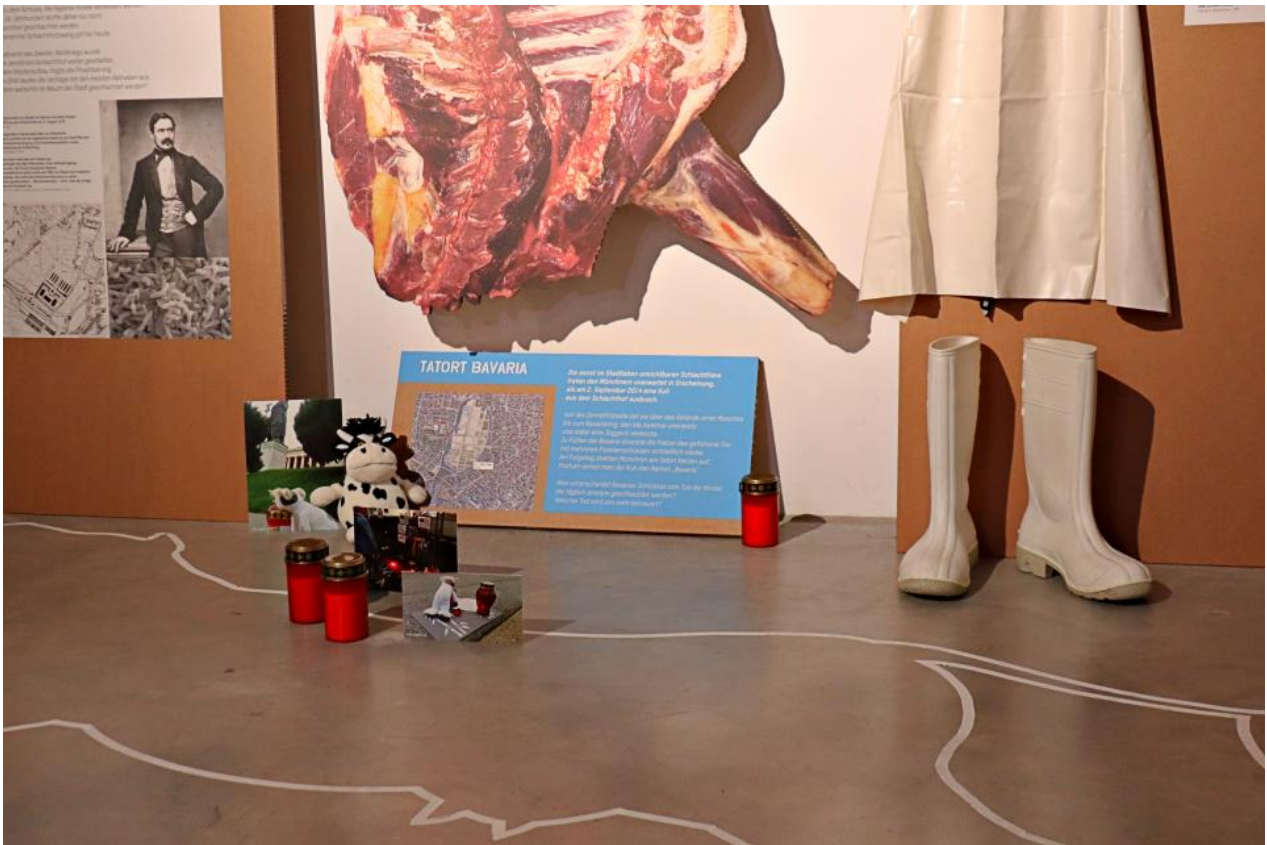
What traces does the abattoir leave in the everyday life of the city? The cow Bavaria—legendarily—escaped from it into the streets of the Bavarian capital. Is Weißwurst, the butcher shop bestseller, really a “typical Munich” delicacy? Where do the pigs and cattle come from? And what role did cholera play in the establishment of the facility?

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Usually the animals in the slaughterhouse are invisible to Munich's residents and visitors.

On 2 September 2014, a cow escaped the slaughterhouse. It ran from the slaughterhouse on Zenettstraße across the grounds of a mosque, all the way to the Theresienwiese. In the second half of September, this is where the famous Oktoberfest takes place. The cow circled the Theresienwiese twice, where it injured a runner. Near the statue of the Bavaria, the police shot the cow several times, killing the animal. On the next day, Munich residents came to the crime scene and lit candles. The cow was posthumously named "Bavaria." What makes the fate of "Bavaria" different from that of unnamed cows destined for slaughter? Whose death is being mourned and by whom?

Photograph by Laura Kuen.



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External link to a [Google Map](#) showcasing the approximate route the cow Bavaria took from the slaughterhouse on Zenettistraße around the Theresienwiese to the statue of the Bavaria, where the police caught up with it.

If you want to try a Bavarian Weißwurst, you can answer [this checklist](#) (in German). During the physical Ecopolis München 2019 exhibition, visitors were able to sample vegan Weißwurst.



Münchner Weißwurst, a Bavarian sausage.

Photograph by Rainer Z. It can be found [here](#).

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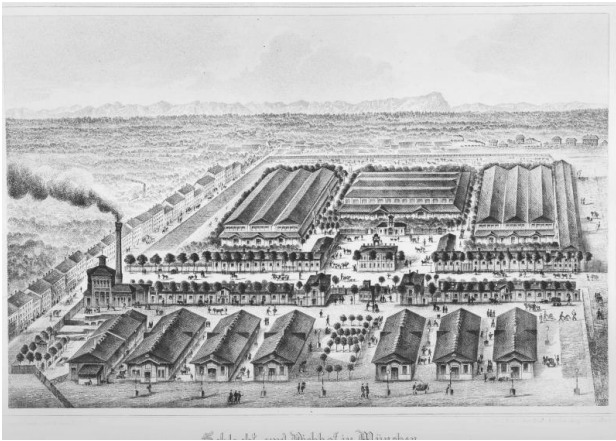


At the exhibition, a selection of vegan and vegetarian Weißwurst was served. Visitors were able to sample the sausages and fill out a short questionnaire.

Photograph by Laura Kuen.

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Slaughterhouse tales: Grumbling in Munich's belly



The Munich slaughterhouse was built between 1876 and 1878.

This drawing was created by an unknown artist. It can be found [here](#).

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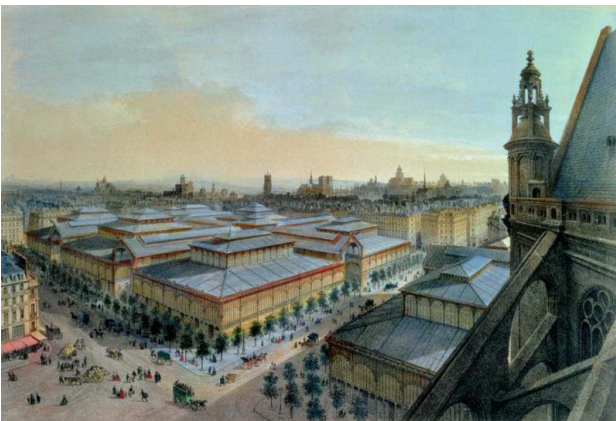


The opening of the Munich slaughterhouse in 1878. The architect, Arnold Zenetti, is the bearded person, fourth from the left.

Photograph by A. Jawirsky. It can be found [here](#).

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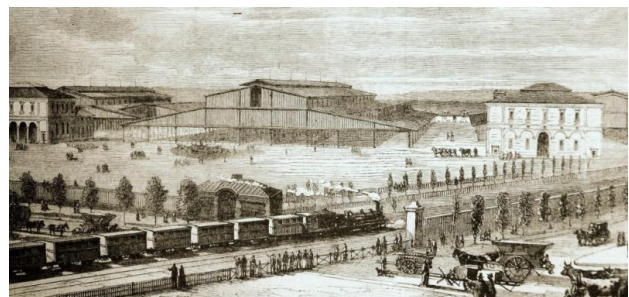
The Munich slaughterhouse is still located in the same place as when it was created in 1878, once at the edge of the city, now in its center. The architect Arnold von Zenetti built it following the model of the Paris market halls, famed as the “Belly of Paris.” Thus was born the “Belly of Munich.”



The architecture of the Paris market halls (1852-1870), which had been built during the reign of Napoleon III, served as a role model for Arnold von Zenetti.

This painting was created by Felix Benoit, ca. 1870. It can be found [here](#).

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The Paris slaughterhouse. In 1810, Napoleon Bonaparte banned the butchering within the city and relocated the slaughterhouses to the city's outskirts. In 1867, the city's slaughterhouse opened in *La Villette* and served as a European role model.

Engraving by an unknown artist. It can be found [here](#).

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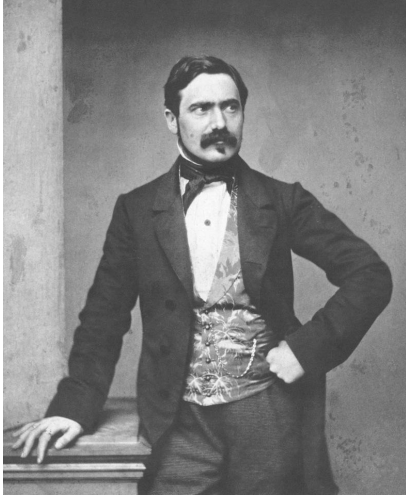
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Prior to the construction of the central slaughterhouse, butchering took place in countless courtyards across the city. The chemist Max von Pettenkofer studied the connection between slaughterhouse waste, water supply, the sewer system, and cholera. He concluded that hygiene and sanitation needed to be improved. Starting in the nineteenth century, therefore, butchering was only permitted in slaughterhouses. This rule is still in effect today.

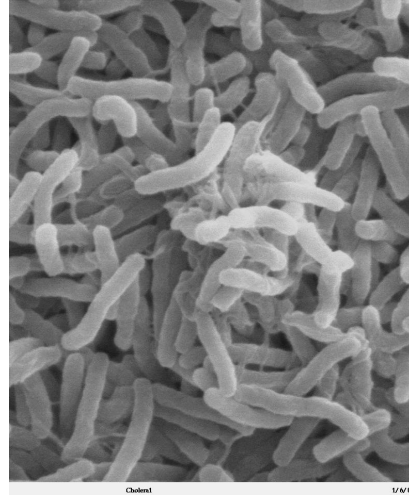


Max von Pettenkofer was the first hygienist in Germany who also engaged politically to improve hygiene and sanitation. These efforts included the supply of drinking water and the centralization of butchering, which were only allowed to take place in slaughterhouses.

Photograph by Franz Seraph Hanfstaengl, ca. 1860. It can be found [here](#).



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Munich was affected by cholera several times. 1854, the city hired Max Pettenkofer to analyze the spread of the disease. The cause was a lack of hygiene. The cholera bacteria was discovered only in 1883 by Robert Koch. Here you can see vibrio cholerae, the cholera bacteria through an electron microscope.

Photograph by T. J. Kirn, M. J. Lafferty, C. M. P Sandoe, and R. K. Taylor, 2000. It can be found [here](#).



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During the Second World War, in spite of heavy damages, the slaughterhouse continued to be used. After reconstruction, it was privatized. In 2040 the leases with most of the businesses that use it will expire. After that date, will slaughter still continue to take place in the belly of the city?

About the curators

Marc J. Bubeck



Marc Bubeck.

Photograph supplied by Marc Bubeck.

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I had learnt about the Munich slaughterhouse during my studies; in fact, I examined the meat hygiene there. By preparing this exhibition, I have gained a new perspective on the slaughterhouse: not only about the foodstuff production but also about trade, subculture, and animals.

—Marc Bubeck

Alisa Udodik



Alisa Udodik.

Photograph supplied by Alisa Udodik.

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Today the topic of butchering is one of controversy, which is exactly why it was very interesting to engage with the topic further. To us, it was particularly important to illuminate the complex relations between every day life and slaughtering.

—Alisa Udodik

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Munich Airport

Economy instead of ecology?

Every year, 46 million airline passengers pass through Munich. The airport provides the region with tremendous flexibility, a respectable income, and goods from around the world.



Roughly every 50 seconds an airplane takes off or lands at Munich Airport.

Photograph by Johanna Felber.



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But flying is bad for the environment: the noise disturbs those who live in nearby communities, and the emissions of greenhouse gases aggravate global warming. In response, the airport has undertaken a number of measures in order to become carbon neutral—at least on the ground.

It is too late, however, to rescue the Erding peat deposits, which were cleared for the construction of the buildings and tarmac. Although parts of the bog had already been drained, the airport brought about immense changes to the landscape.



The original Erding peat bog (green color) and the airport with the proposed third runway.

Graphic design by Katharina Kuhlmann and Alfred Küng.

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The world's peat bogs are valuable, but endangered habitats for countless animal and plant species. Most bog landscapes have been destroyed after being drained for human use.

The Munich airport wants to be green. But it used to be much greener here. How high is the price for humans and nature?

The biography of a bog

Once the Erding peat bog covered an area of 25 km² situated west of the Isar, between Riem and Moosburg. It was created by the pooling of groundwater that seeped to the surface at the edge of the Munich gravel plain.

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The Erding peat bog before 1920.

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The Erding peat bog before 1920.

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Early settlers occasionally used the bogland for grazing their animals. Starting in the mid-nineteenth century peat was harvested from it. More and more areas of the bog were drained in order to use the land for agriculture and the peat for fuel.

When construction of the airport began in 1980, the water level had already receded significantly.

Even at this early stage, there were strong protests from the population. Three runways were planned, but only two have been constructed. Today the third runway is once again a matter of dispute. How severe is in fact the environmental impact of the airport?



The Munich Airport station in the physical Ecopolis München 2019 exhibition.

Photograph by Laura Kuen.



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No peat bog without water



A small branch of the river Moosach in the Freising peat bog has been renaturated.

Photograph by Johanna Felber.



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The largest part, however, still is a canal.

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Dry soil is a matter of security for the airport. Rescue vehicles must be able to drive across the fields in case of an emergency. The soil near the runways has therefore been drained particularly carefully.

Draining the bogs has started even in the early modern period. Starting from 1850, more and more canals were built to redirect the water. In the early twentieth century, the Erding peat bog has been drained almost completely. Many plants, which had adjusted to the conditions in the bog, could no longer survive.

By the early twentieth century, the former peat bog dried out so much that dust storms formed. Once pastures and forests had been created, the situation improved again.



Common sundew (*Drosera rotundifolia*) can be found in bogs in the northern hemisphere. Its existence is, however, endangered because bogs are being drained and peat is being extracted.

Photograph by Laura Kuen.



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Inhale—exhale



The Erding peat bog in 1952.

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An Airbus A320 airplane takes off from Munich Airport.

Photograph by Johanna Felber.



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In 2017, the airport used around 510,000 megawatt-hours of energy and emitted around 150,000 tons of carbon dioxide. This would fuel an Airbus A320 airplane, fully occupied with 180 passengers, to fly around the Earth approximately 100 times.

The airport aims to become climate neutral by 2030. To achieve this goal, the annual emission has to be reduced by 60% and the rest has to be compensated for. This calculation does not include the fact that not only the airport emits carbon dioxide, but the airplane flights themselves also emit additional carbon dioxide.

This looked different in the past. Plants take in carbon dioxide and deposit it as peat in the bog; this created a large carbon dioxide storage. Roughly one-fifth of the entire carbon dioxide worldwide is stored in peat bogs. One hectare of fens, such as the Erding peat bog, can take in more than 30 tons of carbon dioxide and other greenhouse gases per year. While the area used to “inhale” carbon dioxide, the area now “exhales” it again into the atmosphere and therefore affects the climate.



A model showing the different layers of peat deposits. When plants die, they deposit in the bog and become peat. When the peat is being extracted and burnt, the stored carbon dioxide is released to the atmosphere again.

Photograph by Laura Kuen.



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Bird protection or damage control?



A lapwing (*Vanellus vanellus*).

Photograph by Augustín Povedano.

It can be found [here](#).



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In 2008, around 4.5 km² of the Erding peat bog have become a bird reservoir. This includes the fields on the grounds of the airport.

The fences of the airport protect ground-nesting birds, such as the endangered lapwing from dogs and tractors. Nevertheless, the area is not ideal: The lapwing needs wet meadows. Most mates are breeding in the northern fields of the airport, as the groundwater is higher here. In 2015, around 200 lapwing mates were breeding in the fields around the airport.



A lapwing's eggs. Lapwings (*Vanellus vanellus*) exist in Eurasia, but they are endangered because there are only few breeding sites due to intensive agriculture and densely populated areas.

Photograph by Laura Kuen.

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The third runway is planned to be built to the north of the existing airport. This way, surrounding fields would also become part of the bird reservoir. However, do we need a new runway to protect the lapwing?

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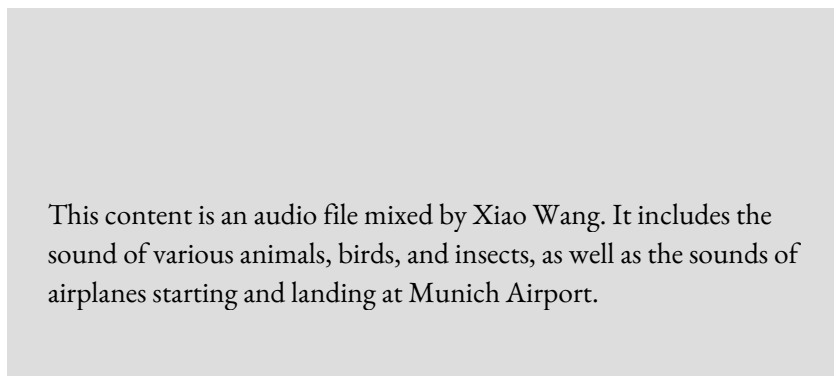
This boarding pass allows humans to fly. For the birds on the airport grounds, it, however, signifies a flying ban.

Graphic design by Katharina Kuhlmann and Alfred Küng.

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In order to get a sense of what the Erding peat bog and the Munich airport sound like, you can listen to this audio.



This audio file was mixed and edited by Xiao Wang using Audition. The audio file consists of audio recordings by Xiao Wang taken at the Erding peat bog and at Munich airport, which are licensed under a CC BY 4.0 license.

Furthermore, the audio file also includes recordings hosted by the [Macaulay Library at the Cornell Lab of Ornithology](#). These audio recordings are of the Eurasian Curlew (*Numenius arquata*) (ML Audio 230914); a boar grunt (*Haemulon plumieri*) (ML Audio 112436); an European Roe (*Capreolus capreolus*) (ML Audio 36230); a horse (*Equus caballus*) (ML Audio 219820); and the Northern Lapwing (*Vanellus vanellus*) (ML Audio 231205). Used with permission.

Additionally, the audio file also includes compositions from the website [naturesoundsfor.me](#). Specifically, the following compositions were used: The composition "Forest Ambience", which uses sound created by Benboncan, from "Woodpeckers Pecking 2.wav"; by dobroide, from "20080528.forest.wind.soft.birds.flac"; by Erdie, from "bee-colony.flac"; by inchadney, from "Frogs.WAV." The composition "Forest Birds", which uses sound created by Benboncan, from "Tawny Owls 2.wav"; by imonacan, from "whippoorwill3.wav"; by jm__, from "NorthwesternStateFountain.mp3"; by reinsamba, from "Nightingale song 3.wav." The composition "Fountain", which uses sound created by jm__, from "NorthwesternStateFountain.mp3." These sounds are licensed under CC BY licenses.

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About the curators

Johanna Felber



Johanna Felber.

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At first, the topic airport seemed clean-cut to me: not very environmentally friendly. However, once we really looked into the topic, it became clear that the airport was a large but final step in the story of how the peat bog developed—for now.

—Johanna Felber

Hugo Reyes Aldana



Hugo Reyes Aldana.

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Hugo Reyes Aldana holds a bachelor's degree in biology from the National Autonomous University of Mexico (UNAM). After that, he decided to come to Germany in order to obtain a master's degree in evolution, ecology, and systematics from LMU Munich, where he also joined the Environmental Studies Certificate Program of the Rachel Carson Center for Environment and Society. Hugo is currently a PhD candidate at the Helmholtz Center for Environmental Research in Magdeburg, where he studies the multiple interacting factors that influence ecosystem metabolism and how this can be used for monitoring and restoring aquatic environments.

I always thought of cities as the opposite of nature. Perhaps Munich might be an exception to this rule. The history of the airport has changed my mind in this regard: Many different interests were prized above the uniqueness of the ecosystem. Where is the 'Eco' in 'Ecopolis'?

—Hugo Reyes Aldana

Xiao Wang



Xiao Wang.

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In the beginning, I was admiring how much the airport tried to implement environmentally friendly strategies. However, when I looked into the topic more closely and even visited the peat bog I came to realize that only very little is left of the actual bog, which left me with a gloomy feeling: Does nature always have to be sacrificed for economic development?

—Xiao Wang

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Former Railway Embankment Feldkirchner Tangente

Feldkirchner Tangente—Munich’s “wild east”?

Just past Johanneskirchen there is an unremarkable railway embankment. Bordered by a racecourse, garden plots, and a gravel mine, the old rail line crosses the Hüllgraben canal on the way to Feldkirchen. This stretch of track was built during the Second World War to facilitate freight transport to Munich.



Aerial photo taken by the Allies between 1945 and 1949: Parked freight cars are still visible.

Geodatenservice - Landeshauptstadt München. More information can be found [here](#).

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But this bypass route was only used for a short time by the trains. For a long time, since the tracks were dismantled, many others have wandered along this path. Endangered fauna move about undisturbed, rare plants establish themselves, and local people go here for recreation and relaxation.

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Half wild: although partially overgrown, the railway embankment is still clearly recognizable.

Photograph by Maike Jebasinski.

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At first glance, the former railway embankment seems wild and abandoned. In contrast to the planned and tended urban green spaces, the embankment is overgrown with trees and bushes. In places, deadwood blocks the dirt path. But is the nature in this eastern corner of Munich really so undisturbed? And will it remain undisturbed as the city continues to grow and develop?

The brief life of a railway route


Afraid that bombs would strike the central station and the connecting railway lines within the city, the German Reichsbahn planned to build a bypass route that would divert freight traffic around the outskirts of Munich.



Munich was an important center of the National Socialists and therefore a target of many air raids. The photograph shows the Munich Siegestor in 1945 in the aftermath of an air raid.

Photograph by the US Army Signal Corps, Library of Congress, Washington, D.C.

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The heavily damaged Siegestor in Munich after an air raid.

This photograph belongs to the Bayerisches Landesamt für Denkmalpflege, photograph by Lis Römmelt.

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As part of the expansion of the northern ring line to the east, an eight-kilometer-long embankment was built up between Johanneskirchen and Feldkirchen. In 1941 the singletrack line was put into service. But the end of the war also meant an early end to the use of this route. By 1949 the tracks had already begun to be dismantled and the bypass became abandoned land.

Flora and fauna were able to settle here without interference, and in the 1980s the city declared this space to be a “protected landscape element.”

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In the 1990s, the former railway embankment was mostly left to itself. The thermal power station Oberföhring can be seen in the background.

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Today the Feldkirchner Tangente and its history has been almost completely forgotten. There are no signs recalling how it was once used.



The former railway embankment reaches a height of four meters.
The former track bed is still visible.

Photograph by Maïke Jebasinski.

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Today, several maintenance measures are in place in order to sustain the ecological conditions.

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Although the freight transport needs of the Nazis were the reason the embankment was built in the first place, this stretch of land only blossomed and came into its own after the track had been abandoned.



Remnants of human activity in the area

Only rarely one encounters such a seemingly wild and untouched area in the city of Munich.
Photograph by Maike Jebasinski. CC BY 4.0 international license.



Trees and bushes are being cut regularly to prevent the former railway embankment from becoming a forest.
Photograph by Maike Jebasinski. CC BY 4.0 international license.

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Only three months after the trees had been cut down, they have regrown and overtaken the area already.
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Only few things remind visitors of the areas past: Wooden sleepers are stacked in the thicket.
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Metal fixtures in the concrete also remind visitors of a past human presence.
Photograph by Anne Dietrich and Maike Jebasinski. CC BY 4.0 international license.



The train company, Deutsche Bahn, still owns the embankment. The most northern part are garden plots that they lease to employees.
Photograph by Anne Dietrich. CC BY 4.0 international license.

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There are some traces of frequent visitors: A trail has emerged next to the former track bed.
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As a shortcut to reach the nearby fields, some farmers cross the embankment with their tractors, thus ignoring regulations to protect the environment.

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Some teenagers meet up on the former railway embankment. They built fire pits to enjoy the view over the Hüllgraben canal, and the nearby fields.

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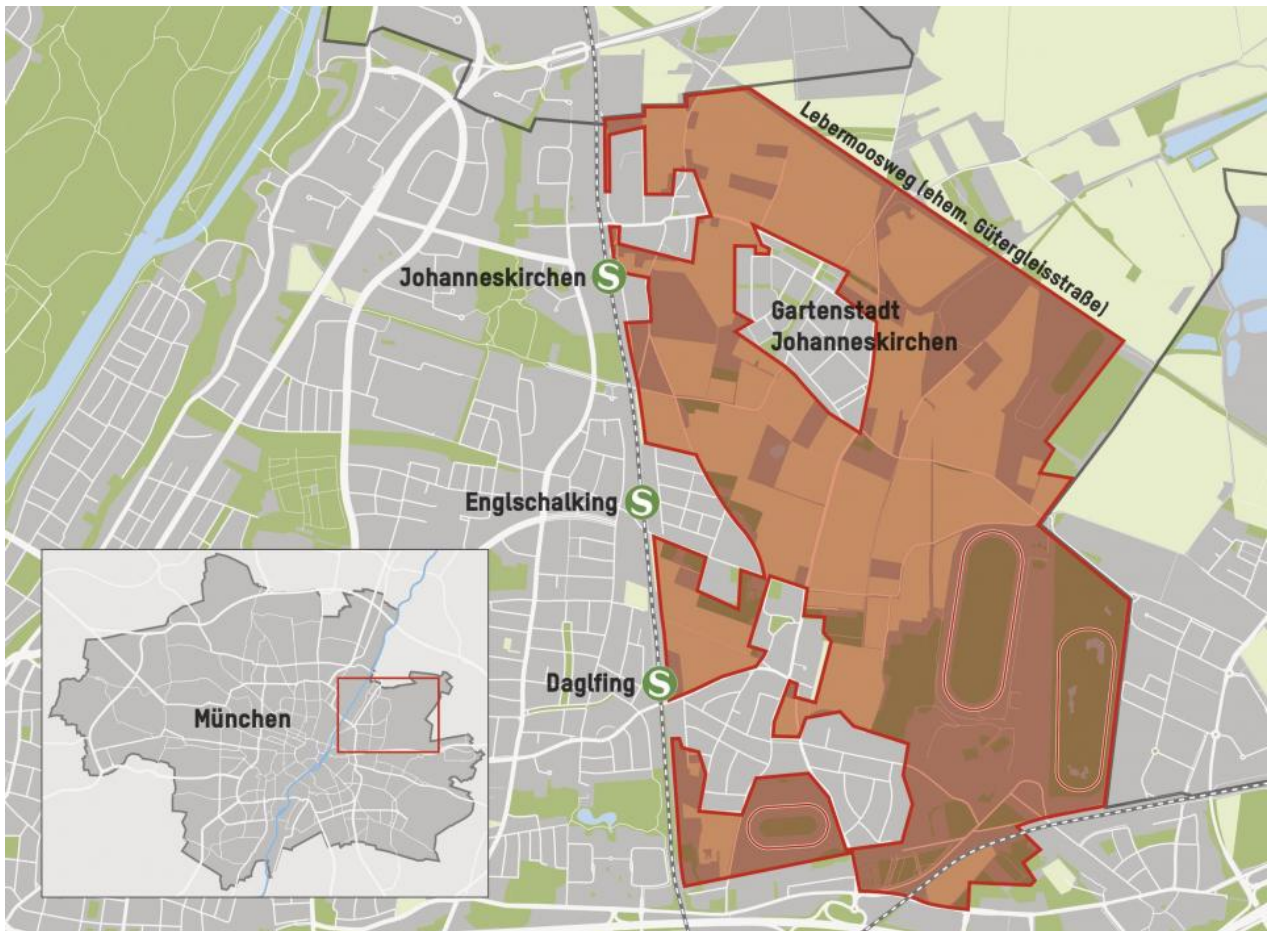


Often broken glass bottles, cans, and other garbage are left behind.
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Graffiti can be seen on the old bridges made from bricks.
Photograph by Maike Jebasinski. CC BY 4.0 international license.

For decades, the former railway embankment had been left to itself. In order to be able to use it as a habitat and as a hiking trail, human intervention was necessary. Starting in 2012, the lower nature conservation authority carries out regular maintenance measures: they cut trees and bushes, mow the grass, and document the biodiversity. Without this interference, the balance between the free spaces and the forests and bushes would not remain. Wilderness still has its place: one-third of the embankment area is being left alone.



An area of urban development in the northeast of Munich: The map highlights the areas in which housing for up to 30,000 people could be created. The former railway embankment marks the northern end of this area.

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Biodiversity

Much flora and fauna can be found on the former railway embankment. Some species are, however, endangered or even on the brink of extinction. The city regularly checks on their status. A list of the species can be found [here](#) (in German).

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Biodiversity along the Feldkirchner Tangente

Hairy rock-cress.

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Marbled white (butterfly).

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Clouded yellow (butterfly).

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Map (butterfly).

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Sand lizard.

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(European) Green toad.

Photograph by Christian Köbele, Landesbund für Vogelschutz in Bayern e. V. Used with permission.



Winter aconite.

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Germander speedwell.

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Bladder campion.

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During the Ecopolis München 2019, one of the stations raised awareness of this unique part of Munich.



Impressions of the Feldkirchner Tangente station at the Ecopolis München 2019 exhibition

The Feldkirchner Tangente station during the physical Ecopolis München 2019 exhibition.
Photograph by Laura Kuen. CC BY 4.0 international license.

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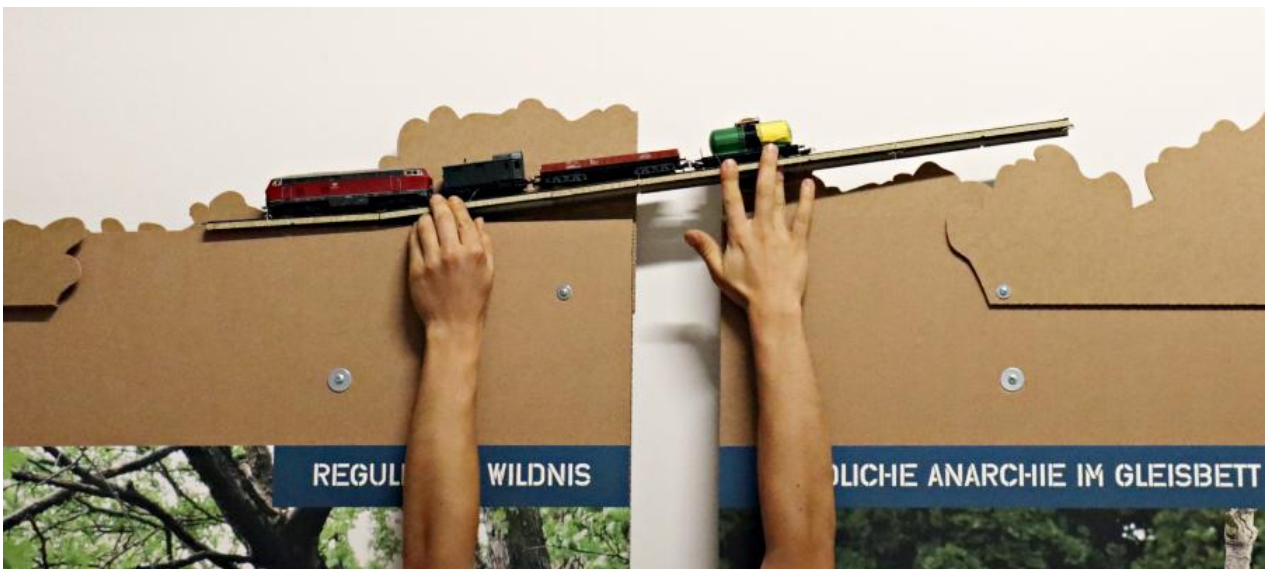
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Looking closely on the ground reveals both diversity in flora and fauna but also items that humans have disregarded.
 Photograph by Laura Kuen. CC BY 4.0 international license.



Setting up a model train for the Feldkirchner Tangente station during the physical Ecopolis München 2019 exhibition.
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About the curators

Anne Dietrich



Anne Dietrich.

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Anne Dietrich completed her master's degree in social and cultural anthropology at LMU Munich in 2019. She joined the Environmental Studies Certificate Program at the Rachel Carson Center for Environment and Society in October 2016. In addition to urban environmentalism and civic engagement, her research interests focus on individual strategies of negotiating environmental problems and ecological calamities in daily life. Taking these interests further, the topic of her master's thesis was "'Disasters are only known to man.' Negotiation processes and coping strategies of those affected by the June 2016 flood in Lower Bavaria. A critical cultural study of natural catastrophes." Anne is currently working at DOK.fest München/Internationales Dokumentarfilmfestival München e.V.

"And where is that again?"—I was asked this question time and again when I told others about the Feldkirchner Tangente and our research. I found it really fascinating to become an explorer of an unknown and seemingly abandoned, historical place within my own city, even—in part—battling my way through the thicket.

—Anne Dietrich

Maike Jebasinski



Maike Jebasinski.

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When I was researching the old railway embankment, the question whether wilderness like I imagine it can even exist came up again and again. There are very few truly pristine places left in the world.

—Maike Jebasinski

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Chapter: Former Railway Embankment Feldkirchner Tangente

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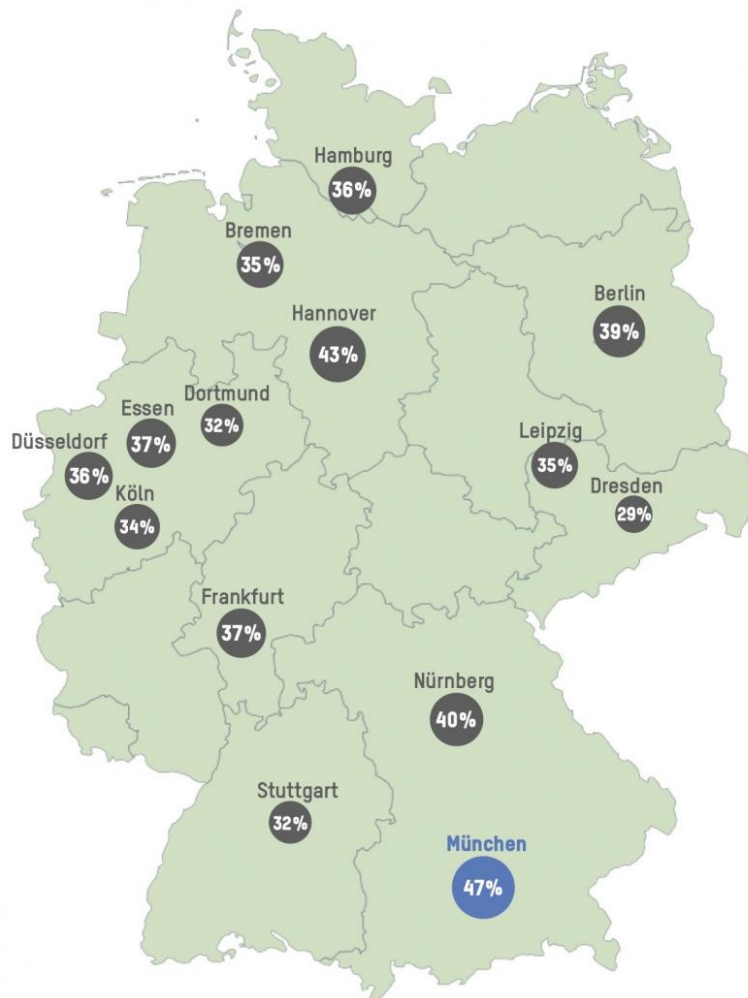
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StadtAcker

Munich's most valuable oasis?

Many people dream of having a garden in the middle of the city. But as urban spaces become ever more tightly packed, the dream seems to become more and more unachievable. Although Munich seemingly has a lot of green spaces, more of its soil is covered by concrete than in any other major German city.



Share of sealed areas in major German cities.

Graphic design by Johanna Mayer.



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Free pieces of land are rare, and the waiting lists for allotments are long. But necessity gives birth to creative solutions: built-up spaces and rooftops are turned into flower beds, guerrilla gardeners sow wild plants without

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authorization, and community gardens fight for their right to exist.

An example of how the dream of an urban garden can become a reality is the StadtAcker. Assisted by the city administration, citizens created a green oasis.



The StadtAcker as seen from above.

Photograph by Thomas Oswald.

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What benefits does such a place bring for people? Should the costly and scarce Munich land be used for gardens?

From military troops to gardening groups

The StadtAcker is located in the neighborhood Ackermannbogen on the grounds of a former barracks. The military facility was built in the 1930s by the Nazi regime and later used by the US Army and the Bundeswehr.

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When the city decided in 1998 to convert the grounds to a residential space, citizens were not content to merely preserve the many green spaces and the old stands of trees: the neighborhood was to have a garden—open to all! And thus the StadtAcker was born. Unlike other urban gardens, this community garden was the product of a cooperation with the city. The StadtAcker was able to secure funding and a permanent location—privileges that many other gardens often do not have.



Impressions from a day at the StadtAcker

The StadtAcker in the Ackermannbogen neighborhood.
Photograph by Laura Kuen. CC BY 4.0 international license.



Gardening in the StadtAcker.

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Pears ripening in the StadtAcker garden.
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It took several years and persistence from the idea to the first harvest. The city of Munich and the Ackermannbogen e.V. planned the garden in great detail.

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A scarecrow at the StadtAcker.

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Flowers in the StadtAcker.

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Flowers in bloom in the StadtAcker.
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Different flowers in the StadtAcker.
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Plants grow in the StadtAcker.
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Freshly picked vegetables from the StadtAcker.

Photograph by Laura Kuen.



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Harvest of fresh vegetables at the StadtAcker garden.

Photograph by Laura Kuen.



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Today some 30 active and many more occasional gardeners plant, water, and enjoy their StadtAcker. Their age, heritage, or place of residence doesn't matter: all are welcome!



The StadtAcker in the Ackermannbogen neighborhood, the Munich Olympic Tower can be seen in the background.

Photograph by Laura Kuen.



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Communication and organization are crucial for the success of a community garden. One learns to work together as a team and one profits of other people's knowledge.

The StadtAcker aims at creating awareness for the environment and ecological connections. There are fields of wild flowers and a colony of bees. One can experiment with old, robust seeds and different ways to compost.

School classes and nearby kindergartens have their own patches. Talks, workshops, and communal cooking evenings, one can experience nature close by.

The StadtAcker makes possible what is often not self-evident in a large city: it enables people to experience community and the connection to nature.

Every square meter in Munich is expensive



Charged rent for the space necessary to grow a pumpkin:

(The average price of a rental apartment in Munich = 27 Euro/sq m) / (yield = 1 pumpkin/sq m)
x (net fraction of usable area = 0.8)
x (average number of floors = 4.5)
x (ripening season = 6 months)
= 583 Euro/pumpkin

Photograph by Laura Kuen.



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The StadtAcker, taking up 1000 m², and other generous green areas in the neighborhood Ackermannbogen are an exception in the densely populated Munich. From a financial perspective, a garden is not cost-efficient. If a pumpkin plant had to pay rent on the StadtAcker, the costs for a single pumpkin would total more than 500 Euro by the time it is harvested. For Munich's future, the question of priorities arises. What is more important—green areas for higher livability or new apartments? How do we want to use valuable green areas in the city? As a park, a football field, or maybe a commonly used and designed garden?

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The StadtAcker station during the physical Ecopolis München 2019 exhibition.

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About the curators

Johanna Mayer



Johanna Mayer.

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It's particularly beautiful that an urban garden can bring people together. I could really feel the joy of community gardening in the StadtAcker. It was great to get to know so many dedicated Munich gardeners.

—Johanna Mayer

Carolin Pichl



Carolin Pichl.

Photograph supplied by Carolin Pichl.

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It was only on the StadtAcker that I realized how much work and organization is involved in running a community garden. This garden can serve as a role model for further garden projects in the city of Munich.

—Carolin Pichl

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Through the Eyes of Children



Station: Ecopolis München für Kinder

Photograph by Laura Kuen.



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The physical Ecopolis München 2019 exhibition also included a station for younger visitors. Every station was told as a story for children. After an adult reads the stories to the children, they could draw their impressions on paper at a nearby table. This station was created by Isabelle Hermannstädter.

An adult's perception of the environment is substantially different from the perception that children have. To look at Munich's environment and its problems through the eyes of children was on the one hand the most rewarding but on the other hand also the most challenging when I was creating my station. In my opinion, one of the most important aspects of successful

sustainability is education. To master the upcoming challenges of the future a combination of education and digitalization is needed.

—Isabelle Hermannstädter, a Master of Arts graduate of social work and the creator of the children's station at the Ecopolis München 2019 exhibition.

Englischer Garten

„Wow, so viel Grün mitten in der Stadt!“, staunt die kleine Biene.

„Das ist der Englische Garten. Ich bin Emma und ich wohne hier“, sagt eine Amsel stolz und zeigt mit dem Flügel einmal rund herum.

Die kleine Biene blickt über große Wiesen, einen kleinen Bach und viele alte Bäume. „Das ist doch viel zu groß für dich allein!“, ruft sie.

„Nein“, lacht Emma, „Ich lebe hier mit meiner Familie. Insgesamt sind wir fast 400 Amseln im Englischen Garten. Aber es gibt hier auch noch viele andere Tiere. Siehst du den Holzsplitter am Boden?“

„Ja, aber ich bin doch nicht blöd! Das ist ein Stück Holz und kein Tier“, antwortet die Biene etwas pampig.

„Das hat ein Biber von einem der Bäume abgenagt. Sie knabbern hier alle Bäume an, manche fallen sogar um“, erklärt Emma.

„Aber die armen Bäume! Hoffentlich lassen sie genug stehen“, wundert sich die Biene.

„Ja, hoffentlich. Manche Bäume werden mit einem Drahtzaun umwickelt, das schützt sie. Schön ist das nicht. Aber die Biber würden sonst zu viele Bäume anknabbern“, erklärt Emma.

„Vielleicht solltest du mit den Bibern reden. Die Biber wollen ja auch nur dort wohnen. Ich hoffe ihr findet eine Lösung“, ruft die Biene beim Losfliegen.



An example from the children's station. All the stories and drawings from the children's station can be downloaded [here](#).

Image created by Isabelle Hermannstädter.

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You can also [download the stories and drawings from the children's station to print them at home](#). You can read the stories (in German) about the twelve different stations from the [Ecopolis München 2017](#) and 2019 exhibitions with/to your children and let them draw their impressions or color in the drawings on the pages. Enjoy!

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Chapter: Through the Eyes of Children

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About the curator

Isabelle Hermannstädter



Master of Arts graduate of social work and the creator of the children's station at the Ecopolis München 2019 exhibition.

Isabelle Hermannstädter.

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- <http://www.environmentandsociety.org/exhibitions/ecopolis-muenchen/beyond-exhibition>
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About the author:**Isabelle Hermannstädter**

Isabelle Hermannstädter holds a master's degree in social work from LMU Munich. She is mainly interested in interactions between culture, society, individuals, and the environment. In her opinion, one of the most important aspects of successful sustainability is education. To master the upcoming challenges of the future a combination of education and digitalization is needed.

Beyond the Exhibition



The Olympic Village in Munich.

Photograph by [Nacho Rascón](#). It can be found [here](#).

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Opinions | A green future for Munich?

We asked civic leaders, exhibition participants, and fellows of the Rachel Carson Center for Environment and Society to share personal impressions about Munich and its future. Here is a selection.

For the future of Munich's environment I wish for: a carless downtown, greener neighborhood squares, space for unplanned green, and people who behave in an environmentally conscious way. This requires courageous city authorities, dauntless city planners, and socially committed citizens.
—Regine Keller, Professor of Landscape Architecture, Technical University of Munich (TUM)

My wishes for the environmental future: courageous and future-oriented decisions by the city

council for maintaining air quality, reducing the number of cars, and developing strategies for climate protection and adaptation.

—Martin Glöckner, Managing Director, Green City e.V.

As a result of our agricultural practices cities are increasingly becoming places of greater biodiversity than rural areas. The idea of a “Green City” is no longer limited to isolated parks, but aims to create a network of connected natural spaces that promote ecological diversity. My vision for Munich is for the city to become a world leader, not just for citizens and residents, but also for nature.

—Michael John Gorman, Founding Director, BIOTOPIA—Naturkundemuseum Bayern

The fact that a fantastic natural environment like the Isar is able to thrive in the middle of Munich, encourages me to promote linking landscape and city development even more strongly in the future!

—Elisabeth Merk, Director of Municipal Development, City of Munich

By adopting the 2030 Agenda goals, Munich made a clear choice in favor of sustainability. The motto “think globally, act locally” has guided the decisions of the Bavarian state capital consistently and in an exemplary fashion for years. We are committed to the responsibility called for by the 2030 Agenda and we are undertaking to implement the sustainable development goals at the municipal level as optimally as possible.

—Dieter Reiter, Mayor, City of Munich



Flags of different countries in Munich.

Photograph by [Casey Hugelfink](#) . It can be found [here](#) .



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Munich—international perspectives

Carson Fellows from all over the world who spent time at the Rachel Carson Center in Munich were invited to comment on their subjective view of the city. A selection of statements can be found below.

Munich is the rare city that invites its inhabitants to make ecology a practice, not just an aspiration. Here it is possible to choose bicycle over car, to be conscious of every material one acquires, uses, and discards, and to visit the city's vital river daily. Here I can hop on my bike, follow endless trails, and within an hour or so find myself in the presence of sparkling lakes or shaded trailheads. Munich is a city where one knows that the mountains are nearby—not just from the map, but through the city's living linkages to its broader urban landscape. In Munich, I feel the cultural vibrance that says, "city", but that vibrance is animated by life that is so much more than human.
—Anne Rademacher, USA

Munich's cityscape stands out on account of the striking balance between greenery and architecture. The layout ensures that nature is given the space and sustenance to thrive to its fullest, thus offering an admirable model of sustainable urban planning.
—Saba Pirzadeh, Pakistan

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I used to cycle in Beijing in the early 1980s. I had the feeling that my bike and I, as well as millions of cyclists, were revolutionary participants in the building of a classless utopia. Today Beijing has become an environmental disaster. The “Made in China” Fahrrad I have in Munich feels more at home here than there. I could not imagine an ecopolis without bikes of all types, conditions, and ages since lowtech slow mobility and the quality of urban life go so well together. Let’s don our helmets and prepare twenty-first-century Munich for a return to its car-free environmental history!
—Philippe Forêt, Kazakhstan

I have lived close to the English Garden for an entire year. That’s how lucky I am. What I will remember most when I go back to the tropics, a part of the world without seasons, is the close contact with a changing landscape: the infinite shades of brown and orange of the fall; the naked branches of the winter, the fragrant blooms of the spring, the solid green of the summer.
—Paula Ungar, Colombia

Bisected by the Isar River, crisscrossed by bike paths and train tracks, clad in public parks, and peopled by activist citizens—nature and city seem to fit together here. Yet some pieces are harder to match: unsung struggles of immigrants and refugees, homelessness amidst prosperity, a powerful automotive industry, and the renewed specter of nationalism. Munich is a puzzle that is still being solved, and any solutions could offer hope to the many beyond the Millionendorf as well.
—Matthew Klinge, USA



The LMU Munich main building at Geschwister-Scholl-Platz.

Photograph by [digital cat](#) . It can be found [here](#) .



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Beyond disciplinary boundaries

The 18 faculties that make up LMU Munich cover nearly all areas of intellectual inquiry in research and education. Particularly in the case of highly complex topics like the environment and climate, it is essential to look beyond the borders of one's own field. It is a great pleasure to see that the participants of this program have benefited from the insights of so many disciplines taught at LMU.

—Bernd Huber, President, Ludwig-Maximilians-Universität München

Environmental studies at LMU Munich

“Ecopolis München” is the outcome of a research seminar of the students of the Environmental Studies Certificate Program at LMU.

How can environmental topics in the city be investigated through collaborative research? Learning

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in interdisciplinary groups can be immensely fruitful, as this exhibition reveals. Together, students in the fields of math, social anthropology, biology, communication science, and health collected stories about Munich’s urban nature, discovering along the way many remarkable things that they present to the public here. As such, the exhibition reflects the goals of the certificate program: understanding – and helping to shape – the relationship between humans and nature in both local and global contexts.

—Gesa Lüdecke, Director of Graduate Programs, Rachel Carson Center for Environment and Society

Collective curation

How do 19 people develop an exhibition about the environment as a group curatorial project? Working both as researchers and curators, the students set out in search of material. They collected personal stories, talked with experts, or simply watched and listened to the places and their inhabitants (not just the human ones). Going beyond the familiar format of academic texts, they experimented with multimedia representations, engaged in interdisciplinary discussion, and created visions together in topical groups.

—Laura Kuen, Curator, Rachel Carson Center for Environment and Society

Urban environments

Everyone who worked on this exhibition—and hopefully those who visit it as well—should come away with a new and completely altered view of urban environments: nature (that is, geology, climate, water, flora and fauna) has played a tremendous role in making cities what they are today. The “Ecopolis” exhibition shows how Munich residents in the past and present have altered and used their environment, and how it in turn has shaped them. And it raises awareness of the ways that visions of a sustainable urban future are being made a reality in Munich—and beyond.

—Christof Mauch, Director, Rachel Carson Center for Environment and Society

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Chapter: Beyond the Exhibition

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Ecopolis Catalog



Cover of the Ecopolis München catalog.

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To accompany *Ecopolis München 2019: Environmental Stories of Discovery* we produced a catalog. Instead of documenting the exhibition, the catalog offers glimpses from behind the scenes. It both reveals what went into the exhibition, and asks questions about the future of Munich's environments. The catalog features the six stations from the Ecopolis München 2019 exhibition, but additionally it also includes the six stations from the [Ecopolis München 2017 exhibition](#). The catalog is bilingual (German and English). Download this catalogue [here](#).

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Related links:

- The catalog for the Ecopolis München 2017 exhibition can be found here (in German). <http://www.environmentandsociety.org/node/8124>
- The Ecopolis München 2017 *Virtual Exhibition* on the Environment & Society Portal. <http://www.environmentandsociety.org/node/7959>

Websites linked in this text:

- <http://www.environmentandsociety.org/exhibitions/ecopolis-muenchen2017>

About the authors:

Laura Kuen

Laura Kuen studied social and cultural anthropology, environmental studies, and art in Munich and Venice. She obtained her MA from LMU Munich in 2018. She has worked on human-environment relations and conducted visual ethnographic fieldwork in Russia and Germany. Her documentary film *Our Freedom* was selected by festivals in Munich, Bristol, and Marburg. In 2018/2019, Laura has worked on the exhibition *Cosmos Coffee* as part of the curatorial team of the Deutsches Museum. In 2019, she joined the Rachel Carson Center for Environment and Society as curator for the student exhibition *Ecopolis Munich 2019*.

Gesa Lüdecke

Gesa Luedecke joined the RCC in 2019 as director of the Environmental Studies Certificate Program. Gesa received her diploma in environmental sciences at Leuphana University in 2007, and completed her doctorate in 2012 with a dissertation entitled “Media and Climate-related Responsible Behavior.” Before joining the RCC, she worked at universities in Lüneburg and Boulder, Colorado, and executed the climate campaign “München Cool City” in Munich.

Christof Mauch

Further Reading

What follows is a selected bibliography on Munich's environmental history. The list is not comprehensive but is intended merely as an introduction for readers interested in learning more about some of the research from which both exhibitions, [Ecopolis München 2017](#) and [Ecopolis München 2019](#), draw. Most titles are in German.

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View of the start of the October 2019 exhibition at whiteBOX, a venue near Ostbahnhof in Munich.

Photograph by Laura Kuen, 2019.



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Cover of the Ecopolis München catalog.

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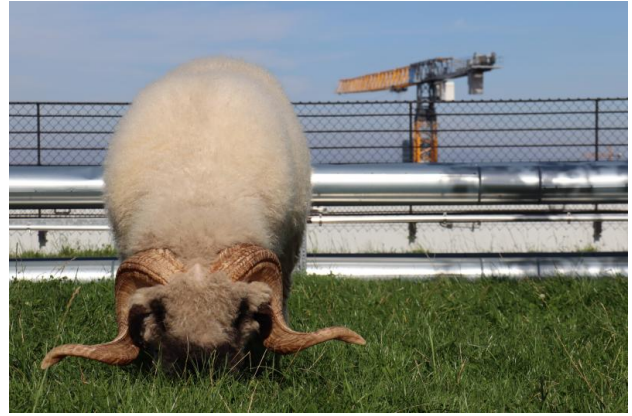


The eastern part of the reservoir (Ostbecken) at twilight.

Photograph by Erwin Taschner.

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Valais blacknose sheep graze on a rooftop in the Werksviertel.

Photograph by Laura Kuen.



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Münchner Weißwurst, a Bavarian sausage.

Photograph by Rainer Z. It can be found [here](#) .



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An Airbus A320 airplane takes off from Munich Airport.

Photograph by Johanna Felber.



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Half wild: although partially overgrown, the railway embankment is still clearly recognizable.

Photograph by Maike Jebasinski.



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The StadtAcker as seen from above.

Photograph by Thomas Oswald.

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A detail of the introduction station at the Ecopolis München 2019 exhibition.

Photograph by Philipp Thalhammer, LMU Munich, 2019.

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A bookshelf.

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Isabelle Hermannstädter.

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Children draw images based on this exhibition.

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- <https://www.en.envstudies.carsoncenter.uni-muenchen.de/index.html>
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