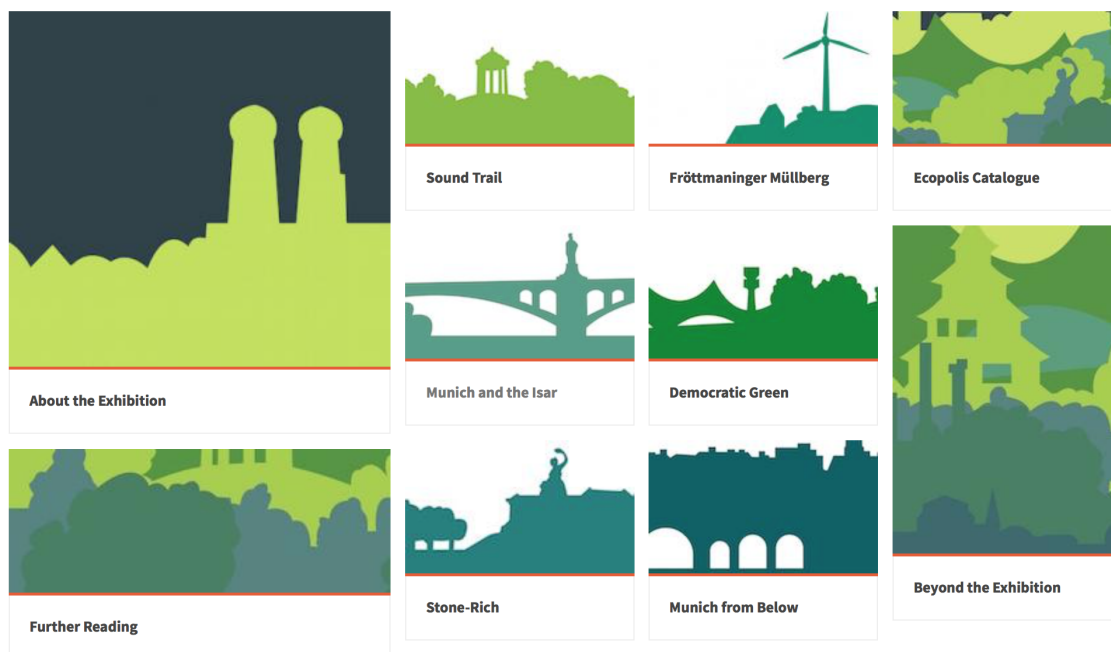




Ecopolis München

Ecopolis München: Environmental Histories of a City is an exhibition on Munich's environmental histories and showcases the final projects of students in the Environmental Studies Certificate Program of the Rachel Carson Center for Environment and Society.



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About the Exhibition

Ecopolis München: Environmental Histories of a City

About the Curators

Acknowledgements



View of the June 2017 exhibition in the main building of Munich's Ludwig-Maximilians-Universität

Florin Prună (2017)



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Ecopolis München: Environmental Histories of a City

Water, rocks, animals, plants, fungi, and bacteria: together with human inhabitants, they have shaped the Bavarian capital. The student exhibition *Ecopolis München: Umweltgeschichten einer Stadt* (Environmental Histories of a City) traces past, present, and future relationships between people and their environments in

Munich. It showcases the final projects of the students in the RCC's [Environmental Studies Certificate Program](#).

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Chapter: About the Exhibition

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Who knew that potatoes were once cultivated in the English Garden, or that mushrooms still grow in the urban underground? Does the Isar make Munich, or does Munich make the Isar? What does it mean that Munich is built on gravel? Why is it that one may not light candles around the Fröttmaning Church? And is there “democratic green” in the Olympiapark?

The stories in the exhibition ask to whom the urban world belongs, as well as how we want to design the urban environment in the future.

The exhibition includes six chapters: Sound Trail; Fröttmaninger Müllberg; Munich and the Isar; Democratic Green; Stone-Rich, and Munich from Below.

The original virtual exhibition includes an interactive gallery of photos of the installation by Florin Prună (2017). View the photos below and the following pages. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).



Florin Prună (2017)



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Installation photos by Florin Prună. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

The exhibition ran from 25 July to 27 July 2017 in the main building of the LMU (Lichthof). It was featured on the [forum Nachhaltig Wirtschaften](https://www.forum-nachhaltig-wirtschaften.de/), an influential, German-language platform for cross media communication on corporate social responsibility in politics, economy, business, and society. The full feature on the exhibition and its accompanying [Ecopolis Night](#) can be read [here](#) (written in German).

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Poster for the exhibition

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About the Curators

Sound Trail

How Does the English Garden Sound?



Vera Kovács and Katharina Theresa Müller

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Vera Kovács (European Ethnology)

Vera visited the English Garden for the first time on 6 July 2015. Beneath the shadow of a mighty birch tree, she made the decision to move to Munich. Ever since she has been drawing strength from Sckell's natural work of art.

Katharina Theresa Müller (American Studies)

Come rain or shine, Kathi's daily route leads her through the English Garden. After first having been amazed by the many traces of bites and gnawing observable on the trees, she was able to identify the perpetrator: it was a beaver who ate its way through her beloved park, leaving behind a trail.

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Fröttmaninger Müllberg
Can One Simply Bury the Past?



Maximilian Gabriel and Katharina Ring

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Maximilian Gabriel (Environmental Planning and Engineering Ecology) and Katharina Ring (Business Administration/Statistics)

Once an idyllic village, then a toxic mountain of garbage, and now a recreational area. Over time, different interests have shaped the Fröttmaninger Berg into a place full of bizarre contrasts—and, for us, a real treasure trove of unique stories.

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Munich and the Isar
The City Makes the River?



Luna Benítez Requena

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Luna Benítez Requena (Evolution, Ecology, and Systematics)

I really jumped right into the topic of the renaturalization of the Isar. It was important to me to explore how ecologically sensible the measures were and what the ecosystem as a whole looks like in Munich.



Elisa Hanusch

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Elisa Hanusch (German Studies)

I chose the topic “Isar Habitat” because animals and their survival are close to my heart. I am also personally committed to the protection of animals and species and find it important to make this a subject of discussion as often as possible.

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Johannes Summer

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Johannes Summer (Physics)

I can no longer imagine the city of Munich without the renaturalized Isar and was happy to learn more about the river that makes our city so livable and beautiful. This example showed me that large-scale projects with many different stakeholders can succeed and in this case it was even cheaper than, for example, the transfer fee of many a professional football player.

“Democratic Green”

Who Owns the Olympiapark?



Marlen Elders

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Marlen Elders (Social and Cultural Anthropology)

I find it exciting to ask what it means to actively appropriate a city for oneself and to help shape it. Father Timofej's small chapel nicely shows that small utopias can be realized. We can often achieve much more than we think.



Laura Kuen

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Laura Kuen (Social and Cultural Anthropology)

Many actors are involved in urban life—not just humans. I find the question of whose interests are, and are not, taken into account in political discussions fascinating.

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Maya Schmitt

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Maya Schmitt (Sociology/American Studies)

There are some areas of tension in the Olympiapark. I have been inspired to develop a greater understanding of them and to find out which position the park management represents. I want to provide a current overview of these areas of tension to exhibition visitors.

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“Stone-Rich”

Where is Munich’s Gravel Hiding?



Stefan Bitsch and Alicia Dorner

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Stefan Bitsch and Alicia Dorner (Geomaterials and Geochemistry)

We want to use the opportunity provided by this exhibition to share some of our knowledge. Through our studies we have been able to learn a lot about the great connections in nature. We not only want to thank our professors and lecturers, but also to share these interesting stories with visitors and fellow students.

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Munich from Below
What Happens Underground?



Lisa Bauer

Lisa Bauer (Geography)

Munich's underground provides for the city. Nonetheless, the idea that it is mysterious remains because its functions are not clear to many Munich residents. On research tours, I developed an entirely new impression of the sewage system and underground beer cellars. The formerly canalized city stream will be brought back to the surface in the future. Such actions can spark a great awareness of the infrastructure below us.

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Sonja Meinelt

Sonja Meinelt (Book Studies)

The diversity of Munich's underground in particular fascinated me. Beneath Munich's surface, I discovered many intriguing stories, such as the canalized streams. The underground also holds great potential for the future.

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Project Management

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Raphaela Holzer MA, curator, RCC

Prof. Dr. Christof Mauch, director, RCC

Dr. Nina Möllers, curator, RCC and Deutsches Museum

Dr. Ursula Münster, academic coordinator, Environmental Studies RCC

Exhibition design: Katharina Kuhlmann & Alfred Küng

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The essays and images on this website present an overview of the objects on display in the exhibition *Ecopolis München: Umweltgeschichten einer Stadt*, which was on view at the LMU (Lichthof) in July 2017. This digital companion to the exhibition was prepared by L. Sasha Gora for the Environment & Society Portal. The exhibition was in German and all texts (including direct quotes) have been translated into English by L. Sasha Gora and edited by the RCC editorial team.

Our gratitude goes to the following people and institutions:

Sound Trail: DD (Dieter) Beck (street musician), Michael Degle ([Bayerische Schlösserverwaltung](#)), Hermann Grub and Petra Lejeune ([Ein Englischer Garten e.V.](#)), Annette Kolb ([Gesellschaft der Freunde des Teeweges in der Bundesrepublik Deutschland e.V.](#)), Thomas Köster (head of administration of the English Garden), Heidrun Langer (city guide), Sabine Laske and Evi Lichtenwald ([Rumfordschlössl Natur- und Kulturtreff für Kinder und Jugendliche](#)), Sandra Reinalter (yoga instructor), and Gerhard Schwab (beaver manager, Southern Bavaria, [BUND Naturschutz](#)).

Fröttmaninger Müllberg: [Archiv der Münchner Arbeiterbewegung e. V.](#), Michael Brunner ([Baureferat Gartenbau der Landeshauptstadt München](#)), Anneliese und Martina Feser (shepherdesses), Dr. Franz Freyberger (Kirchenpfleger, [Pfarrverband St. Albert](#)), Prof. Dr. Regine Keller (TUM), Oliver Kern ([Ski resort.de](#)), Günther Langer ([Abfallwirtschaftsbetrieb München](#)), Sven Riepe ([Süddeutsche Zeitung](#)), Monika Stey ([Abendzeitung München](#)), and Andreas Wöhl ([Naturschutzgebiet Panzerwiese und Hartelholz](#)).

Munich and the Isar: Dr. Michael Altmayer ([Bayerisches Staatsministerium für Umwelt und Verbraucherschutz](#)), Ana María Bastidas, [Bayerisches Landesamt für Umwelt](#), [Bayerisches Wirtschaftsarchiv](#), [BISS](#) (Bürger in Sozialen Schwierigkeiten), Markus Bräu ([Referat für Gesundheit und Umwelt](#)), Dr. Sophia Engel ([Landesbund für Vogelschutz](#)), [Green City e.V.](#), Prof. Dr. Johannes Kollmann ([Arbeitsgruppe Renaturierungsökologie der TUM](#)), Ralf Sartori, Heinz Sedlmeier ([LBV Kreisgruppe München](#)), Dr. Stefan Schmidt ([Bayerischer Kanu-Verband e.V.](#)), Johannes Schnell ([Landesfischereiverband](#)), [Stadtarchiv Bad Tölz](#), [Stadtmuseum München](#), Martin Summer, [Ingenieure Patscheider und Partner](#), Oriana Taddeo, Fabian Unger ([LBV Geschäftsstelle Wolfratshausen](#)), [Archiv Verlag Werner](#), [Franz Schiermeier Verlag München](#), [Wasserwirtschaftsamt München](#), and [Wasserwirtschaftsamt Weilheim](#).

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(beekeeper).

Stone-Rich: Dr. Stefanie Gillhuber ([Bayerischer Industrieverband Baustoffe, Steine und Erden e.V.](#)) and colleagues, Hartmut Kuhl, Dr. Bernhard Lempe (TUM), and [Stadtmuseum Hadamar](#).

Munich from Below: Norbert Hans ([Bunkerfreunde München](#)), Peter Köstner (Kanalbetrieb der [Münchner Stadtentwässerung](#)), Sonja Lechner and Dankwart von Scotti, Klaus Leidorf, Maximilian Loessl ([agrilution GmbH](#)), Wolfgang Pischek, Christian Vogler and Darko Stanic ([Augustiner Keller München](#)), Franz Ulrich ([Ulrich GmbH und Champignonzucht](#)), and Petra Vogler.

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Sound Trail

How does the English Garden sound?

History of the Park

STIMMENSPUR ENGLISCHER GARTEN: The Audio Experiment

Voices from the English Garden

The original virtual exhibition includes the trailer (in German), which previews the contents of the *Stimmenspur* audio tour by Vera Kovács and Katharina Theresa Müller (2017), 1 min 46 s.

View the trailer online [here](#):

<https://www.youtube.com/embed/sYrqHGx6ge4>.



As the first Volkspark in the world—a park open to the public—the English Garden has always been a place for encounters between people and the environment. With the audio experiment *Stimmenspur* (Sound Trail), we guide you through these present-day relationships and their histories. On an ecologically and historically mindful walk, you can experience the environment with other eyes and ears. Hear conversations with a landscape architect, with the head of administration of the English Garden, with a yoga teacher, a street musician, and many others. Let the natural acoustics of the English Garden wash over you as you form your own impressions of this wondrous space.

[Download](https://soundcloud.com/user-495362004/sets/englischer-garten) the Stimmenspur tour in German free of charge and rediscover the English Garden! (<https://soundcloud.com/user-495362004/sets/englischer-garten>)

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What we offer:

- The voices of people, animals, and plants in the park
- 3 hours of entertainment with scheduled breaks
- 21 amazing stations along a 5 km path

What you need:

- a sunny day
- a Smartphone/MP3 Player with headphones
- comfortable shoes
- a plastic bag for collecting trash

History of the Park

The English Garden was created according to a strictly regulated layout. Traces of this history are still detectable today. In the style of an English landscape garden, it was created on the Wittelsbach royal family's former hunting grounds. In 1789, after Count Rumford had been given the task of looking after poorly paid Bavarian soldiers, he began to use parts of the land to cultivate potatoes, kohlrabi, and carrots. In the years that followed, as a reaction to the French Revolution, the military garden became a public park. Since 1793, the southern part has been open to everybody.

Today the park is considered a natural monument and a work of art. Friedrich Ludwig von Sckell (1750–1823) is the mastermind behind the park's layout and design. Gently rolling meadows, noble clusters of trees, winding paths, and buildings create a visceral experience. These features appear, disappear, reappear, as if the landscape itself is inhaling and exhaling—lulling us into total relaxation.

Due to urbanization throughout the twentieth century, the park became constricted and the construction of a road divided it into two. Soon, however, the northern and southern parts will again be reunited, heralding a new chapter in the park's history.

The original virtual exhibition includes an interactive gallery of visual impressions of the English Garden collected while doing research for *Stimmenspur*. Photos: Vera Kovács, Katharina Theresa Müller, and L. Sasha Gora (2017). These works are licensed under a [Creative Commons Attribution 4.0 International License](#). View the images on the following pages.

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Chapter: Sound Trail

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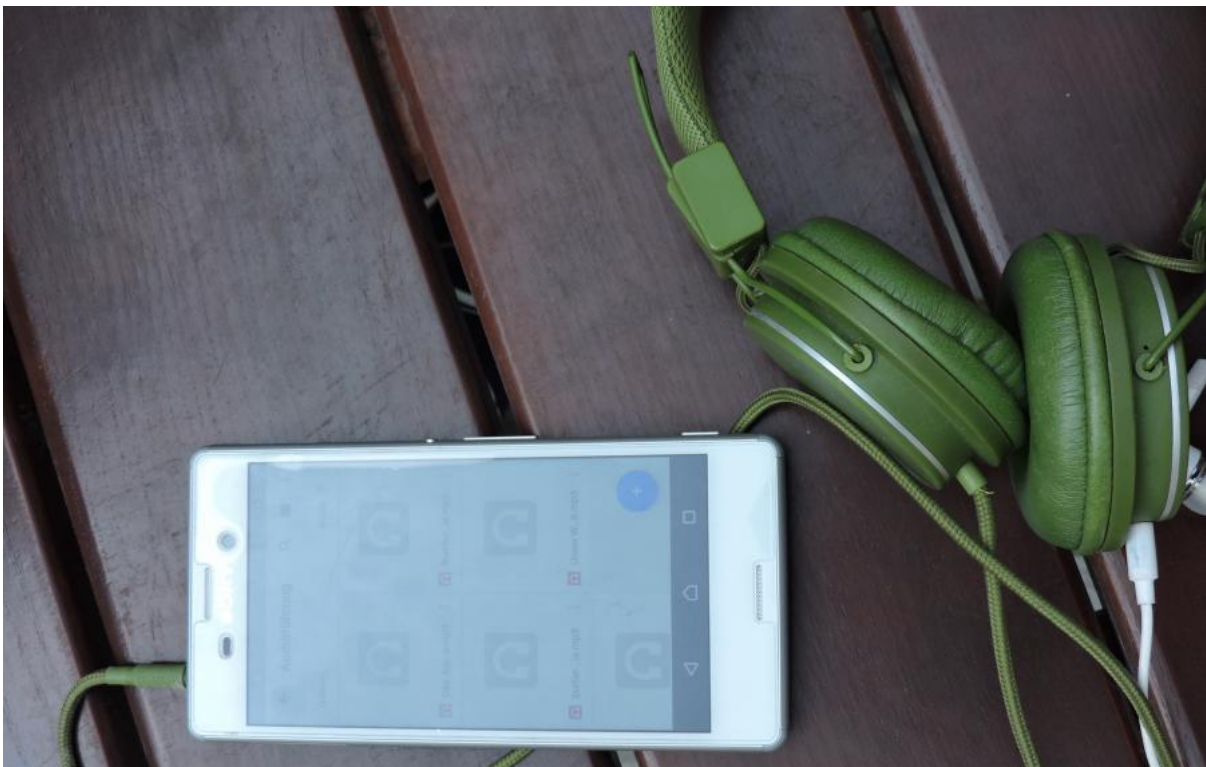
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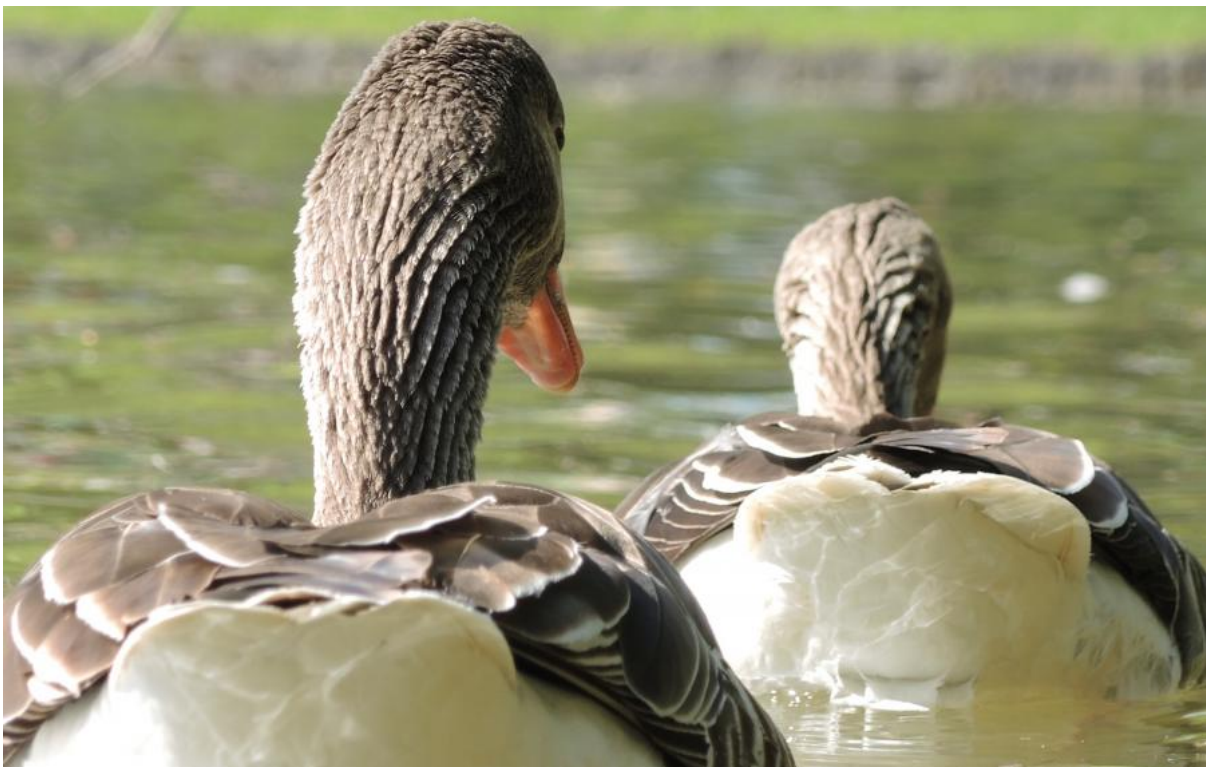
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STIMMENSPUR ENGLISCHER GARTEN: The Audio Experiment



Map showing the path of the Stimmenspur audio tour. Design by Alfred Küng and Katharina Kuhlmann. Vector data for the map: Bayerische Schlösserverwaltung (Bavarian Administration for Public Castles), Michael Degle.

Design by Alfred Küng and Katharina Kuhlmann. Vector data for the map: Bayerische Schlösserverwaltung [Bavarian Administration for Public Castles], Michael Degle.

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| 00. Introduction | 9. Close Your Eyes and Arr |
| 01. Our Voice, Your Way | 10. Sycam |
| 02. "Peace in a Cup of Tea" | 11. Ash |
| 03. Surfer Paradise | 12. Elm |
| 04. "That Looked Good" | 13. Honey Loc |
| 05. Beauty of Nature | 14. "Without Nature There is Nothi |
| 06. Field Democracy | 15. Mindfulness P |
| 07. S-C-K-E-L-L | 16. A Break at the Chinesicher T |
| 08. "The English Garden is a Paradise" | 17. The Mysterious En |
| | 18. A Bird Oasis at the Kleinhesseloher L |
| | 19. "Point of No Retu |
| | 20. Farew |



The original virtual exhibition includes the soundbite introducing the guided tour through the English Garden in Munich by Vera Kovács and Katharina Theresa Müller (2017), 59 s. Listen to the tour online here: <https://soundcloud.com/user-495362004/sets/englischer-garten?>

Voices from the English Garden

The original exhibition includes an interactive gallery of images of the voices from the English Garden. View the images on the following pages.

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DD Beck – Street musician

“The English Garden has existed for over 250 years. I am just playing my tin guitar next to an old tree, which tells me a story about what it was like 150 years ago.”

All photos are by Vera Kovács and Katharina Theresa Müller. These works are licensed under a Creative Commons Attribution 4.0 International License.



Thomas Köster – Head of the administration of the English Garden

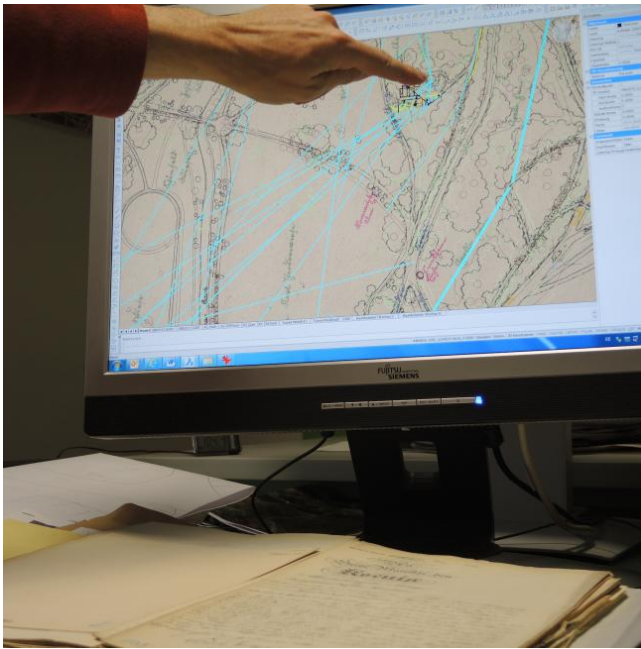
“I am the landlord. I am the administrator here of all taxpayers. That means that I am personally liable. And that is my biggest problem.”

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Michael Degle – Landscape architect, Bayerische Schlösserverwaltung (Bavarian Administration for Public Castles)

“I find that it never appears old; instead, it always seems timeless. Because humans have grown accustomed to these landscapes for many centuries, perhaps for even thousands of years.”



Evelyn Lichtenwald & Sabine Laske – Rumfordschlössl Natur- und Kulturtreff für Kinder und Jugendliche (Rumford Castle Nature and Cultural Association for Children and Youth)

“This luxury to immerse oneself in harmony with nature, it is not given to everyone. Not everyone can obtain it.”

“I love this work. I am simply a nature person; I like to be outside. So an office job would be the last thing for me. And I enjoy showing children the beauty of nature.”

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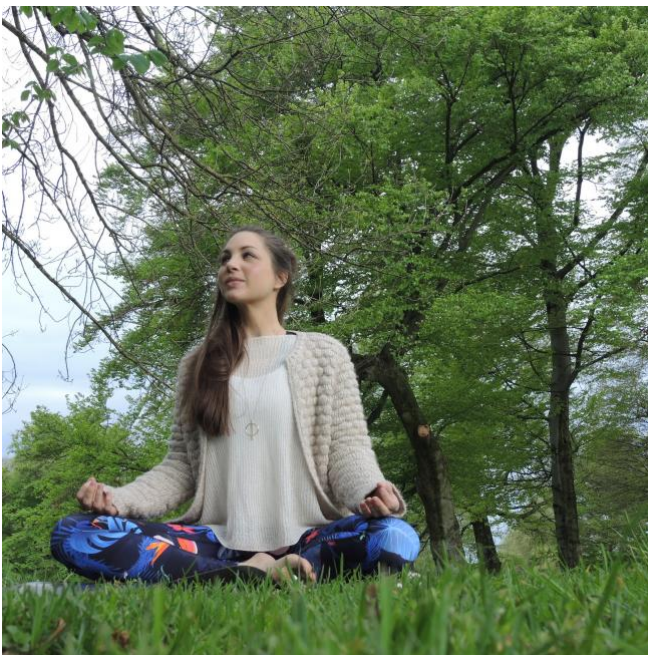
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Anette Kolb – Gesellschaft der Freunde des Teeweges in der Bundesrepublik Deutschland e.V. (Society for Friends of the Tea Ceremony in Germany)

“Prepare a cup of tea and arrange the charcoal so that it heats the water. Arrange the flowers in the way that they grow in the field. And in the summer create a sense of cool and in the winter a sense of warmth and security.”



Sandra Reinalter – Yoga teacher

“The goal of yoga is to calm the mind. The complete peace of the mind. What we are doing with these exercises is simply the physical side.”.

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Websites linked in this text:

- <https://www.youtube.com/embed/sYrqHGx6ge4>
- <https://www.youtube.com/embed/sYrqHGx6ge4>
- <https://stimmenspur.wordpress.com/>
- <https://soundcloud.com/user-495362004/sets/englischer-garten>

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Fröttmaninger Müllberg

Can One Simply Bury the Past?

[A Mountain of Waste Arises](#)

[It Is Forbidden to Light Candles around Munich's Oldest Church](#)

[A Shepherdess Remains Steadfast](#)

[Traveling to the Wind Turbine by Lift](#)

[A Matter of Outlook](#)

Near the Allianz Arena, directly next to the highway and the sewage treatment plant, one might expect to find a vacant lot—surely not a recreational area? But the Fröttmaninger Müllberg—a mountain made from waste—is supposed to be exactly that.

From 1954 to 1987, Munich's household waste was dumped here. Since then, the city has put a lot of effort into transforming this blemish into a natural, green paradise—but has it been successful?

The environmental restoration project has ended, but only intensive maintenance will ensure long-term balance. In 1999, the city of Munich built its first and only wind turbine on top of the hill, as if to give Munich and the Müllberg a greener image. But we wonder: will the past resurface?



The recreational area “Fröttmaninger Berg” is surrounded by the A9 and A99 highways, Freisinger Landstraße, and the Gut Großlappen Purification Plant.

Maximilian Gabriel (2017)



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Chapter: Fröttmaninger Müllberg

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A Mountain of Waste Arises

During the first half of the twentieth century Munich had an advanced waste disposal system. But the Second World War left its mark: after the central garbage plant was destroyed in 1944, ditches and pits in the city and on its outskirts served as dumps. The people grew discontent.

The city finally offered an alternative with the construction of a new recycling plant in the north of Munich in 1954—even if it was 10 years later. However, the village of Fröttmaning and its old church had to make way for the plant's incineration residue.

Soon after came economic recovery and consumerism—the amount of waste exploded, triggering a garbage crisis. The new plant could no longer cope with the flood of waste. Unsorted household trash was added to the incineration residue and, with time, grew into an imposing mountain of garbage. The stench and toxins contaminated both air and water.

In 1973, 10 years before the landfill was shut down, Munich's Department of Urban Landscaping decided to transform the mountain of waste into a recreational area. Today, a reconstruction of the Fröttmaninger Church commemorates the village of Fröttmaning and is located not far from its original location—half sunk in the mountain.



In 2006, Timm Ulrichs created the “Sunken Village” art installation. The reproduction of the church is meant to commemorate the fate of the village of Fröttmaning.

Maximilian Gabriel (2017)



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Facts about the Garbage Mountain

- Amount of waste: Around 12 million m³
- Contents: Initially incineration residue, later household and commercial waste, including refrigerators, car tires, chemicals, etc.
- Period the landfill was active: 1954–1987
- Resource potential: The recycling of landfill waste is not yet economically viable. The most recent technologies and current commodity prices make the extraction of new raw materials more favorable.

It Is Forbidden to Light Candles around Munich's Oldest Church

Highly flammable methane leaks out of the hill. That is why open flames are prohibited on and near the old landfill, and why no candles may be lit at the Heilig-Kreuz-Kirche. A process of fermentation in the hill produces the gas. The haphazard storage of garbage that prevailed until the 1980s has made it difficult to seal the dump reliably today. This means toxins can contaminate the groundwater, making it necessary to test the surrounding areas continuously.

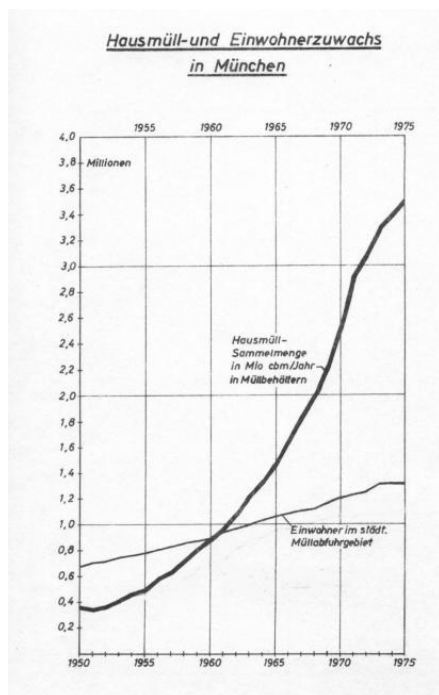
First mentioned in 815, the Heilig-Kreuz-Kirche is the oldest church in the Munich metropolitan area. It was completely restored in 1980.

The original virtual exhibition includes an interactive gallery timeline of the Fröttmaninger Müllberg—a mountain made from waste. View the images on the following pages.



The economic recovery that started in 1950s led to a pronounced increase in the amount of waste. The new waste recycling plant began operating in 1954. Due to a lack of alternatives, the remnants from the refuse incineration were deposited directly next door.

Photo: Abfallwirtschaftsbetrieb München (used by permission of the copyright holder)



1960s

Within 10 years, Munich's household waste had tripled. The plant was overloaded and large quantities of unsorted waste ended up in the landfill.

Chart: Abfallwirtschaftsbetrieb München (used by permission of the copyright holder)

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1970s

At the beginning of the 1970s, a small lake was built on the top of the summit for chemicals. At the same time, gases from fermentation processes often ignited the whole hill.

Photo: Abfallwirtschaftsbetrieb München (used by permission of the copyright holder)



1980s

Resentment among the population began to grow.

Protests demanded and facilitated change. In the 1980s, the Müllberg closed for good and a new waste management concept was established. From then on: waste prevention before waste incineration before landfills.

Photo: Abfallwirtschaftsbetrieb München (used by permission of the copyright holder)

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Today

Today the area is completely restored. The Northern Landfill—not far from the Fröttmaninger Berg—is currently intended to be a repository for incineration residue because waste still cannot be completely recycled nor destroyed.

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A Shepherdess Remains Steadfast



Barbara Kosmatsch on her farm in the former village of Fröttmaning before she was forced to relocate.

Anneliese Feser

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Four local families had to leave their homes by 1954 when the decision was made to build a landfill in Fröttmaning. Yet Barbara Kosmatsch defied the city's plans. She persisted until 1985—all the while, the garbage grew around her.

The original exhibition includes an interactive gallery of images of Fröttmaning village, past and present. View the images on the following pages.

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Barbara Kosmatsch's life on the farm in the former village of Fröttmaning.
 Photo: Anneliese Feser (used by permission of the copyright holder)



In 1985, when the city turned off Barbara Kosmatsch's electricity and water and threatened expropriation, she finally gave in. Kosmatsch was relocated to a replacement farm.

Photo: Anneliese Feser (used by permission of the copyright holder)

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The last farmstead in Fröttmaning was demolished. The church is the only building that remains today.
Photo: Anneliese Feser (used by permission of the copyright holder)



The village of Fröttmaning with its three farms and the Heilig-Kreuz-Kirche before it, too, had to give way and was turned into a mountain of garbage in 1954.

Photo: Anneliese Feser (used by permission of the copyright holder)

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Even today sheep still graze on the land that used to be the village of Fröttmaning—the tradition continues.
Photo: Maximilian Gabriel (Creative Commons Attribution 4.0 International License)

Anneliese Feser speaks about her mother-in-law, Barbara Kosmatsch, and her unshakeable sense of home and tradition, which you can listen to (in German).

The original virtual exhibition includes an interview with Anneliese Feser. Listen to the interview online
here: <https://soundcloud.com/user-724725474/der-mullberg-ein-interview-mit-anneliese-feser#t=0:00>.



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Traveling to the Wind Turbine by Lift

The Skiarena Association is planning to establish a skiing area to make the Fröttmaninger Mountain more attractive in the future. Numerous ski cannons and groomers will ensure that, even without real snow, a one-minute descent is possible. In 2008, the first test operation took place. But unstable surfaces make it difficult to secure the lifts, and snowmaking is a danger to highway traffic. As a result, at least for the time being, the project has been put on hold and the city of Munich has withdrawn from the plan.

The original exhibition includes an interactive gallery of impressions of the 2008 ski trial run. During the trial run, a rope line, snow groomers, and cannons were used. Photos: Ski resort.de. These works are used with permission of the copyright holder. View the images on the following pages.



Ski resort Service International

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Facts about the Skiing Area

Slopes: 500 m (300 m easy, 200 m medium)

Difference in altitude: 50 m

Lifts: Two rope lifts in trial operation, one four-chair lift planned

Rating on Skiresort.de: 1.8 out of 5 Stars

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A Matter of Outlook

The original exhibition includes an interactive gallery of impressions of the mountain. View the images on the following pages.



The summit offers an impressive view. In good weather one can see the Alps.

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The way up the hill is accompanied by a view of the A9.



Beautiful flowers color the hill brightly.

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As do numerous signs that warn of landfill gas.



Hiking trails lead through green nature.

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And pass through shaggy wild growth.



Idyllic places invite visitors to relax.

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As long as the rules are adhered to: signs prohibits sledging, camping, smoking, open flames, and fires, as well as entering certain areas.

Curators: Maximilian Gabriel and Katharina Ring

How to Cite: Gabriel, Maximilian and Katharina Ring. "Fröttmaninger Müllberg." In "Ecopolis München," edited by L. Sasha Gora. Environment & Society Portal, *Virtual Exhibitions* 2017, no. 2. Rachel Carson Center for Environment and Society. <http://www.environmentandsociety.org/node/7967>.

Websites linked in this text:

- <https://soundcloud.com/user-724725474/der-mullberg-ein-interview-mit-anneliese-feser#t=0:00>
- <http://www.skiresort.de/>
- <http://www.skiresort.de/>

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Munich and the Isar

The City Makes the River?

[A River Makes the City](#)

[Isar Quiz](#)

[The Renaturalization of the Isar](#)

[Habitat: Fish and Birds](#)

For Munich residents, the unpredictable Isar was for a long time one thing above all else: a threat. As a result, from the eighteenth to the twentieth centuries, the river was “tamed” by means of canals, weirs, and embankments.

Starting in the 1980s, perceptions of the Isar started to change. With its concrete braces, it was hardly attractive. Therefore, the 2000–2011 Isar Plan made extensive efforts to renaturalize parts of the river within the city limits.

The goals were to improve flood management, create a near-natural river landscape, and to increase the quality of leisure and recreation. The 2013 flood, which affected large parts of Bavaria, proved these renaturalization measures to be successful. Munich was largely spared from the flood’s effects. The modernization of the Sylvenstein Dam and Reservoir, located about 70 kilometers south of the city, also ensured that Munich was protected from the damage.

Today, the newly created river landscape provides benefits to many. Both humans and animals are attracted to the natural beauty of the riverscape: humans go to the Isar to unwind from everyday stress, and birds, fish, and countless microorganisms live there.

But at the same time, this supposed ideal of nature is endangered by the intensive use of the Isar as a recreational area and, thus, the habitat of many species is at risk.

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The Weiden Island and visitors at the Isar—from the perspective of a duck.

Luna Benítez Requena. The Weiden Island and visitors at the Isar, Munich (2017).



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A River Makes the City

The history of Munich could not be told without including the Isar. The river has played an important role since the city was founded in 1158. For a long time, the Isar posed an insurmountable obstacle for salt merchants on their way from the Alps to northern Europe. With the construction of an overpass near what is today the Isar Bridge, Henry the Lion, Duke of Bavaria, was able to divert the lucrative salt trade to Munich. The revenue from the bridge toll laid the foundation for Munich's prosperity.

As it was an important waterway, the Isar was crucial in driving the city's economic development. Wood, stones, and lime were brought to Munich via the Isar to supply the construction boom during the period of promoterism (*Gründerzeit*). Around 1870, before the expansion of the railway network—which brought about the decline of rafting—Munich had the largest raft port in Europe.

The Isar not only functioned as a transport and trade route but also served as an important source of energy by powering waterwheels. The river is still used to produce renewable energy today.

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Isar Quiz

The Museum Island

Throughout history, the “Museum Island,” where the Deutsches Museum is located, has served many uses. Which of these has it NEVER been used for?

- a) Raft port
- b) Coal storage
- c) Barracks
- d) Train station



An aerial view of the Deutsches Museum.

Deutsches Museum

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The Museum Island served as a docking point for rafts and, in 1870, was considered the largest raft port in Europe. Since charcoal was stored here, locals referred to it as “coal island.” The Bavarian army also had barracks on the island, which were used to protect the richer residents in the capital from the possibility of revolts initiated by rural residents. Although there were plans to build a train station, it was never actually constructed.

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Not Much Happens without a Raft

For centuries, rafts were used to transport construction materials to Munich. Around 2,200 tree trunks were required to construct the roof of Munich's Frauenkirche.

How many rafts were needed to deliver the wood?

- a) about 50
- b) about 150
- c) about 250
- d) more than 500



A view of Munich's Frauenkirche from Peterskirche Tower. Photo by David Iliff.

Photo by David Iliff (2006). License: CC-BY-SA 3.0. https://de.wikipedia.org/wiki/Datei:Frauenkirche_Munich_-_View_from_Pete...

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In total, 147 heavily loaded timber rafts were needed to construct the Frauenkirche's enormous roof. After having transported the cargo, the rafts themselves were disassembled and they too were used as building material.

Passenger Transport on the Isar

Rafts were not only used to transport goods along the Isar; one could also use them to travel to foreign cities. Which weekly travel connection from Munich existed during the nineteenth century?

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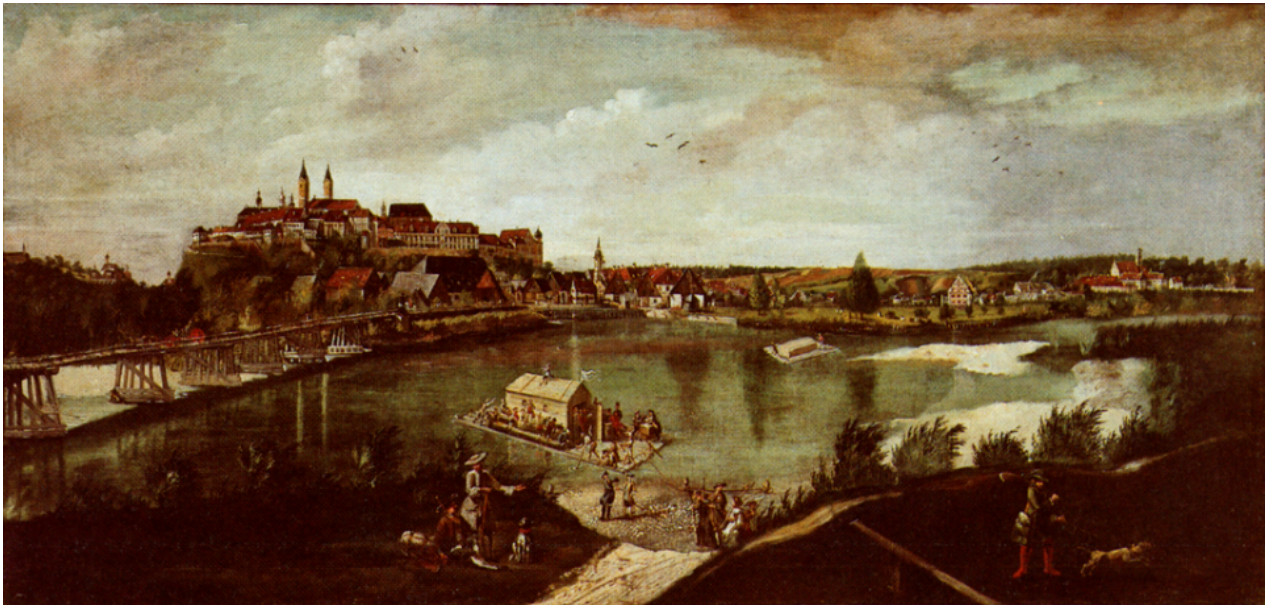
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Passenger Transport on the Isar

Rafts were not only used to transport goods along the Isar; one could also use them to travel to foreign cities. Which weekly travel connection from Munich existed during the nineteenth century?

- a) Munich – Regensburg
- b) Munich – Salzburg
- c) Munich – Vienna
- d) Munich – Prague



Johann Baptist Deyrer's 1772 painting is titled "View over Freising from the bridge over the Isar" (Freising von der Isarbrücke aus gesehen) and shows a raft traveling along the Isar.

Sigmund Benker/Marianne Baumann-Engels: Freising. 1250 Jahre Geistliche Stadt – Ausstellung im Diözesanmuseum und in den historischen Räumen des Dombergs in Freising, 10. Juni bis 19. November 1989, Wewel Verlag, München 1989. ISBN 3-8790-4162-8, S. 208. https://de.wikipedia.org/wiki/Datei:Freising_von_S%C3%BCden_1772.png



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A raft traveled once a week from Munich to Vienna via Passau and Linz in the mid-nineteenth century. Those who were affluent could afford a cabin; the remaining passengers slept outside on deck. The railway brought about the end of rafting. The last raft made its journey from Munich to Vienna in 1904.

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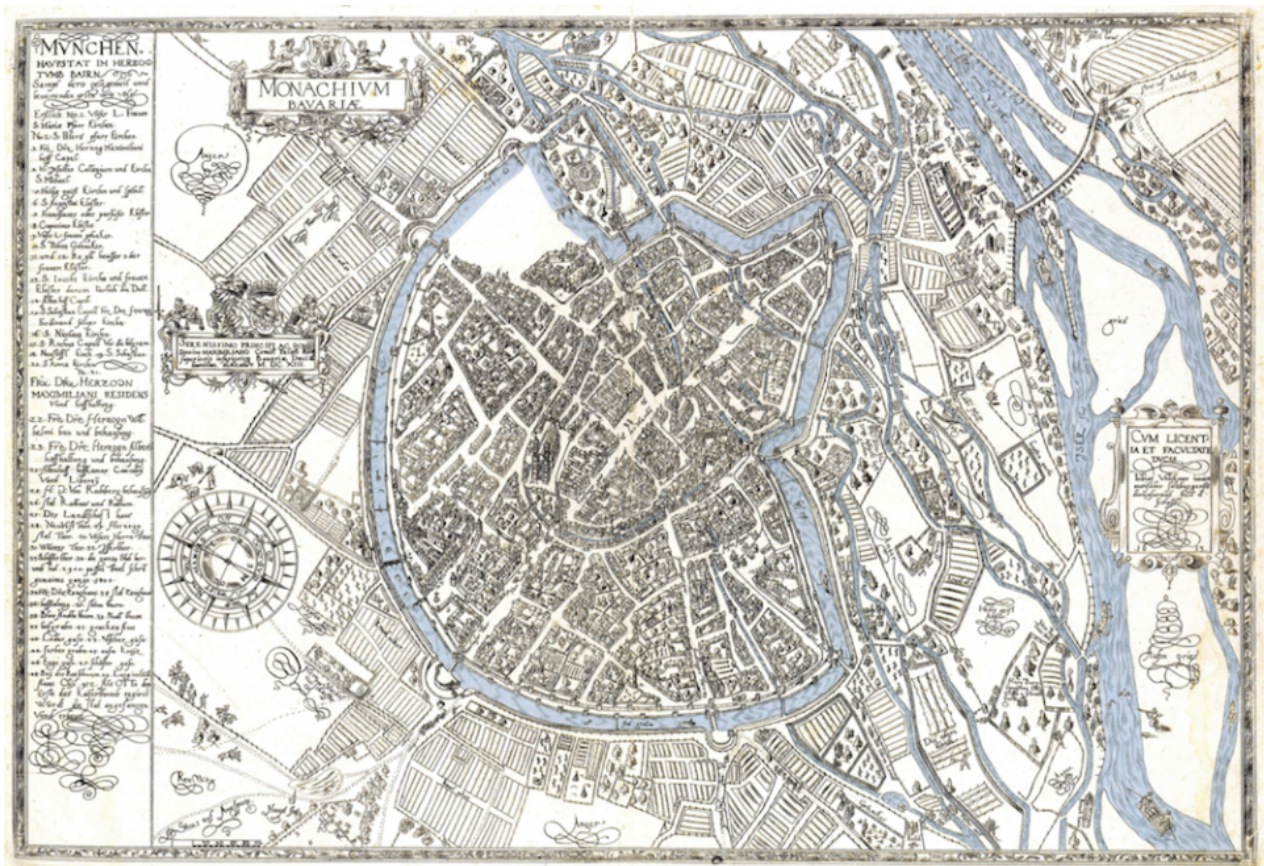
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Munich Was Once Called “Little Venice”

Until the end of the nineteenth century, streams and canals traversed the old town of Munich. This gave the city the nickname “Little Venice.”

Which statements about the streams in Munich are true?

- a) They supplied power for timber mills.
- b) Some were partially diverted due to the construction of the subway.
- c) There are currently plans to reopen some of the built-over streams.
- d) The Stadtsägmühlbach still flows under the Parish Church of St. Anna in Lehel.



A 1613 map of Munich by Tobias Volckmer shows the various streams that once ran through the city.

A town map of Munich that shows the streams running through the city. Original source: Christine Rädlinger, Geschichte der Münchner Stadtbäche, Herausgegeben vom Stadtarchiv München, Franz Schiermeier Verlag München 2004, ISBN 3980914720.

https://commons.wikimedia.org/wiki/File:Volckmer_Munich_1613_streams.png.



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All four statements are correct. With a total length of around 175 kilometers, the urban streams were built over in the nineteenth century and now flow underground. Discussions are currently underway to uncover a city stream under Herzog-Wilhelm-Straße between Sendlinger Tor and Stachus.

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Beer from Tölz

Though Munich is today regarded as the beer capital, “barley juice” was already popular here in the eighteenth century. As the saying went, “Whether young or old, man or woman, everyone drinks healthy barley juice.” But why did Munich residents once prefer beer from Tölz to beer from Munich?

- a) Tölzer beer was stronger.
- b) Tölz had stricter beer purity laws.
- c) Tölz had cleaner water.
- d) Tölzer beer was much cheaper.
- e) Beer storage was better in Tölz.



Joseph Stephan's 1767 painting “Die Münchner Flößerwirtschaft Zum Grünen Baum” depicts the lively drinking culture at the “Zum Grünen Baum” tavern.

Nymphenspiegel, ‘Die neue Isar – Band 1.’

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Munich residents preferred Tölzer beer, which was brewed from clear mountain water, because poor sanitary conditions in the city gave Munich’s groundwater a bad reputation. In addition, it was much easier to store beer at a cool temperature in Tölz. Large quantities of beer were brought to Munich on rafts. The tavern “Zum Grünen Baum” was located directly at the raft port, where even King Ludwig sometimes drank with the common folk.

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Flood protection

In the past, the Isar was characterized by its mountain river torrents. One of Munich's largest natural disasters was the 1899 Isar flood, during which the bridges that predate today's Ludwig and Max-Josef Bridges collapsed. Since then, bridges in Munich have been constructed only from stone.

Which measures have been implemented to improve flood management?

- a) The construction and modernization of the Sylvenstein Reservoir
- b) The renaturalization of the Isar
- c) The straightening of the river
- d) The expansion of hydropower stations



An image from Stadtarchiv München shows the damage wrought by the 1899 flood on a bridge that once crossed the Isar. (DE-1992-FS-NL-KV-0735).

Stadtarchiv München

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The Sylvenstein Reservoir south of Lenggries is the most important protection measure to prevent flooding in Munich. Built in 1959, it has been expanded several times. Thanks to the reservoir, Munich was spared from Bavaria's "flood of the century" in 2013. The renaturalization of the Isar also serves to prevent flooding; however, efforts to straighten the river course have increased the risk. Hydropower plants do not have any direct influence on floods.

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The Renaturalization of the Isar



In 2011, the renaturalization of the Isar was completed. The numbers on this map correspond with the text in this section. This map was designed by Alfred Küng and Katharina Kuhlmann. It is based on a map from 'Neues Leben für die Isar' by Christine Rädlinger and published by Franz Schiermeier Verlag München (2012).

Alfred Küng and Katharina Kuhlmann

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1. Water Quality

The water quality of the Isar is excellent, to the extent that it has been classified as suitable for bathing. Purification plants ensure the appropriate water quality by treating the water with ultraviolet radiation. Since 2001, this method has been used to remove microorganisms in the water that are harmful to humans, such as coliform bacteria. However, after a heavy rainfall, it is still possible for unfiltered water to enter the Isar.

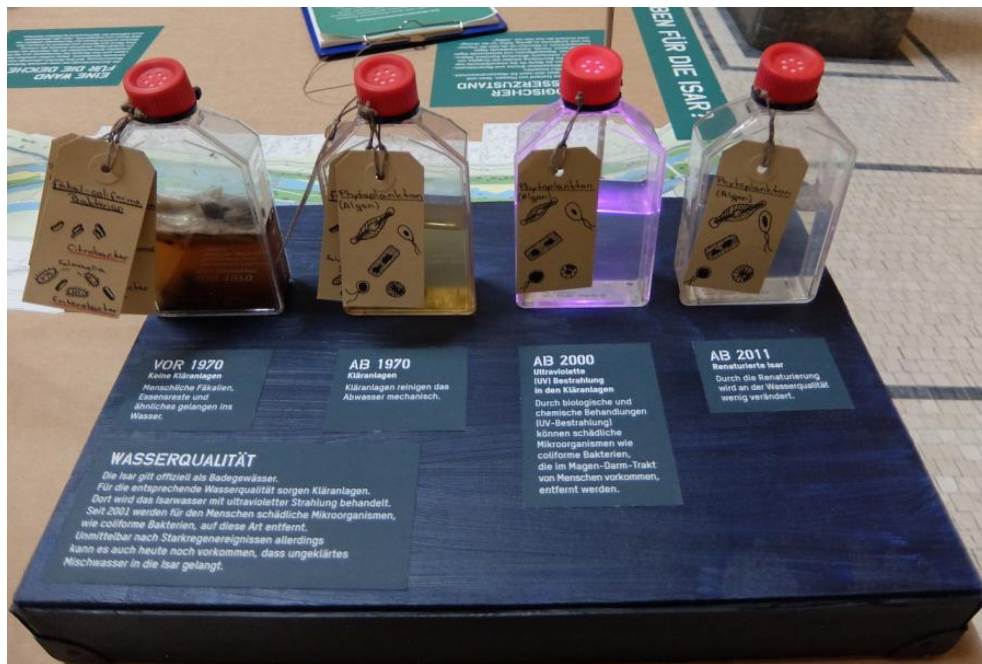
The original exhibition includes an interactive gallery of images of flasks that demonstrate how the water quality of the Isar has changed since purification plants were introduced in 1970s. View the images on the following pages.

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Before 1970

There were no purification plants before 1970.

Human feces, food scraps and the like, all contaminated the water.

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From 1970

Purification plants were introduced in the 1970s.

The plants mechanically clean the wastewater.

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From 2000

Ultraviolet (UV) irradiation was implemented in the purification plants starting in the 2000s.

Biological and chemical treatments (UV irradiation) can remove harmful microorganisms such as coliform bacteria, which are found in the human gastrointestinal tract.



From 2011

The renaturalization of the Isar was completed in 2011.

Since then, the water quality has only slightly changed.

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2. Ecological Water Conditions

The ecological state of rivers, lakes, and groundwater in Munich is evaluated according to the EU Water Framework Directive Innovation Program. The condition of the water in the Isar is measured between Großhesseloher Bridge and Marienklausen Bridge. Four groups of organisms are assessed: small invertebrates (macrozoobenthos), aquatic plants and stationary algae (macrophytes), fish, and drifting algae (phytoplankton). Because the number of fish species and juvenile fish in Munich is too low, the ecological condition of the Isar only ranks as “moderate.”

3. A Wall for the Dikes

Dike renovation was a central step in the renaturalization of the Isar. However, it was important not to damage the valuable rows of trees growing on the dikes. If their roots separated from the ground during a flood, this would create weak points that would compromise the stability of the dikes. A complex process brought about the solution: a cement-bentonite wall inside of the dikes effectively protected them from damage during floods, and allowed the trees to remain untouched during the renovation.

4. The White-throated Dipper

The white-throated dipper is the bird that has probably benefited most from renaturalization—it finds more food than ever before along the new shores of the Isar. However, the river’s popularity means that undisturbed nesting sites are rare, and environmentalists have set up hidden nesting sites to protect the dipper from disturbances when breeding.

5. The Last, Old Fish Ladder

From the Flauchersteg Bridge, one can still see it today: the last of the old fish ladders in the Isar. Before renaturalization, there were 17 fish ladders, but many fish were unable to use them: for large species of fish, such as Danube salmon, they were too small. And for small fish or poor swimmers, such as loaches and European bullheads, the 30-centimeter-high passes were far too steep. As a result, they could no longer reach their feeding and spawning grounds.



The last of the old fish ladders in the Isar as seen from the Flauchersteg Bridge.

Luna Benítez Requena (2017)



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6. Dead Deadwood?

The deadwood along the banks of the Isar is full of life. Dead tree trunks and branches are teeming with activity, from insect larvae to small invertebrates, such as crabs, mussels, snails, and worms. In addition, deadwood stabilizes the renaturalized shoreline. Gravel actively anchors large trunks, ensuring they no longer drift away during floods. Deadwood in shallow water provides fish, such as schneider, minnow, European chub, brown trout, common barbel, and Danube salmon, with food and shelter alike.

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An example of deadwood along the banks of the Isar.

Luna Benítez Requena



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7. Nutrients along the Meadow Banks

New gravel banks broaden and flatten the Isar's shore, causing more nutrients, such as nitrates and phosphates, to dissolve in the water. These broader banks also retain more nutrients. However, the sparse grassland that was planted during renaturalization requires very few nutrients, making it out of place in this ecosystem. Many dog owners walk along the renaturalized Isar, leaving behind dog excrement, which additionally increases nutrient input.

8. Place of Refuge

The shallow areas that run through the Weiden Island provide particularly favorable conditions for bottom-dwelling fish like streber. Although this fish is rare in the Danube catchment area, last year one thousand streber were marooned on the Weiden Island. Another count will soon take place. An (unsuccessful) attempt was also made to reintroduce German tamarisk here—a type of bush that has not been found along the Isar since the 1950s. However, the bushes did not survive for long. People also follow the path through the water along the

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desolate Weiden Island—could this prevent it from being a place of refuge for animals and plants?



The Weiden Island from the perspective of a fish.

Luna Benítez Requena (2017)



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9. Small Isar—Lots of Water

For a long time the Small Isar biotope was endangered because not enough water could flow into it. Thanks to an arm extension measuring two hundred meters, more water can now reach the Small Isar, improving the habitat for fish and microorganisms.

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A new life for the Isar?

“Various investigations have revealed that in addition to the reappearance of animal and plant species that were common to the area prior to renaturalization, new species typical to the wild river landscape of the Isar have been able to settle there. True to the motto of the Isar Plan: a new life for the Isar.”

Department for Health and Environment of the State Capital of Munich

“Renaturalization has had many positive effects, but if you look at it purely from the perspective of terrestrial vegetation, it has not been completely successful. Species that are specialized for living in wild rivers and river-born alpines, for example, do not have a chance. Furthermore, where the Isar is somewhat wilder, such as at the Small Isar, the more powerful water supply has led to an increased output of gravel and a new hydrodynamic so that field vegetation, which is protected by the Fauna-Flora-Habitat Guidelines, could be lost there. For the vegetation along the riverbanks, renaturalization has had more or less a neutral effect; but the flora and fauna of the wild river landscape do not necessarily benefit. Also, the German tamarisk that we planted has dried up or been trampled upon, and is now endangered.”

Prof. Dr. Johannes Kollmann, Ecological Restoration, Technical University of Munich

The original exhibition includes an interactive gallery of images the exhibition table that tells the story of the renaturalization of the Isar. Exhibition table and photographs by Luna Benítez Requena and installation photos by Florin Prună. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).



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This exhibition table tells the story of the renaturalization of the Isar. Exhibition table and photographs by Luna Benítez Requena and installation photos by Florin Prună. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Habitat: Fish and Birds

A Death Trap for Fish

Hydropower plants, where death looms, present an obstacle for the fish of the Isar. The structures block fish on their way upstream to their spawning grounds. Fish ladders, which were implemented as an alternative way upstream, are often not used by the fish— they find the ladders unfamiliar and, in part, impassable. On their way downstream, the fish prefer those zones with the greatest flow rates, which lead directly to the turbines of the hydropower plants. The fish emerge either heavily injured, or completely sliced and diced.

Safe Nests?

Some bird species, such as the little ringed plover that is endangered in Bavaria, breed directly in the gravel. The new gravel banks of the Isar could be a possible habitat for these birds. Nevertheless, according to experts'

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statements, the bird has not settled here. There are simply too many destructive elements. Furthermore, the areas along the Isar are not particularly safe for the offspring of these “bush breeders.” The brush cannot stop inquisitive dogs, which frighten off the breeding birds. And the brush that has been cleared in an effort to prevent floods has displaced them. The birds at the Isar also suffer from the pollution of their habitats by humans. On a mild summer weekend in 2016, around four tonnes of garbage was recorded on the Flaucher Island alone.

Under Water

Fish that spawn in gravel, such as the common barbel, common nase, and trout, spawn in the rocky riverbed of the Isar. Even if these fish do not spawn in the summer months, visitors seeking to relax at the Isar should keep the fish in mind. Summer bathers push the fry and juveniles of koppe and loach from the shallows to the deeper waters, where predators lie in wait. Bathers also stir up sediment that clouds the water, which distresses the fish that prefer clear water.

During the summer, many people barbecue, party, and smoke at the Isar. Charcoal soaked in chemical lighter fluid is carelessly disposed of, which pollutes the water and can be deadly for fish. Cigarette butts that land in the water are especially harmful to the Isar’s residents. The substances that cigarette filters contain and release into the water—neurotoxins such as nicotine, arsenic, and lead, as well as toxins like copper, chromium, and cadmium—can kill fish and microorganisms.

According to a study conducted by San Diego State University, a single cigarette butt can contaminate 40–60 liters of water.

The original exhibition includes an interactive gallery of a diorama in the exhibition that depicts birds and fish found in and around the Isar in Munich. Diorama by Elisa Hanusch and photos by Florin Prună. These works are licensed under a [Creative Commons Attribution 4.0 International License](#).



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HOUSE RULES

1. Please keep to where you are allowed to go. We need a refuge where we are not disturbed by people or dogs! Here we can lay our eggs, rest, and take a break from the city noise.
2. Please pay attention to your four-legged friends, especially from 1 March to 30 September, so that we can take care of our young undisturbed! Please do not let them wander through the bushes.
3. Phew—that stinks! Please barbecue only in the designated areas because so much smoke and so many smells are no good for us sensitive animals! And then please dispose of the grill charcoal in the containers specifically placed there for charcoal.
4. Please clean up your garbage! That is why there are garbage bins. If they are full, just put your garbage next to them. If you like the Isar so much, please leave it as you found it. Then we will all benefit.
5. Many pennies make a dollar. Please also dispose of your bottle caps and especially your toxic cigarette butts properly. A small, portable ashtray helps with this and saves us a lot of trouble.
6. Do you also throw bottles around in your apartment? No? Then please do not do this in our home either! In this case, broken glass doesn't bring us any luck.
7. Plastic is not fantastic. Please clean it up, or simply bring your food in reusable containers and leave your trash at home.
8. Use the toilets to do your business, so that our home stays clean!

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Chapter: Munich and the Isar

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Curators: Luna Benítez Requena, Elisa Hanusch, and Johannes Summer

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Websites linked in image captions:

- https://de.wikipedia.org/wiki/Datei:Frauenkirche_Munich_-_View_from_Peterskirche_Tower.jpg
- https://de.wikipedia.org/wiki/Datei:Freising_von_S%C3%BCden_1772.png
- https://commons.wikimedia.org/wiki/File:Volckmer_Munich_1613_streams.png

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Democratic Green

Who Owns the Olympiapark?

[Layered Stories in the Olympiapark](#)

[Can I Be Yours?](#)

[One Tree, Many Interests](#)

[A Story of Peaceful Appropriation](#)

Munich's Olympiapark has existed since 1972. Landscape architect Günther Grzimek planned it as a people's park. According to the ideal of a new democratic Germany, the premise was: openness instead of intolerance. Walking on the grass is explicitly permitted!

What sounded revolutionary at the time is commonplace today. So what does “democratic green” mean in the twenty-first century? How open is the park to visitors, really? Would a Russian hermit still be allowed to settle in the Olympiapark? Father Timofej's house still stands today—a memorial. Will the linden trees also be allowed to remain? The fate of the once proud Munich avenue tree is currently being fiercely debated.

There is a lot of history buried in the Olympiapark. What future do we wish for it? Can we find the balance between a recreational area and an event park?

The original exhibition includes an interactive gallery of views of the exhibition, where visitors were encouraged to walk on the grass. Photos 1, 2, and 4 by Florin Prună. These works are licensed under a [Creative Commons Attribution 4.0 International License](#). Photos 3 and 5 by Christian Eckstein. These works are used by permission of the copyright holder. View the images on the following pages.

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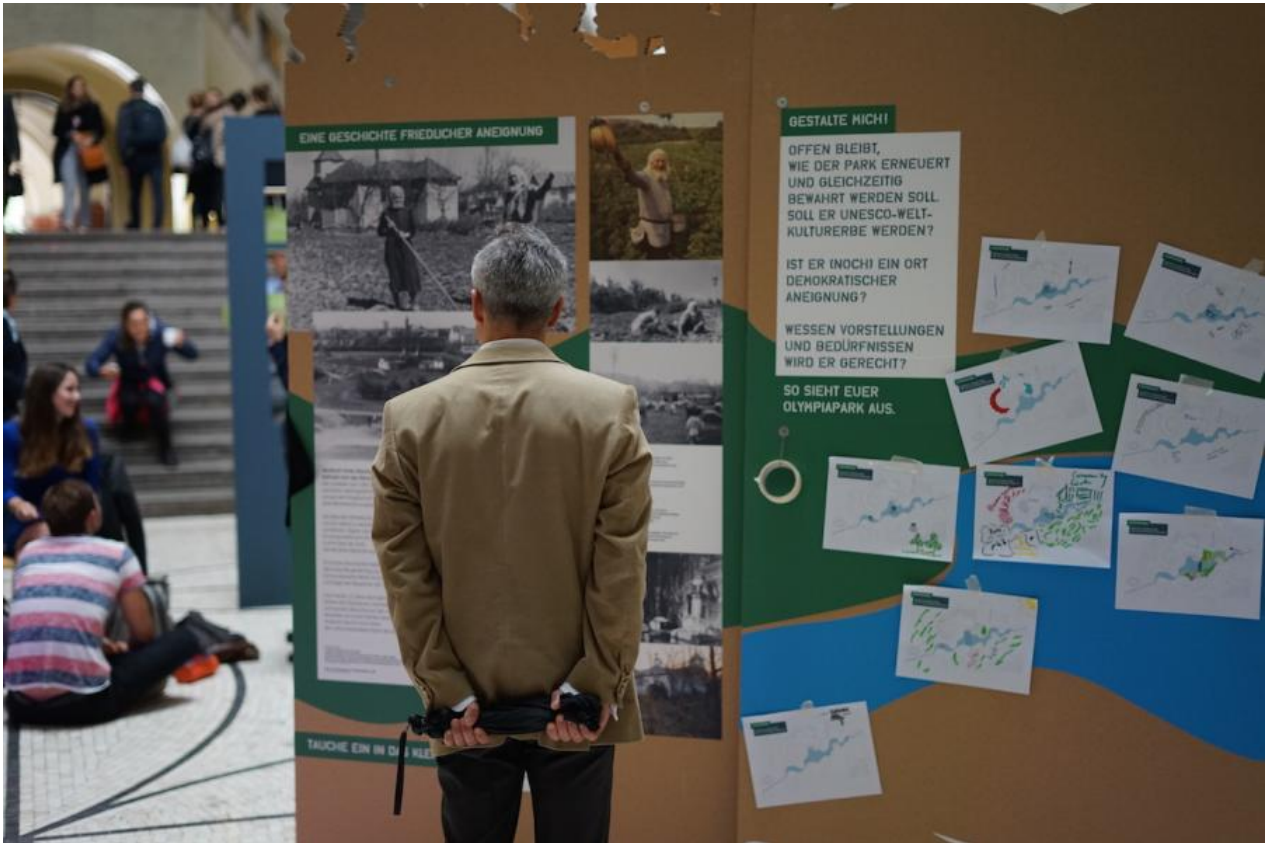
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Views of the exhibition, where visitors were encouraged to walk on the grass. Photos 1, 2, and 4 by Florin Prună. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/). Photos 3 and 5 by Christian Eckstein. These works are used by permission of the copyright holder.

Layered Stories in the Olympiapark

Until 1938, an airport was located on the Oberwiesenfeld, which was used by the National Socialist elite. After the end of the war in 1945, a hill of debris was constructed from the rubble of the bombed city—today’s Olympic hill. In contrast to the Oberwiesenfeld of the past, the Olympiapark was intended to be open to the city and the world. Without rigid restrictions and provisions, social participation was possible for all.

The design emulated the Bavarian landscape: willows around the lake like the ones lining the Isar river, mountain pines on the hillsides as in the Alps, linden trees—the typical Munich avenue tree—along the pathways.

Landscape architects praise the park as a symbol of freedom and openness. A section of the grounds is already listed as a historic monument. In the future, it could become a UNESCO World Heritage site.

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Can I Be Yours?

You can stroll, jog, dance, and eat; you can go to Tollwood or the Impark summer festival, see live bands or the EHC Red Bull hockey team, or visit the Theatron sea stage. You can celebrate different cultures, like the Japanese cherry blossom festival. The Olympiapark fulfills many roles: it is an event venue, a recreational area for people, and a habitat for animals and plants.

The original exhibition includes an interactive gallery of images from the Olympiapark. View the images on the following pages.



Numerous advertising posters vouch for the variety of events in the park.
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Cobble stones and paved roads characterize the park just as much as green meadows and hills.



Bathing is not allowed in the Olympic lake, which is only 1.3 meters deep. Ducks, geese, and swans do swim here though.

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The lake flows through to the Nymphenburg-Biederstein canal and is supplied with rainwater from the huge stadium roofs.



Many pedestrians, joggers, and cyclists use the Olympiapark. However, limits are set for mountain bikers, who often attempt to pass through the park outside of the designated paths.

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In 2016, the Olympiapark saw 4.1 million registered visitors.

Under new management, it is hoped that the park will remain profitable, but also improve environmentally. In 2016, it switched to 100 percent green electricity. There is a constant need to weigh these aspects against one another and to renegotiate the different interests concerning how the park is used. In the future, it will also be necessary to ask: Whom and what purpose should the park serve? How do we perceive the park?

What remains open to discussion is how the park can be rejuvenated and, at the same time, preserved. Should it become a UNESCO World Heritage site? Is it (still) a place of democratic appropriation? Whose ideas and needs will it satisfy?

What does your park look like? What does our park look like?

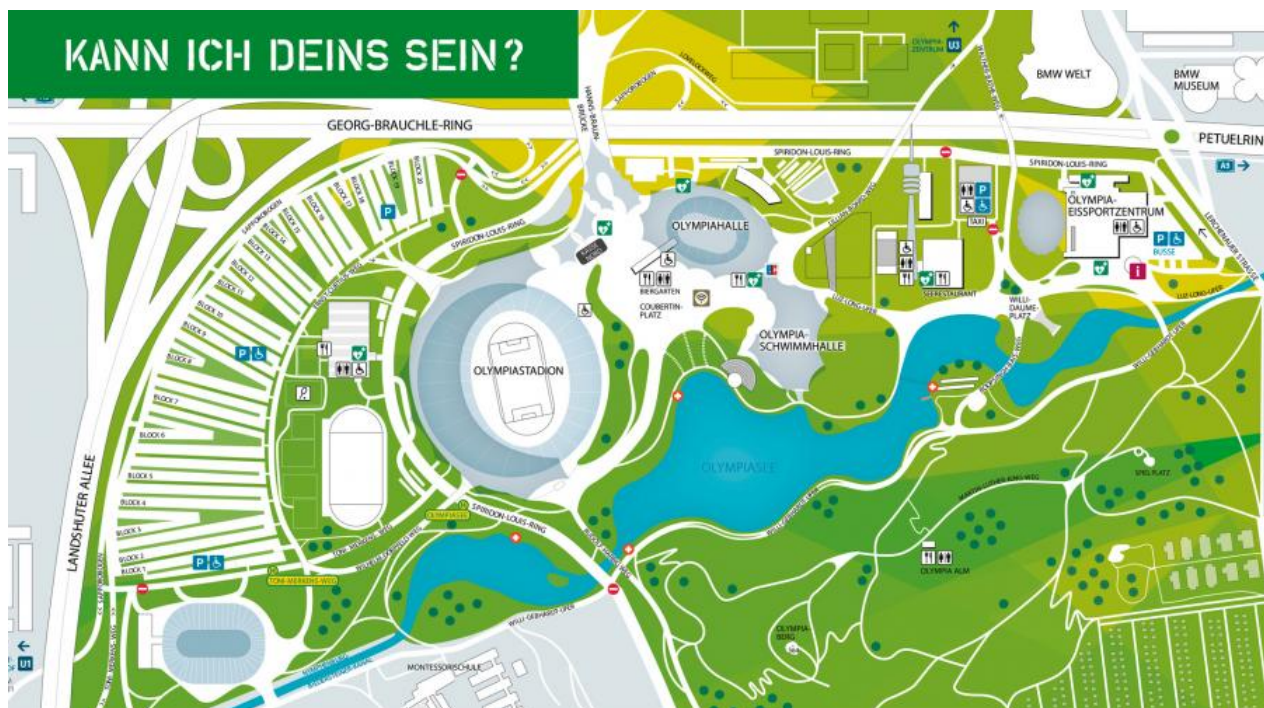
The original exhibition includes an interactive gallery of maps of the Olympiapark. View the images on the following pages.

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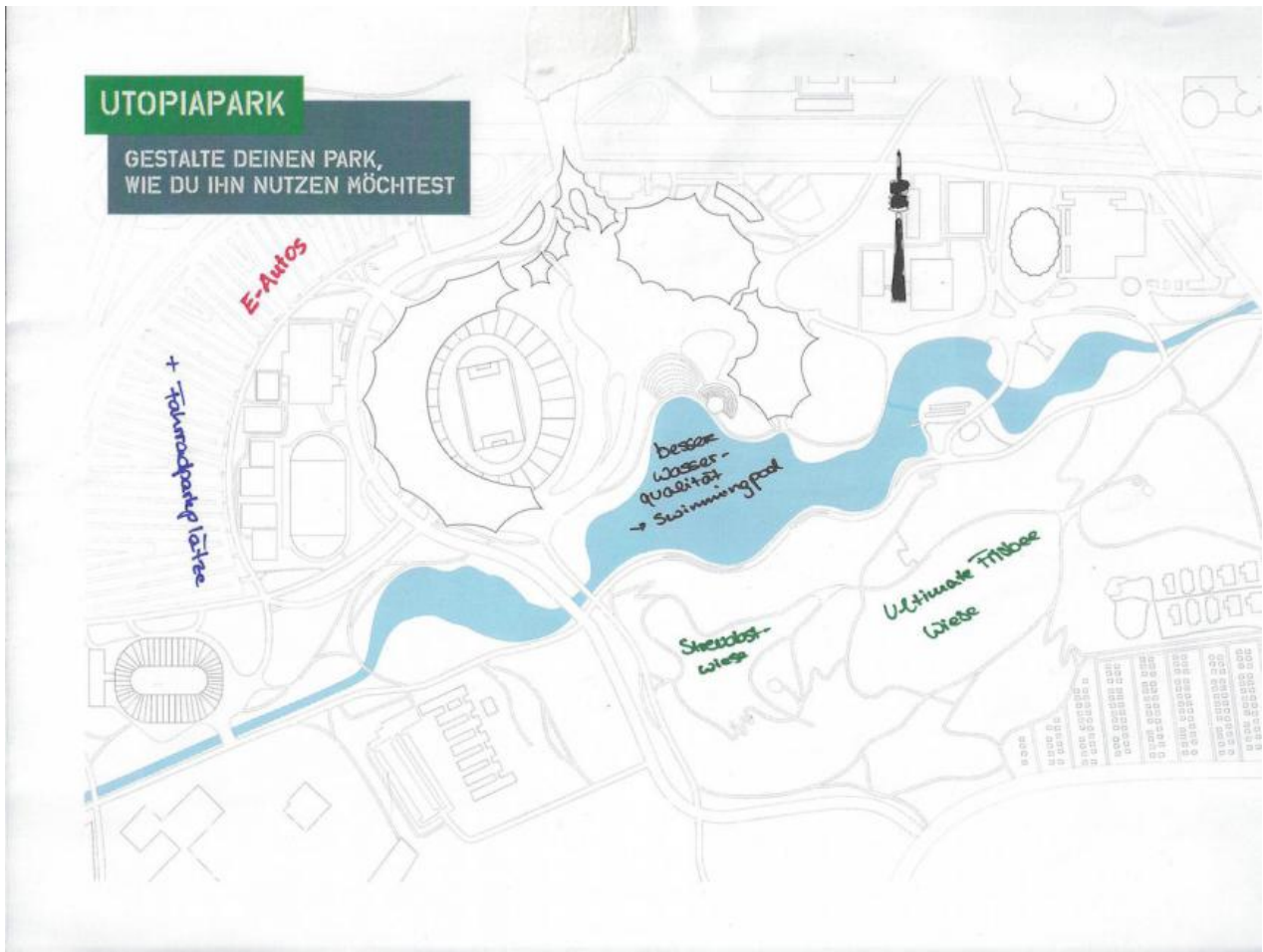
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Map designed by Katharina Kuhlmann and Alfred Küng
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Exhibition visitors were asked to design the Olympiapark. Here are four anonymous answers to the question of what the park should look like. The map was designed by Katharina Kuhlmann and Alfred Küng.

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One Tree, Many Interests



Honey from the non-commercial beekeeper association of the Ost-West-Friedenskirche (East-West Peace Church). Two beekeepers look after Timofej's old beehives. The bees' main source of food are the blossoming linden trees in the park. Photo: Florin Prună

Florin Prună (2017)



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The linden is a classic Munich avenue tree. That's why it was selected for the Olympiapark and lines its main paths. Recently, however, it has gone out of style—aphids living in the trees produce a sweet and sticky honeydew. Come June, the dripping liquid is a nuisance to many, sticking to car windows and walkways. Beekeepers, on the other hand, appreciate the honeydew and pollen-rich flowers of the linden. These food sources make the linden one of the most crucial trees for bees and other insects in the city.

Unlike for bees and beekeepers, for city planners the importance of city trees is based on the specific ecosystem services they perform: they should grow evenly and their roots should not reach too deeply. They must also be resistant to dog urine and road salt and, in light of climate change, also to heat and periods of drought.

These things do not make it easy for the linden to remain a typical city tree in Munich. It is likely that in the future more suitable “climate trees” will be planted: the Japanese Pagoda tree, English oak, or Ginkgo.

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The original exhibition includes an interactive gallery of linden tree images. View the images on the following pages.



The linden is a typical tree of the Olympiapark.

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City trees often have limited breathing space between rows of houses and streets.



Like on many other streets in Munich, linden trees flank Landshuter Allee.

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The linden is a typical tree of the Olympiapark.



Gauges on the trunk of a linden tree

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Delicate structures: Linden blossoms produce a delicately fragrant tea.



In addition to this, their pollen provides—together with the honeydew of lice—the basis for linden honey.

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A Story of Peaceful Appropriation

Hidden behind bushes and trees, amid a gravel fallow, Father Timofej's chapel is located. The Russian hermit Timofej Prokhorov settled here in 1952 together with his companion Natascha. Out of debris from World War II that was gathered on the Oberwiesenfeld, they built a church for Saint Mary and established a place of peace.

They planted fruit trees, shrubs, flowers, and vegetables to provide for themselves and to offer a home to bees, birds, and other living creatures. Thus a small section of today's Olympiapark was transformed into an oasis of calm, which has always welcomed visitors from all over the world.

The home-grown fruit and vegetables served as the basis of their livelihoods. They exchanged harvest surpluses for other foodstuffs or sold them to visitors. It was rumored that Timofej had the best apples in town. The former Lord Mayor, Christian Ude, likes to tell that, as a boy, he used to sneak into the garden to steal the delicious apples.



The Russian hermit and his church. Old Timofej's faith transcended religious paradigms. A Buddha figure stands in his garden beside statues of Mary and images of Jesus. Timofej had an unconventional mind.

Photo: Camilla Kraus

Camilla Kraus

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It is a story of peaceful, subversive appropriation—Timofej had neither a building permit nor a purchase agreement. In a wondrous way, Timofej defied official attempts to evict him and even fought the construction plans for the 1972 Olympic Games.

Even today, thirteen years after the death of the Russian hermit, fruit trees blossom here, bees buzz, and visitors stroll along the winding paths. Managed by a small association that cares for the church and garden, the place still exudes the unconventional spirit of the wise father.

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The original exhibition features a short film of a tour of where Father Timofej lived and built his church. From the fruit trees and the bees that collected their nectar and pollen to the icons that decorate the church's interior, the video offers a glimpse of Father Timofej's flourishing legacy. Marlen Elders, 2017, 3 min 56 s. View the film online [here](https://www.youtube.com/watch?v=4GmEtyuNnRU):
<https://www.youtube.com/watch?v=4GmEtyuNnRU>.



Curators: Marlen Elders, Laura Kuen, and Maya Schmitt

How to Cite: Elders, Marlen, Laura Kuen, and Maya Schmitt. "Democratic Green." In "Ecopolis München," edited by L. Sasha Gora. Environment & Society Portal, *Virtual Exhibitions* 2017, no. 2. Rachel Carson Center for Environment and Society. <http://www.environmentandsociety.org/node/8051>.

Websites linked in this text:

- <https://www.youtube.com/watch?v=4GmEtyuNnRU>

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Munich from Below

What Happens Underground?

Anything but Fresh

Why Are There So Many Breweries on the Banks of the Isar?

Beer Gardens Are Drinking Gardens

Food from the Deep

Mushrooms under Goetheplatz

The Queen's Death Ensures Clean Water

An underground world lurks beneath the pavement, houses, and streets of Munich. Mysterious, dark, dirty—these are words commonly associated with what lies below ground. But there is so much more to subterranean Munich that we don't know about! Out of sight and unknown to most locals, streams—which were channelized in the nineteenth and twentieth centuries—flow underground.

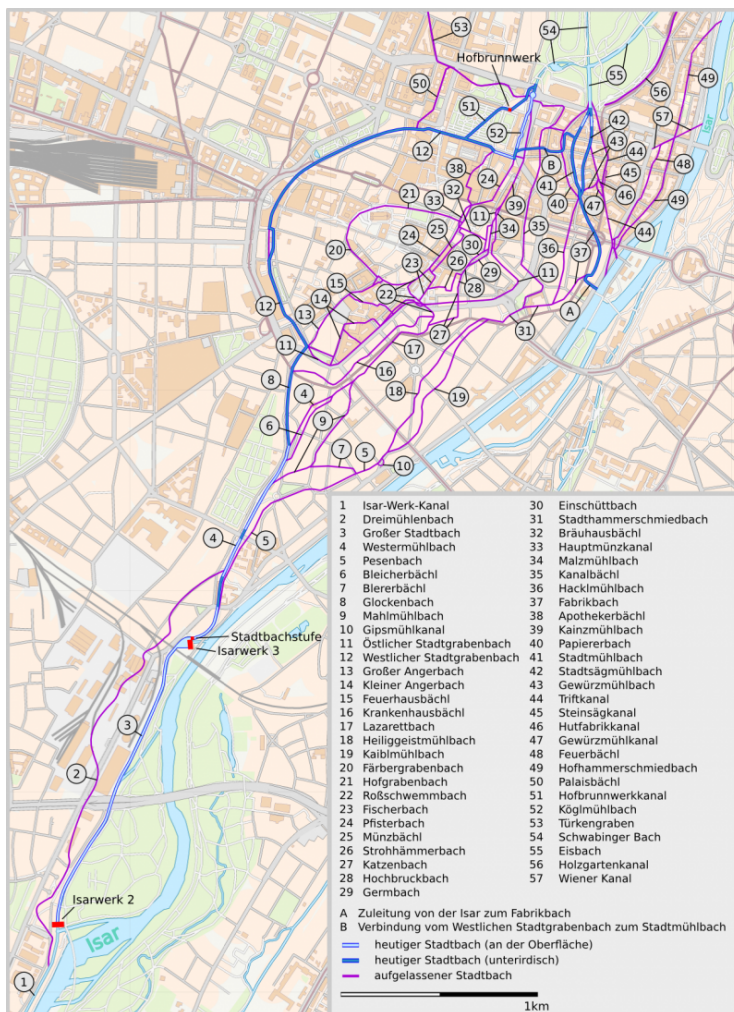
Munich could not exist without its underground world—the city's lifelines run under these crowded streets. Sewage is cleaned here and residents are supplied with drinking water. Munich is the German metropolis with the highest precipitation level (960 millimeters per year). When a heavy rainfall fills the sewers, water is collected in 13 enormous rainwater-retention and overflow basins. Underground Munich was also important for beer, which was once cooled with ice in storage cellars. Today it is cooled differently, but the underground space offers new opportunities for the future. Will we soon eat food that is grown underground? Munich's underground is filled with secrets and potential: let's bring light into the darkness!

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This map shows the course of Munich's streams that are west of the Isar. The different colors represent whether a stream is on the surface or underground. The ones mapped in dark blue are below ground. The ones in light blue are above ground. And the ones mapped in purple are abandoned streams.

Image licensed under CC BY-SA 2.0 on Wikipedia. From: Christine Rädlinger; Stadtarchiv München (Hrsg.): Geschichte der Münchner Stadtbäche. Verlag Franz Schiermeier, München 2004, ISBN 3-9809147-2-0.

https://de.wikipedia.org/wiki/M%C3%BCnchner_Stadtb%C3%A4che#/media/File:...



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Anything but Fresh

In the Middle Ages, catastrophic sanitary conditions prevailed in Munich. The city's inhabitants dumped their garbage on their doorsteps or into the Isar. Only a few meters away, they extracted fresh water from wells. Germs and diseases spread ruthlessly, and epidemics of diseases like cholera and typhus killed thousands. Because beer was produced by boiling and fermenting water, it contained far fewer germs than drinking water. As a result,

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everyone, even children, drank home-brewed beer. However, because of the poor cooling options, large quantities of beer spoiled, becoming sour. Therefore, it was forbidden to brew beer in the summer. Instead, Munich imported beer from the surrounding areas. Bad Tölz, the largest supplier, was able to cool the beer in natural caves in the tufa, which was optimal, especially in the heat.

Additives were known to increase the shelf life of Munich's beer: herbs, belladonna, henbane, ox gall, ash, and pitch. However, some of them were toxic. Since the establishment of Munich's 1487 Purity Law, beer has only been allowed to contain barley, hops, yeast, and water.

Why Are There So Many Breweries on the Banks of the Isar?

Breweries did not move to the river to brew beer with water from the Isar. The water used to brew beer is tertiary groundwater. The breweries' own wells draw water from a depth of 150–200 m. The breweries moved to the river to cool their beer in cellars. The cooler the temperature at which the beer was stored, the longer its shelf life. The breweries built deep cellars at the gates of the city, in the sand and gravel pits on the slopes of the Isar. Cooling methods improved steadily. As of 1830, in addition to implementing ventilation systems, breweries also began to use natural ice in their storage cellars. The quality, reputation, and economic success of Munich beer became better and better.

At the end of the nineteenth century, Felix Unsöld founded an ice factory in Munich. The factory was powered by the Stadtmühlbach. Today this stream runs underground. Behind the site of the former factory on Unsöldstraße, the Stadtmühlbach ascends to the surface and continues in the direction of the Eisbach wave. Ice from the factory was used, among other things, by breweries to cool their beer. The first covered artificial ice rink in Europe was located next to the ice factory. The artificial ice rink was a popular meeting spot for Munich residents.

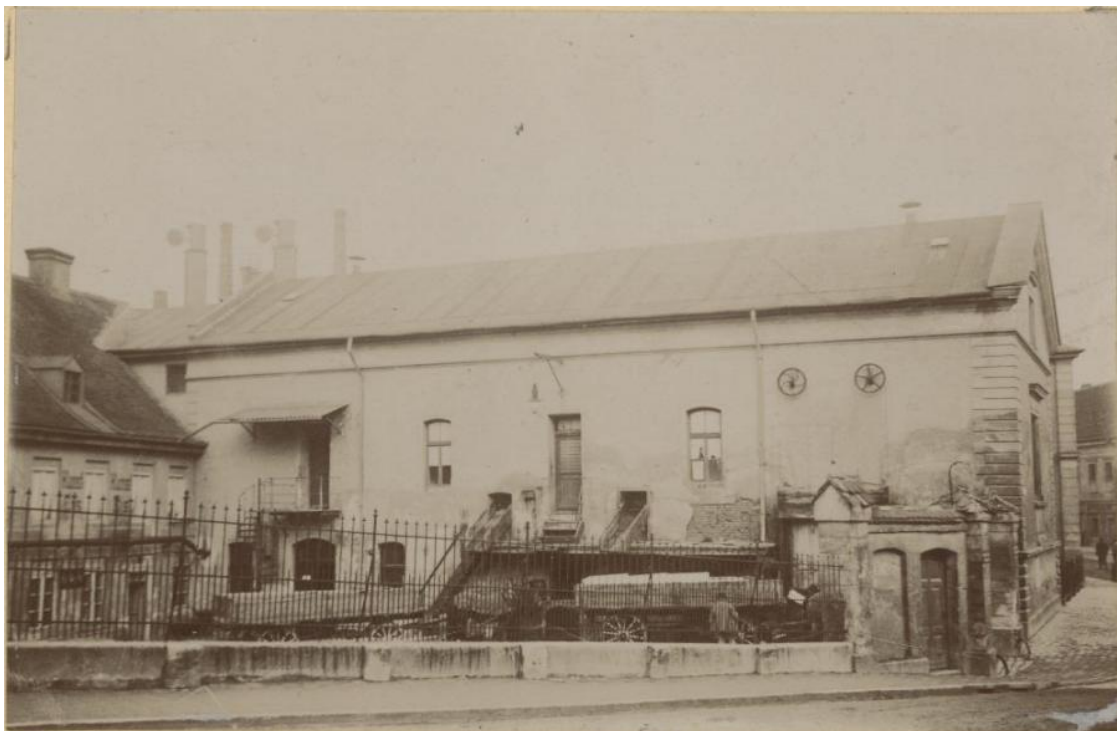
In 1873, the Spaten brewery tested Carl von Linde's ice machine; but many breweries only adopted it in the 1930s and 1950s. Because of artificial cooling, breweries were no longer reliant on beer cellars and began to move to the city outskirts. The majority of Munich's beer cellars no longer exist today. After serving as bomb shelters in the Second World War, many were destroyed, demolished, or built over. The beer cellars have since been largely forgotten. Only here and there are they still around, hidden, mostly inaccessible—deep below the cellars of buildings.

The original exhibition features an interactive gallery of images of ice cellars and breweries in Munich. View the images on the following pages.



Certain parts of Munich's beer cellars served as ice cellars. The ice was harvested from nearby lakes and canals, such as the Nymphenburger Canal and the Eisbach.

Photo: Deutsches Museum (used by permission of the copyright holder)



Ice blocks are placed on a wagon in front of the Schmederer ice factory, 1895.

Photo: Stadtarchiv München, DE-1992-FS-NL-KV-0966 (used by permission of the copyright holder)

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In mild winters, ice for cooling beer cellars was even harvested from the Birnhorn glacier.
Photo: Deutsches Museum (used by permission of the copyright holder)



This pictures shows a group working in the ice field at the Birnhorn glacier. Ice blocks were hauled into the valley using wooden chutes.
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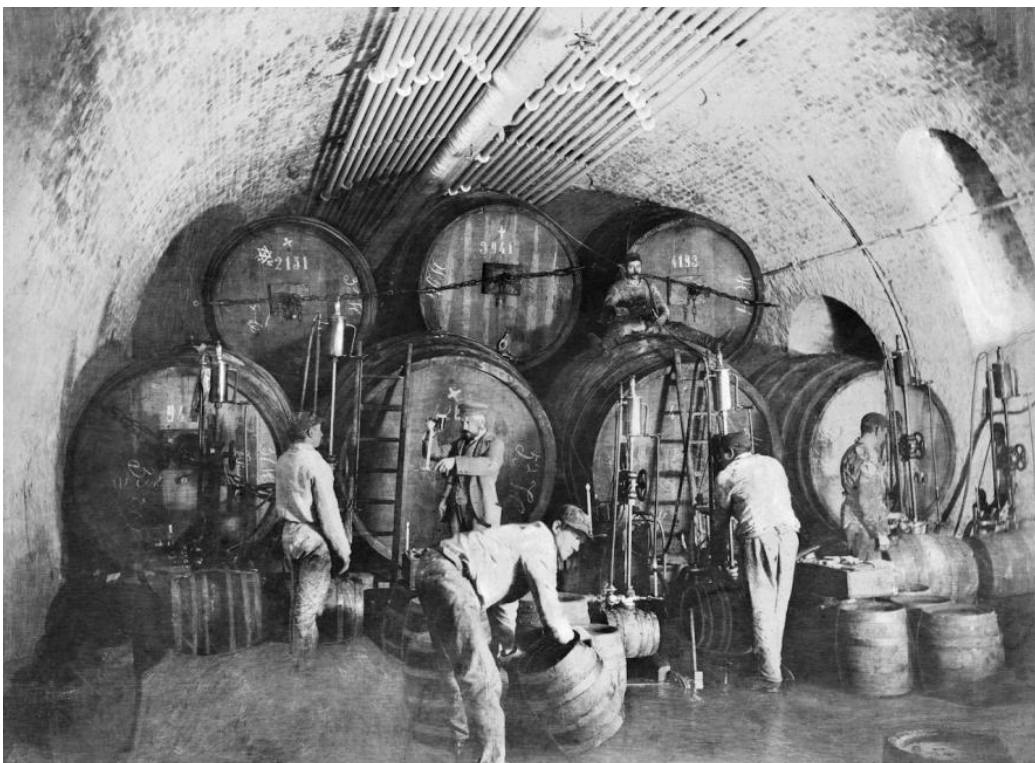
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The ice was then transported to Munich by train.
 Photo: Deutsches Museum (used by permission of the copyright holder)



Beer was stored in large barrels in underground beer cellars. As shown here in the Löwen brewery, the beer was then poured into small barrels before it was sold.
 Photo: Deutsches Museum (used by permission of the copyright holder)

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Today the Augustiner beer cellar keeps the restaurant guests cool.
Photo: Augustiner Keller (used by permission of the copyright holder)

Beer Gardens Are Drinking Gardens

Trees above the beer cellars helped to lower the temperature. Chestnuts were preferred because their thick foliage created large shadows and their shallow roots did not attack the cellar vaults. Another advantage of chestnuts: plant lice did not attack them as they did linden trees, which additionally produce sticky honeydew. Eventually, shady beer gardens were built under the trees.

Munich residents liked to buy their beer directly at the source. The beer gardens soon became serious competition for traditional taverns, so much so that it was prohibited to sell beer by the liter. Citizens and brewers, however, ignored the ban. And as of 1812, only the sale of food was forbidden. As a result, to this day, one can still bring and eat one's own food in beer gardens.

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The original exhibition features and interactive gallery of beer gardens in Munich. View the images on the following pages.



The beer garden at the Augustiner Keller.

Photo: Augustiner Keller

Augustiner Keller

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Chestnuts provide their shade to beer cellars and beer gardens to this day.

Photos: Lisa Bauer

Lisa Bauer

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Lisa Bauer

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Chapter: Munich from Below

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A taste of the beer garden culture in Munich. Photo 1 by the Augustiner Keller. This work is used by permission of the copyright holder. Photos 3, 4, and 5 by Lisa Bauer. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

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Food from the deep



The exhibition featured the plantCube from agrilution GmbH, Munich, a small greenhouse for growing food at home.

Florin Prună (2017)



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Are people today disconnected from their food? The call for local production is getting louder and louder—even in urban environments. Since 2007, more than half of the world's 7.5 billion people have lived in cities. A third of the Earth's surface is used for agriculture, but these areas are limited. Food travels longer and longer distances. On average, a head of lettuce travels 1,200 kilometers in Europe—which is the distance from Munich to London. When fruits and vegetables are harvested, they are often still unripe. During transport, not only is a significant amount of CO₂ created, but goods often also spoil. In 2050, 70 percent of the world's 9.7 billion people will live in cities. Food production will have to change. Growing food directly in cities appears to be a reasonable solution to supplying urban populations sustainably. Projects like urban gardening and vertical farming are making this happen.

Can food grown underground sufficiently supply Munich?

According to the latest technology, this is not yet possible. In a city of 1.5 million inhabitants, a lack of space is a real challenge—even underground.

Would you buy groceries that have never had contact with either the sun or the Earth?

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The original exhibition features an interactive gallery of underground gardens in Munich. View the images on the following pages.



Growing Underground attempts to provide residents of London with locally grown food.
Photo: Growing Underground (used by permission of the copyright holder)

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In London lettuce and herbs are grown using hydroponics in old, disused air-raid shelters. Because a head of lettuce is transported a maximum distance of only 50 kilometers to reach consumers, the quantity of waste decreases.
Photo: Growing Underground (used by permission of the copyright holder)



Today, greenhouses are used to grow food for all of Europe. Here is one example in Almería, Spain.
Photo: Klaus Leidorf (used by permission of the copyright holder)

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By cultivating lettuce and herbs on balconies, one can be at least partly self-sufficient in the city.
 Photo: Stephanye Zarama-Alvarado (used by permission of the copyright holder)



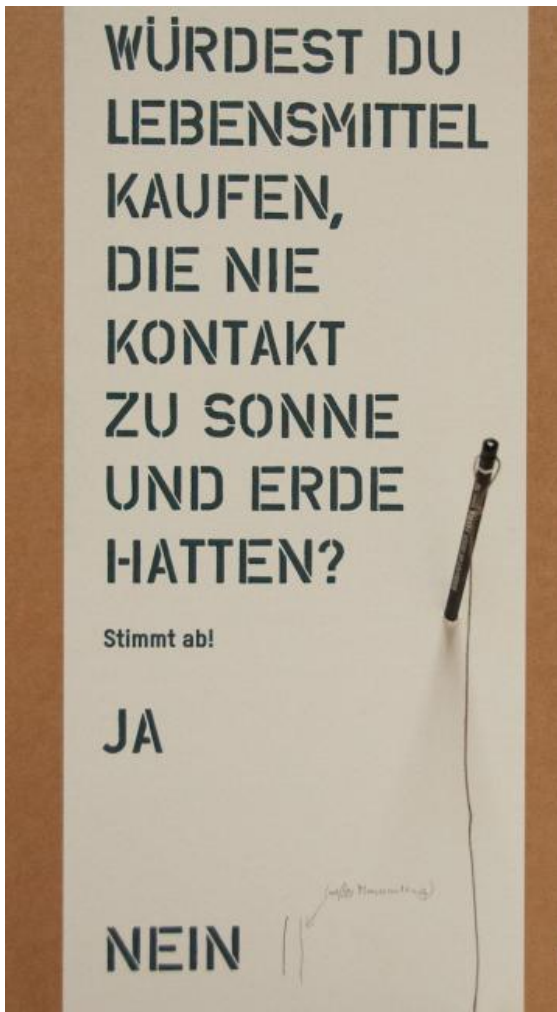
The plantCube automatically optimizes temperature, irrigation, and lighting for plants. Starting with seeds that are ordered through an app, herbs and lettuce grow in the greenhouse at home. agrilution promises rapid growth, pronounced flavors, and many minerals. Due to the closed system and hydroponic techniques, no pesticides are needed, less water is used, and transportation is no longer required.
 Photo: Florin Prună (Creative Commons Attribution 4.0 International License)

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A poll asked exhibition visitors if they would buy groceries that have never seen the sun nor have been in contact with soil.
Photo: Florin Prună (Creative Commons Attribution 4.0 International License)

Mushrooms under Goetheplatz

After the Second World War, mushrooms were grown underground in an old rail tunnel beneath Goetheplatz. Today the U3/6 line runs through the “mushroom tunnel,” which was built as a section of Munich’s first subway line. The city had already begun to plan a subway in 1905, but the project was discarded and revisited several times before it was realized. The project was revived in the Nazi era. Construction work began in 1938 on Lindwurmstraße. However, in 1941, after only 600 meters, tunnel construction was stopped.

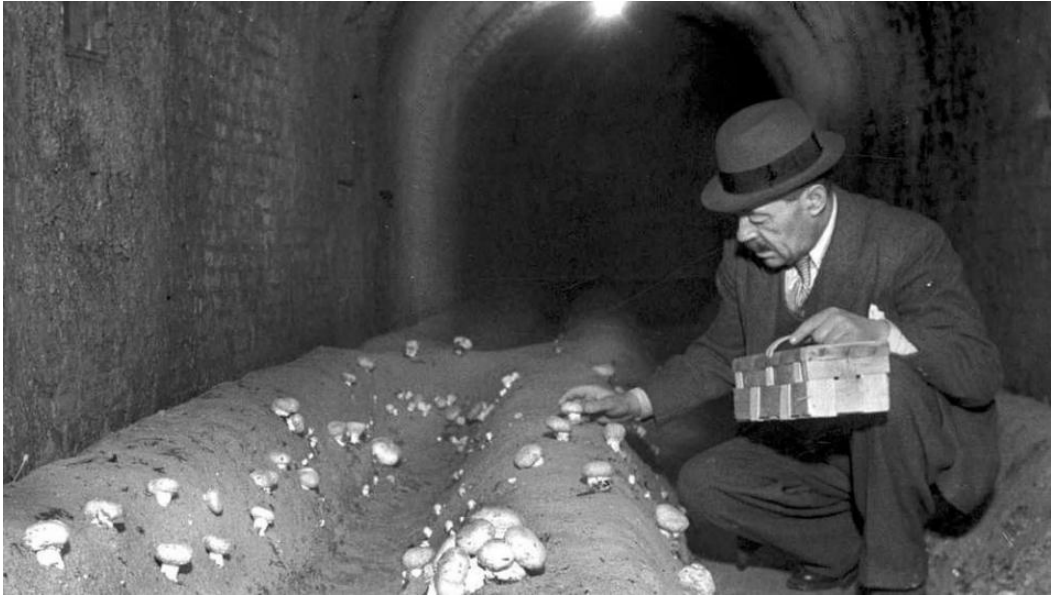
Brown and white button mushrooms need a lot of water, prefer warm temperatures, and do not like direct light. They grow very quickly. In many cities, mushrooms are cultivated underground.

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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.

Photo: Stadtarchiv München (RD0774A29)

Stadtarchiv München

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Today shitake mushrooms are grown in former beer cellars.

Photo: Lisa Bauer

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The Queen's Death Ensures Clean Water

Max von Pettenkofer brought about a change in Munich's cleanliness. The doctor found that the recurring cholera outbreaks could be traced back to unhygienic conditions. In order to counteract the causes of the epidemics, he encouraged the idea of a modern sewage system with a waste transport system and the introduction of flush toilets. He also pushed for a supply of drinking water from the Mangfall valley in the Alpine Foreland. He initially encountered strong resistance. The government took action only after the death of Queen Therese of Bavaria. In 1854 she became a victim, along with another 2,935 Munich residents, of a cholera outbreak.

The construction of a sewage system transformed Munich into one of the cleanest cities in Europe. The mortality rate decreased from 42 to 16 people per 1,000 inhabitants. In 1900, 78 percent of the city's 480,000 residents were connected to the 225-kilometer sewer system. In 2017, that number has increased to 99.9 percent, and the system is 2,500 kilometers long. Pettenkofer's system still services Munich today. Because it uses differences in altitude in the city, the water can flow across Munich almost without pumps.

The original exhibition includes an interactive gallery of images of the Munich sewer system. View the images on the following pages.

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These stairs are the entrance to Munich's underworld. They lead down to the masonry canal that was built in 1912. All photos are by Lisa Bauer. These works are licensed under a Creative Commons Attribution 4.0 International License.



This masonry canal was built in 1912. Even today it drains wastewater from surrounding houses.

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A statue near the Wittelsbacher fountain at Maximiliansplatz commemorates Max von Pettenkofer.



To ensure that wastewater does not flow into the Isar, enormous subterranean basins store excess water.

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Due to the growth of the city and the sealing of many of its surfaces, large rainwater-retention basins are necessary. The largest rainwater-retention basin in Europe (90,000 meters) is located below Hirschgarten and stretches across two floors. Shafts directly connect the basins to the surface.



Munich plans to let more rainwater trickle out in the future in an effort to enhance groundwater recharge.

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Websites linked in image captions:

- https://de.wikipedia.org/wiki/M%C3%BCchner_Stadtb%C3%A4che#/media/File:Karte_M%C3%BCchner_Stadtb%C3%A4che_links_der_Isar.png

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Stone-Rich

Where is Munich's Gravel Hiding?

[Munich: An Alpine City](#)

[What is Gravel In?](#)

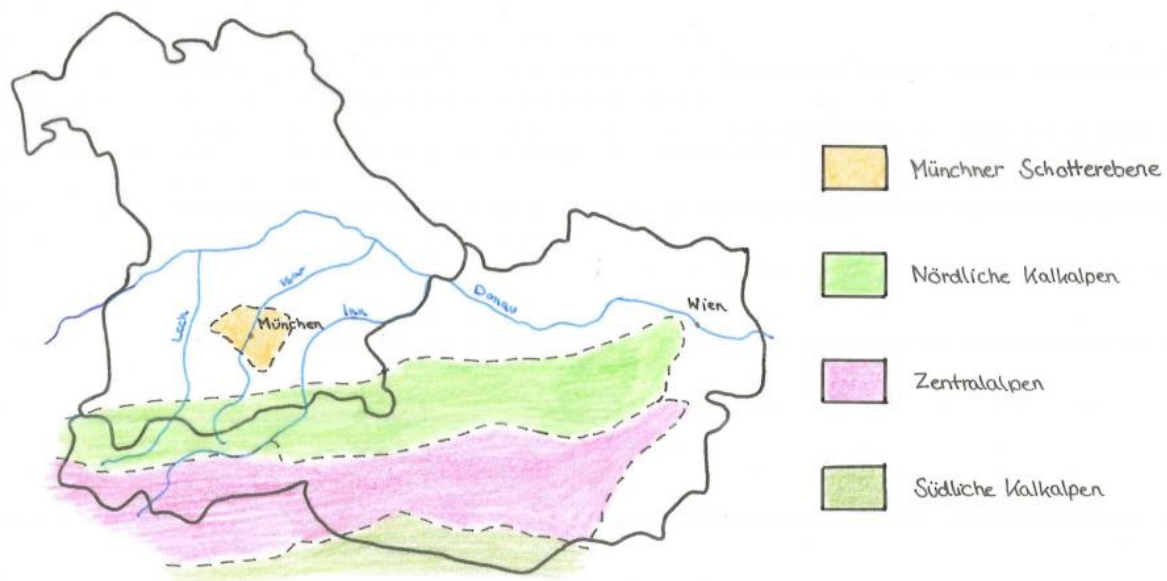
[A Naked Visionary in Gravel](#)

[Who Can Live on Gravel?](#)

Munich is situated on the largest gravel plain north of the Alps. Although rather unassuming, gravel is a versatile raw material that is present in our everyday lives and characterizes Munich's cityscape. It is scattered across the grounds of popular beer gardens and is a basic component of our streets and houses. Gravel is used in the production of everyday objects, from toothpaste and glass to coffee cups. Through the products they use, every Munich resident goes through about seven tonnes of sand and gravel from the city's gravel plain per year.

Gravel also influences soil formation and vegetation. In the flat countryside surrounding Munich, rivers and streams cut into the rocky subsoil and thereby form the city's only natural slopes. Gravel provides a habitat for endangered animals and plant species. More than 130 years ago, a gravel pit became a refuge for humans. In gravel, an eccentric artist and visionary found a place for his creative work. Inoperative and renaturalized gravel pits in Munich's countryside are now open as recreational areas to inhabitants, as well as to endangered species.

What makes gravel a typical Munich rock? And how do we connect with it?



Schematic geological map of the Munich gravel plain and the Alps by Alicia Dorner

Alicia Dorner (2017)



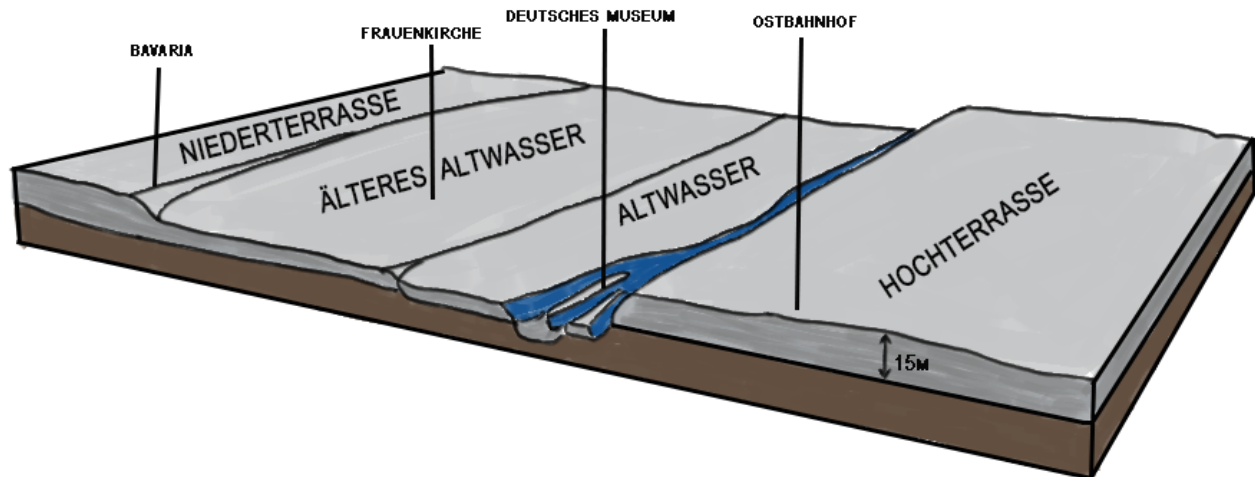
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Schematic drawing of the Isar terraces in the Munich area by Stefan Bitsch

Stefan Bitsch (2017)



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Munich: An Alpine City

Over two million years ago, enormous ice sheets covered the Alps and formed glaciers that stretched all the way to Munich. Some of our recreational areas, like Lakes Ammer and Starnberg, are the remnants of advancing glacier tongues. The ice carried away vast amounts of rock mass from the Alpine peaks, and glacial rivers like the Isar transported boulders further north towards the Danube. Thus a typically flat and barren gravel plain developed, in the middle of which Munich was later built.

Munich grew on the slopes of the Isar terraces. Low-lying places, like Sendling, flooded often and so were reserved for the poorer inhabitants, whereas the higher-situated city center of the old town protected the elite. Munich residents faced the floods with customized architecture made of nagelfluh.

The word nagelfluh is German in origin. It refers to a chalky rock that consists of gravel, which was removed on a large scale from the slopes of the Isar. A highly porous and stable building material, it is ideally suited to the base of large buildings. After a flood, water is able to drain quickly, without compromising the rock's strength.

Layers of clay lie beneath the nagelfluh in the stratigraphy; bricks were formed from this clay and used for the upper stories of buildings. One example is Munich's municipal district Berg am Laim. Historic buildings still contain this classical construction.

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What is Gravel In?

The original exhibition includes an interactive gallery of gravel and clay in historic buildings of Munich. View the images on the following pages.



Where is gravel hiding?

Alicia Dorner explores Munich with the intention of showing the many buildings that gravel has helped to build. Here she is next to a nagelfluh column at Marienplatz.

All photos are by Stefan Bitsch and Alicia Dorner. These works are licensed under a Creative Commons Attribution 4.0 International License.

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Bridges in Munich, like the Maximiliansbrücke, are constructed with a base made from nagelfluh.



Munich's Strädtisches Hochhaus is the city's oldest high-rise building and has a typical composition of a nagelfluh base and clay construction.

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The base of Munich's Frauenkirche consists of nagelfluh and the building façade is made of clay bricks.



A flowerpot made from nagelfluh helps to decorate Odeonsplatz in Munich.

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This detail demonstrates the distinct texture of nagelfluh.

A Naked Visionary in Gravel

Karl Wilhelm Diefenbach was a nineteenth-century artist whose opinions caused a stir throughout Munich. He appeared nearly every Sunday and openly flaunted and “preached” naturalness, freedom, and vegetarianism. Furthermore, he questioned strict monogamy.

Many of his contemporaries in heavily Catholic Munich considered his ideas to be strange at best, and scandalous at worst. They ridiculed him and his “disciples” as “kohlrahi apostles.” Because of his naked proclamations at Marienplatz, he was exiled from the city in 1885. From that point on, he lived at a nagelfluh quarry south of Munich for several years, in the small town of Höllriegelskreuth. Diefenbach became an icon for the nudist movement in Germany and set a new standard in terms of modern aesthetics—an early contribution to changed body awareness.

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The original exhibition includes an interactive gallery of images of the Höllriegelskreuth Quarry. View the images on the following pages.



Inspired by Diefenbach's style of dress, Stefan Bitsch and Alicia Dorner dress up and pose in the remains of the Höllriegelskreuth Quarry. Stefan Bitsch and Alicia Dorner (2017)



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Alicia Dorner in the remains of the Höllriegelskreuth Quarry, giving a sense of the scale of Diefenbach's former living quarters. Image by Stefan Bitsch

Stefan Bitsch (2017)



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Stefan Bitsch in the remains of the Höllriegelskreuth Quarry, giving a sense of the scale of Diefenbach's former living quarters. Image by Alicia Dorner

Alicia Dorner



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Stefan Bitsch and Alicia Dorner in the remains of the Höllriegelskreuth Quarry give a sense of the scale of Diefenbach's former living quarters. Photos by Stefan Bitsch and Alicia Dorner. These works are licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Who Can Live on Gravel?

Gravel forms low-nutrient ground in which it is difficult for most plant life to thrive. However, gravel offers ideal conditions for undemanding heathers and heath plants like chamomile, daisy, and birch. The gravel pits are an ecological niche for displaced animal species and several specially adapted species find refuge here. The little ringed plover shies away from the hustle and bustle along the banks of the Isar and instead escapes to the gravel pits around Munich. What characterizes these special landscapes?

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Vegetation Project

The original exhibition includes an interactive gallery of images of the vegetation project by Stefan Bitsch and Alicia Dorner. View the images on the following pages.



Stefan Bitsch and Alicia Dorner collect rocks from the banks of the Isar in downtown Munich.

Stefan Bitsch and Alicia Dorner (2017)



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Washing the rocks that were collected

Stefan Bitsch and Alicia Dorner (2017)



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How much gravel is too much gravel? This case contains an example of the surface of a heath with typical grasses and flowering plants, filled with about 60% gravel and 40% nutrient-poor soil.

Stefan Bitsch and Alicia Dorner (2017)



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Stefan Bitsch and Alicia Dorner (2017)



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Stefan Bitsch and Alicia Dorner (2017)



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Stefan Bitsch and Alicia Dorner (2017)



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Installation view of the vegetation projects in the exhibition

Florin Prună (2017)



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The large case contains an example of the surface of a heath with typical grasses and flowering plants, filled with about 60% gravel and 40% nutrient-poor soil.

But how much gravel is too much gravel? The small case is filled with about 75% gravel and 25% nutrient-poor soil and seeds for wild flowers and grasses.



Examples of different types of rocks typically found in Munich

Image by Florin Prună (2017)



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Profiles of Rocks

What kind of rocks are common in Munich? And where do they come from? These are examples of rocks

typically found in Munich that were washed from different locations in the Alps (clockwise from bottom left). Sandstone: Compacted sand grains and rock fragments, which are calcareous, its origin is the “Flysch zone” (for example, Benediktbeuern).

Limestone: Known colloquially as *Meeresfriedhof* (sea graveyard) in German, it originates from dead sea creatures with calcareous shells, often single-cell organisms that sink into the seabed after death. Its origin is the Northern Limestone Alps.

Slate: With its distinctive glittering, plate-like mica minerals, slate has a preferred arrangement of minerals because of the pressure at which they are formed. Its origin is the Central Alps.

Granite/Granodiorite: Rocks created at depth by high pressure and temperature conditions during the formation of the Alps, granite’s origin is the Central Alps geological boundary (for example, the Engadin window).

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Eclogite: *Ironman der Gesteine* (ironman of the rocks) is created by high pressure and temperature conditions at a depth of around 30 kilometers. Its origin is the Central Alps (for example, Ötztal Crystalline). Eclogite also marks, among other things, the contact seam between the Apulian (Italian) plate and the European plate and the geographical border with Africa at the meridian of Ruhpolding.

Shell Limestone: *Fossilienkalk* (fossil lime) is stained limestone with shell fragments. The red coloration is due to the accumulation of iron, and its origin is the Northern Limestone Alps.

Curators: Stefan Bitsch and Alicia Dorner

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Beyond the Exhibition

What is Particular about Munich's Environment? Behind the Scenes

What is Particular about Munich's Environment?

RCC fellows travel from far and wide to come to Munich and because of this, the center hosts projects based on environments all over the world. With *Ecopolis München* our intention was to study the city in which the RCC is based, to zoom in our local environment. We were curious about how the fellows see Munich. So we asked some of them: What strikes you as particular about Munich's environment? Here are the answers that we received.



View of Ecopolis München.
Florin Prună (2017)



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[Lisa FitzGerald](#) , Ireland, RCC Fellow 2016–2017

For me, Munich's unique character is evident at the Eisbach's standing wave in the English Garden. The artificial wave epitomizes the intersection and codependency between humans and nature. It is this relationship—between our bodily actions and the environment that shapes us—that makes the wave such an archetypal model for urban ecology.

[Ruth Morgan](#) , Australia, Visiting Scholar 2016–2017, RCC Fellow 2015

From the cold, grey months of winter to the sunshine of spring, Munich is a dynamic and prosperous city of brisk business, chic shoppers, and friendly frolickers, who are clearly living la dolce vita in the parks and on the pavement, where the air is clean, the sun is warm, and the waters inviting. What a treasure!

[Philippe Forêt](#) , Kazakhstan, RCC Fellow 2017

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 low-tech 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!

[Monica Vasile](#) , Romania, RCC Fellow 2016–2017

Munich's environment strikes me as a promise of green and natural beauty. Intense day-to-day life—taking the U-Bahn, constantly being in a built-up environment—obscures for me a lot of what I imagine to be the other Munich. I hear birds, I smell chestnut flowers and fresh earth after storms, yet I imagine more: the beautiful riverbanks of the Isar that I have not yet seen, or mushroom wonders in the English Garden.

[Jane Carruthers](#) , South Africa, Honorary RCC Fellow

Munich! Meshing medieval and modern, moments and memories, mountains, meadows, monuments ... Livable, lovable, and local. For an African, Munich has such a strong sense of place, at one with the environment, arching towards the future, honoring its past.

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[Azeez Olaniyan](#) , Nigeria, RCC Fellow 2017

Munich on my mind!

It's the greenery! From arriving at the airport, the managed farmlands lead you to a well-kept city with an alluring environment spiced with trees, beautiful gardens, and parks. You see a city at peace with nature. You cannot but love Munich!

[Jim Webb](#) , USA, RCC Fellow 2017

I am struck by the cleanliness of the various canals that pass through the English Garden. It is remarkable that the water quality is sufficiently high to support an interest in urban surfing.

[Jennifer Carlson](#) , USA, RCC Fellow 2017

Spring's riot of 'Radln,' trams, cars, 'Fußgänger,' pigeons, and 'Hunde' explodes amid leafy pathways and rain-slick pavements. Buzzing BMWs fill lungs with the anticipation of exhaust; just beyond the Treppenhaus, plastic bins brim with separated trash and green optimism.

[Hayal Desta](#) , Ethiopia, RCC Fellow 2017

The planning and management of open spaces in Munich are amazing. As one of the open spaces, the English Garden is an interesting outdoor public garden that strikes me not only because of its landscape design and management, but also because of its size.

[Paula Ungar](#) , Columbia, RCC Fellow 2016–2017

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 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.

[Gregg Mitman](#) , USA, RCC Fellow 2016–2017

I am particularly struck by the reach of Munich's public transit and bike path systems, along with the amount of publicly accessible green space for a city of its size.

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Behind the Scenes

Realizing the exhibition required many meetings, research excursions, and buttered pretzels. Here is a peak behind the scenes.



Maximilian Gabriel and Katharina Ring, curators of the Fröttmaninger Müllberg section, show the exhibition designers photographs of Barbara Kosmatsch, the last resident of Fröttmaning. This image also shows an early stage of the exhibition's design.

Photo: L. Sasha Gora

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Katharina Ring interviews Anneliese Feser, Barbara Kosmatsch's daughter-in-law, about life on the farm before the area was turned into a dump.

Photo: Maximilian Gabriel



The exhibition designers, Katharina Kuhlmann and Alfred Küng, reveal to the students their concept of building each display station around the base of a ladder.

Photo: L. Sasha Gora

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Laura Kuen interviews the beekeeper Issai Spitzer at the Ost-West-Friedenskirche in Munich's Olympiapark.
Photo: Marlen Elders



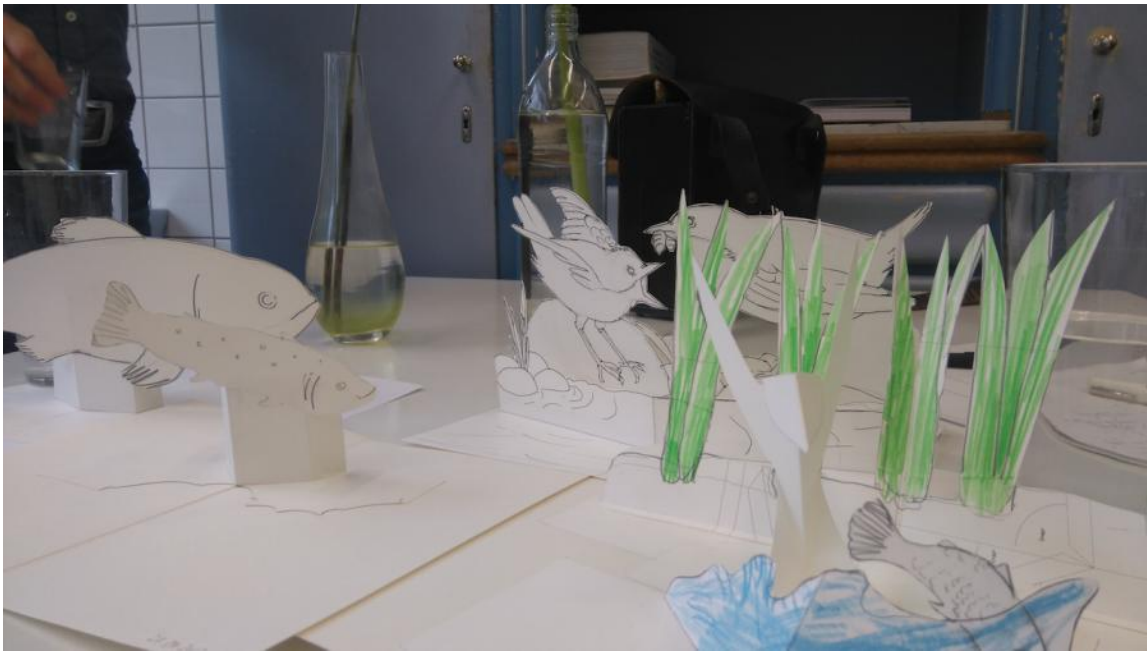
They drink tea with honey from the Ost-West-Friedenskirche.
Photo: Marlen Elders

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Elisa Hanusch shows the designers her diorama on the birds and fish living in and around the Isar, which she developed for the exhibition.
Photo: Raphael Holzer



Luna Benítez Requena fishes for phytoplankton in the Isar.
Photo: Luna Benítez Requena

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Katharina Kuhlmann and Alfred Küng, the exhibition designers, meet with the students to show them the final version of the exhibition layout.

Photo: Laura Kuen



Luna Benítez Requena walks through one of Munich's subterranean rainwater retention basins.

Photo: Lisa Bauer

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Sonja Meinelt interviews the mushroom farmer Franz Ulrich.

Photo: Lisa Bauer

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Websites linked in this text:

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Ecopolis Catalogue



Cover of the Ecopolis München catalogue

Graphic design by Katharina Kuhlmann and Alfred Küng

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To accompany *Ecopolis München: Environmental Histories of a City* we produced a catalogue. Instead of documenting the exhibition, the catalogue offers glimpses from behind the scenes. It both reveals what went into the exhibition, and asks questions about the future of Munich's environments. Download it [here](#) (in German).

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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 the exhibition Ecopolis draws. Most titles are in German.

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