Green Powerhouses in Road Construction
An Ethnodrama

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Characters on stage:
staff of the urban district (two people)
the head of the construction company
the construction supervisors (two people)
the builder
the arborists (two people)
the researcher (me)
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Hidden Actors (exposition and rising action)

Scenography:[1] *It is December, but the planned end of the construction project was last October. Today is the final inspection by staff of the urban district. The walkabout has just started. A group of up to ten people, including the construction company, the construction supervision, the builder as well as the district staff, move slowly and carefully along the renovated road in order to "take over" the construction site and "return" it to the city. Suddenly, the walking stops. One of the two representatives of the urban district pushes a small spot in the newly paved floor, filled with special gravel, free of leaves, and hits the stone edge with a shoe. It is a stumbling edge.*
A member of the urban district: "Couldn't they have put a six-stone in here? Couldn't there have been another stone in there?"
A construction supervisor (explaining): "We didn't work with six-stones at all, but with seven-stones. Moreover, it was due to the roots."
The head of the construction company (performing explanation): "The reason for the tripping edge is the unforeseeable extent of (big gesture with arms directed to the ground) thick tree roots and their location. This was *not* how it was expected according to the plan.

1 "Scenography refers to the total visual and aural conception for theatrical productions and includes the constituent elements of scenery, set and hand properties, costumes, makeup, lighting, sound, and technology" (Saldaña 2003: 231).

That is why we had to rethink and adjust the pavement because we dug up, looked in and worked with what was there."

The Sticking Point (rising action)

Scenography, throwback, in the middle of construction work: The construction supervisor's phone rings. It is the arborist who has "taken care" of the trees in the street for the duration of the construction work. When the construction supervisor finished talking to the arborist on the phone, they say:
The construction supervisor (half-seriously): "We're good for a tree."
Everyone looks at each other (uncertainly).
When walking along the street of the construction site, the researcher, as usual, feels open to be affected by the field. Suddenly, they stop at a street corner at a large construction pit. They notice the insanely large number of roots exposed here. It is a wide and long bundle of medium and finer roots that catch their eye first. By looking deeper into the dug hole, even stronger roots stand out from the tree slice over into the pavement. The tree's strong roots are pushing through the curbs of the enclosed tree slice. They seem to emerge squeezed through a narrow spot between two curbs, only to spread out again into the barren soil beneath the car park, pavement and road drain. Near the drain, the roots appear very wide and crowded. The arborist and construction workers are standing in the construction pit talking within the thick bundle of roots.
The arborist (convinced, pointing to the spot of thick roots near the drain): "That's the sticking point! The only way to continue building here is with a non-professional solution."
The researcher (addressing the audience): "What could that mean? Not too many years ago, when the regulations of Hamburg Building Code (§14) were not yet realized on-site, street trees became regularly witnesses of a lot of non-professional solutions. Just as an urban district considers beautiful trees as green capital, trees are still in danger during construction sites. Roots can be injured through carelessness by heavy machines or just a pickaxe, or even intentionally, in order to be able to build more effectively without the tree afterwards. That is why trees are still treated somehow as a currency, their value is still negotiable in some places. Even if it has been in a joking way, such as 'We are good for a tree'. – So, what does it mean?"

The Bathtub (climax)

Scenography: Still in the construction pit, another arborist from the tree care department approaches the scenery.
The second arborist (greeting): "What's the situation here?"
Then both arborists turn their bodies towards the tree and take a step towards its roots.
A construction supervisor joins the researcher and the two arborists in the construction pit. Since there is still time until the assembly starts, the researcher asks the supervisor about roots that are clearly sticking out on the ground in another pit. We are heading to the root, standing in front of it.
The researcher: "It looks like you can't pave with the root like that, or that something has to be done beforehand, right?"

The construction supervisor (pointing to the stones under the sand of another ruin in the private area): "That's the crap of building half on private land when renovating public space. (pointing to the exposed roots in the gravel, guessing): The root had pressed itself along the wall and had, therefore, come up because it probably had no other place to go. Now, the arborist will have to decide whether the roots could be cut back or if they could be pushed down a bit."

The researcher (quietly): "And what if neither is possible …?"

Back at the construction site with the large bundle of roots.

The two arborists (concluding): "We don't see any *problem* there for now. If you lower it a bit, push the roots down a bit, then it would work. (To the researcher) Is that why you're here today?"

The researcher: "No, not specifically, but I read about 'the problem' in the report of the last construction meeting."

Until then, the two tree care workers loosen the soil with a digging fork to prepare the underground for the suction excavator – a vacuum cleaner for trees that sucks in the old soil to refill the tree's slice with new substrate. After a few minutes, seeing that there are no more large roots hidden under the soil, the arborist jumps to the researcher briefly.

The arborist: "Fortunately […] *this problem* is almost out of the world. But you see […] the general problem is: The tree has so little space; it's like people who would have to live with their belongings in the bathtub."

The researcher (thoughtfully, to the audience): "Living in a bathtub […] unimaginable for human beings. The ruby tree stands in its tree slice, it has the wooden slats around the trunk. This wooden chain is supposed to prevent the tree trunk from getting scratches. But obviously, that is not the biggest issue. Although it might feel good that some air is finally getting to the finest roots and capillaries, the open construction field is also getting to the tree and its root system: no soil, no wetness for a few days. Only some sheets of white or grey fleece will protect from dryness. Maybe, things turn out well for the tree and the workers fill in new substrate and will also remove the garbage bags, the old wheels and stones leaning against the lower trunk. This city tree seems to be tired of putting up with everyone else's trash. Let them leave it in people's apartments and in their houses, gardens and yards! In their bathtubs, no matter how huge these are."

(Fig. 1:) The bathub. Photograph by the author.

Pressure Pads (falling action)

Scenography: The researcher is waiting at the construction pit for the consultation assembly. One of the arborist still brushes the soil aside from the roots with his bare hands. He grabs the roots and bends them around to see how flexible they are. Then (to the audience) he shows the tree's pressure pads that roots form to relieve punctual pressure. They seem to be wide and strong. One can clearly see the imprint of the cobblestones that had previously been laid on top of the roots.

The arborist (explaining): "It is their adapting daily activity for receiving nutrients under the pressure of the street. They form pressure pads. That is an intelligent strategy of the trees to open up bases of life, like providing with nutrients securing space – in the soil that offers hardly any opportunity."

Now, more and more people, decision-makers, arrive and gather around the construction pit. People from the construction supervision, the builder, the construction company and the tree care staff. In total, about ten people standing at the tree. They are looking for a solution for the disabled parking space planned here, discussing, exchanging arguments. The named problem is the "sticking point", the spot at the road drain where the roots are strong and can be pushed down only minimally.

After a while, without much comment, construction workers start measuring the height and depth with a yardstick and water level. The measurements seem quick and swift, skilful hand movements to determine the path of the paving. Shortly afterwards, they hammer iron rods into the ground to mark the dimensions; thin green ropes are stretched across the construction field.

Paved Unpaved (epilogue)

Scenography, back in December: The final inspection group is moving slowly but steadily. The unpaved areas in the new pavement are piling up. The paving stones are seven centimetres thick and they simply cannot be laid over the root. The construction workers had to leave the space open.
A few weeks later, again in the street. The unpaved areas are now asphalted, not hot but cold. There are imprints of leaves on the new filled in asphalt, they look like framed artefacts within the sidewalk. Beautiful, somehow.

(Fig. 2:) A leaf in the pavement. Photograph by the author.

The Trees' Various Activity on the Street

My ethnographic research on construction sites (Neubert 2023) takes me to different places of construction with the aim of uncovering their everyday procedures. Therefore, my studied 'field' is temporally and spatially framed by the activities on-site. By using the ethnodrama, I focus on tree's activity. One can observe how trees primarily place themselves in a powerful position in the context of roadworks through the activities of their roots. This spatial reorganization, restructuring and negotiation of everyday spaces, which are activated and made visible by construction sites, are of concern for studying the trees' everyday life in construction sites.

The agency of trees in the construction site is manifested in their roots. This also means their past root activity is (made) relevant in the current situation of the construction site. In this sense, the construction site as work on communal, built infrastructure entails exposing this usually invisible, purposeful activity of non-human beings. Yet, the experience among construction workers is that this uncovering of the ground and the insights into below-ground habitats could principally change *everything*. Significant root positions can lead to a considerable disruption of the construction work, causing a delay or even preventing the planned construction work completely.

Using an ethnomethodological approach (Garfinkel 1967), I assume that the installation and operation of construction sites in streets allow one to see what is being worked on here besides the stated aim of the construction project, such as renovating a road and pavement or laying cables, and who or what else is involved. From this point of view, the reason and demand for the construction project are a means to an end to research the everyday life of construction sites and their green powerhouses. The effectiveness and activity of trees in the context of urban space especially need to be empirically analysed in more depth. It is not the symbolic or literary treatment of plants as the "green lungs of the earth" (Stobbe 2019) or the request to empathize with their sensitivity or thinking (Kohn 2023). Instead, in an ethnomethodological approach, observable activity is assumed to be meaningful procedures or *doings* also of non-human living beings (Ernwein 2021; Latour 2007). I conceptualize trees' root activity within construction sites as their directed (co-)work on a building site.

The Case of the Construction Site

Trees' activity within construction sites provides something that can be reconstructed as an orientation or relevance of this action in theoretical terms, especially in the field of the sociology of knowledge. In the terminology of a so-called geo-sociological perspective,[2] the idea is common that plants' "typical strong rootedness in the earth" and their "site-boundness" express "an orientation towards the local" (Schroer 2022: 164, author's translation), and this can be traced by following the activity of their roots. Today, flora and

2 The sociologist Markus Schroer has been spreading the historic and systematic analysis of sociology widely as a subject of human and non-human living on earth under the title "Geosoziologie. Die Erde als Raum des Lebens" (2022).

plant orientation seem more connectable to us than ever before. A shared cross-species relevance of existing and a right to space seems to have emerged under the pressure of climate change and the need for adaptation strategies and alternative forms of living, most of all in cities and metropolises. This – the goal of securing (places of one's own) existence – makes it possible to seriously pursue entanglements and connections between human and non-human living beings on a larger scale. Therefore, Markus Schroer considers the following rethinking of plants as possible: from "the stable devaluation […] as the embodiment of a life condemned to immobility […] to the model for the ideal of a settled life […] that does not swarm out, plough through and occupy other spaces, but remains in place" (2022: 165). Following on from the given necessity of overcoming a habitualized modern lifestyle, discursive connections can be drawn here regarding the limitations of our own mobility and the return to local and regional values. It can be observed that plant practices and their spaces hidden in the soil are now being examined more closely. How movement, for example, takes place despite being fundamentally tied to a specific location is being investigated in ever greater detail (e.g. Gesing 2019). The question arises, what *other* or *new* quality of mobility is involved by this plant's practice? Therefore, from a multispecies perspective, the case of the construction site can provide insights in two respects: firstly, the entangled geographic practices of human and non-human actors becoming visible in their socio-material dimension, and, secondly, the effectiveness of plants' spatial practices as oriented activities below ground.

Ethnodrama as a Multispecies Ethnography Method

In order to emphasize the overall common relevance of securing existence in times of crisis, I chose ethnodrama as a method of representation in the context of multispecies ethnography. Following Laura A. Ogden and colleagues, I understand "multispecies ethnography [as, CN] a project that seeks to understand the world as materially real, partially knowable, multicultured and multinatured, magical, and emergent through the contingent relations of multiple beings and entities" (2013: 6). The ethnographic research style is now additionally challenged by the need for an extraordinary degree of reflexivity about one's own 'human' positioning within the multispecies network of relationships, especially regarding data production and analysis.

Basically, ethnographic research provides suitable circumstances for fulfilling this request. The research style of discovery is particularly prominent: Ethnographers want to take in everything they encounter, "draw it through [their, CN] own senses" (Gehlen 1983: 12), experience it first-hand and try to understand what is actually going on here. On the one hand, it is one of the more complex qualitative methods for generating insights into 'foreign' lifeworlds, on the other hand, it is precisely for this reason that it is able to engage with and adapt to the circumstances of the field, for example, by adjusting the pace, focus and sensory apparatus. In this way, it becomes more possible than with other approaches to follow multispecies encounters that are not loud or superficial for humans in everyday life. A number of tools, such as the "soft" concept of method in relation to the "hard" concept of empiricism (Amann and Hirschauer 1997: 9) or the research attitude of curiosity in "artificial blindness" (Bude and Dellwing 2015: 13) as well as in "ar-

tificial distance" (Amann and Hirschauer 1997: 12) to supposedly familiar processes, set the basis for a potentially heightened sensitivity towards non-human living beings. Nevertheless, a central question remains: How are these other things and species included in the ethnographic data production? How can they be described and how does this process of description situate both the researcher and the living beings researched?

The social anthropologists Eben Kirksey and Stefan Helmreich state in the Journal of Cultural Anthropology: "A new genre of writing and mode of research has arrived on the anthropological stage: multispecies ethnography" (2010: 545). In their article, they are inspired by the multispecies thinker Eduardo Kohn, who recognizes that it is not just a matter of representing more complex multispecies-human structures linguistically or understanding them: animals, plants, microbes with human categories, of measuring and comparing them linguistically against human categories, so to speak. Instead, he demands, it must be a matter of having "to force us to radically rethink these categories of our analysis" (Kohn in Kirksey and Helmreich 2010: 563). This can mean establishing new categories, as has been attempted mostly on the subject of empirical studies: Donna Haraway, for example, with the companion metaphor (2003) or Agustín Fuentes with that of the niche (Kirksey and Helmreich 2010: 563–564). In addition to such conceptually heuristic new metaphors, that are useful to demonstrate the kinship of low-threshold, basic forms of interaction and activity (Hirschauer 2016), again, the fundamental question arises as to how far language can be used to integrate other species more adequately into the description of the social world. A new genre of writing, as postulated by Kirksey and Helmreich (2010), strives to question ethnographic description itself or, at least, explore its forms and possibilities beyond scientific conventions. This exploration is offered when using ethnodrama.

But, after all, what is an ethnodrama? In preparation for the performance of an ethnotheatre, the ethnodrama is dedicated to be

> the written script which consists of 'dramatised, significant selections of narrative collected through interviews, participant observation, field notes, journal entries, and/or print and media artifacts such as diaries, television broadcasts, newspaper articles, and court proceedings'. (Saldaña in Hare 2008)

The important contrasts with the ethnographic protocol lie in three words of the definition: "dramatised" and "meaningful excerpts" from narratives. In comparison to the interpretative and systemized evaluation of field notes, ethnodrama focuses on the additional representational exaggeration of individual positions, actors and practices. It is, more or less, an artistic adaptation of ethnographic data with the aim of presenting it both more entertainingly and convincingly. There are some practical tips in the literature "on how to condense dialogue from transcribed narrative texts and illustrations of how theatre art and dramatic techniques can infuse a performed text with energy, vigor, and the immediacy of the here-and-now" (Hare 2008). According to Saldaña, creative work on ethnographic data begins where it is condensed, exaggerated and combined in order to create a scenic presentation for a broad audience. In doing so, as you can see above, researchers enter new fields of presenting what they have done in data production. But, and this is also true, when editing the storyline by cutting together central parts of the

observation protocols, I basically felt resistance for a moment. What am I doing here? For me, the practice of writing a good story seemed to be comparable to the (scientifically doubtful) approach of quoting repeatedly only the obvious, empirical examples and, thus, over-stylizing them. After a while, I got used to it and felt more comfortable in this kind of new attitude in relating from the field. Finally, I honestly followed the premise that Saldaña reveals from several years of practical experience with ethnotheatre: "An ethnodrama is the data corpus – with all the boring parts taken out" (2003: 221).

In the context of multispecies ethnography, ethnodrama and ethnotheatre are, thus, inherently new ways of staging natural-cultural "contact zones" (Haraway 2008: 4). As performances on stage, their special value can lie precisely in the vividness of cross-species encounters that are often communicated between the lines. Although ethnodrama needs a linguistic script, its effect basically unfolds in the non-linguistic performance and realization of the script in ethnotheatre. Nevertheless, it must be emphasized that writing a storyline and developing the corresponding characters for the performance and so on is a highly cultural competence that uses language as a central tool. By definition, non-human entities are engaged as actors, they do not set themselves in a scene, as seems to be the case when observing on-site through the lens of ethnomethodology. Regarding the goal of multispecies ethnography, it is necessary to reflect on how such a passivation of non-human actors relates to the claim to *narrate* their role in a social world more adequately. This still remains a field for further exploration. Perhaps, the primary concern of ethnodrama and ethnotheatre is rather beyond a non-human adequate description, and lies in staging non-human actors, giving them the literal stage.

Reflecting Ethnodrama "Green Powerhouses in Road Construction"

The question of whose story is being told in this ethnodrama can surely be answered in different ways. My impression is that the practice of the construction site is on stage generally, and, in this scene, the plants are staged as actors within construction site practice. As you can recognize by these words, for an ethnographer, ethnodrama gives one the opportunity to distance oneself. The data in the format of an ethnodrama is now more like an independent artistic artefact and provides an opportunity to reflect on the social roles in terms of characters and the positioning of human and non-human actors on a construction site. There is, for example, the tripping hazard in the new pavement, which refers to problems in the construction pits. From the point of view of the builders, these problems are obstacles to the routinized progress of construction; from the point of view of the arborists, problems can only ever be solved with the tree, never over its top or crown. For the ethnographer, the problem mentioned in the construction meeting protocol is an opportunity to explore the construction site in a condensed and specific way: as multispecies work on the negotiation of spaces of supply and infrastructure security. From a multispecies research perspective, it is apparent that the relevance of securing existence overlaps here: Strategic activities underground to secure support or relieve pressure are discussed with equally strategic and spatially effective approaches

for building, for example, to be able to build safely and have pavements without tripping hazards later on. The measurements and drawings of the builders seem to already include the interpreted solutions of the tree.

Compared to the ethnographic protocol, writing an ethnodrama requires the willingness to leave gaps. There is no scope in drama for the researcher claiming to have nearly the same knowledge as the field and revealing this (as it is the case in ethnomethodology). After all, doing ethnodrama is not about the researcher or the research practice as such. It is about the story. The information, for example, that the stumbling hazards in the epilogue were not filled with hot but with cold asphalt must, therefore, remain uncommented on for the moment. It is not important for understanding the point the director of the story will make. The scenography is acted, not narrated. And in this case, the researcher becomes the tree's spokesperson. The person who brings it on stage. The researcher also gives it space to unfold by empathizing with plant spaces: The metaphor of the bathtub becomes an adequate description of everyday spaces at urban roadworks, not only for non-human actors but also for human ones.

Positioning Multispecies through Timing

I consider the construction site as an urban practice where customary procedures of negotiation are central and can be seen as an often implicit arrangement of everyday practices that unfold spatially. By focusing on plants and trees while doing this, the pitfalls of different temporalities and, therefore, powerful positions of these everyday care practices of trees and humans in the field of construction sites are emphasized.

The structure of the drama follows the internal logic of the construction site as a place of construction. How can the construction site deal with problems that arise and are caused by non-human entities? How can they be overcome? In the course of tackling the problem, however, the impression that human problems are connected to those of other, non-human actors (and that these then, again, result from previous human practices, such as urban densification) becomes increasingly evident. The metaphor of the bathtub serves to connect human experience with observable root activities and, thus, builds a bridge between human and non-human systems of relevance. Securing existence under today's global and social conditions also means not just living in a bathtub in the long term. A look at the tree's problem-solving strategies is followed by the recognition and attribution of its space-consuming practices. This can be seen, for example, in the fact that areas of the new pavement are explicitly not paved with stones if it was not possible to push back roots that are important for the tree's supply. Seen like this, both the trees and the construction site have a mutually disruptive effect: Construction work can cause changes and mean 'danger' for the trees' safety as well as the trees possibly having an impact on construction measures.

However, the ethnodrama also shows that green centres of power at construction sites are strongly restricted. The asymmetrical relationship between human and non-human actors is particularly evident in the temporal perspective. While at the time of the disruption of the construction process by roots, the attribution of its supply and safety practices has a relatively high priority, this seems to take a very low priority during the fi-

nal acceptance by the district office with which the ethnodrama starts. By contrast, pavement safety is now prioritized from a human perspective. What is not narrated here are the developments on-site between the finalization of the pavement and the eventual inspection. During these weeks, rain has washed out the spots filled with gravel, and street cleaning, with its machines and leaf blowers, has also contributed to this. This is also part of the construction site's *contact zone* in which the participants are positioned accordingly.

Finally, the ethnodrama highlights the fact that the material effectiveness and power of non-human and human actors always emerge from a complex set of relationships and need to be correspondingly explained. No matter how symmetrical the initial conditions of actors may be in social theory, the concrete activity and interaction on-site is not; it always produces reciprocal positioning that equates to asymmetrical conditions in interactional relationships (Haraway 2008; Tsing 2015). The ethnodrama is able to demonstrate this process of positioning and agency of street trees in the course of construction sites. It also illustrates and underlines the idea that the shared environment of tree and human is not a co-environment but a shared basis of existence, framed in the everyday doing and needing the same soil while practicing urban everyday life.

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