

We start our fieldwork at the Three Countries Point, the highest point in the Netherlands and at the edge of the area of our first fieldwork trip. The higher we are, the more ground there is underneath us and thus the more there is to discover. Of course, this is a naive thought, but fieldwork must start somewhere. And as with any start, the first steps are uncomfortable and the first choices difficult to make. But the further we move on and the more decisions we take, the more accurate they become.

We have worked in the Three Countries Park (3LP) before and made atlases such as The Complete Incomplete Atlas of the Euregion Meuse-Rhine, the map Wie is de Wilhelminaberg and the box Dear Landscape. To add to the Dear Landscape box, we now took a slightly different approach: instead of staying for a month on location, as we did in the Dear Landscape project, we now planned three fieldwork $302 \, \text{m}$. trips, each time for two days and one night. As this means there is less time to informally get into a dialogue with the places and their inhabitants and visitors, we rely on our own obserations and impressions more than before. However, living in the area part-time and being passionate trail runners, the Euregion Meuse-Rhine is an area we often enjoy. Drinking coffee in Teuven, enjoying the beautiful view over the Meuse and the canal on the island near Lanaye and sliding down the 'terrils' (slag heaps) in Herstal or Genk. 'We' are Marlies Vermeulen and Remy Kroese, and that matters. What we do, who we are, professionally as cartopologists and privately, impacts our research (what cartopologists do is described further on). We are not the type of researchers who try to deal with the research subject objectively, independently and with a detached and neutral attitude. We are the opposite. We seek intimacy, show commitment, and position ourselves in the middle of the issues we are dealing with. From such 'situatedness' and dependence, we gather findings, insights, and knowledge. Cartopologists study how people use certain places in their daily lives. These are usually very ordinary places: a market square, a city park, a village, a nature reserve, or a region. As researchers, we become closely acquainted with the place in an intense way: we live on site and use it as much as possible. This way, we can quietly observe and at the same time be part of the day to day life. We get to know the location and the people using it. We $\,$ – participate and observe. We then reflect on these insights through drawing. Gradually, a map, or sometimes even an entire atlas, emerges. Finally, this map or atlas is used by everyone who has an impact $\,$ on the mapped location. Residents, policy makers, architects or urban planners, they all use the same cartopological documents.

The term 'cartopology' thus refers to the field in which cartopologists question the how and where of everyday life by drawing it out on maps. Cartopologists use anthropological fieldwork methods such as participatory observation. They use the universal language of drawing, maps, plans and sections and push their limits to document their research. Because, to what extent do we understand the impact of the spatial context around us when we primarily focus on human behaviour? But also, to what extent do we understand how our daily reality is shaped by the physical space around us? For spatial designers, cartopologists practice 'reverse participation' by participating in the everyday life of a specific location. Normally, this is done the other way round: the resident is asked to participate in the design process. This is not always successful and often leads to frustration on both sides. Cartopology thus stands between policy and field, between space and people and between science and art.

When cartopologists set to work, they start as outsiders and stretch their comfort zone into the unknown. After all, what do I know about the underground economy of this complex border area? How do I get there? And if I consider the 3LP a natural environment, what does that mean? Who knows more about it? Are there any information panels? Are there other people looking for it? Cartopologists start out with many questions and with a sensitive and generous attitude towards the area they are temporarily visiting and inhabiting. As outsiders, they know very little. But, by participating for a long time at close quarters, cartopologists learn quickly and a lot about everyday life. They are part of it. During their research, cartopologists change from little-known outsiders into residents who can move around like a fish in water, cutting through all the unwritten rules and laws of a place. To map the impact of the 'underground' (Subterranea) on everyday life in the 3LP, we spent several nights in different locations and summarised the insights we gained into thematic outlines through this map. To be clear: this is not a map of the underground, but a map of how the underground is mirrored aboveground, how past and present underground activities shape parts of the 3LP landscape and the perception of it, 'shine through', so to say.

This map does not pretend to be complete. The subject is too complex and the region too multifaceted for that. Nevertheless, the aim of this study is to highlight the urgency of the underground (industrial) past and put it on the agenda. Because, before you know it, mines are reopened, and quarries expanded due to crises and conflicts elsewhere in the world that ultimately have a major impact here as well. Now, for example, the possibility is being considered of keeping the lignite mines open longer, and the stability of the subsurface in the 3LP is being investigated for the Einstein telescope. At the same time, water must be pumped out of the mine shafts continuously to keep the pressure under control. What happens

underground is therefore not only a thing of the past, but will reverberate long into the future, where it will be the responsibility of future generations.	OF THE	
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Industrial Artefact 🕨 Quarry		and the second se
LEGEND: SOIL (layers of perception)		
Horizontal Vertical Diagonal Industry O'O Nature Past Future Chaotic Chaotic		
Below are four main <i>themes of perception</i> that occur to a greater or lesser extent at the surveyed sites, but are also exemplary of the landscape experience of the 'subterranean' in the 3LP. Each theme has 'sub'components: Sometimes, within a theme there is mainly one, and to a lesser extent the other. for example: at one site nature experience is paramount, at another it is mainly experienced as an industrial site. Much more often, this distinction is not unambiguous and can even be called paradoxical. As an example, the huge quarry in Hambach. This site is initially experienced primarily as an industrial extraction site for lignite, but the visibility of earth layers and the possibility of viewing the quarry from a viewpoint can also lead to a certain sublime nature- or landscape experience.	215 m	
VISIBLE - INVISIBLE (EXCAVATION) How took the 'cut' or mining place? Horizontal, vertical or diagonal? With or without a waste heap? Coal mining changes the morphology visibly with its slagheaps, but what happens underground is much less visible. In Hambach, Inden and Maastricht, ignite and limestone quarrying leave large 'vertical' holes, whether or not filled with water and not always with a slag heap next to it. At other locations, limestone quarrying is mainly horizontal, creating corridor systems deeper and deeper into the 'mountain'. Mining can therefore be vertical, horizontal and/or diagonal. The visibility and experience of the activity during and after extraction therefore depends on the way in which it is/was excavated.	NG FIELDWORK	
INDUSTRY - NATURE Do we perceive valuable natural sites, as a result of a possible previously heavily polluting process, or do we still mainly see the industry that has moved away? What signals do information sources give, what is the experience in the field? Do we feel comfortable when spending time in these areas? If there's doubt – is it because we're threatening valuable nature or we're possibly in danger because of pollution or physical obstacles/leftovers from industry?	UNDED DURI	
SCALE, PROPORTION AND TIME The ENCI quarry is prominent in its context but is not nearly as large as the Hambach quarry. Nevertheless, the many small quarries and other industrial and wartime remnants around Maastricht have perhaps a greater impact on the perception of the area than a single quarry that transcends everything in size and scale. Beyond the physical and perceptual size, how much impact will the 'underground' activity have on future generations? Will groundwater have to be pumped out in eternity? How long will pollution remain? Will we reach climate tippings points quicker, while saving our comfort and economy today?	SOILSAMPLES SO	
VISIBLE - INVISIBLE (DEMARCATION) To what extent is there a clear boundary or demarcation of the subterranean location or place where it manifests itself?	IVED	

Is the subject 'delineated' or is it difficult to recognise where it begins and ends? A clear line is, for example, a fence around a quarry. In the case of former underground activities, artefacts more often appear without clear announcement or indication.

