公民的森林

THE CIVIC FOREST

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<div>林中大喊，必有回声。</div> <div>——波兰谚语</div>		<div>记录着区域的几番巨变。</div> <div>在研究伊始，波兰政府通过了一项新法案，即《希什科法》，该法案允许人们在私有土地上进行自由砍伐。新法案颁布后，民众的注意力主要集中在波兰东部的一处联合国教科文组织世界遗产地——比亚沃维耶扎原始森林。与此同时，包括“坐在树桩上的波兰母亲”在内的多个团体发起的小规模抗议活动使人们意识到，《希什科法》将会导致波兰私有土地上约20%的森林面临被砍伐的威胁^[1]（图1）。同时，新成立的上西里西亚大都会联盟努力推动当地进行后开采时代的经济转型，积极吸引技术工人，并开展绿化和整治工程，以提高居民生活品质。在实地考察过程中，尽管生态学家和环保人士向我们表达了恢复本土物种的愿景，现实却展现给我们一个正在快速生发的由“非本土”植被构成的森林。在这些冲突和紧张关系中，我们开始认识到，西里西亚地区被割裂的森林再次处于人类政治的中心。</div>	
<div>2017年春天，麻省理工学院建筑与规划系支持了一项名为“后开采时代的都市主义/欧洲煤矿小镇的再生：波兰西里西亚地区的住宅、景观和基础设施”的城市设计课程，该课程由拉菲·西格尔博士与玛丽·劳·亚当斯共同指导。在为期10天的实地考察中，项目组成员远赴德国和波兰探访了那些已退化的与更新后的景观和基础设施。</div>		<div>“公民的森林”项目将西里西亚地区的全部森林视作一个公民空间，一个承载着人类愿景，可用于解决保护、生产和开发之间的矛盾的空间。围绕这一公民空间，我们开始想象和设计存在于居住空间、生产空间和保护空间之间新的关系。该项目历时4个月，包含三个组成部分，旨在界定、量化及呈现森林成为区域未来的载体和主体的可能性。同时，“公民的森林”的尺度及复杂性使其能够应对后开采时代城市化进程带来的挑战。</div>	
<div>煤炭经济推动了20世纪上西里西亚地区的发展。随着新矿被不断开发，工人居住区也随着基础设施和相关服务的搬迁而迁移，导致都市区呈现出我们今天所看到的散布式格局。这些分散于各地的工业设施和开采设施由铁路和高速公路相连，而林地和水体则被割裂为一座座孤岛，周边环境环绕着低密度且碎片化的“城市”。所以，煤矿开采及相关工业发展不仅推动了区域的城镇化，与当地住宅分布格局的形成也密切相关。</div>		<div>森林经常标志着地区发展的边界，承载着保护主义的议题，且残留着工业化进程带来的创伤。“公民的森林”项目将西里西亚森林作为一个新的中心，其尺度及复杂性使其能够应对后开采时代城市化进程带来的挑战。</div>	
<div>煤矿开采的痕迹在西里西亚随处可见，无论是在城市形态上，还是在土壤、植被和水体中。二氧化硫排放、重金属沉积，以及地势沉降改变了当地的土壤酸碱度和自然地貌。次生桦树林和杨树林取代了地区广袤的原生针叶林和橡树林，土壤的变化亦使得原有的农业活动无法开展。在经历了砍伐、保护、开采和忧虑之后，西里西亚森林承载与</div>		<div>摘要 包括煤矿开采在内的资源开发推动了20世纪的工业增长，同时也带来了严重的环境退化和城市扩张问题。西里西亚是波兰南部的煤矿开采重镇，目前正在进行后开采时代的经济转型。二氧化硫排放和重金属沉积改变了这里的土壤酸碱度，导致该地区无法开展农业活动，而地势沉降和煤渣堆积则改变了当地地貌，导致地面沟壑纵横。随着时间的推移，地面出现水塘，森林开始生长。西里西亚森林是煤矿开采时代的印记与延续。</div>	
<div>1. 一个名为“坐在树桩上的波兰母亲”的团体在克拉科夫抗议《希什科法》。</div>		<div>关键词 森林；人类世；开采；都市化；公共空间；景观</div>	
<div>1. The group Polish Mothers on Tree Stumps protested “Szyszko’s Law” in Krakow.</div>		<div>ABSTRACT Industrial growth during the twentieth century, fueled by economies of extraction like coal mining, has produced severe environmental degradation and uniquely dispersed metropolitan areas. Silesia, a region of agglomerated mining towns in Southern Poland, is transitioning to a post-extraction economy. Sulfur dioxide emissions and deposits of heavy metals altered the acidity of the land, making farming impossible. Terrain subsidence and slag heaps transformed the topography, forming new valleys and mountains. Over time, surface water bodies appeared, and a new forest grew. The Silesian forests remain a reflection, and also extension, of an extractive and extracted time. As forests often demarcate the boundaries of growth, embody narratives of preservationism, and retain the trauma of industrial processes, the Civic Forest addresses the forests of Silesia as a new “center,” one that is capable through their scale and complexity to confront the current challenges and ambitions of the post-extraction metropolis.</div>	
		<div>KEY WORDS Forest; Anthropocene; Extraction; Urbanism; Public Space; Landscape</div>	
		<div>译 史肖杰 陆小璇 TRANSLATED BY SHI Xiaojie LU Xiaoxuan</div>

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2. 在西里西亚森林，考古地层反映了不同时期的工业印记：煤矿、铁轨、道路、工人居住区、仍在运转或已经废弃了的废料场。从地形图可以看出，人为堆起的矿渣堆形成山丘，改变了当地地貌。生物学图表显示，土壤中的尾矿浓度和重金属含量过高，导致当地无法开展农业活动，在数百公里地下坑道坍塌后形成的河湖溪流中，任何生命都无法存活。这张分层地图通过呈现上述环境元素，更加广泛地定义了西里西亚地区的“自然”。
2. In the Silesian forest, archaeological layers document the legacy of industry: mines, rail tracks, roads, workers' homes, and active or abandoned scrap yards. A topographic reading shows how slag heaps changed the skyline of the land, producing new anthropogenic mountains and hills. A biological reading shows how high concentrations of tailings and heavy metals in the soil made food production impossible. Rivers, lakes, and streams, the result of hundreds of kilometers of collapsed underground tunnels, are filled with water that cannot host any life. The layered map proposes a catalogue of elements, a broader definition of "nature" to be found in Silesia.

重新定义“森林”

在盎格鲁 - 撒克逊时代的欧洲，森林“不属于王权，而属于地主特权”^[2]。但在诺曼法律体系下，这一情况发生了变化。国王将森林作为狩猎和娱乐的场所，其管辖范围涵盖森林中的所有耕地和人类居住区；居住在森林之内及周边的人们无权根据需要对土地进行使用及开发。对森林的这一定义标

志着“自然保护”的现代概念的诞生。在当代，“森林”的定义又有所变化。当提到如今由植物学而非社会或法律框架所定义的“森林”时，人们的脑海中便会浮现出茂密的林地和各种野生动物。在“公民的森林”项目中，我们试图重构森林的当代定义，并从政治空间的视角对其进行解读。森林与城市并非对立；我们将森林视为西里西亚都会区的组成部分，它由植被、人、动物、土

3.

如果西里西亚地区所有的森林都被用于碳储存，若要完全存储当地年二氧化碳排放量，则需将杨树林的种植面积扩大至西里西亚整个区域面积的4倍。
4.

每建造250m²的木屋平均需要约50m³木材。根据目前的伐木情况，卡托维兹南部的10 000hm²的森林每年可用于建造760座木屋，即每天可以建造两座以上。
3.

If all Silesian forests were optimized for carbon retention, the amount of poplar trees required to balance the current regime of annual CO₂ emissions would be a forest four times the entire size of the region.
4.

An average timber home of 250 m² requires around 50 m³ of lumber to be built. At the current regime of harvesting, the 10,000 hectares forest in the south of Katowice would permit the construction of 760 new wooden homes per year — more than two houses per day.

壤、开采设施和基础设施共同组成。我们尝试为新森林绘制一幅图景，其虽然复杂、多层且充满矛盾，但可被测度、解读、绘制和辨识（图2）。

森林数据

目前西里西亚森林中存在着各种相互冲突的议程。地区层面和国家层面的环境政策由不同部门制定，虽然侧重点和优先级各异，但都将开发和保护视为一对不可调和的矛盾。我们提议将森林视作一个整体，并为其赋予政治机构的角色。具有机构属性的“森林”的功能不在于实现某项目标，而是作为可以展开讨论的场所；在其中，公民能够对观念、环境和美学等方面进行综合考量，理解与衡量不同发展模式所带来的影响。通过量化手段，我们提出了“公民的森林”的三项核心价值（图3~6）：

1）将森林作为碳储中心，以应对西里西亚及全球所面临的环保挑战；

2）将森林作为生产性景观，在人的参与下实现人类发展目标；

3）将森林作为自然空间，创造并发现新的荒野之美。

“公民的森林”场景

如今的西里西亚森林让人感到既熟悉又陌生。人类活动致使其变得“狂野”^[3]，而这种狂野性充满着矛盾——人们深知这种狂野的危险，却看不见、摸不着、闻不到。与此同时，西里西亚森林也是一处被驯服的空间，树木砍伐和煤炭开采不仅影响着区域经济，也塑造了区域文化。通过森林场景的图像构建，我们提出一个具有故事性的空间和对象序列。这些场景都基于对作为公民机构的森林的理解与想象：森林不仅仅被动地为人所设计和不断修正，也积极地推动着人去适应环境变化——森林与人因互动而共生（图7~15）。LAF

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Just as one calls into the forest,
so it echoes back.

— *Polish Proverb*

In the Spring of 2017, the School of Architecture and Planning at the Massachusetts Institute of Technology supported an Urban Design Studio, co-taught by Dr. Rafi Segal and Marie Law Adams, entitled “Urbanism After Extraction / Reclaiming Europe’s Coal Towns: Housing, Landscape, and Infrastructure in the Silesia Region, Poland.” Our research included a 10-day field trip to Germany and Poland to study degraded and reclaimed landscapes and infrastructure.

Upper Silesia developed during the twentieth century mainly through the economy of coal. As new mines opened,

workers’ settlements followed along with infrastructure and services. This growth produced what we read today as a dispersed metropolitan area, where scattered industrial and extraction facilities are connected through railroads and motorways, where woodlands and water bodies exist as islands, framed by a low-density and fragmented “city.” As coal extraction drove urbanization, housing evolved in a relation of mutual dependence with mines and the industry.

The traces of coal mining are clearly visible in Silesia, not just in the built form but also in the soil, plants, and water. Emissions of sulfur dioxide, deposits of heavy metals in the ground, and terrain subsidence have affected the acidity of the soil and the topography of the land. Vast

5. 尽管动植物栖息地可以通过生物量或物种数量予以量化，其与自然地理情况亦密切相关。由于窄长而相互连接的地块最适于提高生物多样性，所以我们选取了4条流经卡托维兹森林的河流作为研究对象，每条河流的研究范围以河流中心线两侧平行偏移500m为基准。根据计算，该地区受人类活动干预较少的土地上包含河岸林、落叶林、常绿林等多种土壤及植被类型。
5. While also quantifiable as biomass or the amount of species present in an area, habitats are often related to physical geography. Since long, thin, and interconnected stretches of land are best suited to increase biodiversity, river environment is chosen to be studied. Four rivers cut the Katowice Forest: if each was subject to a regime of control over a 500-meter offset, the land where human disturbance is limited would encompass a variety of soil and vegetation types, from riparian to deciduous and perennial forests.
6. 悬在树冠上的体块反映了森林三项核心价值的优先级。在这一图绘中，纵向排列的各个板块所显示的事务类别及其各自相对占比代表公民可展开讨论和政治参与的部分。
6. The tower of program hovering over the tree canopy mirrors the proposed priorities for the forest, framing the proportions of its vertical axis and the composition of its slabs as the space for debate and political engagement.

conifer and oak forests were replaced by birches and poplars, and farming for edibles became impossible. Harvested, protected, exploited, and feared, the forests of Silesia have been the substrate of the region's transformation.

As we began our research, the Polish Government passed a new legislation, commonly known as "Szyszko's Law," which authorized unrestricted logging on private lands. While most eyes and headlines turned to the logging of the Białowieża Forest, a UNESCO heritage site in Eastern Poland, smaller protests, such as those of the Polish Mothers on Tree Stumps, brought awareness to the threat that Szyszko's Law posed by enabling the felling of roughly 20% of all forests in Poland that exist on private property^[1] (Fig. 1). At the same time, the newly formed Upper Silesian Metropolitan Union seeks to transit to a post extraction economy by attracting skilled workers and improving the quality of life through greening and remediation. In our field visits, ecologists and environmentalists shared with their desires to restore "native" species to the landscape, and yet, all around us, a new, "non-native" forest was growing. In the folds of these contradictions and tensions, we began to understand the fragmented forest of Silesia to be once again at the center of human politics.

The Civic Forest frames the collection of Silesian forests as a civic space, charged with a human agenda, where to address the ambitions and frictions between preservation, production, and extraction. Through it, we began to imagine and design new relations between domestic, productive, and protected spaces. In the course of four months, we developed a project in three parts, aiming at defining, quantifying, and representing the possibilities of the forest as both an arena and an actor for the region's future, capable through its scale and complexity to address the current preoccupations and ambitions of the metropolis.

The Grammar of the Forest

In Anglo-Saxon Europe, the forest was "not a function of kingship, rather the prerogative of the landed."^[2] This changed under Norman Law, whereby the new forest became an explicit object of hunting and pleasure for the king, and the administrative rules of the forest encapsulated all arable land and human settlements in its midst. Those who resided within or in proximity to the forest were denied the right to use and develop their land as they saw fit, and in this definition of the forest, the modern concept of natural preservation was born. In contrast, current definitions of forest rely on botanical rather than social or legal frameworks. Our modern interpretation of forest evokes images of lush nature, of wooded areas and feral animals. We propose to read the forest as a political space, a component of the Silesian metropolis rather than its counterpart, composed of plants as much as it is of people, animals, soils, and extraction facilities and infrastructure. Through the drawing of a map we proposed an image of the forest, a new readable figure, complex, layered, and contradictory, yet, measurable and explainable — a form that could be drawn and recognized (Fig. 2).

The Data Forest

Conflicting agendas are at play in the Silesian forest. Environmental policies at regional and national scales have promoted competing priorities with different mandates, viewing productive and protected spaces as irreconcilable poles. In contrast, we propose to see the forest as a single entity, and to charge it with an institutional role. Rather than fulfil one agenda, the forest exists as a field of debate, where consequences may be understood and evaluated alongside their ideological, environmental, and aesthetic implications. Through an exercise of quantification, we propose three core values

which form the agenda of The Civic Forest (Fig. 3 ~ 6):

- 1) The forest as a carbon retention center, addressing both the urgencies of Silesia and global environmental preoccupations;
- 2) The forest as a productive landscape, a space that needs and is needed by people, fulfilling human development objectives;
- 3) The forest as a space for a non-human agenda, where to invent and discover new forms of wilderness and beauty in encounters with plants and animals.

Scenes for the Civic Forest

The forest of Silesia is familiar and estranging, made "wild"^[3] by human actions, and its wilderness is the paradoxical product of something completely known, yet dangerous, and undetectable to sight, touch, or smell. But the forest is also a domesticated space, where the logging and mining shaped not only the economy, but also the culture of the region. With the scenes, we propose a narrated sequence of spaces and objects made possible by reimagining the forest as an institution: not only a territory that can be redesigned, that people can and should modify, but also a place to which we should adapt, because there is no forest without people (Fig. 7 ~ 15). **LAF**

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7. 从远处看，均质的林冠营造了一幅公共空间的景象。俯瞰这一巨大的“绿毯”，矿井、矿渣堆、电线和工业烟囱散布其中，城市群中的所有元素都融为一体。这同开采时代碎片化的都市形成了鲜明对比。

7. From a distance, the consistent canopy cover produces a common image. Seen from a height, this vast carpet, punctuated by mine shafts, slag heaps, power lines, and industrial chimneys, is a unifying element with a recognizable presence at the scale of agglomeration. The readable form is a powerful counterpoint to the otherwise sparse, circumstantial, fragmented elements that gave shape to the urbanism of extraction.

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8. 一望无际的向日葵田环绕着森林。向日葵能够吸收铅、砷、锌、铬、铜、锰等重金属。金黄色的田野象征着希望——有朝一日，这片土地也许能够再度被用于粮食种植，但它同时也提醒着来到森林的人们：脚下是一片无法生产食物的危险区域。

8. A seemingly endless sunflower field surrounds the forest. Sunflowers are able to absorb not only lead, but also other heavy metals, such as arsenic, zinc, chromium, copper, and manganese. The golden field speaks optimistically of the future, which may be returned to agricultural use and gives a warning to those who enter the forest: no food may grow here today, and the soil is dangerous. This was a place of violence.

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9. 森林像一个迷宫，树木、道路及电线交错纵横，烟囱、群山及工业建筑散布其中。在这里，或许偶尔能够在林中空地看到天际线，但人们无法凭直觉辨别方向，没有引导极易迷路。因此，在1851年的伦敦博览会上，主办方为外国游客制作了印有导游地图的手套。随着潮流的变化，手套也被赋予了新的内涵——其可以调和人与受污染土地之间的关系，同时引导游客穿越陌生区域。

9. From the ground, the forest is a maze of intersecting grids — trees, roads, and power lines — punctuated by discrete objects: chimneys, mountains, and industrial buildings. The skyline may appear from the occasional clearing, but navigation is not intuitive, and getting lost is easy without a guidance. For the Great Exhibition in London of 1851, the organizers manufactured gloves with a touristic map of the city for foreign visitors. Fashion changes, and the gloves acquire new meanings, mediating the contact with polluted soil, and guiding visitors through an unfamiliar territory.

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10. 防护栏围出一条小径，以保护动植物不受人类干扰，或保护人类远离污染区。围栏内茂盛的植被可能会使人们感到疑惑：到底谁是主人，谁是客人？谁是保护者，谁又是被保护者？

10. The fence constructs a narrow path, protecting plants and animals from human disturbance, or humans from contaminated places. Compressed by the growth of the vegetation, one may wonder: who is the host and who is the guest? Who is the protector, and who is the protected?

11. 伐木导致了林中空地的出现，可在这些区域开展活动计划。树墩上的大桌子使人们免于接触受污染的土壤，同时避免压实土壤。在桌子上，人们可以用餐、舞蹈、玩乐，普普通通的一张桌子可以激发人们进行个性化的使用。在这张桌子上，每种活动都是一场表演。

11. Logging dictates the appearance of clearings in the forest; a curatorial program orchestrates events and projects following its calendar. A vast table resting on tree stumps elevates people from a dangerous soil and prevents soil compaction. The civic scale emerges in the collective choreography of eating, dancing or playing, while the genericness of the object invites different and individualized uses. On the table, every action becomes a performance.

12. 西里西亚虽然没有滨水区，却被“林海”所环绕。近年来新的私有住宅开发项目毫无计划地侵占了西里西亚的乡村牧场，导致当地缺乏统一的住宅文化及功能。事实上，人们对新建住宅的需求是有限的。我们可以通过一种极端的“填充模式”，即用高层建筑替换旧有而散落的低矮民房，来重新定义森林的边界、塑造城市群新的天际线，并实现住宅用地与森林用地之间的平衡。当人们从高楼上俯瞰西里西亚时，连绵而广阔的林冠层将尽收眼底。

12. Silesia has no waterfront, but hundreds of kilometers of forest fronts. New private housing developments have sprawled amorphously into the pastures of rural Silesia, leading to a lack of unified housing culture and function. The need for new housing is limited: a radical infill project of replacement defines the edge of the forest, constructs a new skyline for the agglomeration, and introduces housing and forest as a unified and scaled relationship. The forest provides a unifying visual element for hundreds of homes, defined by a shared view of the expansive canopy below.

13. 当工业开发形成的地形被用于休闲产业，新的野游探险模式增强了西里西亚的可达性及公用性。

13. As industrial landforms enter the domain of recreation, new modes of exploration speak of accessibility and public use.

14. 在山顶上，篝火的烟雾与远处发电厂的浓烟遥相呼应。

14. At the summit, the smoke of campfires communicates with the fumes of distant power plants.

15. 夜晚的森林中闪烁着霓虹灯，发光的标志牌指引着旅人进入小酒馆、俱乐部和展览中心，也照亮了工人清晨上班的路。

15. At night, the forest glows with the light of neon totems. Signs invite the traveler to taverns, clubs, exhibitions, and illuminate the path of the worker in the early hours of the morning.

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