

Jens Lachmund. *Greening Berlin: The Co-Production of Science, Politics, and Urban Nature*. Cambridge, MA and London: The MIT Press. 2013. 320 pages. ISBN 978-0-262-01859-3.

Greening Berlin: The Co-Production of Science, Politics and Urban Nature, written by historian and German science-technology scholar Jens Lachmund is a well-researched book that traces how ecologists in post-war Berlin translate ecological field work into a political tool for urban planning. As such the Berlin school of urban ecology, lead by Herbert Sukopp, one of the book's two main characters - the other being Berlin itself - came to influence the organization of urban ecological science. From c. 1960-1990, we get to follow how a small research group tries to put into action their grand vision of "urban renewal under the guidance of ecology" (p.231) by including new type of field sites (wastelands and "bombed lots"), develop the "biotope category", and create maps to mobilize planners, political parties, and activists. Lachmund stays away from simplifying the story, but sensitizes readers to the continuous negotiations and internal tensions of what he refers to as an emergent "biotope protection regime". Based on sound archival records and complementary interviews, this book is of great interest to human geographers, political ecologists, science-technology students, environmental historians, and ecologists - but also, albeit more cursory perhaps, to historians of Europe and Berlin and its reunification.

The main aim of the book is "to shed light on the changing place of nature in the modern city" and "to understand the political use of science [in] environmental conflict" (p.3). This links to debates on

science and value statements (Latour, 2005; Ernstson & Sörlin 2013), but also how the modern city has figured as a scene to rework and understand urban nature (Gandy, 2005; 2014; Kaika 2005; Heynen et al., 2006; Karvonen, 2011). Another aim revolves around the role of place in ecology (here Berlin), or in field sciences more generally (Evans, 2011; Vetter, 2011). He delivers on all three through effectively demonstrating how a historical narrative can be interspersed with theoretical analysis, following in the tradition of science and technology studies.

The book contains six empirical chapters, plus an introduction and conclusion. The first empirical chapter describes four previous "regimes" of urban nature protection since the 1900s, while the second chapter introduces Herbert Sukopp through his 1973 article that recognizes the city as an object of ecological research (Sukopp, 1973). While breaking with ecologies wilderness tradition, this was also part of a wider effort among ecologists in industrialized countries to "link their expertise to the environmental problematique" (p.47). However, as Lachmund demonstrates, Sukopp's argument was deeply rooted in a local research tradition of flora and fauna in Berlin, including "hikers, naturalists, field biologists, and other Naturfreunde" (p.47). With the establishment of the Institute of Ecology in 1973 at Technische Universität Berlin, this web of relations and practices provided the means through which the "biotope-protection regime" and the Species Protection Programme

could be articulated (p.47). The third and fourth chapters narrate how the influence of Sukopp's group on spatial planning grew through their field work, theoretical developments and mobilization of other interests and actors. He chooses a couple of intense land use struggles to make credible the alliances forged between ecologists and the growing civic environmentalism of the 1970s and 1980s, but also how disputes occurred. The clearing of an oak forest next to an airport, which local citizens' groups opposed, was deemed as beneficial to Sukopp as it would restore a heath with higher biodiversity (p.154). The final two chapters narrate how the ambitious biotope protection regime were watered down in the late 1980s as they met the realities of the capital city's growing demand for housing and transport infrastructure (especially after re-unification). Rather than the all-encompassing protection and care of land, it was through "more specific site-focused projects [...] that the goals of the program actually became implemented." (p.161; in particular in turning wastelands into "nature parks"). The final chapter demonstrates tensions between, and ultimately a shift, from protecting land because of biodiversity and wildlife, to recreation.

The major theoretical contribution of this book lies in the textured understanding we receive on how the practice of field science is necessarily caught between a (hard) place and universalism, a theme discussed by others (Evans, 2011) but not at this length. For instance, Lachmund effectively demonstrates how Sukopp created a shift in the "circuits of observation" of urban nature, from "species spotting", often carried out by naturalists and amateurs, to "surveys [of] exemplary sites" by professional researchers (p.59). The surveys introduced, Lachmund argues, three crucial "spatializing strategies" that would influence the subsequent steps: demarcation (of sites), inventory

(that attaches various data to the same site), and differentiation (constructing the identity or quality of the exemplary site). This recording of data aimed in the 1970s towards a "comprehensive structuring of the Berlin territory" that would use statistical indicators and maps to represent Berlin as "complex flora, fauna, and living spaces" (p.59). It crucially also established "the city (or the urban ecosystem) as a generic object of ecological knowledge" (p.72), mingling place based field work with universal claims. Lachmund pays due diligence on how the ambition to 'map' the whole of Berlin based on science (an explicit goal by Sukopp and his group) was fractured as the deadline for their Species Protection Programme approached in 1984. To avoid time-consuming fieldwork, "quick mapping" and a "reduced methodology" (p.105) was eventually used where "biotope types" came to basically equate with "land-use categories", which did not explicitly or empirically take biological conditions into consideration, but nonetheless "assumed to each represent ecologically homogenous conditions" (p.105) with equal "ecological significance and conservation needs" (p.107). Lachmund argues that this followed modern politics in creating standardized forms (citing Portes, 1995), which on one hand made them accessible to relevant publics in the policy process, but also concealed the type of nature in question.

Indeed, this had two effects, which brings home another theoretical point of the book of how science, value and politics are intermingled. Instead of discussing trees, bogs, fish and wetlands – the categories by which nature is usually described – values were assigned to abstract "biotopes". This shifted what kind of demands that could be articulated, and by whom, and therefore also the nature of politics. It also foreclosed radical changes, since existing "dominant" land-use was given priority. In effect, the

Species Protection Program pragmatically aimed to operate with the 'green spaces' that existed, although a real novelty of the programme was to include wastelands as ecologically important.

This timely book helps us understand some of the roots of the quickly emerging field of urban ecology, but also ecologists' promises to follow the sanitarians (Duffy, 1990) in fixing the (modern) city (see statements in Pickett et al., 2014; Niemelä et al., 2011). Until now we have lacked a longer historical exposition of how urban ecology is caught up in all sorts of politics, value judgments and internal tensions in wanting to be both objective science and a guide towards (urban) sustainability (for articles see e.g. Evans, 2011, Ernstson & Sörlin, 2013). If there is anything I would have wished for, it would have been for Lachmund to more explicitly engage in theoretical debates in his conclusion. For instance, Evans (2011) has written on how "circuits of ecological observations" (in Baltimore) place the whole notion of truth in a different light when ecologists are part of the system they study. Lachmund also has material to discuss more extensively prospects for sensitizing decision-making processes to non-humans (Gandy, 2013; Hinchliffe & Whatmore, 2006), and could head-on take on Latour's claim that nature is not a useful analytical object, a task Lachmund recognizes only in a footnote (p.237).

Greening Berlin contributes to debates on the relation between science, value, politics and place. As a final point, it was at the end, when the species protection regime was losing its grip on policy that it created changes on the ground through place-specific projects and struggles. Here ecological knowledge was of significance, though it was blended with recreational and cultural-historical arguments to articulate value, place meaning, and urban

memory, in one word – uniqueness. What thus seems to have bought real political purchase was not the scientifically based mapping of Berlin's biotopes, but its mixing with recreational and cultural-historical arguments and an active citizenry. It is on this point that Lachmund ends, stating that the politics of sustainability will depend on the "subtlety" of environmental expertise and "the imagination and experimental attitude of a lively civil society" (p.236).

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