

– ACCOUNTING FOR BIODIVERSITY: Periphery Urbanization, Environmental Conflict, and Spatial Inequality in Monetizing the Value of Nature

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Abstract

In terms of mainstream sustainability economics, market-led initiatives aimed at biodiversity restoration represent a productive, morally conscientious choice. Under this view, efforts in areas such as biodiversity offsetting, net gain, or finance are considered effective tools for preventing or managing environmental degradation. In this article I problematize such optimistic, largely economic claims by taking readers to specific urban locations where these tools are being deployed or proposed. My case studies of Bristol and Copenhagen illustrate that such tools, under the realities of rent gap-driven urbanization processes, selectively render certain ecologies and places fungible, thereby advancing inequality by disproportionately burdening lower-income and peripheral communities. At the same time, we may equally witness how compelling counterarguments are made by local residents and environmental activists in response, particularly regarding the impact of land development on water quality and urban stormwater management. Thereby I show how cities are not just sites on and in which these tools act; they mediate debates over the value of nature and biodiversity, and whose conception of value counts. In this article I therefore make a case for why an ‘urban lens’ is essential in contemporary analyses of biodiversity tools, governance, and their politics.

Introduction

The environmental impacts of everyday living in a market society—from grocery shopping in a corporatized supermarket to disposing of rubbish through centralized waste management—are, in essence, ‘net’ negative. Therefore, the idea that we can increase biodiversity while maintaining a consumption-based economy appears wildly optimistic. Rather than focus on the destructive impacts of modern economies and land developments, however, mainstream sustainability economics has more recently—via such concepts as biodiversity financing (BF) and biodiversity net gain (BNG)—shifted attention to potential yet empirically uncertain ‘gains’, frequently bypassing the accountability and responsibility required to achieve such goals (Bull and Brownlie, 2017; Knight-Lenihan, 2020; Gardner *et al.*, 2022). In this article I address this seeming paradox by shining a spotlight on the difficulties of achieving such gains, as well as on the contradictions thrown up by assuming that capitalism can go hand in hand with thriving biodiversity (see also Whatmore and Boucher, 1993; Cowell and Thomas, 2002).

The growing literature on green and responsible capitalism (Barman, 2016; Elkington, 2020; Rodin and Madsbjerg, 2021) is often premised on the notion that financial tools can be appropriated to serve more socially minded purposes. Based on existing literature, I first examine the operative logics and mechanisms behind the tools that are increasingly pervasive in environmental governance and regulation: biodiversity offsetting (BO, sometimes abbreviated as BDO), BNG, and BF. BNG is a legal requirement in the UK (since the passing of the Environment Act of 2021) for land developers

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to calculate the potential harms to biodiversity that will likely be caused by their development proposal, and to provide a plan enabling a minimum 10% biodiversity ‘net gain’. BO is an earlier version of BNG, in terms of which the UK government mandated developers to calculate and offset the harms their projects caused to biodiversity. Both BO and BNG use spreadsheet-based, standardized calculative frameworks provided by the UK government. BF, by contrast, calculates the monetary value of biodiversity through the return on investment (ROI) in ‘nature-positive’ economic projects (e.g. projects that can generate cash flows out of economic activities that rely on conserving and/or restoring natural habitats).

Such tools ‘think numerically’ (Rose, 1999; Miller and Rose, 2008) about nature, reducing biodiversity to a monetarily transactionable value. The proponents of such schemes argue that these are the ‘realistic’ way to achieve some level of biodiversity protection and/or to direct resources for managing environmental degradation. Opposing views, by contrast, argue for the *intrinsic* value of interspecies dynamics as they exist on-site or as-is, pointing out the ethical and political implications of ‘making biodiversity fungible’. In this article I summarize and discuss how various authors have discussed and theorized the tools to ‘account for’ biodiversity—via standardized metrics and/or in monetary terms.

This literature review is followed by two empirical case studies that demonstrate how these mechanisms are put into practice in specific locations. To do so, I draw on two urban development scenarios (one in Copenhagen and the other in Bristol) to introduce how market-led environmental valuation frameworks are closely tied to residential property development projects.

The research I present in this article contributes to existing dialogues on urban natures, environmental valuation, and environmental justice. Above all, it highlights the importance of a financialization analysis to examine current perspectives on urban natures by bringing the burgeoning scholarship on BNG into conversation with geographical scholarship on urban space financialization. I do so by paying particular attention to the contention surrounding the fungibility of biodiversity, as well as to how population density (ironically) acts to increase the monetized value assigned to biodiversity.

Secondly, I demonstrate in this article how an ‘urban lens’ is critical for understanding environmental politics and valuation struggles. Land development projects—particularly in the urban peripheries—are not only a vehicle through which ‘biodiversity’ gets transformed into a monetary value; they also stage a political debate surrounding whose ‘biodiversity’ is considered valuable and why, in ways that have material implications on actually existing places, communities, and habitats. My case studies on Copenhagen and Bristol illustrate how cities are not just sites on and in which these tools act; they mediate debates over the value of nature and biodiversity, and whose conception of value counts.

Finally, in relation to this ‘urban lens’, my research focus on urban peripheries—as border spaces between ‘developed’ and ‘undeveloped’—allowed me to uncover uneven spatial consequences caused by monetizing the value of nature. Through fine-grained, place-based analyses, I expose how biodiversity accounting and ‘net gain’ mechanisms selectively render certain ecologies and places fungible and how this aligns with rent gap logics and thereby advances inequality by disproportionately burdening lower-income and peripheral communities. In this way I draw concrete connections across research topics in urban political economy, environmental justice, and valuation.

Methodological considerations

This article was initially conceptualized during a September 2023 teaching engagement in Copenhagen. As part of preparations for my students’ learning experience, I met numerous individuals involved in sustainable development, urban

development, and environmental conflict. Over the course of these conversations, I learned about the contentions surrounding a residential property development in Amager Fælled (Amager Common). Despite the development project being justified using the logic of monetizing biodiversity for the public good (via the growth of national pension funds), it had been met with fierce resistance from residents, many of whom cited the irreplaceability of specific species and their habitats.

I had witnessed similar debates on whether biodiversity can be made 'tradable' play out against a backdrop of property-led urban regeneration in Bristol, which I had spent the previous two years researching (via monitoring of relevant on- and off-line information, as well as through interactions with planning practitioners and residents; see Jon, 2025). In the case of Bristol, too, justifications from above had come into conflict with views from below. While promises had been made that the ecological impacts of new residential developments would be compensated for by BO, on-the-ground perspectives mourned the inevitable loss of specific green spaces and habitats.

To reflect on this discrepancy, I conducted a review of how contemporary scholarship discusses biodiversity as a monetizable object. Given its close relationship with urban development, the burgeoning scholarship on BF and 'net gain' became the main subject of the review. When I applied this focus to the history of urbanization processes in Copenhagen and Bristol, where land development schemes have become leading 'economic projects', the review's remit expanded to include the literature on financialization, which explores how finance 'commands an increasing share of the economy, ultimately leading to the organization of the economy and society' (Lake, 2015: 52).

In sum, the findings in this article are supported by: (1) a review of the literature on market-led approaches to environmental valuation, BF, accounting, and 'net gain', in particular as they relate to land and housing development; (2) a review of the literature on financialization, its relationship with urban developments, and the operational logic of 'discounting' undergirding it; and (3) qualitative case studies of Copenhagen and Bristol, which draw on the existing literature, physical site visits, eight policy documents, 30 newspaper articles, two online forums (Amager Fælleds Venner; Save Brislington Meadows), 748 public online comments, conversations with 13 individuals (six in Copenhagen, seven in Bristol), and 189 public letters (lodged in the Bristol City Council Planning online under 25/14849/M Land At Broom Hill/Brislington Meadows Broomhill Road Bristol BS4 4UD). During physical site visits, I employed walking as a method (Pierce and Lawhon, 2015). This entailed building mental maps of the neighbourhoods under study, with multiple return trips made to notable areas at different times of day (iterating across spatial and temporal boundaries).

How markets and valuation devices have been mobilized to address environmental problems

Numerous interdisciplinary researchers have written on how nature, biodiversity and 'ecosystem services' might be quantified to 'account for' them in economic analyses (Anderson, 1993; Jones, 2003; Cuckston, 2013; Freeman and Groom, 2013; Sullivan and Hannis, 2017; see also Table 1). Such quantification encompasses government subsidies (subject to the opinions of government experts), resource activities (subject to market use value), and an individual's willingness to pay (WTP), subject to the results of scenario-based valuation surveys; moreover, it encompassed the study of surrogate markets such as the pricing of housing in the vicinity of green amenities. In urban space financialization, the use of surrogate markets—i.e. the economic value estimation of the environment to be represented as the variations in house prices (referred to as 'hedonic pricing'; see Freeman and Groom, 2013)—buttresses the argument that land development is 'environmentally beneficial' (when measured in monetary terms) even when it entails physical harms to situated local ecologies (Whatmore and Boucher, 1994; Cowell and Thomas, 2002).

TABLE 1 Examples of environmental valuation frameworks in economic analyses

Environmental valuation frameworks (in economic analyses)	Valuation device and mechanism	Operational logic	Example	Main criticism
<i>Individual willingness to pay (WTP); hedonic pricing</i>	Scenario-based valuation surveys (e.g. 'How much would you pay for environmental services in this context/particular scenario?'), the use of surrogate markets (e.g. housing) (see Freeman and Groom, 2013)	Using individualized surveys or already existing market transactions, we can value environmental goods in ways communicable with already marketized commodities, thereby allowing us to adequately account for them in economic decisions	By studying housing prices in the vicinity of green amenities, economists can estimate how much individuals are willing to pay for environmental quality	The value of nature or the environment is socially deliberated and developed over time (and not entirely based on individual consumption logics; see Anderson, 1993)
<i>Biodiversity offsetting (BO) and Biodiversity net gain (BNG)</i>	Spreadsheet-based (e.g. Excel) calculation device ('Statutory Biodiversity Metric Calculation Tool'), proposed by Natural England, Environment Agency, and the Forestry Commission, and approved by the UK government (Department for Environment, Food and Rural Affairs) (see Zu Ermgassen <i>et al.</i> , 2021)	Using spreadsheet-based standardized calculation frameworks can objectively quantify the potential harms to biodiversity resulting from urbanization; this information can be used to hold developers accountable for biodiversity losses	A developer can hire an environmental planning consultant to assess the potential biodiversity losses associated with their land development proposal; the consultant comes up with a plan to either restore them on-site or purchase equivalent credits off-site	These standardized calculative frameworks actively <i>facilitate</i> (instead of putting a brake on) new and intensified development in rural and periurban areas by considering them as a driver of economic growth (Sullivan and Hannis, 2017) 'Scale mismatch': a habitat's value ('distinctiveness score') is determined at an aggregate scale, whereas from a grounded, or 'biologically realistic' perspective, even 'low-distinctive' habitats provide important resources for resident species at the local scale (Gardner <i>et al.</i> , 2022)
<i>Biodiversity finance (BF)</i>	Calculate the monetary value of biodiversity through the return on investment (ROI) in 'nature-positive' economic projects (e.g. business projects that can generate cash flows out of economic activities that rely on conserving natural habitats, such as tourism, regenerative agriculture, or delivering ecosystem services) (see Karolyi and Tobin-de la Puente, 2023)	By turning biodiversity into an economic asset assessable in terms of ROI, we can make biodiversity-related economic projects comparable to other ('less green') investment products—thereby making them financially competitive or attractive in ways that direct resources to 'greener' projects	Financial investments in ecotourism (travel and hospitality) businesses, 'biodiversity-friendly' agricultural products, and companies that create carbon sequestration sites (for carbon credit markets) or 'habitat banks' (for biodiversity credit markets); issuing environmental impact bonds; financing land development projects that draw on nature-based solutions (NBS) on the basis of their potential increased land rent	The financial sector only identifies biodiversity 'risks' in terms of the extent to which biodiversity loss disrupts capital accumulation; as a result, any material loss of biodiversity that does not bear implications in terms of financial losses or gains will not be accounted for in their modellings (see Christophers, 2017; Irvine-Broque and Dempsey, 2023)

SOURCE: Author's tabulation

In this article, I home in on two recent trends in the marketization of biodiversity: biodiversity financing (BF) and biodiversity net gain (BNG). The former aims to develop investment models that mitigate the risks of biodiversity loss, with examples including investments in ecotourism and 'biodiversity-friendly' agricultural products, the creation of carbon sequestration sites (for carbon credit markets), and the issuing of green

infrastructure bonds. Within this arena, land developments that draw on nature-based solutions (NBS) have been cited as one of the most promising avenues for BF (Károlyi and Tobin-de la Puente, 2023). Here, the value of biodiversity is quantified primarily through the ‘green amenity premium’ that results from a buyer’s WTP for green space and/or a more aesthetically ‘clean’ environment, as represented in the increases in property prices before and after an NBS intervention.

This is particularly relevant in urban contexts: the European Investment Bank’s recent publication in 2023, ‘Investing in nature-based solutions: state-of-play and way forward for public and private financial measures in Europe’,¹ reports that high population density in cities results in a greater number of people deriving benefits from NBS, which in turn can enhance its market demand. A majority of the projects cited in the report purport to improve the ‘environmental quality’ of urban brownfield sites through property developments that feature biodiversity restoration.

Under such a paradigm, urban density (population and its associated foot traffic) acts as the land economy’s value generator and driving force. In essence, the ‘success’ of BF depends less on enhancing biodiversity and more on whether biodiversity can contribute to increased land economy transactions—a topic to which I return below (under the heading ‘Why urban development, especially in peripheries, is a critical scale for analysing environmental valuation struggles’).

Critics on commensuration and fungibility of biodiversity

The UK government’s initiatives to ‘offset’ or compensate for biodiversity losses from urbanization have been examined by scholars on whether and to what extent they would be effective, in most part consisting of critical reflections on commensuration and fungibility of biodiversity (Sullivan and Hannis, 2015; Knight-Lenihan, 2020; Zu Ermgassen *et al.*, 2021; Chapman *et al.*, 2024; see also Whatmore and Boucher, 1993).

BO is an earlier version of BNG, where planning and development practitioners use standardized calculative frameworks to quantify the harm to populations of species caused by urbanization; they can then trade this calculated harm through payment for an equivalent or higher calculated increase in biodiversity value. The main purpose of such exercises, critics argue, is not to protect biodiversity but to ‘create a new technique whereby development-related harm can be more easily compensated for, and by constructing biodiversity conservation itself as a commodity that might be traded in entrepreneurial markets’ (Sullivan and Hannis, 2015: 162). In the UK context, the authors argue, ‘BDO is also strongly linked to a reorientation of the land-use planning system aimed at making this system a driver of economic growth rather than a brake on it, through removing obstacles to new and intensified development in rural and peri-urban areas’ (*ibid.*: 7). However, by rendering biodiversity commensurable and fungible, the BO capitalist framework of biodiversity cannot account for two key aspects of nature: (1) place-based affective value of nature, direct relationships between actually existing individuals, species, habitats that make up the real ‘nature’; (2) the unpredictable, nonlinear, and complex processes of living systems that will inevitably escape the ‘net loss’ calculated and represented in a static form (*ibid.*: 172).

BNG is a relatively new UK government initiative designed to compensate for environmental losses incurred in land development projects. The Environment Act of 2021 states that for a planning/land development application to be granted, it must present a plan enabling a minimum 10% BNG. Although the legislation’s relatively recent adoption means that empirical evidence of its impacts remains provisional, several writers have reported on the experiences of early-adopter municipalities. In doing so, they have provided much-needed critical reflections on whether BNG might

1 The European Investment Bank (2023), ‘Investing in nature-based solutions: state-of-play and way forward for public and private financial measures in Europe’. URL <https://www.eib.org/en/publications/20230095-investing-in-nature-based-solutions> (accessed 6 August 2026).

actually yield ecologically beneficial outcomes or is merely a tool to legitimize increased licensing of urban developments (Chapman *et al.*, 2024).

BNG relies on a series of aspatial assumptions about nature when calculating the ‘net gain’ provided by biodiversity. ‘Habitats’ are construed as a combination of vegetation, hydrogeology, and/or land use, with ‘habitat distinctiveness’ scored relative to its rarity (in hosting species) at the national scale. For instance, meadows and fens score highly, whereas scrubs or cropland score much lower. The metric’s gains and losses are compared by calculating habitat distinctiveness multiplied by habitat area. The developer can use this metric to achieve a ‘net gain’ in total ‘biodiversity units’ by promising to turn ‘low-distinctive’ habitats into ‘high-distinctive’ ones.

One immediate issue thrown up is the scale mismatch. A habitat’s quantified value is prescribed from above, representing its degree of importance at an aggregate scale (following the Local Nature Recovery Strategy, which divides England into 48 geographic areas). By contrast, from a grounded, or ‘biologically realistic’ perspective, even ‘low-distinctive’ habitats provide important resources for resident species (Gardner *et al.*, 2022). Findings have already been put forward that the BNG metric has thus far had a negligible impact on actual biodiversity ‘gain’ (Zu Ermgassen *et al.*, 2021; Chapman *et al.*, 2024). Critics of BO, the earlier version of BNG, have already noted the spatial scale (size) mismatch, which have led to the numerical abstractions inherent in the BO process making ‘large areas of low value for biodiversity ... commensurate with small, unique areas for high biodiversity value’ (Carver and Sullivan, 2017: 1064). For instance, a 2.44 hectare (full-size football pitch) area of amenity grassland, because it is scored ‘low’ in habitat distinctiveness, is considered compensable with only 0.64 hectare of grassland based on the condition that it would obtain the status of species-rich lowland meadow.

Current scholarly debates concerning BNG, particularly among scholars examining its effectiveness from a bio-scientific perspective, largely run along two lines. The first faction recommends ‘off-site’ biodiversity gain achieved by creating new conservation sites or by requiring developers to contribute to existing conservation sites, while the second calls for more rigorous ‘on-site’ regulation, informed by place-based ecologies as evidenced on the ground.

The ‘off-site’ advocates point to local-level resource deficiencies in assessing and remedying a development’s ecological impacts on-site (Knight-Lenihan, 2020; Zu Ermgassen *et al.*, 2021). Thus, the argument runs that the most ‘realistic’ way of protecting (national-scale) biodiversity is by creating ‘gains’ in sites specifically dedicated to environmental conservation or post-agriculture restoration/rewilding (Kalliolevo *et al.*, 2025). Ideally, any off-site compensation should be located within the relevant local planning authority or national character area, thereby ensuring that the compensated habitats are similar to those lost to development. The ‘spatial risk multiplier’ used in BNG’s Excel-based tool requires more biodiversity credits to be achieved in cases where compensation occurs further away from the impacted site. Should developers be unable to meet the net gain requirement within the prescribed area, they can purchase ‘biodiversity credits’ created by third-party organizations—an option actively embraced by economic actors in ‘biodiversity markets’. For instance, the Environment Bank is creating ‘habitat banks’ (dedicated areas of conserved habitat) to generate biodiversity credits that can be sold to developers.² The logistics of this involve recruiting farmers and landowners who can ‘deliver’ the uptake in biodiversity units through specialized land management activities. Meanwhile, Finance Earth, a social enterprise, projects that the compliance market for biodiversity offsets could reach about GBP 300 million³ (no time frame specified).

2 Environment Bank (2026), ‘BNG habitat banks’. URL <https://www.environmentbank.com/what-we-do/habitat-banks/> (accessed 6 August 2026).

3 Abby Schultz (2024), ‘Investing in nature is gaining traction. Will it be enough?’ URL <https://www.barrons.com/articles/investing-in-nature-is-gaining-traction-will-it-be-enough-f8cb6651> (accessed 6 August 2026).

Advocates of ‘on-site’ biodiversity compensation, by contrast, argue that normalizing the practice of ‘doing nature elsewhere’ further bifurcates the relationship between people and nature. Thus, a place-based model for regulating urban development, as advocated by Gardner *et al.* (2022), seeks to foreground the voices of residents who are conscious of and protective of their local ecologies. As Gardner *et al.* (*ibid.*: 398) argue: ‘Decisions [as to whether ‘off-site’ biodiversity compensation should be allowed or not] must be made on whether the scale of individual displacements is acceptable to the local community, where “community” encompasses both human and other species’. If the purpose of BNG is to regulate (rather than propagate) urban developments that are potentially harmful to local ecologies, it must rely on ‘local people having sufficient connection with local wildlife ... having enough time and energy to stand up for the needs of their local wildlife’ (*ibid.*: 399).

The issue of whether biodiversity can be ‘offsetable’ elsewhere raises contentious questions about the ethics of fungibility itself (Yusoff, 2018). For instance, are interspecies dynamics—which occur amid a certain climate and conditions, at a specific time and place—sufficiently transportable for them to be transactionable as monetary goods in commodity markets? ‘Carbon markets’ justify their valuation mechanisms on the basis of carbon’s fungibility: carbon sequestration can happen anywhere, as the earth’s atmosphere is globally connected. ‘Biodiversity markets’, however, face prickly ethical dilemmas in adopting a similar rationale, as the material disappearance of species (i.e. death and extinction) is a genuine concern from the perspective of grounded individuals (to be detailed in the case studies).

Why biodiversity is analytically distinctive and more resistant to fungibility claims

Unlike the valuation of carbon or energy, the valuation of ecosystems is stickier to the subject land’s spatial materiality and its relations with sociocultural contexts (Graeber, 2001; O’Neill *et al.*, 2008; Drechsler and Wätzold, 2009). The value of biodiversity, as a critical element of living ecosystem dynamics, is difficult to calculate or even monetize (Sullivan and Hannis, 2017). For one, measuring the value of the habitat depends on a place-based context. From a grounded perspective, the ‘salami slicing’ of habitats for their tradability obscures the actually existing ecological realities on-site (Whatmore and Boucher, 1993). Simplifying the ‘distinctiveness’ of a particular grassland only as ‘low’, ‘medium’, or ‘high’ can easily be contested by alternative expert evaluations concerning its actual and historical contribution to the surrounding local ecologies (Sullivan and Hannis, 2017: 7–8).

Relatedly, the value of ‘biodiversity’ results from temporally bounded situations—the idea that one can replace an older habitat with a new one—collapses the historical relations between species and habitats as well as the situated ecological value that comes from them (Gardner *et al.*, 2022). Moreover, biodiversity itself is a continually evolving, materially situated phenomenon—accurate measurement of which requires continuous empirical monitoring and witnessing (Bull *et al.*, 2013; Carver and Sullivan, 2017; Chapman *et al.*, 2024). The legitimacy of a written environmental survey or valuation report—a piece of information that attempts to capture reality in a static form—can quickly be questioned as out of date, which becomes a source of contestation over its accuracy and the implications associated with its observations.

Finally, changes in biodiversity and their landscapes are materially consequential; arguments for ‘offsetting’ them with new ones already imply that there will be physical losses in certain locations, the impact of which will be final to the subject places and their ecologies (Bull and Brownlie, 2017; Sullivan and Hannis, 2017). As a result, marketizing biodiversity engenders valuation struggles on ‘which biodiversity (where and when)’ should deserve more attention and why. In this article I posit that land

development projects in urban peripheries play an important role as material stages of how such struggles play out.

Why urban development, especially in peripheries, is a critical scale for analysing environmental valuation struggles

As previously mentioned, BF's economic return models rely significantly on land development projects, where investors can extract new revenue streams out of the subject land after rendering it more attractive in real estate market transactions (Karolyi and Tobin-de la Puente, 2023). Urbanization's role in advancing financialization—defined here as how the logics and rationality of finance permeate the spatial, social, and economic organization of our everyday lives—has been extensively explored (see Harvey, 1982; Beauregard, 1994; Wyly *et al.*, 2004; Christophers, 2011; Lake, 2015; Fields, 2017; Rosenman, 2018; Taylor, 2020). Notable examples include city governments shifting from production economies to construction economies, and the redirection of pension fund investments from equity capital in companies (engaged in wage-labour-based commodity production) to property-based assets and capital appreciation (Christophers, 2011).

Of specific interest is the relationship between 'green' cities and rent gaps (Rice *et al.*, 2020; Jon, 2024). Several scholars have substantiated this relationship, in which environmental valuation by way of monetization often leads to creating urban spaces only for those who can afford them (e.g. 'green' or ecological gentrification; see Safransky, 2014; Anguelovski *et al.*, 2018). I build on this work and that of Weber (2021) by introducing a way of thinking about urban natures together with financial instruments of land development.

The role of 'green' urbanization in monetizing value capture becomes most evident in the use of finance-led instruments for planning or land development initiatives (Knuth, 2015; Fields, 2017; Weber, 2021; Jon, 2024; see also Robin, 2022). Experiences from Indonesia and Mexico (see Hilbrandt and Grafe, 2024; Webber, 2024) have revealed that global climate finance is often tied with the development of property economy, where the ROI on loans (or capital investments) for 'green' infrastructure projects (e.g. low carbon transport; waterfront urban renewal) are to be generated through the growth of urban real estate. This has unequal spatial consequences at a local scale, as land uses that maximize the monetary value of land (e.g. market-rate residential property developments) are prioritized over other uses that promote social and environmental values (e.g. low-income housing or public green spaces) (Cox *et al.*, 2025; Knuth *et al.*, 2025).

The significance of Weber's (2021) analysis is how financing instruments for land development (such as financial discounting, or 'time value of money', abbreviated as TVM) embed particular modes of futurity in ways that collapse and flatten the actually existing realities (and uncertainties) of the urban worlds. More precisely, 'planners use TVM techniques to capitalize expected rent gaps into present-day property values, which, in a self-reinforcing manner, can intensify development activity, raise asset prices, and compound the asset-based inequalities ubiquitous in urban areas' (Weber, 2021: 505). Weber's study of speculative urban development projects (funded via tax increment financing) offers examples of how financial instruments are used to impose specific versions of the future on the urban (and its residents) through their spread-sheet-based 'feasibility models' that consider 'uncertainty' only to the extent that it can be accounted for in monetary terms (see also Doganova and Muniesa, 2015; Christophers, 2017; Irvine-Broque and Dempsey, 2023; Doganova, 2024; Mitchell, 2026). Here, investors are regarded as enduring 'hazardous' uncertainty (or 'risk'), whereby they 'give up' present certainties for potential returns on investment ('opportunity cost'). Thus, under the logic of 'time preference' and 'cost of capital', brave investors must be remunerated for taking the risk of losing their money now, as well as for foregoing

other money-making opportunities ('risk premium'). Similarly, property insurance and government bonds for climate-related disasters (e.g. flooding, tornadoes) anticipate 'worst case scenarios' in which the associated monetary (e.g. city budget) losses are determined by risk analysts and experts (Cox, 2022).

Furthermore, the logic of financial discounting rests on an assumption that the future will be one of endless economic growth (Beckert, 2016; see also Groom *et al.*, 2022)—in effect, a 'free resource base' (Adam, 2010: 369). Without economic growth, it makes no sense to compare the values of today's goods relative to the envisaged revenue streams enabled by such growth. Importantly, Weber (2021) observes that urban planners and developers are actively harnessing a *lower* discount rate in project-based 'net value' calculations to express optimism about the future value of land. A low discount rate maximizes the differential rent (i.e. how the rent on land compares before and after the development) by 'increasing the terminal value of a proposed redevelopment project as well as calculations of the incremental value created by it' (*ibid.*: 517). This presents an interesting logical contradiction in light of the argument that a 'declining discount rate' should be applied to environmental conservation projects with long-term societal benefits (Freeman and Groom, 2013). This contradiction is a symptom of the 'inflationary futurity' (Weber, 2021: 512) enabled by financial discounting, which assumes that 'growth' is always positive and regards a lack of growth or action as 'decline'. Thus, by accepting the assumptions underlying discounting, we de facto embrace the idea that monetary economic growth goes hand in hand with thriving nature and biodiversity.

By regarding the multiplicity of urban natures and diverse interpretations of their value (Gandy, 2022; Tozer *et al.*, 2023) in conjunction with a critical financialization perspective (Cohen and Rosenman, 2020; Weber, 2021; Knuth *et al.*, 2025) we may arrive at an understanding that urban land development—especially in peripheries—is a critical site for environmental valuation struggles. Modern financial instruments (such as TVM techniques in cost–benefit analysis), even for the purposes of generating public value, find real estate development to be a reliable source for generating revenue streams, especially in urban peripheries, where rent gaps (or potential opportunities for higher economic returns; see Smith, 1979) are greater (Balakrishnan, 2019; Tretter *et al.*, 2022; Jon, 2025). This, in turn, generates tangible, or materially specific, environmental struggles over which aspects of the same 'nature' are valued and appreciated, and over which losing arguments will face material consequences that are terminal for certain subject places, communities, and habitats. Through place-based, materially specific scenarios in Copenhagen and Bristol, I substantiate how this may be the case, and what that implies for environmental justice, especially regarding how fungibility in biodiversity valuation produces spatial inequality.

Thinking like an investor or thinking like a friend? The case of Copenhagen

The case of Copenhagen demonstrates how monetizing biodiversity entails a socially contentious process, where a residential property development project—justified for its potential to generate economic returns—instigates a materially specific environmental conflict. Furthermore, it also showcases how the vibrant materialities of geographical realities—ecological and social—reveal the fragility of the logics that abstract them.

Reports from Denmark's national pension fund provide an illustrative example of how marketizing biodiversity is supposed to work.⁴ The reports propose a suite of

4 PensionDanmark (2022), 'Biodiversity report 2022'. URL https://www.pensiondanmark.com/globalassets/dokumenter/rapporter/biodiversitet---uk/2022/pensiondanmark_biodiversity-report-2022-uk.pdf (accessed 6 August 2026); see also PensionDanmark (2023), 'Annual report'. URL <https://www.pensiondanmark.com/globalassets/dokumenter/rapporter/annual-reports---uk/2023/annual-report-2023-pensiondanmark.pdf> (accessed 6 August 2026).

urban development projects across the country, claiming that urbanization coupled with biodiversity can ‘create value for PensionDanmark’s 815,000 members by delivering good long-term returns on real estate investments’.⁵ In contrast to this unrestrained optimism from above, the views emerging from below paint a more complex picture.

Fælledby, a 40-hectare residential property development, represents one of PensionDanmark’s flagship projects (see Figure 1). Its planned location is Amager Common (Amager Fælled), a 225-hectare environmental conservation area—once a landfill site—that is valued both by residents and concerned citizens elsewhere in Copenhagen. Friends of Amager Common (Amager Fælleds Venner), a citizen collective fighting against the Fælledby development, point to the project’s potential consequences for site-specific frogs, lizards and plant ecologies (not only rare species): common toad, common lizard, lesser celandine, sweet violet, teasel, willow warbler, orange-tip butterflies, small tortoiseshell, coltsfoot, *phellinus pomaceus* (cushion bracket fungi), *Auricularia auricula-judae* (wood ear fungi), common moorhen, winter crane flies, Eurasian water shrew, mute swan, common ivy, winter aconite, common blackbird, fieldfare, wood mouse, and wych elm tree.⁶ From the collective’s perspective, the value of biodiversity—with its different species and their interactions as a whole—remains intrinsically qualitative, as its irreplaceability (e.g. the terminal disappearance of particular habitats) is what makes the site invaluable. Furthermore, they equally point out the interconnected nature of species’ habitats, where a destructive intervention—even within a relatively small parcel of land (i.e. 40 out of 225 hectares)—will have material consequences for the surrounding local ecologies. The logic driving this argument is that, as far as the materiality of land is concerned, biodiversity should be seen as an end, not a means. As they note:

Amager Fælled is something very special. Just a few minutes’ bike ride from Copenhagen City Hall is a protected and wild nature area, which is home to a myriad of rare animals and plants ... Here you can get lost in impenetrable thickets, look over open spaces, dip your feet in lakes and admire the wild forest. Rare species (marsh helleborine and burnet saxifrage) grow here, as well as plenty of more common species like sea buckthorn and elderflower ... Amager Fælled is also home to a wide range of animals, including deer, nightingales, owls, and the protected great crested newt.⁷

This is in sharp contradiction to how the Fælledby housing developers (Copenhagen City/Port Development and PensionDanmark) and delivery suppliers (architect firms and engineering businesses) identify what ‘biodiversity’ is or does. Lund (2024: 117) details how biodiversity was interpreted and enacted upon by the planners and developers of the Fælledby housing project, who gave attention primarily to protecting a select number of named species of birds, insects, amphibians, and plants—an approach that often disregarded the role of water quality, fungi, or microorganisms that sustain the functioning of the entire network of local ecosystems. Uncertainty regarding the development’s potential environmental impact on nearby off-site areas was also not taken into account. Biodiversity, under their framework, existed as a controllable ‘landscape and design phenomenon’, its value accounted for only to the extent that it positively contributes to ROI (e.g. via resident satisfaction, long-term residency, and

5 PensionDanmark (2023), ‘First biodiversity report leads the way to nature-positive investments’, 14 March. URL <https://www.pensiondanmark.com/en/press/news/2023/first-biodiversity-report-lead-the-way-to-nature-positive-investments/#:~:text=At%20PensionDanmark%2C%20the%20new%20strategic,returns%20on%20real%20estate%20investments> (accessed 6 August 2026).

6 Amager Fælleds Venner (n.d.), ‘Flora and fauna’. URL <https://amagerfaelledsvenner.dk/flora-og-fauna?offset=1652732340053> (accessed 6 August 2026).

7 Amager Fælleds Venner (n.d.), ‘Flora and fauna’.



FIGURE 1 The Fælledby construction site, with the wall around it clearly visible (photo by the author, 13 September 2023).

positive public image; see Lund, 2024: 110). Especially for PensionDanmark, biodiversity is a means to achieving its end of ensuring that members receive ‘a good return on their savings ... An overall conclusion is that biodiversity is assessed and must perform within a financial framework aiming for economic growth’ (*ibid.*: 115).

A local environmental activist who played a key role in resisting the Fælledby development showed me around the development site and the surrounding Amager Common. The common boasts impressive meadows, wetlands, and rural scenery (grazing deer and cows), where people can escape the sense of being in a city. He described how the area has previously been used as a landfill and neglected for decades—even now, the soil may contain hazardous chemicals.⁸ As nature recovered, however, new development interests emerged. Protected species such as the moor frog became the face of the anti-development movement as it sought to highlight Amager Fælled’s unique contribution to Danish biodiversity. More than 70% of Copenhagen residents opposed the development proposal, which faced lawsuits and tribunal processes that delayed the project for several years. Finally, in 2023, the courts gave the development a green light.⁹ Despite this setback, the Friends of Amager Common continue (as of July 2025) to monitor the construction process and how the development interacts with the surrounding lands.¹⁰

In the context of Copenhagen’s history of urbanization, the present struggle is not unprecedented. Amager Common is adjacent to the Ørestad urban development, a new town project in Copenhagen’s southern peripheries (Andersen, 2001; Majoor, 2008; Ösgård and Spierings, 2021). In the 1990s, the city government initiated a public transit infrastructure project (the Copenhagen Metro System) that would extend south to the Ørestad and Amager Common area. The project’s financing scheme relied on the costs (in the form of debts) being repaid through the cash flow generated by land development projects (i.e. land rent). The plan, backed by the growth coalitions (‘entrepreneurial

8 The northern part of Amager Common was used as a chemical waste dumping site until 1974.

9 For more details on the contentions surrounding biodiversity and the Fælledby development, see Lund (2024).

10 See <https://www.facebook.com/groups/amagerfaelledsvenner> (accessed 11 September 2026).

city' policy networks), was met with fierce opposition from the Nature Preservation Foundation, which eventually conceded on condition that a larger proportion of land be preserved as a nature reserve. Andersen (2001: 140) describes this experience as the 'politics of gambling', entailing a 'massive increase in the use of public credits and costly (re-)directions of public investments' to the Ørestad development.

Forty years on, the Danish Nature Conservation Association continues its struggle against land development pressures in the area, asserting that 'The world and Denmark are in a huge biodiversity crisis and just like with the climate crisis, we cannot just do as we used to. We can rightly demand that politicians think of new solutions, and that also applies to politicians at city halls'.¹¹ Critique of monetizing biodiversity extends beyond whether such methods accurately represent the value of nature. Rather, what is concerning here is the City of Copenhagen's historic aspirations to achieve economic growth through new land development projects in the 'terra nullius' area of the southern peripheries, and the subsequent operationalization of these ambitions through 'nature-based' real estate developments.

Overstreet and Sørensen (2025), in their article 'Unnaming the common: landscape encounters in the Anthropocene', set out the incommensurable value of unruly landscapes in Amager Fælled. Rather than 'classify, identify, and quantify' the elements encountered at the common—as both the authorities and environmental activists attempt to do when justifying or arguing against how land should be valued—the authors apply an 'unnaming approach'. This radically situated approach to 'representing' Amager Common rejects resource-focused logics and instead insists on the intrinsic value of ruderal communities. In doing so, they point to the presence of 'vagabonds' who have 'lawlessly' resided in the common:

In 1984, the Army abandoned Amager Fælled and opened the area to the public, but there is evidence from earlier aerial photographs and a scattered variety of other sources, especially after the artillery ceased target practice in 1947 and discontinued the rifle range in 1956, that several groups of people used the common for various activities. In the late 1960s and early 1970s, a Roma group lived in a car park, which still operates today, until recently signposted by the municipality as 'The Gypsy Camp' ... As recently as the 2010s, migrants from Eastern Europe took shelter at the common, before Danish authorities evicted and deported them. Today, individual squatters continue setting up short-lived campsites in the area ... At Amager Fælled, we frequently encounter such remains of overnight stays, sometimes also traces of longer habitation in the form of makeshift homes with tarpaulin covers, sleeping bags, clothing, and rudimentary infrastructure for outdoor cooking and relative comfort (Overstreet and Sørensen, 2024: 10–11).

Overstreet and Sørensen's 'unnaming approach' recognizes the value of the Amager Fælled beyond the financial framework of 'biodiversity', where what is systematically devalued under the hegemony of market—human and other-than-human—finds ways to thrive in 'unruliness' (Wright, 2020): 'It is a place attractive to many who would prefer to live on the edges. In this way, Amager Fælled is characteristically "ruderal" (DeSilvey, 2020; Stoetzer, 2022), in that it is a fringe amid growing urban pressures inhabited mostly by "weedy" (Tsing, 2017) auto-rewilders, human and nonhuman' (Overstreet and Sørensen, 2025: 13).

What the case of Copenhagen thereby highlights is not only the vital role of urban land development in enabling the value transaction network of monetizing

11 See the Danish Society for Nature Conservation's 2021 lawsuit against construction on Amager Fælled, 28 July. URL <https://www.dn.dk/nyheder/stotte-til-staevning-mod-byggeri-pa-amager-faelled/> (no longer available online).

biodiversity, but also how the grounded realities of ‘the urban’ unsettles the selected (or virtual) representation of the Amager Common as curated by the developers. Moreover, the alternative history of the common, as told by Overstreet and Sørensen (*ibid.*), gestures towards the unevenness of decisions about *whose* nature can be made fungible and why—a topic that I substantiate through the case of Bristol.

Fungibility of all biodiversity or fungibility of certain biodiversity? The case of Bristol

The case of Bristol reveals a struggle similar to Copenhagen’s, demonstrating how a government-backed periurban land development project triggers an environmental conflict. However, it also crystallizes an additional dimension of the fungibility debate: how environmental valuation, when conducted in ignorance of existing rent gap dynamics, can result in unequal spatial outcomes for lower-income urban communities.

A residential property development plan (for a development of up to 260 new residential dwellings, 30% of which were to be affordable housing) was proposed on a plot of land known as Brislington Meadows, a 9.34-hectare area of green space enjoyed by the local residents of Brislington, a southern suburb of Bristol. The designated developer, Keepmoat, describes the project as ‘a natural, landscape-led development’, emphasizing its commitment to a 10% BNG.¹² Keepmoat’s preliminary BNG strategy (developed by an environmental planning consultancy firm based in Bath, England) features a dedicated ‘offset’ site to be created on a land parcel adjacent to the southern part of the Meadows. The current long-term tenants of this land, who have been using it to graze horses, must vacate the site so it can be rewilded to offset the development.

Nearly 600 residents raised objections to the development. The residents remain equally skeptical of Keepmoat’s BNG plan, asserting that ‘10% Biodiversity Net Gain cannot replace the ancient meadows and hedgerows lost! This land is irreplaceable’.¹³ The Nature Conservation Officer has also expressed doubts over the development’s 10% biodiversity ‘net gain’, citing the irreplaceability of on-site hedgerows:

The hedgerows on this site are demonstrably important features of this landscape, and support the high-level biodiversity shown by the ecological assessments produced. Replacing removed hedgerows with new hedgerows satisfies the requirements of the BNGA [Biodiversity Net Gain Assessment] for hedgerow habitat but does not address the loss of a feature of this landscape with biodiversity, cultural and historical importance—the retention of which has been made a specific development consideration of the BSA1201 [referring to the plot of land known as Brislington Meadows] site allocation.¹⁴

Similarly, Save Brislington Meadows, a public campaign group against the development, notes:

The Meadows have remained undeveloped for hundreds of years, providing a wildlife rich habitat in an area of unimproved grassland with ancient hedgerows and veteran trees. The site is particularly noted for the diversity of habitats and species. A recent survey revealed around 67 species of birds and 365 species of

12 Keepmoat (n.d.), ‘Our plans for Brislington Meadows’. URL <https://brislington-meadows.co.uk/proposals/> (accessed 11 September 2026).

13 See <https://facebook.com/groups/brismeadows/> (accessed 11 September 2026). Public comments on the project can be found at <https://bristoltrees.space/Planning/application/RA9YU0DN1CN00>; <https://pa.bristol.gov.uk/online-applications/> (planning documents—reference: 25/14849/M) (accessed 11 September 2026).

14 See ‘22/01878/P Land At Broom Hill/Brislington Meadows Broomhill Road Bristol BS4 4UD—Objection’, 23 November 2022. URL https://pa.bristol.gov.uk/online-applications/files/6ACC67DA26B0514B0797E9ABDD82BB35/pdf/22_01878_P-ECOLOGY_OFFICER-3354902.pdf (no longer available online).

invertebrates, including 104 butterflies and moths, as well as 10 species of bats. It is a refuge for local residents and wildlife, forming a vital green corridor in the area. Wildflower meadows are now one of the rarest habitats in the UK, and nothing can compensate for the loss of biodiversity that building on meadows like this will cause.¹⁵

These views are in contrast with the Planning Inspectorate's assessment (in favour of the development) where the value of hedgerows is to be assessed based on the presence of at least five 'woody species' (and not less):

Hedgerows [identified as H1, H2, H3, H4, H5, H6] all contain bluebell, which is one of the 'woodland species'. Hedgerows H3 and H4 have four and a half 'woody species', H5 has four 'woody species', H1 and H2 have three 'woody species', and H6 has none. By dint of containing bluebell, H1 to H5 are all defined as 'important' by The Hedgerows Reg[ulation]s. However, they only have one of the 'woodland species', and all of them have fewer than the five 'woody species' necessary to qualify as important under that criteria. The internal hedgerows to the appeal site are therefore relatively species poor.¹⁶

Regarding the value of veteran trees, the Planning Inspectorate concludes that while they may meet the 'age' criteria, they do not meet the size and condition criteria. For instance, for a hawthorn tree to be considered 'veteran', its size should be '2.5 m in girth, equating to about 800 mm in diameter' (*ibid.*: 8).

Through the BNG criteria that assess the value of ancient hedgerows or veteran trees by numerical 'thresholds', the qualitative value of specific biodiversity—flourishing under a particular climate, geographical histories, in a specific time and place—becomes irrelevant. The Brislington-based environmental activist and scholar Gary Vowles contests such processes of making nature fungible from a grounded perspective: 'It is the local landscape that is in keeping with the local landscape, not 260 houses'.¹⁷ He goes on to claim that BNG is 'a simplistic tool often used to enable the development part of sustainable development' while ignoring the 'sustainable' side. What stands out most in Vowles's article is how local residents' everyday relationships with, and valuations of, their surrounding nature are completely sidelined in supposedly 'objective' BNG valuation models. In addition to their concerns on the existing trees and hedgerows, several residents also point out the value of the Meadows as marshland and a water holder, which has effectively been preventing the areas from flooding during stormwater runoff:

The Meadows, long established as marshland and a natural water holder feeding into surrounding streams and the Brislington Brook, provide irreplaceable habitat for badgers, peregrines, kestrels, harriers, deer and countless other species ... On wet days, which we have had a great number of over the last few months, the volume and flow of runoff is quite considerable, and I am concerned this will impact the infrastructure in the area as well as creating risk to neighbouring homes. By removing points of infiltration on the

15 Greater Brislington Together (n.d.), 'Save Brislington Meadows'. URL <https://greaterbrislington.org/save-brislington-meadows/> (accessed 6 August 2026).

16 The Planning Inspectorate (2023), 'Appeal decision on land at Broomhill/Brislington Meadows, APP/20116/W/22/3308537', 17 April. URL https://assets.publishing.service.gov.uk/media/6748a35cebabe47136b3a1d2/Appendix_2_-_Appeal_Decision_3308537_checked.pdf (accessed 6 August 2026), see p. 11.

17 Gary Vowles (2025), 'It's the local landscape that is in keeping with the local landscape, not 260 houses', B24/7, 19 July. URL https://www.bristol247.com/opinion/your-say/its-the-local-landscape-that-is-in-keeping-with-the-local-landscape-not-260-houses/?fbclid=IwY2xjawLu3e1leHRuA2FlbQlxMQABHovty26Wc_Ub2hiVy1Gn1fVNL1DVjwOv15NsRF6fjYt3jIzk0xaZ1dJVLGA_aem_D5lNelyFKXOtUMrKYgMAEg (accessed 6 August 2026).



FIGURE 2 A view of the Brislington Trading Estate, seen from Brislington Meadows. This industrial estate was historically known for ‘weaving and processing of asbestos for industrial friction gear and break-linings’ (Walker, 1946: 186) (photo by the author, 23 July 2025).

meadows and covering with impermeable surfaces such as tarmac, the only place for water to go will be downhill, putting greater pressure on the brook.¹⁸

Are the residents of Brislington being ‘selfish’ for not welcoming new builds? As previous studies have shown, what is often caricaturized as a NIMBY reaction actually represents a community’s response to local problems arising from histories of uneven development and rent gaps (Lake, 1996; Tretter *et al.*, 2022). Those walking across this landscape rich with meadows are eventually confronted with a gigantic sign: ‘Meat Machine’. Brislington Meadows borders Brislington Trading Estate, a large industrial and warehousing site (see Figure 2) occupied by companies such as Meat Machine Cutting Room, Bristol Foods, Hop Union Brewery, and Green Works. Skyline Park, owned by local event venue business Pytch, is situated directly across the street from Brislington Meadows. Pytch was recently sold to a Birmingham-based event company, Premier Events, which does not intend to use the Skyline Park campus, ‘leaving uncertain futures for other staff at the South Bristol business’.¹⁹

More generally, the Bristol Employment Land Review in 2023 rates the likelihood of additional employment being developed within the Brislington Trading Estate area over the next five years as ‘low’.²⁰ The declining industrial usage of buildings, storages and facilities was apparent during my explorations of the area—in fact, it was a small warehouse nightclub called Green Works (a ‘Mid-size BS4 warehouse venue dedicated

18 See ‘25/14849/M Land At Broom Hill/Brislington Meadows Broomhill Road Bristol BS4 4UD—Objection. 25_14849_M-OBJECTS-4153777’, 25 February 2026. URL https://pa.bristol.gov.uk/online-applications/files/2A49298F5FED29DFFC0118882A061D67/pdf/25_14849_M-OBJECTS-4153777.pdf (no longer available online).

19 Tristan Cork (2024), ‘Bristol businessman Johnny Palmer sells events company’, *Bristol Live*, 21 November. URL <https://www.bristolpost.co.uk/news/bristol-news/bristol-businessman-johnny-palmer-sells-9733644> (accessed 6 August 2026).

20 See Jones Lang LaSalle Incorporated (2023), ‘Bristol employment land review’. URL <https://www.bristol.gov.uk/files/documents/6980-bristol-employment-land-review-jll-report-november-2023/file> (accessed 15 September 2026).

to underground sound system culture’)²¹ that seemed to be making the most vibrant ‘land use’, blasting out music to densely packed dancers amid an otherwise quiet, even desolate, landscape.

This context of declining industrial land use, coupled with regeneration and proposals for housing development projects in adjacent sites,²² highlights that it is not ‘biodiversity in general’ that has been made fungible by BNG, but Brislington Meadows specifically—due to its location offering a potential rent gap to be captured—that is being targeted. Not only was the area mapped as ‘deprived’ by the 2019 Indices of Deprivation,²³ but a government survey also designated Brislington East as ‘significantly worse’ (than the rest of Bristol) in terms of lack of transport options for residents. Some argue that Brislington Meadows is critical to ensuring lower-income residents can access green space, as they often lack the means to travel further afield:

The social context for development should be taken into account when deciding whether or not to give planning permission for development ... The ward report for Brislington East indicates that a fifth of all residents have no access to a car or a van; consequently, the only way in which these citizens can access green space independently is to walk, cycle on tricky roads or—if they can afford it—take relatively expensive and unreliable public transport.²⁴

Another resident points out the related unequal burden of losing green space to be imposed upon a periurban community, because the land in this area is cheaper:

I have two young children going to the Broomhill infant school, one of the few in Bristol to have a waiting list in the past couple of years. The local doctor’s surgery regularly has waiting times of weeks. Broomhill [road area in East Brislington] is a deprived area without the services to meet demands as it is; putting up 260 new houses will put huge strain on those services and make services worse for the people who need them ... Meadow habitat is in decline across the country. It is an important area, rare in cities and vital to the wildlife that lives there and the mental wellbeing of nearby residents. There is an abundance of dilapidated industrial sites that could be built on in Broomhill—don’t build on the Meadows because it is cheaper.²⁵

Thus, in this case, it is not just *any* meadow or *any* biodiversity that has been deemed replaceable, but rather the meadows and biodiversity enjoyed by poor people. Despite—indeed, perhaps because of—the BNG’s standardized models and numericized value representations, the development outcomes it enables can hardly be described as neutral. Put another way, *whose* nature (and by extension, environmental problems) are deemed worthy of public funds and attention? Although Homes England and Bristol City Council theoretically represent the interests of all ‘taxpayers’, their policy frameworks are often abstracted to the point where spatial dynamics—as well as the

21 Headfirst Bristol (n.d.), ‘Green Works’. URL <https://www.headfirstbristol.co.uk/#venues/green-works> (accessed 11 September 2026).

22 Bristol City Council (2023), ‘Bristol local plan: November 2023’. URL <https://www.bristol.gov.uk/files/documents/6894-bristol-local-plan-main-document-publication-version-nov-2023/file> (accessed 6 August 2026).

23 See Ward Profile Tool, Brislington East, Deprivation (2019), ‘National deprivation deciles by lower layer super output area’. URL <https://app.powerbi.com/view?r=eyJrJoiZmFmZjYyODQtZDU3MS00MTkyLWFiMTAtZjRiOGU5Y2FiYjQ5IiwidCI6IjYzNzhnN2E1LTBmMjEtNDQ4Mi1hZWUwLTg5N2ViN2RlMzIxZjI9> (accessed 1 July 2024).

24 Bristol Tree Forum, ‘Application details’. URL <https://bristoltrees.space/Planning/application/RA9YU0DN1CN00> (accessed 6 August 2026).

25 See ‘25/14849/M Land At Broom Hill/Brislington Meadows Broomhill Road Bristol BS4 4UD—Objection. 25_14849_M-OBJECTS-4158757’, 4 March 2026. URL https://pa.bristol.gov.uk/online-applications/files/D583036ADC58E4530EFCDD590DAEB8F27/pdf/25_14849_M-OBJECTS-4158757.pdf (no longer available online).

history of power politics underlying ‘affordable housing’ development processes in the UK (Christophers, 2013)—are not taken into account.

Viewed from above, ‘losing some biodiversity here, compensating it elsewhere’ implies a shared sacrifice borne by all members of society. Viewed from below, however, it becomes clear that spatial manifestations may affect individuals in different ways, depending on the specific time and place involved. Despite the Planning Inspectorate justifying the project on the basis of building more housing in Greater Bristol (even at the expense of biodiversity loss),²⁶ the critical question remains: whose green spaces and biodiversity are being made fungible, and whose are not? In this case, there is a very real possibility of negative outcomes for communities residing in lower-rent urban areas.

Discussion: the limitations and fragility of making biodiversity fungible

Irvine-Broque and Dempsey (2022) emphasize that the financial sector only identifies biodiversity ‘risks’ in terms of the extent to which biodiversity loss disrupts capital accumulation. Since not all climate-related risks are financial stability risks (Christophers, 2017), any attempt at market-led ‘green governing’ will inevitably result in social and environmental uncertainty, while absolving financial institutions (and states) of accountability towards those who end up being materially affected. This is especially so in an urban context where entrepreneurial governance drives policy rationalities (Lake, 2015; Christophers, 2015; Weber, 2021). Here, ‘public’ initiatives aimed at addressing problems related to local housing and economies must be presented as ‘projects’ justified on the basis of financial viability, as proven by cost–benefit analyses. Such projects rest on a series of assumptions, including an artificial programming of ‘reality’ and ‘future’, where the behaviours of people and nature are made to fit the logic of finance. As Audre Lorde famously quipped, the master’s tools will never dismantle the master’s house.

The Copenhagen and Bristol cases demonstrate how this principle plays out in practice. The Amager Common, located in the southern peripheries of Copenhagen, has been targeted for a housing development project for its potential to generate economic returns that are enabled by the rent gap and mobilized through the logic of finance. A common belief in public policy that social arrangements such as mobilizing pension funds are justified by quantifiable outcomes (i.e. financial returns for individual pensioners) opens the door for growth portfolios to include socially and politically contentious real estate development projects such as Fælledby. Here, biodiversity is accounted for only in so far as it contributes to ROI.

If we simply accept that ‘market growth’ will eventually deliver material benefits to those in need, and that housing policy should be judged solely on metrics such as the number of units built each year, the politics and ethics of deciding *where* to site/build new developments become mutable (Tretter *et al.*, 2022). In this context, environmental protection mechanisms such as BNG may have discriminatory spatial effects. This is evidenced by Brislington Meadows, where declining usage of the adjacent industrial estate coincides with the emergence of nearby urban regeneration projects, inviting onlookers to view the entire area as a nascent land market for residential property developments. Viewed in this light, the Brislington Meadows housing development reflects the narrow scope of urbanization processes driven by a potential rent gap. Tretter *et al.* (*ibid.*: 317) have shown that, under urban space financialization, ‘densification’ is often achieved at the expense of ‘reshuffling low-income residents to the urban fringe’.

26 In response to residents’ objections as to why a new development should not happen on a locally valued greenspace, the project website states: ‘We know that Bristol does not currently have a five-year housing supply (a government requirement) and that the need is significant. 16,000 households are currently on the housing waiting list and over 1,000 are in temporary accommodation. It is estimated that the city needs to build around 85,000 homes over the next 15 years. Brownfield sites alone will not meet the identified need’; from <https://www.brislingtonmeadows.co.uk/index.php?contentid=72> (no longer available online).

What the case of Brislington Meadows demonstrates is how initiatives in areas such as BNG reduce legitimate resistance to development, especially in periurban areas—burdening low-income communities with increased loss of nature, biodiversity, and access to green spaces.

At the same time, in both cases, local residents and environmental activists—with views from below—offer convincing alternative environmental valuations that reveal the fragility of the logics that render biodiversity fungible. For instance, Brislington Meadows is located on a hill and has functioned as a natural water-holding area, contributing to urban stormwater control below the fields (e.g. School Road). Developing the site—turning most of it into impervious surfaces—is likely to impact water flows, heightening the risks of local flooding in the area and of stormwater discharge affecting the water quality of nearby streams and rivers (e.g. Brislington Brook, River Avon). Relatedly, the environmental impacts of the wastewater—and its projected increase in line with housing developments—were also mentioned in arguments against the Fælledby development (in defence of the Amager Common), highlighting how managing local biodiversity is inseparable from managing water quality and drainage.

Both the cases of Copenhagen and Bristol thereby showcase why an ‘urban lens’ is critical to understanding environmental politics and valuation struggles. On the one hand, the tools in the areas of biodiversity accounting, finance, offsetting, and/or ‘net gain’ derive their value generation from land transformation projects, rendering lower-income peripheral communities more vulnerable to losing access to urban nature. On the other hand, we equally witness those who would be immediately affected by such landscape change—local residents and environmental activists—come up with alternative valuation programmes that point out the limitations and fragility of making biodiversity fungible. Periphery urbanization—residential property developments in the peripheries—becomes a ‘materially political’ (Bennett, 2010; Marres, 2012) stage on which new public debates emerge, centred on the value of nature and biodiversity and whose conception of value counts.

Conclusion: spatial imaginations of land beyond revenue streams

The research presented in this article was prompted by the empirical observation that biodiversity valued from above contradicts how biodiversity is viewed from below. Thinking ‘realistically’ about biodiversity, so the argument goes, is about valuing it in ways communicable with already marketized commodities, thereby allowing us to adequately account for it in economic decisions. The rationale underlying both BF and BNG is an extension of this approach and has led to a situation in which ‘thinking numerically’ about nature has—through encouraging particular forms of political agency and subjectivity, as well as the actor-network relations buttressing them—direct consequences for how we understand and govern problematic situations (Rose, 1999; Miller and Rose, 2008). When considering these consequences alongside urbanization’s role in value capture (Christophers, 2011), particularly how the logic of financial discounting drives decisions around whether a public policy initiative is ‘worth’ the cost (Weber, 2021; Doganova, 2024), it becomes clear that unequal spatial dynamics are leading to the voices of poor, marginal, economically underresourced residents being dismissed.

As of 13 April 2026, the Brislington Meadows housing development still remains on hold, with successful objections from the residents and local politicians rejecting the developer’s revised proposal. The Friends of Amager Common continue their activism for biodiversity protection, monitoring the environmental impacts of the Fælledby construction, organizing community waste collection events, and mobilizing against related land development issues in the Copenhagen harbour (Lynettholmen). In that sense, cities are not passive spaces where economic tools and their logic are enacted (Blomley, 2020). As a host of actually existing places and communities, as well as a physical site undergoing continual landscape change, they perform a ‘materially political’

role in mediating whose nature, or whose biodiversity, matters and why. In this article I have highlighted the importance of periphery urbanization and of using an ‘urban lens’ for analysing biodiversity tools, governance, and their politics: where people meet nature at the margins of development, how we assign value to land becomes qualitative, experimental, and emergent—in ways that may escape and move beyond the confines of capital.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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References

- Adam, B. (2010) History of the future: paradoxes and challenges. *Rethinking History* 14.3, 361–78.
- Anderson, E. (1993) *Value in ethics and economics*. Harvard University Press, Cambridge, MA.
- Andersen, J. (2001) The politics of gambling and ambivalence: struggles over urban policy in Copenhagen. *Geographische Zeitschrift* 89.2/3, 135–44.
- Anguelovski, I., J.J. Connolly, L. Masip and H. Pearsall (2018) Assessing green gentrification in historically disenfranchised neighborhoods: a longitudinal and spatial analysis of Barcelona. *Urban Geography* 39.3, 458–91.
- Balakrishnan, S. (2019) *Shareholder cities: land transformations along urban corridors in India*. University of Pennsylvania Press, Philadelphia, PA.
- Barman, E. (2016) *Caring capitalism: the meaning and measure of social value*. Cambridge University Press, Cambridge.
- Beauregard, R.A. (1994) Capital switching and the built environment: United States, 1970–89. *Environment and Planning A: Economy and Space* 26.5, 715–32.
- Beckert, J. (2016) *Imagined futures*. Harvard University Press, Cambridge, MA.
- Bennett, J. (2010) *Vibrant matter: a political ecology of things*. Duke University Press, Durham, NC.
- Blomley, N. (2020) Precarious territory: property law, housing, and the socio-spatial order. *Antipode* 52.1, 36–57.
- Bull, J.W. and S. Brownlie (2017) The transition from no net loss to a net gain of biodiversity is far from trivial. *Oryx* 51.1, 53–59.
- Bull, J.W., K.B. Suttle, A. Gordon, N.J. Singh and E.J. Milner-Gulland (2013) Biodiversity offsets in theory and practice. *Oryx* 47.3, 369–80.
- Carver, L. and S. Sullivan (2017) How economic contexts shape calculations of yield in biodiversity offsetting. *Conservation Biology* 31.5, 1053–65.
- Chapman, K., M. Tait and S. Postlethwaite (2024) Lost nature: are housing developers delivering their ecological commitments? URL <https://wildjustice.org.uk/wp-content/uploads/2024/12/Wild-Justice-Lost-Nature-Report.pdf> (accessed 6 August 2026).
- Christophers, B. (2011) Revisiting the urbanization of capital. *Annals of the Association of American Geographers* 101.6, 1347–64.
- Christophers, B. (2013) Wild dragons in the city: urban political economy, affordable housing development and the performative world-making of economic models. *International Journal of Urban and Regional Research* 38.1, 79–97.
- Christophers, B. (2015) The limits to financialization. *Dialogues in Human Geography* 5.2, 183–200.
- Christophers, B. (2017) Climate change and financial instability: risk disclosure and the problematics of neoliberal governance. *Annals of the American Association of Geographers* 107.5, 1108–27.
- Cohen, D. and E. Rosenman (2020) From the school yard to the conservation area: impact investment across the nature/social divide. *Antipode* 52.5, 1259–85.
- Cowell, R. and H. Thomas (2002) Managing nature and narratives of dispossession: reclaiming territory in Cardiff Bay. *Urban Studies* 39.7, 1241–60.
- Cox, S. (2022) Inscriptions of resilience: bond ratings and the government of climate risk in Greater Miami, Florida. *Environment and Planning A: Economy and Space* 54.2, 295–310.
- Cox, S., Z. Taylor, S. Collier and H. Bulkeley (2025) Changing urban riskscape: climate change, finance, and the built environment. *Journal of City Climate Policy and Economy* 4.1, 2–14.
- Cuckston, T. (2013) Bringing tropical forest biodiversity conservation into financial accounting calculation. *Accounting, Auditing & Accountability Journal* 26.5, 688–714.
- DeSilvey, C. (2020) Ruderal heritage. In R. Harrison and C. Sterling (eds.), *Deterritorializing the future: heritage in, of and after the Anthropocene*, Open Humanities Press, London.
- Doganova, L. (2024) *Discounting the future: the ascendancy of a political technology*. Princeton University Press, Princeton, NJ.
- Doganova, L. and F. Muniesa (2015) Capitalization devices. In M. Kornberger, L. Justesen, A.K. Madsen and J. Mouritsen (eds.), *Making things valuable*, Oxford University Press, Oxford and New York, NY.
- Drechsler, M. and F. Wätzold (2009) Applying tradable permits to biodiversity conservation: effects of space-dependent conservation benefits and cost heterogeneity on habitat allocation. *Ecological Economics* 68.4, 1083–92.
- Elkington, J. (2020) *Green swans: the coming boom in regenerative capitalism*. Greenleaf Book Group, Austin, TX.
- Fields, D. (2017) Unwilling subjects of financialization. *International Journal of Urban and Regional Research* 41.4, 588–603.
- Freeman, M.C. and B. Groom (2013) Biodiversity valuation and the discount rate problem. *Accounting, Auditing & Accountability Journal* 26.5, 715–45.
- Gandy, M. (2022) *Natura urbana: ecological constellations in urban space*. MIT Press, Cambridge, MA.
- Gardner, E., A. Sheppard and J. Bullock (2022) Why biodiversity net gain requires an ecological permission system. *Town and Country Planning* November/December, 391–402.
- Graeber, D. (2001) *Toward an anthropological theory of value: the false coin of our own dreams*. Palgrave, Basingstoke.
- Groom, B., M.A. Drupp, M.C. Freeman and F. Nesje (2022) The future, now: a review of social discounting. *Annual Review of Resource Economics* 14 (October), 467–91.
- Harvey, D. (1982) *The limits to capital*. Blackwell, Oxford.

- Hilbrandt, H. and F.J. Grafe (2024) Thinking topologically about urban climate finance: geographical inequalities and Mexico's urban landscapes of infrastructure investment. *Urban Geography* 45.3, 332-51.
- Irvine-Broque, A. and J. Dempsey (2023) Risky business: protecting nature, protecting wealth? *Conservation Letters* 16.4, e12969.
- Jon, I. (2024) Reassembling the politics of 'green' urban redevelopment in East Garfield Park: a Polanyian approach. *Environment and Planning A: Economy and Space* 56.4, 1005-23.
- Jon, I. (2025) Temporalizing 'justice' in urban regeneration: thinking with Lockleaze. *Urban Geography* 47.1, 108-31.
- Jones, M.J. (2003) Accounting for biodiversity: operationalising environmental accounting. *Accounting, Auditing & Accountability Journal* 16.5, 762-89.
- Kalliolevo, H., P.P. Chaves, P.H. Raja, T. Vuorisalo and J.W. Bull (2025) Rewilding for biodiversity offsets: a case study of passive ecological restoration on lowland agricultural land for biodiversity net gain in England. *Global Ecology and Conservation* 60 (August), e03603.
- Karolyi, G.A. and J. Tobin-de la Puente (2023) Biodiversity finance: a call for research into financing nature. *Financial Management* 52.2, 231-51.
- Knight-Lenihan, S. (2020) Achieving biodiversity net gain in a neoliberal economy: the case of England. *Ambio* 49.12, 2052-60.
- Knuth, S. (2015) Seeing green in San Francisco: city as resource frontier. *Antipode* 48.3, 626-44.
- Knuth, S., Z. Taylor, S. Zavareh Hofmann, F.J. Grafe and C.S. Ponder (2025) The urbanization of climate finance: understanding for urban action. *Journal of Urban Affairs* 47.1, 1-18.
- Lake, R.W. (1996) Volunteers, NIMBYs, and environmental justice: dilemmas of democratic practice. *Antipode* 28.2, 160-74.
- Lake, R.W. (2015) The financialization of urban policy in the age of Obama. *Journal of Urban Affairs* 37.1, 75-78.
- Lund, L. (2024) Biocities of the future: a study of urban developers and protesting citizens unfolding ideas about biodiversity in the Copenhagen case Fælledby/Lærkesletten. PhD dissertation. Institute of Architecture, Urbanism and Landscape, Royal Danish Academy.
- Major, S. (2008) Progressive planning ideals in a neo-liberal context, the case of Ørestad Copenhagen. *International Planning Studies* 13.2, 101-17.
- Marres, N. (2012) *Material participation: technology, the environment and everyday publics*. Palgrave Macmillan, London.
- Miller, P. and N. Rose (2008) *Governing the present: administering economic, social and personal life*. Polity, Cambridge.
- Mitchell, T. (2026) *The alibi of capital: how we broke the earth to steal the future on the promise of a better tomorrow*. Verso, London.
- O'Neill, J., A. Holland and A. Light (2008) *Environmental values*. Routledge, London.
- Ösgård, A. and B. Spierings (2021) 'It just didn't really happen': the lived space of entrepreneurial urbanism in Ørestad, Copenhagen. *Geoforum* 123 (July), 117-28.
- Overstreet, K. and T.F. Sørensen (2025) Unnaming the common: landscape encounters in the Anthropocene. *Landscape Research* 50.2, 302-18.
- Pierce, J. and M. Lawhon (2015) Walking as method: toward methodological forthrightness and comparability in urban geographical research. *The Professional Geographer* 67.4, 655-62.
- Rice, J.L., D.A. Cohen, J. Long and J.R. Jurjevich (2020) Contradictions of the climate-friendly city: new perspectives on eco-gentrification and housing justice. *International Journal of Urban and Regional Research* 44.1, 145-65.
- Robin, E. (2022) Rethinking the geographies of finance for urban climate action. *Transactions of the Institute of British Geographers* 47.2, 393-408.
- Rodin, J. and S. Madsbjerg (2021) *Making money moral: how a new wave of visionaries is linking purpose and profit*. University of Pennsylvania Press, Philadelphia, PA.
- Rose, N. (1999) *Powers of freedom: reframing political thought*. Cambridge University Press, Cambridge.
- Rosenman, E. (2018) Capital and conscience: poverty management and the financialization of good intentions in the San Francisco Bay Area. *Urban Geography* 40.8, 1124-47.
- Safransky, S. (2014) Greening the urban frontier: race, property, and resettlement in Detroit. *Geoforum* 56 (September), 237-48.
- Smith, N. (1979) Toward a theory of gentrification: a back to the city movement by capital, not people. *Journal of the American Planning Association* 45.4, 538-48.
- Stoetzer, B. (2022) *Ruderal city: ecologies of migration, race, and urban nature in Berlin*. Duke University Press, Durham, NC.
- Sullivan, S. and M. Hannis (2015) Nets and frames, losses and gains: value struggles in engagements with biodiversity offsetting policy in England. *Ecosystem Services* 15 (October), 162-73.
- Sullivan, S. and M. Hannis (2017) 'Mathematics maybe, but not money': on balance sheets, numbers and nature in ecological accounting. *Accounting, Auditing & Accountability Journal* 30.7, 1459-80.
- Taylor, Z.J. (2020) The real estate risk fix: residential insurance-linked securitization in the Florida metropolis. *Environment and Planning A: Economy and Space* 52.6, 1131-49.
- Tozer, L., H. Bulkeley, B. Kiss, A. Luque-Ayala, Y.V. Palgan, K. McCormick and C. Wamsler (2023) Nature for resilience? The politics of governing urban nature. *Annals of the American Association of Geographers* 113.3, 599-615.
- Tretter, E., E.J. Mueller and R. Heyman (2022) YIMBYISM, the environment, and the remaking of race and class coalitions in Austin, TX. *International Journal of Urban and Regional Research* 46.2, 312-18.
- Tsing, A. (2017) The buck, the bull, and the dream of the stag: some unexpected weeds of the Anthropocene. *Suomen Antropologi: Journal of the Finnish Anthropological Society* 42.1, 3-21.
- Walker, F. (1946) The industries of Bristol. *Economic Geography* 22.3, 174-92.
- Webber, S. (2024) For and against climate capitalism. *Geographical Research* 62.1, 14-27.
- Weber, R. (2021) Embedding futurity in urban governance: redevelopment schemes and the time value of money. *Environment and Planning A: Economy and Space* 53.3, 503-24.
- Whatmore, S. and S. Boucher (1993) Bargaining with nature: the discourse and practice of environmental planning gain. *Transactions of the Institute of British Geographers* 18.2, 166-78.
- Wright, W.J. (2020) The morphology of marronage. *Annals of the American Association of Geographers* 110.4, 1134-49.
- Wyly, E., M. Atia and D. Hammel (2004) Has mortgage capital found an inner-city spatial fix? *Housing Policy Debate* 15.3, 623-85.
- Yusoff, K. (2018) *A billion black Anthropocenes or none*. University of Minnesota Press, Minneapolis, MN.
- Zu Ermgassen, S.O., S. Marsh, K. Ryland, E. Church, R. Marsh and J.W. Bull (2021) Exploring the ecological outcomes of mandatory biodiversity net gain using evidence from early-adopter jurisdictions in England. *Conservation Letters* 14.6, e12820.