Journal of Regional Research
Investigaciones Regionales

ISSN: 1695-7253 e-ISSN: 2340-2717
investig.regionales@aecr.org
AECR - Asociación Española de Ciencia Regional
www.aecr.org
España – Spain

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Investigaciones Regionales - Journal of Regional Research, 55, 2023/1
Asociación Española de Ciencia Regional, España

Available on the website: https://investigacionesregionales.org/numeros-y-articulos/consulta-de-articulos

Additional information:

To cite this article: Apostolopoulou, E. (2023). Navigating neoliberal natures in an era of infrastructure expansion and uneven urban development. Investigaciones Regionales – Journal of Regional Research, 2023/1(55), 113-126. https://doi.org/10.38191/iirr-jorr.23.007

Investigaciones Regionales – Journal of Regional Research (2023/1) 55: 113-126
https://doi.org/10.38191/iirr-jorr.23.007

Articles

Navigating neoliberal natures in an era of infrastructure expansion and uneven urban development

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Received: 17 October 2022
Accepted: 15 March 2023

Abstract:

Since the 2008 global economic crisis, the neoliberalization of nature and space, and consequently of environmental and planning policies, have exacerbated significantly. From infrastructure megaprojects, mining, fracking, waste disposal and land grabbing to shrinking access and loss of public green spaces, uneven gentrification and urban regeneration policies, public spaces, and natures within and beyond cities have been appropriated, privatized, commoditized, profoundly transformed and degraded with the aim to overcome recession and boost urban development. Despite the varying degree of success in pursuing urban growth, this has disproportionally affected people along lines of class, ethnicity, and gender, deepening environmental, social, and spatial inequality in many places across the globe. By drawing on my long-term research on biodiversity offsetting, the key argument I aim to advance in this essay is that since the 2008 financial crash, we have been witnessing the emergence of an increasingly symbiotic relationship between neoliberal conservation policies, infrastructure expansion and uneven urban development. This has been accompanied by the reframing of non-human nature as a movable amenity and has been intertwined with the new territorialities that the profound changes in global urban and economic geographies have brought about. This shift aims to legitimize and render common sense the idea that nature, either a protected area, a forest, an endangered species, or an urban green space, can be simply (re)located and (re)created where the interests of particular sections of capital dictate. Crucially, the underlying argument is not only that non-human nature should not be considered a barrier to infrastructure expansion and urban growth but perfectly compatible with it.

Keywords: Neoliberal conservation; green/un-green grabbing; neoliberal urbanism; urbanization; biodiversity offsetting; infrastructure.

JEL Classification: Q1; Q56; Q57.

Navegando por naturalezas neoliberales en una era de expansión de infraestructura y desarrollo urbano desigual

Resumen:

La neoliberalización de la naturaleza, y por ende de las políticas ambientales y de organización del territorio, ha ido agravándose y profundizándose desde la crisis global de 2008. A través del desarrollo de megainfraestructuras, proyectos mineros y de fracking, apertura de vertederos y emisiones de vertidos, acaparamiento de tierras, restricciones de acceso a espacios verdes públicos o gentrificación y políticas de regeneración urbana desigual, los espacios públicos y naturales dentro y fuera de las ciudades han ido

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siendo apropiados, privatizados, mercantilizados degradados y profundamente transformados con el objetivo de superar la recesión y dar impulso al desarrollo urbanístico. A pesar del éxito relativo en el empeño de promover un crecimiento urbano, su impacto desproporcionado ha tenido un claro componente de género, clase y etnicidad, profundizando las desigualdades medioambientales, sociales y espaciales en múltiples lugares a lo largo y ancho del planeta. Basándome en mi larga experiencia de investigación en el campo de las compensaciones de biodiversidad (biodiversity offsetting), argumento en este ensayo que desde la crisis financiera del 2008, hemos sido testigos del surgimiento de una relación crecientemente simbiótica entre políticas de conservación neoliberal, crecimiento urbano y desarrollo de infraestructuras. Esto ha venido acompañado de una reformulación de las naturalezas no-humanas como un elemento movible e intercambiable, con un mejor encaje en las nuevas territorialidades generadas en las geografías urbanas y económicas globales. Este cambio persigue legitimizar y dar aspecto de sentido común a la idea de una naturaleza, ya sea un espacio protegido, un bosque, una especie amenazada o un espacio verde urbano, que puede reubicarse y recrearse según dicten los intereses de determinadas secciones del capital. De fondo, el argumento que subyace no es sólo que las naturalezas no-humanas no deben ser consideradas una barrera al crecimiento urbano de infrastructuras, sino que, por el contrario, pueden ser perfectamente compatibles.

Palabras clave: Conservación neoliberal; acaparamiento verde y anti-verde; urbanismo neoliberal; urbanización; compensaciones de biodiversidad; infraestructura.

Clasificación JEL: Q1; Q56; Q57.

1. Introduction

The era that followed the 2008 global financial crisis has been marked by the intensification of neoliberal policies. Strict austerity, extensive privatizations of public space, property, land and natural resources, deregulations and market-friendly re-regulations of environmental and planning policies, deep cuts in public health and pensions and major disinvestments that denoted an ignorance for the infrastructures of social reproduction have been common elements across a variety of contexts across the Global South and North (Apostolopoulou, 2021; Apostolopoulou and Adams 2015; Cahill 2011; Calvário et al. 2017; Harvey, 2011). Even though it has been almost 15 years now since 2008, neoliberal policies not only still dominate governmental agendas across the globe but, in many cases, have also been exacerbated in the context of the intensifying global public health crisis due to the covid-19 pandemic. As empirical evidence has extensively shown, the latter has profoundly affected the relationship between people, non-human nature, and space in deeply uneven ways (De Oliveira & de Aguiar Arantes, 2020; Rose-Redwood et al., 2020; Searle and Turnbull, 2020; Apostolopoulou & Liodaki, 2021) leading to a never-ending combined crisis that has affected, and is still affecting, almost every sphere of social and economic life. Within this context, the unprecedented attack on non-human nature and public space does not come as a surprise. From infrastructure megaprojects, mining, fracking, waste disposal and land grabbing to shrinking access and loss of public green spaces, uneven gentrification and urban regeneration policies, public spaces and socionatures within and beyond cities have been appropriated, privatized, commoditized, profoundly transformed and degraded with the aim to overcome recession and boost economic development and urban growth. What is further characterizing this era is that most of these infrastructure and development projects have a rather exclusive character and their benefits for the social majority and the most vulnerable are highly questionable.

The increasing neoliberalization and exploitation of non-human nature and space manifests new enclosures and reterritorializations that have as their primary objective to control land and resources by creating new forms of access and exclusion, disregarding in the process local livelihoods, socionatures, places, and the geographies of everyday lives and disproportionally affecting communities along lines of class, gender, and ethnicity. The exclusion of community groups, the heightened role of non-elected and unaccountable institutions, the increasing power of cross-scale urban growth coalitions, the major increase in public-private partnerships and foreign investments, and the governmental suppression of social movements and struggles along with the further shrinking of the welfare state have made clear that the neoliberal rhetoric has been increasingly lapsing into undemocratic and even authoritarian governance in

an era of a harsh global capitalist crisis (Apostolopoulou et al., 2014; Apostolopoulou, 2021b). In response, various social-environmental movements have emerged opposing social, environmental and spatial inequality and the undemocratic character of socio-spatial and socio-environmental change often preventing the relentless exploitation of people, non-human nature, and space by specific capitalist interests by offering pathways to tackle inequality and reinvent the commons (Apostolopoulou and Cortes-Vazquez, 2018; Apostolopoulou et al., 2022; Apostolopoulou, 2022).

Not surprisingly, the conservation of non-human nature has also changed dramatically within this period. Two key terms for describing nature-society relationships under neoliberal capitalism have been the neoliberalization of nature and neoliberal conservation. Neoliberal conservation can be considered as the latest stage in the long existent history of a contradictory relationship between capitalism and non-human nature, in that it reflects an increased intensity and variety of forms of capitalist invasion into the conservation of nature (Brockington and Duffy 2010; Büscher et al. 2012, 2014; Igoe and Brockington, 2007; Ojeda, 2012) and constitutes a key part of the broader trend towards the neoliberalization of non-human nature (see e.g., Bakker, 2010; Castree, 2008a, 2008b; Heynen et al., 2007; McCarthy & Prudham, 2004). As shown in a recent extended review of the term (Apostolopoulou et al., 2021), neoliberal conservation reflects an orchestrated attempt to further integrate non-human nature and its conservation into capitalism (Büscher and Fletcher, 2015; Igoe et al., 2010; Scheba and Scheba, 2017) and is directly linked to the widespread adoption of market mechanisms, principles and/or logics to non-human natures that were previously governed by the state or were under communal ownership. The increasing use of market-based instruments and practices (Asiyanbi et al., 2019; MacDonald and Corson, 2012; McAfee, 1999) directly relates to the broader shift towards the economic valuation of nature as the most feasible way to address biodiversity loss and climate change, primarily in the form of payments for ecosystem services, carbon and biodiversity credits, green bonds, and natural capital accounting (Adams, 2017; Fletcher et al., 2018; Santamarina Campos and Bodí Ramiro, 2013; Sullivan, 2013).

By drawing on my long-term research on the links between neoliberal environmental policies, urban development and social-environmental justice, and particularly on my research on biodiversity offsetting, the key argument I aim to advance in this essay is that since the 2008 financial crash, we have been witnessing the emergence of an increasingly symbiotic relationship between neoliberal conservation policies, infrastructure expansion and urban growth. Urban expansion is a major driver of global social-environmental and socio-spatial change and directly affects human development by influencing access to land and resources and transforming livelihoods. Urban land cover is expected to grow by 200% until 2030 in comparison to 2000, with the highest rates of land conversion projected to occur in so-called biodiversity hotspots (Seto et al., 2012). Current patterns of urbanization are in turn inextricably linked with increasing investments in large-scale infrastructure and has been followed by a widespread construction rush (Hildyard and Sol, 2017) in the aftermath of the 2008 financial crash that continues until today despite the slowdown that has been observed in several places during the covid-19 pandemic. Indeed, the last two decades have experienced one of the biggest infrastructure building sprees in human history whereas this infrastructure boom is expected to double by 2030 (Mercer and IDB, 2017). To support the above argument, in what follows I focus on two key processes: the dialectics of green and un-green grabbing in the post-2008 era, and the links between the increasing adoption of neoliberal conservation policies and infrastructure-driven urbanization. As I aim to show in the next sections, tracing the links between these processes is crucial in the current conjuncture if we wish to understand the key role of neoliberal conservation policies for facilitating controversial urban development and infrastructure projects.

2. The dialectics of green and un-green grabbing

The intensification of the neoliberalization of nature, itself a crisis-induced, crisis-inducing process (Peck et al., 2012), has been a fundamental element of the post-crisis era (Apostolopoulou et al., 2014). This testifies not only the key role of non-human nature to capital accumulation but also the opportunism of governments under neoliberal capitalism which can easily stimulate sharp policy shifts questioning the premises and promises of the so-called green economy and green capitalism discourse that has been at the core of their agenda worldwide at least during the last two decades. A major example of the intensification

of the neoliberalization of non-human nature is the rolling back of regulatory frameworks designed to protect the environment from degradation as expressed in the deregulation of both the environmental and planning legislation. Another indicative example is the springing of the debt trap as an excuse to facilitate and boost the privatization of land and natural resources. The debt trap acted as a primary means of accumulation by dispossession confirming that crisis creation, management, and manipulation on the world stage is strongly related to the uneven development of capitalism (Apostolopoulou & Adams, 2015). These changes have been accompanied by a further rescaling of environmental governance through the upgraded role of international organizations, such as the International Monetary Fund (IMF), which have evolved since the 1980s into prime agents of neoliberalization, private actors, and consultants (Harvey, 2005).

A key element of nature-society relationships in the post-2008 era has been the coexistence of green and un-green grabbing processes. The term "green grabbing" is used to describe the ways through which land or resources are appropriated for environmental purposes (or, in the case of "green-washing", justified by environmental arguments) with the ultimate goal of gaining profit (Corson et al., 2013; Fairhead et al., 2012). As Fairhead et al. (2012) explain, in green grabbing, environmental green agendas are the core drivers and goals of grabs and are often linked to biodiversity conservation, biocarbon sequestration, biofuels, ecosystem services, ecotourism or offsetting. Green grabbing builds on the long history of colonial and neo-colonial resource alienation in the name of the environment while also bringing new dimensions into play. It involves the alienation of land and the restructuring of rules and authority in the access, use and management of natural resources (ibid). These processes of green, as well as land grabbing and new enclosures (White et al., 2013) have significantly proliferated after the 2008 financial crash. Green grabbing has involved the process of acquiring land or natural resources for conservation purposes often leading to the displacement of local communities and the privatization of natural resources at the expense of communities' access to those resources. While the intention of conservation efforts may be to protect biodiversity and ecosystems, through these processes they can inadvertently create new forms of inequality and injustice. Green grabbing has also resulted in the exclusion of local people from decision-making processes and the loss of traditional livelihoods.

It is important to point out, that processes of "green grabbing" have been intensifying within a very specific context and ideological frame. This is consisted on the mainstream belief that the key cause of biodiversity decline and ecosystem degradation has been the consideration of biological systems as "externalities" (see e.g., de Groot et al., 2012) and their subsequent undervaluation in conventional economic analyses and decision-making processes (Bayon et al., 2008). Consequently, the key solution has been framed around finding ways to "internalize" environmental costs through a proper accounting of the value of the goods and services of non-human nature and the explicit integration of those costs and values into economic systems and decision-making processes. These approaches not only tend to overlook capitalist's environmental contradictions but also portray capitalism as the key to future ecological sustainability and modernization.

As Marx (1859) explains in the Contribution to the Critique of Political Economy, each particular mode of production, and the relations of production corresponding to it at each specific historical moment, in short, the economic structure of society, is the real foundation, on which arises a legal and political superstructure. To this superstructure definite forms of social consciousness correspond, and, thus, the mode of production of material life conditions the general process of social, political and intellectual life (Gramsci, 1971). Paying attention to these interrelationships can show that the ideology of market-based environmentalism reflects capitalism's exploitative use of nature and natural resources as mere material conditions of capital accumulation (Burkett, 1997) as well as the subjugation of use value to exchange value in capitalist commodity production. These are not of course discussed, acknowledged or presented as such in mainstream environmental politics which tend to interpret adherence to the principles of the market as commonsensical, neutral, ahistorical and apolitical. Crucially, the economic valuation of nature even though emerges from the historically specific relations created by capitalism as a value system, based on capitalist class relations, performs an ideological function, which is that of naturalizing the process of concrete abstraction (Sayer, 1987) on which value in capitalism is based. The ultimate goal of market-based environmentalism, through its emphasis to the economic valuation of nature and the need to bring nature and its conservation closer to capitalism, is to change the common sense of

what biophysical interactions are and how they work historically. Its underlying ideology is neoliberalism, a particular variant of economic thinking which extends the econometric principles of measurability and efficiency-maximising behaviours to previously untouched domains, as reflected by the colonization of social (Fine and Milonakis, 2009) and increasingly natural sciences by economics. Though largely the preserve of specialists and confined to experts' meetings, the debate on the valuation of nature has nonetheless deeper implications for society's shared sense of what biophysical reality is, how it changes, and what the alternative options for change could potentially be (Greco and Apostolopoulou, 2019).

Capitalism's aim to promote a neoliberal version of conservation by incorporating it into the market function is linked to efforts to hinder the conservation of species and ecosystems, and exploit non-human nature, including previously protected areas, without any "green" or environmentally-friendly justification. We have termed this "un-green" grabbing, namely a form of land or resource grabbing involving the exploitation and appropriation of protected areas, that is not done in the name of the environment as in the case of "green grabbing" (Fairhead et al., 2012). This type of grabbing is a specific subset of general capitalist appropriation and its interaction with green grabbing demonstrates the two-sided outcome of capitalism's exploitative engagement with nature, which poses significant challenges for radical environmentalism. Our previous research (Apostolopoulou and Adams, 2015; Apostolopoulou, 2020a) has highlighted the importance of paying attention to un-green grabbing in the period following the 2008 financial crash especially as its combination with processes of green grabbing, even at the context of the same infrastructure or urban development project, becomes a hegemonic trend.

Un-green grabbing processes have been obvious in the further intensification of the longstanding conflict between economic development and environmental protection in many places across the globe and relate to the ability of certain capitalist interests to advance their position, especially but not only under conditions of crisis, by securing public assets, including land and natural resources, as well as by carving out new areas for capital accumulation through the further exploitation of non-human nature. In the face of increasing debts and decreasing profits in the era that followed the 2008 financial crisis, strategies to create markets in biodiversity and carbon sequestration have thus been spreading across the globe along with the rolling back of environmental and planning regulations. Along with neoliberalism's optimism on green capitalism's ability to "save nature", unwillingness to commit to a sustainable path of economic and urban development has also been evident in the post-crisis era both at several international meetings (e.g., the Rio+20 conference) and at the national level where responses to the economic crisis have focused on restoring dominant political economic arrangements to where they were several years ago, rather than taking the opportunity to "green" them in any substantive sense (McCarthy, 2012). Overall, progressive goals, such as social and environmental sustainability and justice, seem much less attainable, at least in the short term (Peck et al., 2012). These developments have been obvious in many countries in Europe (Apostolopoulou et al., 2014; Apostolopoulou, 2020a) with Greece being an indicative example: the adoption of the "rescue package" for the country (2010) has been followed by an extensive deregulation of environmental and planning legislation and a governmental plan of "fast-track" privatization of land and resources which is still ongoing (Apostolopoulou & Kotsila, 2022). The most indicative example of the latter is the establishment of the Hellenic Republic Asset Development Fund[1] which acts as a "strategic partner for the Greek state" to attract investments.

It is important to highlight here that many governments, including the Greek and the UK governments, have used the 2008 economic crisis as a "Trojan horse" to enable the further neoliberalization of nature and its conservation. The intensification of "green" and "un-green" grabbing by showing in a sense the two sides of the capitalist coin can capture the deepening of the contradictory ways in which capitalism under crisis engages with "protected natures". On the one hand a neoliberal version of conservation is being actively promoted and gaining legitimacy, leading to conservation increasingly becoming "the friend of capitalism" (Büscher et al., 2012). On the other hand, conservation legislation is being simplified to allow the exploitation of land and resources, including hitherto "protected" natures, perceiving conservation to be an "enemy" to unlimited capital accumulation. Overall, the intensification of "green" and "un-green" grabbing processes reflects the inherent weaknesses of the capitalist system in addressing the major and combined crises of biodiversity loss, climate change, public

[1] See https://hradf.com/en/home/

health, and economic inequality, and an increasing attempt to surpass the barriers of environmental and planning legislation to boost economic development and urban growth essentially proposing as solutions the exact same processes that created the problem at the first place (Kaika, 2017).

Offsetting policies offer an exemplary case of the above dynamics. Offset sites are places where land is "saved" through various forms of conservation and management activity to enable economic development, in most cases urban development, in a development site where nature is allowed to be destroyed. They are, therefore, the products of the complex dialectics of green and un-green grabbing and their establishment has often led to a double grabbing of land (in both the development and the offset site) with dramatic consequences for local livelihoods, the infrastructures of social reproduction, and communities' quality of life. Offsetting acts as a mechanism that transforms nature to a set of replaceable and exchangeable parts and conservation to a system of exchange of ecological losses and gains across space and time facilitating the reordering of the landscape according to economic development and urban patterns, enacting and often legitimizing a profound land use change driven by the interests of specific sections of capital. Environmental protection through offsets becomes implicated in wider patterns of spatial planning, urban expansion, and capital accumulation, where the prices attached to commensurable ecological values that have taken the form of offset credits, are used to deliver economically efficient outcomes for some (but not for everyone). The theory of rent is of crucial importance here because it provides a sharp analytical tool for understanding new forms of ecological compensation and new socioecological conflicts around them as struggles over value appropriation demonstrating that offsetting may not create value, but it certainly generates opportunities for rent (Apostolopoulou et al., 2018; Greco and Apostolopoulou, 2019), see also Benjaminsen et al., 2013 for a discussion on how state patrimony and rent seeking are combined with colonial narratives of conservation and enhanced through neoliberal reforms. An indicative example here is the relocation of ecological values from urban to rural areas that offsetting has often generated. Evidence from England shows that offsetting has mostly favoured the location of offset sites close to already existing protected areas, areas of high nature value, or any place away from urbanized areas. This movement or relocation of resources across the landscape is not random but a by-product of offsetting. As Womble and Doyle (2012) point out, research in various locations in the US, including Florida, Illinois, Oregon and North Carolina, has also shown that off-site compensation through mitigation banks caused the migration of wetlands and streams from higher population density, urban or suburban areas to low population density, rural areas. As the authors highlight this systematic spatial redistribution is quite intuitive since it is largely driven by land prices: urban land and associated wetlands are high-value locations for development whereas mitigation bankers can purchase rural compensation sites at lower land prices. Acquisition of lower-value, rural land reduces the production costs per compensation credit for third-party mitigation sponsors giving to banks in rural areas a comparative advantage over credit providers in expensive, high-density areas (Womble and Doyle, 2012). The fact that the location of offset sites has been driven by land prices in England, generated valid concerns that offsetting would intensify uneven development across the country, for example by potentially offsetting in the north environmental destruction caused in the south where land tends to be more expensive.

Moving beyond offsetting, it is important to point out that the combination of un-green and green grabbing even in the same project is also evident in many cases of infrastructure-driven urban development. For example, in my recent work on the links between urban transformation, infrastructure-led development and inequality in the case of China's Belt and Road Initiative (BRI), I found that several emblematic infrastructure projects bring about a phenomenal change in the urban landscape (see Apostolopoulou, 2021; Apostolopoulou and Pant, 2022), including the creation of artificial islands, ocean reclamation projects, gated urban communities, consumerism-driven, gentrifying enclaves, and grandiose, futuristic urban projects expressed through neologisms, such as 'aerotropolis' and 'luxury' green futuristic city, that profoundly transform places and socionatures. These interventions tend to reproduce and scale up the aesthetics and policies of neoliberal urbanism, neoliberal environmentalism, and green and un-green gentrification, reproducing speculative, neocolonial urban imaginaries. A characteristic example is the case of Forest City in Malaysia where a joint Chinese-Malaysian venture is building a luxury "green" and "smart" futuristic city comprising four man-made islands. Even though the project is being advertised as "green" in line with the ecological civilisation agenda of the Chinese government (Koh et al., 2022), it is based on an exclusive urban development model that has caused the destruction of local habitats and

the unsustainable consumption of environmental resources, directly threatening the livelihoods of vulnerable groups in the area through the extensive grabbing of land.

3. The symbiotic relationship between the neoliberalization of nature and space, urbanization and the infrastructure rush

Urbanization is not only today's defining global development trend (United Nations, 2018), but it is also rapidly extending beyond city borders, perforating the urban-rural divide (EEA, 2017). From highways crossing indigenous land and erstwhile hinterlands, like the Amazon, to pipelines crossing the Carpathian Mountains a planetary form of urbanization is being projected into novel geographies, connecting erstwhile rural places with an expanding urban fabric via material, energetic, informational, and infrastructural links (Brenner and Schmid 2011, 2015; Merrifield, 2013; see also Lefebvre, 1970, 1991). As mentioned in the introduction, urban expansion is linked with increasing investments in large-scale infrastructure with the post-2008 era signalling the emergence of an infrastructure-led development paradigm worldwide (Schindler and Kanai, 2021). The need to extract new raw materials, minimise the distance between areas of resource extraction, production and consumption and access cheap and skilled labour and favourable regulatory environments (Hildyard and Sol, 2017; Olinga-Shannon et al., 2019), along with the availability of cheap capital and low interest rates by major economies, including the US and China, fuelled a global infrastructure rush (Tooze, 2018). Hildyard and Sol (2017) characterise this period as the era of extreme infrastructure that is remaking places and socionatures to establish capital-friendly tradescapes and mega-corridors.

Biodiversity offsetting offers again an indicative example of the way the increasing popularity of neoliberal conservation and market-based policy instruments have been linked to the above developments. From restoring and recreating habitats, establishing new protected areas, and regulating or restricting human activities, to buying the necessary number of credits from a habitat or mitigation bank, offsetting aims to change the way the impacts of urbanization are being addressed by states and industries in three fundamental ways. Firstly, by being placed at the last stage of the mitigation hierarchy offsetting can enable the approval of a planning application that would otherwise have been rejected. Secondly, by measuring ecological losses and gains in terms of priced credits, it reconstructs environmental protection around the measurement of a putatively quantified economic value of nature. Thirdly, and perhaps most importantly, by introducing the idea of trading, offsetting relocates and disconnects environmental compensation from the site where the impacts of development occur. Neoliberal policies through mechanisms like offsetting bring about a radical reconceptualization of non-human nature as a virtual ledger whose components can be exchanged across space and time. They also initiate an active remaking of non-human nature, space and place according to this image manifesting the deepening of the capitalist (re)production of nature in the Anthropocene/Capitalocene.

The above perceive particular importance if we consider that offsetting has been proposed during the last decade as the most appropriate solution for providing compensation in almost every large-scale project across the globe in both urban and rural areas. As of 2018 there were 12,983 offset projects worldwide extending over 153,679 km^2 (Bull and Strange, 2018) and channeling more than $4.8 billion yearly (Bennett et al., 2017). In 93% of cases, the implementation of offsetting has been driven by compliance with regulatory obligations; with the energy, transportation, and mining/minerals sectors dominating demand (Bennett et al., 2017; Madsen et al., 2011; IUCN et al., 2018) whereas most offsets have been located on land owned and managed by the state. These data underline the interrelationship between offsetting and urbanization and the pro-development character of offsetting and compensation mechanisms. Indeed, the popularization of offsetting in the aftermath of the 2008 crisis has been related to the entrenchment of neoliberal policies, the further entrepreneurialization and urbanization of rural areas and the imperative to deregulate and simplify the environmental and planning legislation (Apostolopoulou, 2020b; Apostolopoulou and Adams, 2015, 2019; Bennett et al., 2017). Such policies not only facilitate, legitimize and often enable urban growth, but have major impacts for local communities (Mandle et al., 2015) and Indigenous people, ranging for the deprivation of local populations from their

sources of livelihoods forcing them into severe poverty to seriously undermining social reproduction threating local inhabitants' social infrastructures and quality of life.

An exemplary case of the way the above processes can lead to the reordering of the landscape with detrimental consequences for the contours of local lives and natures is the case of the Rio Tinto ilmenite mine in Fort Dauphin (Tolagnaro), in the Anosy region of south-eastern Madagascar, one of the most biologically and culturally diverse islands in the world. Importantly, this is also an exemplary case of how neoliberal conservation policies like offsetting can be used by major industries to earn their social corporate responsibility and gain the support of conservation NGOs. Rio Tinto in the face of serious difficulties in securing new investment and mining licenses in the 1990s, promised that in its operations at selected mining sites, including the Fort Dauphin ilmenite mine, will not only offer compensation for the severe environmental impacts but will also deliver a "Net Positive Impact" on biodiversity. Following that logic, despite the fact that mining operations were projected to destroy more than 1,650 hectares of a rare and unique coastal forest, the company published in 2009 what seemed to those who knew the details of the case an ironic press release entitled "a mine at the rescue of the unique biodiversity of the littoral zone of Fort Dauphin". The rhetoric of environmental-friendly mining operations that would initially destroy the area but ultimately would lead to its improvement was primarily based on the rhetoric and promises of offsetting. The biodiversity offset site, Bemangidy-Ivohibe, was located in the north-eastern portion of the Tsitongambarika forest, in Madagascar's Anosy region. Tsitongambarika is not only the largest expanse of lowland humid forest remaining in southern Madagascar, but also a key source of local livelihoods and, thus, the restrictions that the management rules of the offset site imposed to local forest use constituted a clear threat to food security. Moreover, the delivery of restoration activities has been largely based on the work of local people who either remained unpaid or received 1 euro per day to plan trees at the restoration sites (for more details see a very informative publication from WRM and Re:Common, 2016). Importantly, Rio Tinto launched its conservation strategy and "Net Positive Impact" goal at the 3rd IUCN World Conservation Congress in 2004, and established various partnerships with conservation NGOs to achieve "mutually held goals of biodiversity conservation". As the case of Rio Tinto shows offsetting essentially involves "a double land grab" by taking away access to non-human nature from two communities: the one living close to the mining site and the other living close to the offset site raising fundamental issues of social, spatial and environmental justice (ibid).

More and more examples as the one described above that show the increasing convergence between urbanization and offsetting are emerging almost every day crossing geographical boundaries between the Global South and North (see Apostolopoulou, 2020a). The links between offsetting, infrastructure and urbanization are not of course identifiable only in the Global South. In the UK for example, offsetting has been extensively used to support urbanization as previous work on the Lodge Hill and North Tyneside housing developments has shown (Apostolopoulou, 2020b; Bormpoudakis et al., 2020). In both cases, offsetting has been used in the context of large-scale infrastructural and housing developments to consolidate and legitimize the conceptualization of non-human nature as a 'movable' entity in UK conservation. Despite major controversies, after a testing period that started back in 2012, under the July 2018 revision of the National Planning Policy Framework, the government decided to require local authorities in England to embed relevant strategies into local plans in order to deliver a net environmental gain over possible reductions caused by developments and infrastructure. This was followed in December 2018 by a relevant consultation launched by Defra. In the Environment Act 2021, the government finally proposed a mandatory biodiversity net gain requirement for new housing and commercial development in England requiring both Town and Country Planning Act (TCPA) and Nationally Significant Infrastructure Project (NSIP) developments to deliver a minimum 10% of biodiversity net gain. To justify the decision to make offsetting mandatory the key argument was that the policy offers a way to combine the government's investments in new infrastructure (£27 billion are committed to road expansion alone), and housing building (an additional 300,000 homes per year have been promised) with halting biodiversity loss by the end of the decade. Nonetheless, a recent paper that assessed the 6% of the housebuilding in England between January 2020 and February 2021 in six local authorities that had adopted the scheme before its national rollout, found that implementing the biodiversity net gain requirement led to a 34% reduction in green space (zu Ermgassen et al., 2021). This is not surprising if we consider that the logic and the principles of offsetting policies are primarily driven by the promise to

facilitate urban development. The content and tone of the following text in the governmental website[2] is indicative: "*If you're a developer - You must try to avoid loss of habitat to a piece of land you plan to do development work on. If you cannot do this, you must create habitat either on-site or off-site. On-site means on the land your development work is on. Off-site is either your own land away from the development site, or you have bought units from a land manager. If you cannot use on-site or off-site land, you must buy statutory credits from the government. You must provide evidence for using this option. This must be a last resort. The government will invest in habitat creation elsewhere in England. You may be able to combine all 3 options to make up your BNG[3]. You must discuss this with an ecologist, as you will need to prove why you cannot use one option. You must get approval from your local planning authority before you start building. If you're a land manager - You can get paid by selling biodiversity units.*"

4. Conclusion

The key argument I aimed to advance in this essay was that since the 2008 financial crash the emergence of an increasingly symbiotic relationship between neoliberal conservation, infrastructure expansion and uneven urban development has been evident across the globe. In particular, I tried to show that the reframing of nature as a movable amenity has been intertwined with the new territorialities that the profound changes in global urban and economic geographies have brought about. The key goal of these processes is to legitimize and render common sense the idea that non-human nature, either a protected area, a forest, an endangered species, or an urban green space, can be simply (re)located and (re) created where the interests of particular sections of capital dictate. This means that non-human nature should not be considered a barrier to infrastructure expansion, large-scale housing developments or extractive industries since its destruction can be fully compensated for (as policy goals like the No Net Loss/Net Gain imply). It furthermore implies that nature can be even improved by such interventions, as it is rather clear in the promises and discourses of emblematic neoliberal policies like the biodiversity net gain policy.

Offsetting offers an indicative example of this symbiotic relationship. Its increasing popularity across the globe has been tightly interwoven with competition for land and space in the era following the 2008 financial crash. Even though the interrelationship between offsetting and neoliberal urbanization has so far received limited analytical attention (for an exception see Apostolopoulou and Adams, 2019; Apostolopoulou, 2020a, 2020b), I argue that there is a clear convergence between offsetting and the expansion of urbanization beyond the boundaries of the city (Brenner and Schmid, 2015; Lefebvre, 1991) that fuels the further deregulation and market-friendly reregulation of environmental and planning legislation. The notion of equivalent and exchangeable natures is intertwined with the new territorialities that the novel geographies that transportation and urbanization have engendered, showing the spatial aspect of biodiversity offsetting. Offsetting can, therefore, be seen as part of urbanisation's creative destruction that dispossesses the public of any right to the production of both nature and space (Harvey, 2012; Lefebvre, 1970).

It is important to point out here that the limited emphasis on the above interrelationships has been supported by a recent review of the neoliberal conservation literature (Apostolopoulou et al., 2021) where it was shown that analyzing the implications of emerging global urbanization patterns for socionatures and their conservation still remains at the margins of the relevant scholarship. This can be partly attributed to the fact that the focus of the field has been primarily on protected natures in the rural Global South. Nonetheless, urbanization has now profoundly expanded beyond traditional urban areas and has perforated the rural-urban divide necessitating new approaches if we wish to understand the major socio-spatial and socio-environmental transformations of the 21st century. Urban regions and cities are also increasingly connected to rural regions of service and supply in the context of infrastructure-led, planetary urbanization for resource extraction, agroindustrial production, energy circulation, and waste management. Moreover, and relatedly, in the case of offsetting, the creation of an offset in a rural area is often linked with the provision of compensation for the loss of urban nature involving, inter alia, cases

[2] https://www.gov.uk/guidance/understanding-biodiversity-net-gain
[3] BNG refers to biodiversity net gain.

where urban communities face displacement, exploitation or/and dispossession from green spaces due to privatizations, housing developments, infrastructure projects, land extraction, gentrification, regeneration, and urban redevelopment. Paying more attention on the symbiotic relationship between neoliberal conservation, infrastructure, and urbanisation, and the dialectical co-production of city and non-city/hinterland landscapes under neoliberal capitalism, is thus important because it can reveal the links between capitalist urbanization and the neoliberalisation of nature and space and shed light on the social, spatial, and ecological aspects of urbanization that extend across the city and countryside.

To conclude, conservation through neoliberal policies, like biodiversity offsetting, becomes increasingly implicated in broader patterns of spatial planning, urbanization, and capital accumulation, where the prices attached to commensurable ecological values that have taken the form of various ecological credits, are used to deliver economically efficient outcomes that serve specific industries and capitalist interests. This relocation of non-human nature across the landscape is an inevitable byproduct of offsetting and has been primarily driven by land prices, generated concerns that such policies intensify uneven geographical development and social, environmental, and spatial inequality. A retheorization of neoliberal conservation as a process that remakes socionatures and places in accordance with the patterns of an increasingly socially-environmentally and spatially disruptive urban development along with a broader shift in critical research and praxis toward unraveling people's consequential entanglements with ecosystems and places that experience loss and transformation is, therefore, important. It has the potential to bring closer the concerns of urban political ecology and urban geography with the political ecology of conservation and neoliberal conservation scholarship by extending the study of urbanization beyond the confines of the city while creating a more direct dialogue between critical conservation studies and critical urban studies. This can invoke significant and unexpected connections among places as different as Iñapari city in the Peruvian Amazon and Harmondsworth Moor on the outskirts of London contributing to unraveling not only the uneven and contested geographies of neoliberal policies but also the complex and diverse ways the neoliberalization of nature and space interrelates with emerging global urbanization patterns remaking socionatures both in highly urbanized regions and erstwhile rural areas of the Global South and North.

Acknowledgments

Dr Apostolopoulou's research is supported by a Ramon y Cajal Fellowship (RYC2020-028925-I/AEI/10.13039/501100011033). I would like to thank the reviewers for their constructive comments and Dr. José Cortés Vázquez. for inviting me to contribute to the special issue.

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