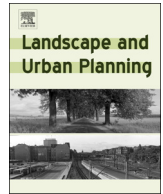




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Research Paper

Natural capital and the poor in England: Towards an environmental justice analysis of ecosystem services in a high income country

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ABSTRACT

Poorer communities tend to be located within lower quality natural environments, experiencing greater environmental burdens and fewer environmental amenities. To date, analysis of environmental inequalities has focussed on pollution, with less attention given to natural environment benefits that support human wellbeing. Here, the ecosystem service concept which identifies these benefits, and the natural capital (NC) which provides them, is applied within environmental inequality assessment. For England, 325 local authority districts were classified based on 14 indicators of NC, and the level of deprivation of districts within each class compared. Districts with extensive woodland or agriculture are the least deprived. The most deprived districts tend to be urban areas with lower extent and quality of NC, coastal districts, and rural uplands with extensive coverage of various higher quality NC. These findings demonstrate that the distribution of NC varies by social deprivation, with implications for social inequities and sustainable management of NC. However, whilst higher deprivation is often associated with a lower extent and quality of NC, this pattern is not consistent for all NC types or places. Given the lack of a consistent pattern of inequality nationally, this implies that equitable management of ecosystems should be driven at a local level. To achieve this, the relationship between environmental benefits and deprivation should be assessed at this level and analysis should move beyond NC to address the ecosystem services that flow from it.

1. Introduction

1.1. Natural capital, ecosystem services, and social justice

Natural capital (NC) as “stock of natural resources or environmental assets” (De Groot, Van der Perk, Chiesura, & van Vliet, 2003, p.188) and the ecosystem services (ES) it provides, is critical to people’s health and well-being (Fig. 1). Whilst dependence on the natural environment is widely acknowledged, universal access to high quality environments which support the health and wellbeing of everyone is lacking.

An extensive environmental justice (EJ) literature reveals that environmental quality is socially distributed, with low environmental quality and high environmental hazard typically found in minority and economically disadvantaged communities. Such patterns were first revealed in the USA (e.g. Freeman, 1972), and subsequently evidenced for many other countries (Walker, 2012).

Interest in EJ has traditionally focussed on environmental ‘bads’, but a broader conception of EJ has subsequently emerged which also

considers environmental ‘goods’ (Wolch, Byrne, & Newell, 2014). Analysis of the social distribution of such environmental benefits has been undertaken in many countries, but remains more limited than that of environmental burdens, and includes access to urban parks (Xiao, Wang, Li, & Tang, 2017), urban tree cover (Conway & Bourne, 2013), urban greenspace (Pham, Apparicio, Seguin, Landry, & Gagnon, 2012), bluespace (Raymond, Gottwald, Kuoppa, & Kytta, 2016), woodland (Morris et al., 2011), biodiversity (Davis et al., 2012) and tranquil places (Mitchell & Norman, 2012).

Conceiving of the environment as a source of benefit aligns with the concept of NC as a source of goods and services supporting health and wellbeing (see Missemmer, 2018 for a review), and suggests there is a clear case for addressing NC/ES and EJ within a common framework. Indeed, joint consideration of ES and EJ encompasses the ecosystem approach advocated by the Convention on Biological Diversity (CBD, 2004). Discussion of the social dimension within the ES discourse has focussed on its importance for poorer subsistence-based global communities (e.g. Sikor, 2013). However, the importance of fairness in all

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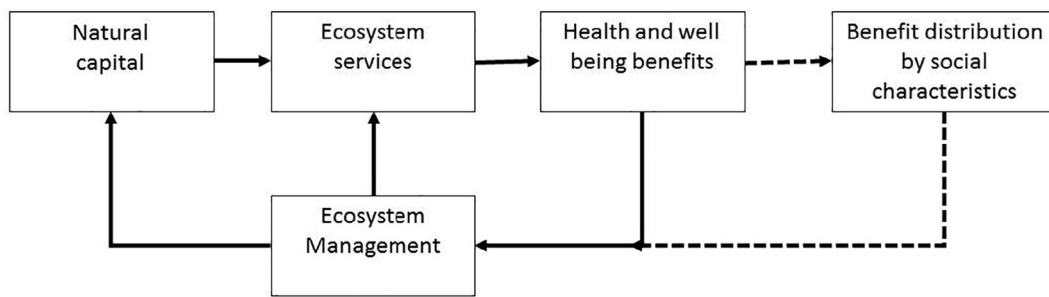


Fig. 1. Framework showing how the social distributions of benefits integrates within established linkages between natural capital, ecosystem services and humans as beneficiaries and actors.

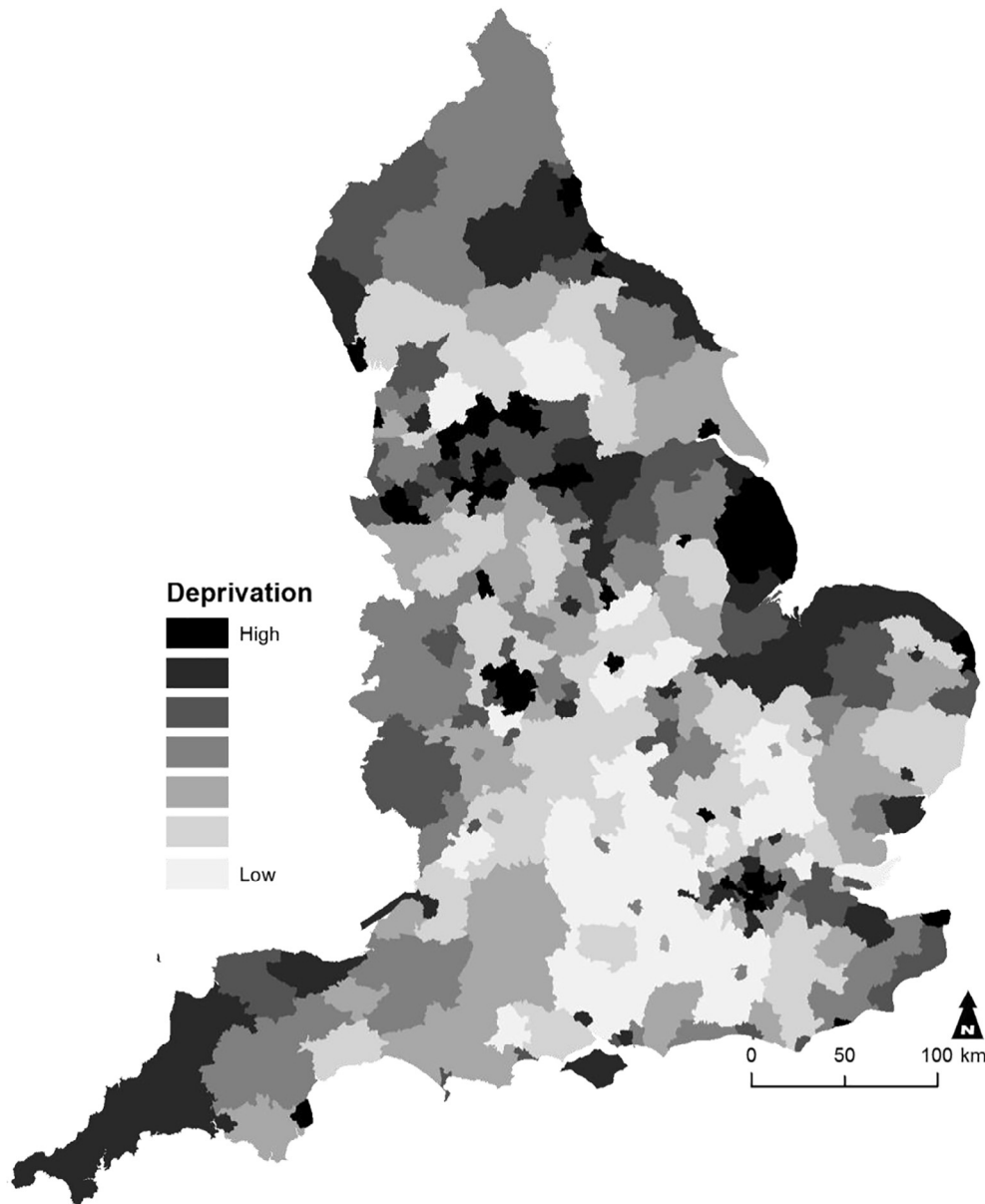


Fig. 2. Deprivation in English Local Authority Districts (IMD average ranks). ONS (2015).

valuations of ES was highlighted within Gretchen Daily’s seminal ‘Nature’s Services’ (Costanza & Folke, 1997) and more recently by Berbes-Blazquez, Oestreich, Mertens, & Saint-Charles, 2014; Ernstson, 2013. Whilst recent empirical research incorporates a social dimension within ES analysis, the focus is on its relevance for production of and

demand for ES (e.g. Dittrich, Seppelt, Václavík, & Cord, 2017; Hamann, Biggs, & Reyers, 2016). Explicit consideration of social equity has been dominated by studies of participatory decision making (e.g. Wilson & Howarth, 2002), in equity appraisal of payment for ecosystem service schemes (McDermott, Mahanty, & Schreckenberg, 2013) and more

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