social sciences

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Procedural Environmental Injustice in 'Europe's Greenest City': A Case Study into the Felling of Sheffield's Street Trees

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Received: 9 May 2020; Accepted: 5 June 2020; Published: 10 June 2020

Abstract: With around two million trees within its boundaries, the city of Sheffield, England, is known as the 'greenest city in Europe'. Of these, 36,000 are 'street trees', defined as those planted on pavements and other public rights of way. As of 2012, however, a private contractor was awarded a £2.2 billion contract by Sheffield City Council to upgrade the city's roads over a 25-year period. This required the felling of over 6000 street trees by the end of August 2017. By 2015, this had sparked such widespread public opposition that the felling programme missed its 2017 deadline. For protesters, the central point of contention was and continues to be the seemingly indiscriminate felling of healthy trees. This article examines the specific forms of harm precipitating local public involvement in such opposition. In doing so, it explains the substantive injustices associated with the felling of street trees before focusing on the underpinning forms of procedural environmental injustice that have allowed for their ongoing production. This contributes to wider green criminological literature by demonstrating how public participation in decision-making is crucial for the attainment of environmental justice.

Keywords: green criminology; environmental justice; procedural justice; victimisation; green crime; public participation

1. Introduction

Woodman, spare that tree!
Touch not a single bough!
In youth it sheltered me,
And I'll protect it now.
'T was my forefather's hand
That placed it near his cot,
There woodman let it stand,
Thy axe shall harm it not!

George Pope Morris, 1860
Poem extract pinned to street tree, Rustlings Road, November 2016

The above poem represents one of a myriad of approaches taken by citizen groups in Sheffield, England, to raise awareness of the tree felling programme being undertaken across the city. To this end, the groups have pursued television appearances, lobbied local and national governments, communicated across social media, collected petitions, taken part in direct and indirect action, and undertaken fundraising events attended by celebrities—a pattern of activity provoking local, national, and international media coverage. Organised according to the city's geographical areas, most are

collectively encompassed under the banner of Sheffield Tree Action Groups (STAG), forming a core of public opposition to Sheffield City Council's (SCC) plan to remove and replace many of the city's street trees. Drawing upon this case, I employ the concept of 'procedural environmental justice' in this article as a lens through which to understand the tensions and conflicts that have arisen, along with possible avenues for their future amelioration.

As a concept, 'procedural environmental justice' refers to fairness in processes of decision-making (see Schlosberg 2007). It is less sensitive to patterns of substantive victimisation, which tend to be signalled by the term 'distributional environmental justice', and is more concerned with widespread democratisation of deliberation procedures (Walker 2012). Despite much green criminological research concentrating on features that could be broadly categorised under the term 'procedural injustice' (Brisman 2013; Goyes and South 2017; Weinstock 2017), little existing work has sought to develop and apply this specific concept theoretically or empirically.

Only one green criminological study has applied the concept to the First Nations in and around the oil sands of Alberta, Canada (see Heydon 2018). Maintaining less of a focus on distributional injustices, the study focused on the marginalisation and misrecognition occurring during consultation on large-scale energy projects. While providing information on how the protective rights held by First Nations have been circumvented in the process of extracting oil from the third largest reserve in the world, the specificity of this case limits the extent to which 'procedural environmental justice' can be seen to apply elsewhere. Indeed, it contains groups that have constitutionally protected rights to participate in decisions that may affect them adversely, centres on a narrowly defined and rigidly structured regulatory process, and is embedded in a settler-colonial context that colours the multiple injustices observed. As such, to demonstrate the broad applicability of 'procedural environmental justice', as a specific concept encompassing justice-as-recognition and justice-as-participation, this article applies it to a case in which none of these conditions apply: the case of Sheffield's street trees.

2. Procedural Environmental Justice

Environmental justice is a multi-faceted concept, encompassing aspects of distribution, procedure, and recognition. Green criminological scholarship has tended to focus on the first of these, conceiving of environmental injustice as the unequal distribution of pollution across communities with varying racial, ethnic and class configurations (see Brisman 2008; Lynch et al. 2015; Stretesky and Hogan 1998; White 2007). Under this approach, concern centres on the sharing of environmental harms or risk, drawing attention to the substantive victimisation occurring in certain spaces or to certain groups. The limits of focusing solely on this dimension of justice have been outlined elsewhere (see Heydon 2018), but the key contention is that 'one cannot simply talk of one aspect of justice without it leading to another' (Schlosberg 2007, p. 73). This is not to say that use of a purely distributive definition is 'wrong'—only that the choice of definition has consequences for the forms of injustice visible to researchers and, by extension, the measures recommended be taken in response (see Phillips and Sexton 1999). As such, I draw here on the 'trivalent' conception of environmental justice developed by Schlosberg (2007), which incorporates the concepts of 'justice-as-recognition' and 'procedural justice' alongside that of distribution. Acknowledging that unequal exposure to environmental harm tends to result from unequal participation in decision-making processes, and that a lack of participation tends to signal a lack of recognition, the integration of this tripartite framework provides a more comprehensive conceptual toolkit from which to examine instances of injustice.

If inequitable distribution of harm is the first dimension of environmental justice, 'procedural justice' is the second. Concerned with the fairness of institutional decision-making, this dimension acts as the primary medium though which other forms of justice are realised. In this sense, it has a concern with explaining 'why things are how they are', particularly with regard to its distributional counterpart (Walker 2012, p. 47). Indeed, injustice-as-inequity and injustice-as-misrecognition both impede participation in decision-making and vice versa, speaking to Schlosberg (2007, p. 26) description of environmental justice as being 'played out in the procedural realm'. 'Procedural justice'

also acknowledges, however, that a deliberation procedure may be deemed unjust, in and of itself, and independent of its consequences. To establish the fairness of a given decision-making process, 'procedural justice' scholars draw from work on public participation (see Arnstein 1969; Hunold and Young 1998; Tritter and McCallum 2006), where emphasis is placed on facilitating meaningful, or influential, citizen engagement at multiple points in a decision-making process. Acknowledging this, George and Reed (2017) assert that for a procedure to be deemed just, participants should have the opportunity to be heard, should have their contributions respected, valued and considered, and have the chance to determine the scope of issues to be reviewed. This latter aspect holds particular significance as it addresses the question of which environmental problems are to be produced in the first place, if any.

The third dimension is concerned with recognition or, more specifically, the extent to which individuals within a group are considered full-members in a social interaction. Informed largely by Fraser (1999) work on justice, the focus here is on un-, mis- or mal-recognition. This occurs when individuals are not recognised, routinely disparaged and disrespected, or coerced into accepting the culture of others (Fraser 1999, 2000). Such devaluing and demeaning practices represent forms of recognitional injustice because they prevent people from being treated on par with others. As such, if conceiving of decision-making as the site upon which other forms of justice are contingent, the standards to be attained are equality, inclusiveness, and respectfulness (see Hunold and Young 1998; Schrader-Frachette 2002). Institutions responsible for facilitating public participation in decision-making should therefore ensure access for a diversity of stakeholders at different stages of deliberation, transparent and accountable communication structures, and special consideration or accommodation for adversely affected groups (George and Reed 2017).

Taken together, these three dimensions form the underpinning conceptual components of 'environmental justice'. In this article, however, the focus is trained less on the distributional dimension and more on its participatory and recognitional counterparts. Elsewhere conceived of as 'procedural environmental justice' (Heydon 2018; see also George and Reed 2017), this perspective acknowledges that the latter two dimensions of the parent concept are not only entwined but, in many ways, engaged prior to substantive distributions.

This specifically procedural concept is applicable to the case in Sheffield for two reasons. First, it has utility when examining cases where distributive injustices are less clearly identifiable than injustices of participation and recognition. This can characterise the situation in Sheffield, where the substantive consequences of the felling programme are overshadowed by the procedural injustices precipitated by it. Second, the concept—with its philosophical, as opposed to legal, basis for justice—can be used where the formal architecture of procedural rights fails to apply. This is relevant in Sheffield, as there was found to be a lack of legal requirement for public participation in decision-making on street trees. Campaigners raised this at the High Court of Justice in Dillner v. Sheffield City Council (2016) EWHC 945 (Admin) (hereafter Dillner), arguing that the SCC had breached its duty to consult prior to the felling programme because the Town and Country Planning Act (TCPA) triggers consultation as part of an environmental impact assessment when an 'improvement' is planned. The court ruled against this interpretation, finding instead that the felling of street trees amounts to 'maintenance' and not an 'improvement' (ibid., para 174), thereby excluding such activity from the consultation requirement under the TCPA. In noting that public participation in decisions on street trees is unnecessary in the eyes of the law, Dillner illustrates the discretion available to political actors in determining whether deliberation occurs and in what form. Indeed, the degree and type of participation permitted relies on political, as opposed to judicial, competencies. It is to an evaluation of these decisions, made by the SCC and others within this discretionary space, and in accordance with the indicators of 'procedural environmental justice' outlined above that this article now turns.

3. The Case in Focus: Sheffield and Its Street Trees

One of the defining characteristics of Sheffield as a city is its relationship with the natural environment. Despite its industrial past, Sheffield has more trees per person than any other city in Europe (Styles 2011), offers over 200 public green spaces, and is situated on the border of the Peak District National Park. This was the first area in the United Kingdom (UK) to be awarded National Park status in 1951 (Saxena 2005, p. 4), the creation of which is owed, in no small part, to the civil disobedience of the 1930s, where a mass trespass on Kinder Scout put pressure on politicians to open up previously private land to public access (Douglas and Beatty 2018). More recently, in a survey of 2091 Sheffield citizens, 98 percent rated the outdoors as 'important' to some extent (Gregory et al. 2014, p. 12), with its residents with higher participation rates than the national average for ten out of 12 outdoor activities (ibid., p. 5). Findings from the survey also revealed that residents of Sheffield spend over three times the national average on outdoor equipment (ibid., p. 11). This is echoed in the city's branding. Known as the 'Outdoor City' (Outdoor City 2019), Sheffield boasts a myriad of walking, running and purpose-built cycling routes and hosts several outdoor film and outdoor-orientated festivals annually. Taken together, it is difficult to conclude that Sheffield—both geographically and culturally—has anything other than a strong relationship with the natural environment.

Yet, despite these green credentials, Sheffield is a post-industrial city in the North of England. Over the last 50 years, manufacturing employment in the UK has fallen from 8.9 million to 2.9 million, undermining Sheffield's economic base in much the same way as other northern regions (Beatty and Fothergill 2016, p. 4). As a result, large numbers of people have been diverted into incapacity-related welfare programmes or employment in relatively low paid roles that 'depresses tax revenue and inflates spending on in-work benefits' (ibid., p. 2). As such, cities in the north tend to be poorer than those in the south. The consequences of this wider context are visible in Sheffield's reputation for poor quality roads and infrastructure, earning it the disparaging nickname 'pot hole city' (Burn 2018c). Indeed, it was in response to these conditions that the SCC entered a 25-year, £2.2billion Private Finance Initiative (PFI) contract with the private company Amey. In these deals, the private company raises the finance needed to fund the asset and, once constructed or available for use, the public organisation makes payments to the company over the length of the contract (House of Commons Committee of Public Accounts 2018).

These arrangements are now common, particularly within the public sector, with over 700 contracts in operation across the UK (ibid., p. 4). Anchored to the entwined contexts of neoliberalism and austerity (see Mirowski 2013; Streeck 2017), local authority reliance on such agreements is born from necessity; their funding from central government fell by approximately 49.1 percent in real terms from 2010–11 to 2017–18 (National Audit Office 2018b, p. 7). In Sheffield, the agreement is entitled 'Streets Ahead' and involves, among other things, the replacement of street light columns and lamps; the upgrading of surface water drainage systems; the replacement of broken and misaligned kerbs; and the resurfacing of roads and pavements (Sheffield City Council 2017e). The scale of the work is vast:

> *We are improving and maintaining 1180 miles of road, 2050 miles of pavement, 68,000 street lights, 36,000 highway trees, 28,000 street signs, 72,000 drainage gullies, 480 traffic signals, 18,000 items of street furniture, 2.9 million sqm of grass verges and over 600 bridges and highway structures'.*
>
> (Amey 2018)

As explained at the outset of this article, such positive maintenance work was accompanied by a plan to remove and replace many of Sheffield's street trees, which number around 36,000. The initial goal was to fell 6000 of these trees during the first five years of the contract, and between 2012 and March 2017, Amey successfully felled 4168 (Kirby 2017). It is this programme of tree removal and replacement, however, that has provoked strong local opposition to the programme, pockets of which coalesced around the more substantive harms associated with the felling.

There is a plethora of research illustrating the connections between green urban spaces, to which street trees contribute, and positive mental and physical health (Kondo et al. 2018; Beyer et al. 2014;

White et al. 2013; Pretty et al., 2013; Fan et al. 2011; Van den Berg et al. 2010). Although individual determinants also play a role (Lee and Maheswaran 2011), James et al. (2015, p. 136) note that 'greenness may promote mental health by encouraging physical activity, fostering social cohesion, or providing direct psychological benefit'. In support of this, one National Health Service (NHS) Trust has recently started to issue 'nature prescriptions' to help patients treat mental health, diabetes, heart disease, stress and other conditions (Carrell 2018). This is also echoed in Maas et al. (2009, p. 967) study into morbidity data in the Netherlands, which established that rates of disease are lower in 'living environments with more green space'. The authors found that correlation was strongest for anxiety disorders and depression, and for children and those in lower socio-economic groupings. In relation to street trees, in particular, a positive relationship has been identified between density and psychological well-being (Taylor et al. 2015), reductions in air pollutant disposition (Soares et al. 2011), and even house prices (Donovan and Butry 2010).

The climactic significance of street trees is also well-documented. Trees improve air quality (Escobedo et al. 2008; Pugh et al. 2012), make substantial contributions to carbon sequestration in urban areas (Brack 2002; Liu and Li 2012; Nowak and Crane 2002) and reduce emissions if planted near buildings (Nowak et al. 2013). Indeed, the abundant carbon storage capability of street trees is noted in studies in Beijing, China (Tang et al. 2016), Leipzig, Germany (Strohbach and Haase 2012), Tswane, South Africa (Stoffberg et al. 2010), and elsewhere (Vailshery et al. 2013). This is also the case in Sheffield (Powell 2017), where the maturity of many of its street trees grants them greater carbon storage capacity compared to younger trees. It is for this reason that felling without replacement, or replacement with younger trees, has a negative effect on the carbon storage capacity of the tree stock in a city—at least until they mature to a similar age of those originally felled. This holds particular relevance to Sheffield because of its position as one of the most polluted cities in the UK (BBC News 2018b). Indeed, estimates place the number of air quality-related deaths within the city to be around 500 per year, prompting the SCC to recently announce plans for a 'clean air zone', which introduces a charge for high-polluting non-private vehicles within the city's inner ring road (Sheffield City Council 2018b).

When considered in the context of these benefits, the removal of street trees requires clear justification. Some do need replacing, as acknowledged by the community groups opposing the programme, but the extent to which this accords with the number in the Streets Ahead contract is uncertain. Not only is the target number of trees obscure, with several different figures being referred to, but the 'Six D' criteria used to determine whether a tree is 'damaging', 'dangerous', 'dead', 'discriminatory' (trees that obstruct access to pedestrians), 'diseased', or 'dying', is not an industry-standard approach (see Dalton 2017). Importantly, the criteria was devised without public input. As such, it is not simply the unclear number of trees designated for felling that has provoked opposition, but also the clandestine reasoning underpinning it. Indeed, the original decision not to include the public has paved the way for governance mechanisms that have failed to promote 'procedural environmental justice' ever since, provoking ongoing tensions and conflict between the SCC and local citizens. While there are many different examples that could be considered, I focus on three: the Highways Tree Forums, the Independent Tree Panels and, finally, the arrests and injunctions. Arranged in broadly chronological order, the failure to establish just procedures for public engagement in decision-making at each stage acted to escalate tensions in the next.

4. Methods

This study illustrates how the concept of 'procedural environmental justice' applies to situations where substantive injustices are less visible. To achieve this purpose an 'instrumental' case study research design was employed. Under this approach a case is used to facilitate understanding of something else; here that 'something else' is the concept of procedural environmental justice. As Stake (2006, p. 26) notes, this design is particularly useful in situations where 'the purpose of the case study is to go beyond the case'. Secondary data, mainly drawn from media sources, was also used

to establish the chronology and detail of events. As the information sought centred on commentary by officials, the timing of certain decisions, proceedings and trials, media analysis was not deemed necessary. That said, different reports were cross-referenced where possible to establish the accuracy of their content. Information on the context surrounding the three identified sites of tension was also gleaned through means akin to Fujii (2014) 'accidental ethnography'. As I worked at both of Sheffield's universities over the period in which much of this situation was unfolding (The University of Sheffield and Sheffield Hallam University) details of the conflict tended to permeate everyday life in the city. Local news media provided varying degrees of coverage in a range of formats, generating both source material and encouragement for discussion online and offline. Furthermore, the protester tactic of tying ribbons and messages to trees at risk of felling provided a visual marker that suggested *something* was happening, even if the observer did not know what. The street tree poems found at either end of this article were gleaned from observations made on journeys throughout the city—a nod to the work of those who call for green criminologists to recognise the importance of the visual during the course of their research (see McClanahan and South 2020; Brisman 2018; Carrabine 2018; Natali 2015).

5. The Highway Tree Advisory Forums

The persistent opacity of SCC figures on the total street trees to be felled, and unclear evidential basis for the different numbers offered, reflects the absence of transparency and accountability pervading the felling programme. Public input on this scheme was non-existent from the very beginning and this lack of a reasoned public justification was—and continues to be—a key catalyst for public opposition. In 2007, a private consultancy firm undertook the first independent survey of Sheffield's 35,057 street trees, describing 25,877 as 'mature and over-mature', 7487 as 'semi-mature' and 1693 as 'young' (Elliott Consultancy 2007). Of the total trees surveyed, it was concluded that 5191 required maintenance and 1000 needed felling, as might an additional 1236 (ibid, p. 8). A second survey was conducted in 2012, commissioned at the start of the Streets Ahead contract. This is not publicly available, but the SCC referred to its findings in an earlier iteration of their website, where the number of trees deemed 'dangerous', 'dead', 'dying' or 'diseased' was placed at 1000 (Sheffield City Council 2016c). However, the Streets Ahead Five Year Tree Management Strategy, which was published in the same year, placed the 'replanting rate [needed] to maintain the current street tree numbers' at '200 to 400 trees per annum' (Sheffield City Council 2012, p. 4). While this suggests a figure of no more than 2000 trees over a five-year period, the SCC proceeded to refer to plans to fell and replace 6000 trees over the same timeframe (Sheffield City Council 2017a). An interview given by the SCC's head of Highways Maintenance in the same year, 2012, did little to clarify the issue, stating that it was actually 'half' of the city's 36,000 street trees that were marked for removal (Robinson, quoted in Transportation Professional 2012, p. 13).

Over the next three years, as local community opposition began to solidify around an emerging realisation of what was transpiring in Sheffield and a petition containing over 10,000 signatures opposing the felling was presented to the SCC. The core concerns of signatories were twofold—that there was going to be an unacceptable number of mature, healthy street trees felled, and that there had been a lack of public consultation on the programme (Sheffield City Council 2015). In response, the SCC passed a resolution establishing the Highway Tree Advisory Forum (HTAF). Providing 'a platform for an open discussion . . . and to open the Council to public scrutiny over decisions relating to highway trees', the SCC intended for the HTAF to be a 'first step in restoring public faith and trust in Sheffield City Council's management of the City's tree stock, including street trees' (ibid).The HTAF consisted of a panel containing SCC cabinet members, opposition councillors, senior Amey personnel, the Sheffield Wildlife Trust, local academics, and campaign group representatives. The HTAF met twice. The first meeting was on 23 July 2015 and concerned the '6D' classification system for determining whether a tree should be felled. The second was on the 2 September 2015, where attendees discussed the 25 management options the SCC is supposed to consider before deciding on felling. Although intended to be bi-monthly, the HTAF was abandoned after this second session for reasons unknown.

The HTAF sessions were attended by around 200 members of the public, in whose presence panel members were highly critical of the SCC's plans. Having been told that many of the 25 alternative management options could not be used on the grounds of cost (Sandford 2015), the plans were described as an inappropriate 'tickbox' solution (Stevenson, quoted in Sheffield Star 2015). The 'poor communication' between the SCC and local residents was also highlighted, with panel members criticising the lack of transparency around felling decisions (Clarke 2015). Indeed, the extent to which the SCC perceived this as an information-giving exercise, as opposed to a genuine opportunity for citizens to inform the plan of action, is neatly illustrated by Sandford (2015): 'Feelings from the public at both meetings ran high and it was great to see so many people so passionate about trees, but also frustrating to see the Council not really responding to any of their concerns'.

Taken together, the HTAF meetings exemplify Arnstein (1969, p. 216) original description of an 'empty and frustrating' form of engagement. Residents of Sheffield were allowed to hear and be heard but 'lack[ed] the power to ensure that their views [would] be heeded' (ibid, p. 217)—what Arnstein refers to as 'tokenism'. Indeed, after attending the forum, the Woodland Trust made three requests to the SCC (see Sandford 2015). First, that further tree felling be paused until the conclusion of the HTAF and a new trees and woodland strategy could be introduced. Second, that an independent arboricultural consultant be used to determine whether felling is the most realistic option in all cases and, finally, that local people be consulted about replacement species and their location. The first and third of these were essentially ignored, but the second was to some extent manifested in the Independent Tree Panel (ITP) process that came to replace the HTAF.

Before examining the ITP process, and its associated use of household surveys, it should be noted that the opacity surrounding the actual number of trees to be felled is an ongoing source of conflict. Despite repeated use of Freedom of Information requests by local groups attempting to bring the figure into the public domain, the SCC has been reluctant for this to occur. Circumstances changed only when the Information Commissioner's Office intervened. As the regulatory office responsible for data protection and freedom of information legislation, it ordered publication of previously redacted sections of the Streets Ahead contract. This revealed yet another number, provoking further confusion: 'The service provider shall replace highway trees in accordance with the annual tree management programme at a rate of not less than 200 per year so that 17,500 highway trees are replaced by the end of the term . . . ' (Burn 2018a).

In its response, the SCC have emphasised that this is not a target, going on to provide another estimate that around 10,000 trees will be replaced over the course of the contract (ibid.). Taken together, the primary features on display at this juncture include a protracted lack of transparency around the number of trees to be felled and an opacity of factors informing this decision. Indeed, this has acted as the backdrop for public opposition since at least 2015; citizens do now know the extent of the felling planned, why alternative management solutions are not being pursed, or how the decisions around felling are being reached.

6. Independent Tree Panels and Household Surveys

Following the HTAF's lack of success, the SCC set up the ITP process. Viewed through the lens of 'procedural environmental justice', the ITP had several promising objectives: to provide 'independent, impartial and expert advice' on the retention, replacement or treatment of the street trees, to 'take into account all available evidence . . . on proposals for the treatment of trees', and to 'provide advice to Sheffield City Council about potential changes to proposals, as necessary' (Sheffield City Council 2016a, p. 1). The ITP consisted of a layperson, a highways engineer, independent health and safety advisers, an arboricultural consultant, and a chair. In essence, the ITP examined each tree, as required, determined its categorisation using the 'six D' system and considered whether any of the maintenance solutions available in the contract could be used before reaching a decision on whether or not to fell. Importantly, though, the ITP did not examine every tree; the process was triggered only when 50 percent of households on a given street disagreed with proposals to fell on that street.

Information on these perspectives was gleaned from the household surveys—a mechanism of citizen engagement demonstrating such fundamental flaws that it is difficult to characterise it as anything other than superficial.

Social science relies on several key criteria to evaluate research instruments, with one of the most common being that of 'validity'. Validity has a range of sub-types, but that of most relevance here is 'measurement validity', which is concerned with whether the measure of a concept reflects the reality it is supposed to be measuring. This is not only a key component of any form of research instrument, but it is also the one in which the household survey is most fundamentally lacking. The concept this particular instrument attempts to measure can be labelled broadly as 'agreeableness'. This operates on two levels, denoting the extent to which individual households agree with the felling of trees on 'their' street, and the extent to which this opinion is shared by the street as a whole. There are several ways in which the survey fails to measure both. First, at the level of the 'household', bias is introduced into the instrument via the cover letter, where persuasive language depicts the felling as purely beneficial:

> *. . . a sustainable replacement and management programme is required to prevent a catastrophic decline in street tree numbers in coming years . . . without the investment we are now delivering through Streets Ahead, we could be facing decades of under-investment, removal without replacement and a lack of proactive maintenance.*

Considering that the only way a resident would encounter information contrary to this is through contact, either direct or indirect, with one of the opposition groups or sympathetic media reports, the extent to which this survey measured resident perspectives on felling is questionable. Indeed, it may be more accurate to say that the survey measured resident engagement with counteracting arguments outside the leading account given. Of course, this is the more passive interpretation of the instrument. The bias built into the information sheet may actively produce the markers of agreeableness being sought. Either way, this aspect of the survey undermined its measurement validity by subjecting the respondent to a leading account prior to the gathering of data. In social research terms, it demonstrates a fundamental flaw in instrument design.

The surveys were also intended to measure the agreeableness of 'households'. They were designed; however, in such a way that they could record only the response of one member within each. The judge in *Dillner* explained that 'the issue about whether all views in a household are the same is not of much import. The form gives scope for someone to enter that there is a different view. There is no evidence at all of this actually occurring' (para. 210). On inspecting the survey itself; however, this is far from clear. In fact, the survey contained only two boxes for comments; the first asked for the respondent to 'please explain why you do not support the proposals for your street', and the second simply for 'other comments'. There was no indication that disagreements internal to households, or the number of opinions contained therein, could be included anywhere on the survey, or even that residents come to some consensus before completing it. As such, while it may not have 'much import' for questions of legality, it is of fundamental importance when discussing the measurement validity of the instrument. It means that the survey was not accurately measuring household agreeableness at all, but only the extent to which one of the residents in each household agreed with the plan. As a consequence, the measurement validity of the instrument was again undermined.

The extent to which the surveys provided data on whole streets is also questionable. This is not least because the survey collapsed the possibility for multiple and competing opinions within a household into a single survey answer. This meant that the survey did not provide data at the level of the street because only a small proportion of residents were asked. More directly, however, if one examines the data released by the SCC, one observes that the response rate for household surveys was 13 percent of the total number asked (see Figure 1). This is problematic when considering that a postal survey response rate below 50% is considered 'unacceptable' according to some sources by some authorities (see, e.g., Mangione 1995, pp. 60–61). The low number of returns can be attributed to the collection method itself, which is generally known to elicit low responses (see Gray 2017), but it also reflects the cumbersome nature of this particular instrument. On receipt of the participant invitation

letter, which arrived in an unmarked envelope (Moore 2017), respondents were required to access the survey questions online using a code provided in the letter. For those without internet access, residents were asked to telephone a call centre and request a paper copy of the survey. The invitation letter did not make clear when or how the completed paper survey should be returned. There was also a complete absence of support for non-English language speakers. Taken together, the survey cannot be said to measure what it claimed to be measuring, at either the level of the household or street.

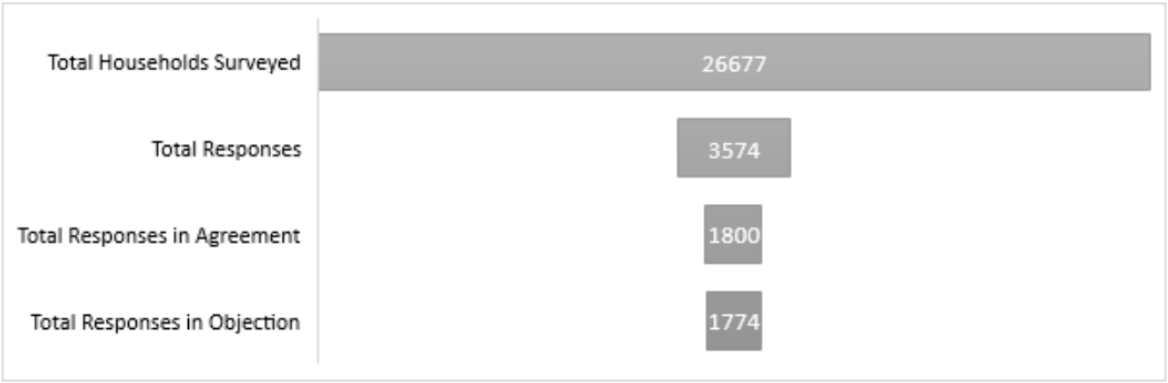

Figure 1. Household Survey Responses. Compiled from (Sheffield City Council 2018a).

Despite these flaws, the SCC interpreted the results in favour of the felling programme. As Bryan Lodge (quoted in Moore 2017), speaking as its cabinet member for Environment and Streetscene, stated upon completion of the ITP process, '[o]ur household surveys show that only a small percentage of residents disagree with our proposals for tree replacement and that the vast majority are supportive or indifferent'. As Figure 1 demonstrates, however, this is inaccurate; there is an almost 50/50 split between respondents agreeing and objecting to the proposals. The only scenario in which the SCC's position has support is if non-responses are placed in the same category as those expressing agreement. This, in and of itself, is an erroneous interpretation of the data, but to build into this an assumption that non-responses indicate just 'indifference' suggests a more calculated awareness. This is further visible in Lodge's subsequent claim that '[w]e do know that the majority of people in the city want to see this work carried out' (quoted in Torr 2017). The evidentiary basis for this assertion is unclear, but it cannot and should not be derived from the household surveys. According to the 2011 census, the number of households in Sheffield stands at 229,928. If 1800 of this number actively agreed with the felling, this would correspond with only 0.78% of city's population (Sheffield City Council 2018c). Even if the SCC's interpretation of the data was used, where no meaningful difference is perceived between non-responses and objections, this number still sits at only 10.8% of the city's population. As such, what is occurring here is a very specific form of 'greenwashing' (see Berrone et al. 2017, p. 363), where the SCC has used data gathered through household surveys to make unsubstantiated and misleading claims about the popularity of its felling programme.

Once triggered by 50 percent of respondents expressing opposition, the ITP inspects each of the trees on the street and makes a recommendation to the SCC about whether to proceed or adopt remedial measures to enable retention. The outcome of this process has been criticised heavily by local community groups, which note that of the 312 trees recommended by the ITP for retention, 237 (or 76 percent), were ignored (Sheffield Tree Action Groups 2017). Much of this decision-making process is clear, as ITP justifications are outlined in its inspection summary documents (Sheffield City Council 2017c), thus conforming to the SCC's description of the ITP as 'transparent' (Lodge, quoted in McEwan 2016). The ITP has important limits; however. The final stage of the process, where the SCC makes a decision on whether to accept the ITP recommendation or not, is opaque; there is very little information available regarding which factors inform this final part of the decision-making process. As such, it may be more appropriate to describe the ITP as *translucent*, where just enough information is permitted to

placate (some) interested parties, but the most important aspect of decision-making remains shielded from view.

While hidden for the most part, the dominant factors exerting influence in this decision-making process are visible in some of the more high-profile examples. The Chelsea Road Elm, particularly controversial felling, is a case in point. Over 100 years old, the tree is a confirmed habitat of the White-letter Hairstreak butterfly, of which elm is its sole foodplant. As Dutch Elm Disease has reduced UK elm numbers by over 20 million since the 1970s (Forestry Commission 2018), the butterfly population has suffered one of the most severe long-term declines of any butterfly species, dropping by 96% over the same period (Butterfly Conservation 2015, p. 6). Spending their whole life cycle exclusively on elm trees, the White-letter Hairstreak butterfly has been classified as a UK Biodiversity Priority Species. One of the actions required under this categorisation is 'the planting of Dutch Elm disease resistant Elm' (Joint Nature Conservation Committee 2010, p. 3). While still susceptible, Huntingdon Elm, of which the Chelsea Elm is an example, has demonstrated some resistance to the disease (Woodland Trust 2018). This value was recognised in the ITP recommendation to retain this specific tree:

> *The tree . . . is a Huntingdon Elm (and not an English Elm), a notable and rare species, which we advise there is a strong arboricultural case to retain. The tree is causing some disruption to the pavement, and to the carriageway . . . We nevertheless believe that a combination of engineering solutions could be used to retain this tree . . . We recognise that this may incur additional costs. We therefore advise the Council to reconsider its plan for this tree with a view to retaining it.* (Buck 2016, pp. 1–2)

In its reply, however, the Sheffield City Council (2017b, p. 1) overruled the ITP, citing economic constraints as the primary reason for proceeding with the removal of the Chelsea Road Elm anyway: '[t]he roots are under the carriageway therefore [a] solution would be expensive if retained . . . Continue with tree replacement as planned'. In response to the subsequent protests, the SCC produced a 16-point plan for removing the Chelsea Elm while attempting to protect the butterfly species. Again, economic constraints were forwarded as a justification for felling. Altering the highway to avoid felling the tree would 'have an additional cost. The Council does not have funding for the additional costs' (Sheffield City Council 2017d, p. 2). As of January 2020, the Chelsea Road Elm has yet to be felled, having been the subject of local and national news coverage (BBC News 2018a; Barkham 2017).

7. The Arrests and Injunctions

After the launch of the ITP in January 2016, the High Court of Justice issued an injunction in February that paused felling. The victory was short-lived; in March, the same court subsequently deemed the request for a judicial review of council decisions 'devoid of merit' (Burn 2018b). At this point, the situation escalated, with the procedural injustices becoming more explicit. In November 2016, five people were arrested in two separate incidents for obstructing felling. In the second of these, the felling operation had been planned a month in advance, following a joint meeting between the private contractor, Amey, South Yorkshire Police (SYP) and SCC staff (Sheffield Star 2016). Here, three people were arrested in what was labelled a 'dawn raid' by the media (Barkham 2016). Contractors and police arrived on the street at 5am, proceeding to wake residents and ask them to move their vehicles to allow for the felling. Objecting, residents stood inside the barrier tape circling a nearby tree, leading to their arrest (BBC News 2016). Importantly, the ITP report, which was released at 4:25am that same day, left little opportunity for members of the public to read it even as an information-giving exercise. This failed to meet even the basic requirements for procedural justice—of information sharing, dialogue and respectful deliberation (George and Reed 2017), particularly when considering the fact that the SCC received the ITP report over three months earlier (Sheffield Star 2016). One decisive factor in this approach may have been that the ITP found seven of eight trees on the street to be in good health, but that the SCC had instead decided to fell all of them (Sheffield City Council 2016b, pp. 2–3).

Tensions continued to escalate over the ensuing winter where in February 2017, seven people, including a Green Party councillor, were arrested at a single protest. By March 2017, the total number arrested had risen to 14, with Section 241 of the Trade Union and Labour Relations Consolidation Act (1992) being used as the basis for arrest. This legislation, which has been used as justification for detaining anti-fracking activists (Booth 2013), aims to stop someone 'compelling' another 'to abstain from doing … any act which that person has a legal right to do … wrongfully and without legal authority'. Following the ensuing media coverage; however, all charges issued under the legislation were dropped by the Crown Prosecution Service (CPS), with the Police and Crime Commissioner providing the following reasoning: "The CPS are not willing to take to court people arrested under trade union laws as it is not in the public interest. There is no mileage for police to make those arrests under that type of legislation" (Billings, quoted in Peace 2017).

A year later, the Independent Office for Police Conduct determined that the law had been used inappropriately in the arrest and detention of protesters (Pidd 2018b). Yet, instead of seeing this as a point in which dialogue may provide a more appropriate avenue for development, the SCC continued to foreclose meaningful engagement by responding with the intention to pursue 'all options that are available to enable the necessary works to be carried out' (Lodge, quoted in BBC News 2017). The police later reached settlements with some of those arrested under Section 241 of the Trade Union and Labour Relations (Consolidation Act), paying £3000 to each (Burn 2018d).

December 2017 marked the end of the five-year-year 'core investment period', after which the Cabinet Member for Environment and Streetscene said there risked 'catastrophic financial consequences for the council' if the felling was not complete by this point (Lodge, quoted in Bounds 2017). This was on the basis that the council would incur penalty charges and have to fund incomplete work. With this deadline approaching, the SCC turned to civil injunctions as a means of continuing the felling programme. These barred protesters from entering a safety cordon around a tree, with disobeying persons risking contempt of court and a prison sentence or financial penalties. Council requests not to breach the injunction were sent to 17 people, who were advised to sign or be taken to court. Nine signed shortly after, eight were taken to court—five of which signed a modified version of the undertaking—and three refused to sign at all. The ensuing case, in August 2017, saw the High Court of Justice uphold the injunction, with subsequent breaches resulting in individuals being given suspended prison sentences and fines.

In a 2018 case assessing whether individuals had indeed reneged on this agreement, the judge sought to confirm that there was a democratic mandate for this course of action:

> *This is a serious application. The council seeks to commit Sheffield citizens to prison for contempt...I would just like to be reassured that this application is brought on the instructions of democratically elected councillors. Do you have instructions from the leader of the council to make this application?* (Males, quoted in Pidd 2018a)

After a short adjournment, the SCC's barrister confirmed that the leader of the council 'positively agreed that proceedings should be brought' (ibid). This demonstrated the extent of the SCC's reluctance to facilitate meaningful dialogue with citizen groups—not only a strategy of passive avoidance but one of active and intentional foreclosure. While the effect of specific deterrence on the named individuals receiving injunctions is relatively straightforward, the extent of the more general deterrence elicited on protest is unknown. It is worth mentioning, however, that this article was initially going to be based on primary research, including interviews with campaigners. The invitation to participate was released before the injunctions were announced, eliciting 15 responses in two days. As soon as the injunctions were announced; however, this figure dropped to two. Ultimately, the injunctions represented the council's reluctance to facilitate open and transparent decision-making, seeking instead to prevent and marginalise citizen input proactively.

Outside of the courts, the granting of injunctions signalled a change in strategy for the management of protests. Amey and the SCC deployed use of private security guards to enforce the civil injunction

both directly, using force, and indirectly, by surveilling those on the scene. The SYP also reprised its role, adopting a more proactive stance following the injunctions. It is important to note that they were not deployed to enforce this civil law, but to *balance* the right to protest with the trespass that occurs within a tree felling safety zone, as established in Sheffield City Council v. Fairhall, Dillner and others [2017] EWHC 2121 (QB). The unclear demarcation between public and private policing; however, and the now-central role of the latter at the felling sites, contributed to the escalation of the conflict. As one observer described:

> *I was near to three people who were being removed. 'Forcibly removing' doesn't capture the reality of what they did: prise fingers off railings, bending thumbs back (one resident shouted that it felt as if they were breaking his fingers); grabbing and bending the arms of the two women who had linked arms; pushing and squashing a man who yelled he was being crushed; dragging an elderly resident by the arms. There were at least 10 security mobbing a group of 3 protesters, two of whom I think were pensioners. It was awful to see people being treated this way, and the police looking on, impassive to the pleas of the protesters that they intervene* ... (Holroyd, quoted in Saul 2018)

The ensuing local and national media coverage provoked Sheffield Councillor Lord Scriven to demand an explanation from SYP for its tactics, such as the need for 33 police officers and 20 private security personnel at a single felling site and the process for deciding resource allocation (Scriven 2018). This elicited a response from the Chief Constable of SYP (see Watson 2018). Tensions became so fraught that the Police and Crime Commissioner for South Yorkshire, Dr. Alan Billings, asked his Advisory Panel on Policing Protests (APPP) to review the policing of street trees in the city. Concluding, among other things that the SYP lacked an effective media strategy, the Advisory Panel on Policing Protests (2018, p. 15) made clear that 'there is no escape from the conclusion that ... without the intervention of SYP ... the tree felling programme could not be carried out'.

8. Discussion

Irrespective of the more substantive injustices associated with the felling of healthy street trees, an array of procedural injustices can be seen to have occurred over the period since the programme started. Characterised by the core features of marginalisation and misrecognition, the first of these is visible in the recurring exclusion of local citizens from key stages of the decision-making process. The absence of public input into the felling programme, back in 2012 when the PFI contract was initiated, demonstrates a reluctance—from the very beginning—to facilitate meaningful engagement with those at risk of being affected. This absence of public input, along with the associated opacity of felling figures, has been a source of tension ever since. Continuing at the HTAF in 2015, where voices were marginalised by what was essentially an information-giving exercise, the subsequent ITP process was also characterised by a minimal degree of citizen engagement. Transparent until the final justification for a felling, which was hidden from view, and accompanied by a household survey that failed to measure what it claimed to measure, the ITP process did little to ameliorate tensions because of fundamental flaws in its creation and delivery. Finally, the SCC resorted to force by using civil injunctions to halt continued protests, the purpose of which was to produce both specific and general deterrence among citizens opposing the felling.

Taking these characteristics together, one can identify several participatory markers of procedural injustice. The process was defined by the exclusion of meaningful citizen input at key stages (Walker 2012); at no point could members of the public influence felling decisions through official channels. There was also a distinct lack of appropriate mechanisms through which citizen voices could be heard, respected and—crucially—integrated into the proposed plan of action (George and Reed 2017). Those that did exist—the HTAF, surveys and ITP—did this to some extent, but they were clearly part of a much broader strategy in which the ultimate decision to fell was the default position. Finally, and perhaps most clearly, the process was defined by deliberation opportunities that failed to build trust and respect across all parties (ibid; Walker et al. 2006). While attentive in some respects—in terms

of providing a few limited opportunities for expression—the process which emerged was clearly not designed to translate this input into meaningful, influential change. The use of force to quell dissent at the end of this process represents the apogee of the local authority's failure to build trust and respect across the factions involved.

As witnessed elsewhere (see, e.g., Heydon 2018), such instances of marginalisation are inseparable from those of misrecognition. The recognitional standards of deliberation to be attained are inclusiveness and respect (see Schrader-Frachette 2002), but these were absent in this case. From the very beginning, there was no acknowledgement that local citizen input should inform the felling programme. This is despite the need for provocative projects to seek public involvement early on 'to encourage consensus and legitimise the process' (Walters et al. 2000, p. 354). Empirical evidence also demonstrates that public participation infuses decisions with local knowledge, produces higher-quality planning outcomes (Laurian 2004, p. 53), as well as better environmental decisions and conservation efforts (Gellers and Jeffords 2018). There are also ongoing questions about the opacity of both decision-making and decision-makers, both of which bely the lack of transparent communication structures needed to promote information sharing—a feature which also inhibits the accountability of those involved (Bostrom 2012; George and Reed 2017). The minimalist stance taken towards citizen engagement, of which these characteristics are collectively indicative, has had consequences for the city council ever since. It has been forced to repeatedly respond to this original, exclusivist stance, placing it under a state of constant pressure that is not conducive to facilitating meaningful dialogue, particularly when locked into a contract that has already established pre-agreed timelines for a host of predetermined activities, and all without input from those most likely to be affected.

When taken together, the injustices speak to Walker (2012) warning about the rolling out of public functions under neoliberalism to non-state actors—that this shift may complicate and hinder the extent to which 'procedural environmental justice' can be attained in any given situation. This is particularly relevant considering that the felling programme stems from a PFI contract, and that much of the subsequent conflict can be traced back to the lack of public input on its content. Coming under recent criticism from the House of Commons Committee of Public Accounts (2018) these agreements harbour several flaws. One of the most commonly levelled is that they incur greater expense than publicly funded projects. For instance, PFI-funded schools cost around 40 percent more than those financed by government borrowing, and PFI-funded hospitals around 70 percent more (National Audit Office 2018a, p. 15). Of more relevance to Sheffield, however, is that they engender a lack of accountability. Not only does the commercial confidentiality and secrecy of the contractual process hinder accountability for works carried out, which also makes it difficult to assess their value for money (Edwards and Shaoul 2003), but the liabilities created are excluded from public and parliamentary scrutiny (Newberry and Pallot 2003). While such characteristics may be attractive to authorities facing pressure to increase investment in infrastructure (English and Guthrie 2003), which is exacerbated by a protracted reduction in funding from central government, they are hardly conducive to a transparent, inclusive, and just process of environmental decision-making.

9. Conclusions

Would you hew me
to the heartwood, cutter?
Would you leave me open-hearted?
. . .
Do you hear these words I utter? I ask this of you –
Have you heartwood, cutter?
Have those who sent you?

Rob Macfarlane 2018
Extract of poem pinned to street tree, Nether Edge, November 2018

This article has demonstrated how the concept of 'procedural environmental justice' can be applied to situations involving citizens without legally recognised participation rights and to deliberation procedures that are not defined rigidly from the offset, but which emerge in response to citizen opposition. In doing so, it has not only illustrated how 'justice-as-recognition' and 'justice-as-participation' are manifested jointly within 'procedural environmental justice', but also how initial instances of misrecognition and marginalisation can generate a subsequent campaign of injustice, as those with authority struggle to manage the resultant dissatisfaction of the local citizenry. The constraints of context have also been drawn out, where the public-private relationships established by PFI contracts can limit the scope of citizen engagement realised. This should not detract, however, from the flawed decisions made by the local authority within the space available; meaningful avenues for citizen engagement could have been permitted at any stage, at least to a greater degree than realised. Indeed, reflecting recommendations made elsewhere (see Heydon and Hall 2018), the Environment Secretary, Michael Gove, announced recently plans to ensure that local councils cannot fell street trees without first consulting local communities (Department for Environment, Food and Rural Affairs 2019). Considering Gove's awareness of the conflict in Sheffield (see Halliday 2017), it may be that the decision whether or not to consult is taken out of local authority hands, with national policy being modified as a direct result of this case. Though the range and extent of the participation envisaged is yet to be determined, when viewed through the lens of 'procedural environmental justice', this is a promising development. Further research will be required to establish whether or not this is the case.

The implications of this case pertain to instances of local environmental injustice, more specifically, and green criminology, more broadly. With regard to the former, local authorities should give serious consideration to the opportunities available for citizen engagement in environmental decision-making. This should entail not only recognising the value of their participation from the very beginning of a proposed plan of action, but also providing opportunities at multiple stages for their meaningful—that is, *influential*—engagement. Doing otherwise—and pursuing an exclusive, narrow, and closed deliberation process that bears the hallmarks of 'procedural environmental injustice'—risks a protracted period of conflict with local citizens and beyond.

With respect to green criminology, more broadly, it would be fruitful to explore other instances of procedural injustice, particularly in those cases where substantive injustices are less visible. Indeed, if procedural injustice is to be understood at a societal level, then the forces serving to produce it will be found not only in high-profile cases with clearly identifiable instances of harm, but in those more mundane and everyday situations, where procedural injustice is normalised—and goes largely unnoticed. This would render green criminology more sensitive to procedural injustice's systemic nature, allowing for connections to be made between individual instances of procedural environmental injustice and broader societal circumstances.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

References

Advisory Panel on Policing Protests. 2018. *Policing Sheffield's Tree Protests*. Available online: http://www.southyorkshire-pcc.gov.uk/Document-Library/Advisory-Panel-on-Policing-Protests/Policing-Sheffield-Trees-Protests.pdf (accessed on 10 December 2018).

Amey. 2018. Sheffield Streets Ahead—Highways Maintenance and Management. Available online: https://www.amey.co.uk/about-us/amey-in-your-area/north-east/sheffield-streets-ahead/ (accessed on 3 January 2019).

Arnstein, Sherry. 1969. A Ladder of Citizen Participation. *Journal of the American Planning Association* 35: 216–24.

Barkham, Patrick. 2016. A Dawn Raid, Protestors Silenced: Is This a War on Trees?'. *The Guardian*. Available online: https://www.theguardian.com/commentisfree/2016/nov/21/dawn-raid-war-on-trees-sheffield (accessed on 3 January 2019).

Barkham, Patrick. 2017. Put a Price on Urban Trees—And Halt This Chainsaw Massacre. *The Guardian*. September 11. Available online: https://www.theguardian.com/commentisfree/2017/sep/11/price-urban-trees-chainsaw-chestnuts-london-elm-sheffield (accessed on 3 January 2019).

BBC News. 2016. Dawn Tree Felling in Sheffield Sparks Outrage. *BBC News*. Available online: https://www.bbc.co.uk/news/uk-england-south-yorkshire-38012189 (accessed on 3 January 2019).

BBC News. 2017. Sheffield Tree Protesters 'Will Not Face Arrest', Says PCC. *BBC News*. Available online: https://www.bbc.co.uk/news/uk-england-south-yorkshire-39279897 (accessed on 3 January 2019).

BBC News. 2018a. Butterfly Temporarily Saves Threatened Sheffield Tree. *BBC News*. Available online: https://www.bbc.co.uk/news/uk-england-south-yorkshire-42950230 (accessed on 3 January 2019).

BBC News. 2018b. UK's Most Polluted Towns and Cities Revealed. *BBC News*. Available online: https://www.bbc.co.uk/news/health-43964341 (accessed on 3 January 2019).

Beatty, Christina, and Steve Fothergill. 2016. Jobs, Welfare and Austerity: How the Destruction of Industrial Britain Casts a Shadow over Present-Day Public Finances. Available online: https://www4.shu.ac.uk/research/cresr/sites/shu.ac.uk/files/cresr30th-jobs-welfare-austerity.pdf (accessed on 3 January 2019).

Berrone, Pascual, Andrea Fosfuri, and Liliana Gelabert. 2017. Does greenwashing pay off? Understanding the relationship between environmental actions and environmental legitimacy. *Journal of Business Ethics* 144: 363–79. [CrossRef]

Beyer, Kirsten, Andrea Kaltenbach, Aniko Szabo, Sandra Bogar, F. Javier Nieto, and Kristen Malecki. 2014. Exposure to Neighborhood Green Space and Mental Health: Evidence from the Survey of the Health of Wisconsin. *International Journal of Environmental Research and Public Health* 11: 3453–72. [CrossRef] [PubMed]

Booth, Robert. 2013. Anti-Fracking Activists Arrested at West Sussex Drilling Site. *The Guardian*. July 26. Available online: https://www.theguardian.com/environment/2013/jul/26/anti-fracking-activists-arrested-sussex (accessed on 3 January 2019).

Bostrom, Magnus. 2012. A Missing Pillar? Challenges in Theorizing and Practicing Social Sustainability: Introduction to the Special Issue. *Sustainability* 8: 3–14. [CrossRef]

Bounds, Andy. 2017. Sheffield Fears Tree-Felling PFI Fight will Cost Millions. *Financial Times*. Available online: https://www.ft.com/content/e3641c8a-835e-11e7-a4ce-15b2513cb3ff (accessed on 3 January 2019).

Brack, Cris L. 2002. Pollution Mitigation and Carbon Sequestration by an Urban Forest. *Environmental Pollution* 116: S195–S200. [CrossRef]

Brisman, Avi. 2008. Crime-Environment Relationships and Environmental Justice. *Seattle Journal for Social Justice* 6: 727–817.

Brisman, Avi. 2013. The Violence of Silence: Some Reflections on Access to Information, Public Participation in Decision-Making, and Access to Justice in Matters Concerning the Environment. *Crime, Law and Social Change* 59: 291–303. [CrossRef]

Brisman, Avi. 2018. Representing the "Invisible Crime" of Climate Change in an age of Post-Truth. *Theoretical Criminology* 22: 468–91. [CrossRef]

Buck, Andy. 2016. Independent Tree Panel for Sheffield. Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/managingtrees/Chelsea%20Road.pdf (accessed on 3 January 2019).

Burn, Chris. 2018a. Sheffield Council Forced to Reveal Target to Remove 17,500 Street Trees under PFI Deal. *Yorkshire Post*. March 10. Available online: https://www.yorkshirepost.co.uk/our-region/south-yorkshire/sheffield/sheffield-council-forced-to-reveal-target-to-remove-17-500-street-trees-under-pfi-deal-1-9056942 (accessed on 3 January 2019).

Burn, Chris. 2018b. Sheffield Council Spends £400,000 on Legal Battles with Tree Campaigners. *Yorkshire Post*. September 3. Available online: https://www.yorkshirepost.co.uk/news/sheffield-council-spends-400-000-on-legal-battles-with-tree-campaigners-1-9332757 (accessed on 3 January 2019).

Burn, Chris. 2018c. Sheffield Sheds 'Pothole City' Tag as Complaints Drop 60 Percent. *Yorkshire Post*. Available online: https://www.yorkshirepost.co.uk/news/transport/sheffield-sheds-pothole-city-tag-as-complaints-drop-60-per-cent-1-9510925 (accessed on 3 January 2019).

Burn, Chris. 2018d. Police to Pay Thousands in Compensation to Sheffield Tree Campaigners over 'Groundless' Arrests. *Yorkshire Post*. December 29. Available online: https://www.yorkshirepost.co.uk/news/police-to-pay-thousands-in-compensation-to-sheffield-tree-campaigners-over-groundless-arrests-1-9502368 (accessed on 3 January 2019).

Butterfly Conservation. 2015. The State of The UK's Butterflies 2015. Available online: https://butterfly-conservation.org/files/soukb-2015.pdf (accessed on 3 January 2019).

Carrabine, Eamonn. 2018. Geographies of Landscape: Representation, Power and Meaning. *Theoretical Criminology* 22: 445–67. [CrossRef]

Carrell, Severin. 2018. Scottish GPs to Begin Prescribing Rambling and Birdwatching. *The Guardian*. October 4. Available online: https://www.theguardian.com/uk-news/2018/oct/05/scottish-gps-nhs-begin-prescribing-rambling-birdwatching (accessed on 3 January 2019).

Clarke, Lauren. 2015. Sheffield Trees: New Highway Tree Strategy Promised at Packed Meeting of Sheffield Forum. *Sheffield Star*. Available online: https://www.thestar.co.uk/news/sheffield-trees-new-highway-tree-strategy-promised-at-packed-meeting-of-sheffield-forum-1-7375285 (accessed on 3 January 2019).

Dalton, Ian. 2017. Sheffield Street Trees: A Report by Ian Dalton. Available online: http://sheffieldgreenparty.org.uk/issues/streets-ahead-the-battle-for-our-street-trees/ (accessed on 3 January 2019).

Department for Environment, Food and Rural Affairs. 2019. Consultation on Protecting and Enhancing England's Trees and Woodlands. Available online: https://consult.defra.gov.uk/forestry/protecting-trees-and-woodlands/ (accessed on 3 January 2019).

Donovan, Geoffrey, and David T. Butry. 2010. Trees in the City: Valuing Street Trees in Portland, Oregon. *Landscape and Urban Planning* 94: 77–83. [CrossRef]

Douglas, Ed, and John Beatty. 2018. *Kinder Scout: The People's Mountain*. Sheffield: Vertebrate Publishing.

Edwards, Pamela, and Jean Shaoul. 2003. Controlling the PFI Process in Schools: A Case Study of the Pimlico Project. *Policy and Politics* 31: 371–85. [CrossRef]

Elliott Consultancy. 2007. Sheffield City Highways Tree Survey 2006–2007. Available online: http://elliottconsultancy.com/sheffield-city-highways-tree-survey (accessed on 3 January 2019).

English, Linda, and James Guthrie. 2003. Driving Privately Financed Projects in Australia: What Makes Them Tick? *Accounting, Auditing & Accountability Journal* 16: 493–511.

Escobedo, Francisco, John E. Wagner, David J. Nowak, Carmen Luz De la Maza, Manuel Rodriguez, and Daniel E. Crane. 2008. Analyzing the Cost Effectiveness of Santiago, Chile's Policy of Using Urban Forests to Improve Air Quality. *Journal of Environmental Management* 86: 148–57. [CrossRef]

Fan, Yingling, Kirti Das, and Qian Chen. 2011. Neighborhood Green, Social Support, Physical Activity, and Stress: Assessing the Cumulative Impact. *Health & Place* 17: 1202–11.

Forestry Commission. 2018. Dutch Elm Disease (Ophiostoma Novo-Ulmi). Available online: https://www.forestry.gov.uk/dutchelmdisease (accessed on 3 January 2019).

Fraser, Nancy. 1999. Social Justice in the Age of Identity Politics: Redistribution, Recognition, and Participation. In *Culture and Economy after the Cultural Turn*. Edited by Larry Ray and Andrew Sayer. London: Sage Publications.

Fraser, Nancy. 2000. Rethinking Recognition: Overcoming Displacement and Reification in Cultural Politics. *New Left Review* 3: 107–20.

Fujii, Lee Ann. 2014. Five Stories of Accidental Ethnography: Turning Unplanned Moments in the Field into Data. *Qualitative Research* 15: 525–39. [CrossRef]

Gellers, Joshua, and Chris Jeffords. 2018. Toward Environmental Democracy? Procedural Environmental Rights and Environmental Justice. *Global Environmental Politics* 18: 99–121. [CrossRef]

George, Colleen, and Maureen Reed. 2017. Revealing Inadvertent Elitism in Stakeholder Models of Environmental Governance: Assessing Procedural Justice in Sustainability Organisations. *Journal of Environmental Planning and Management* 60: 158–77. [CrossRef]

Goyes, David Rodriguez, and Nigel South. 2017. The Injustices of Policing, Law and Multinational Monopolization in the Privatization of Natural Diversity: Cases from Colombia and Latin America. In *Environmental Crime in Latin America*. Edited by David Rodriguez Goyes, Hanneke Mol, Avi Brisman and Nigel South. London: Palgrave, pp. 187–212.

Gray, David. 2017. *Doing Research in the Real World*, 4th ed. London: Sage Publications.

Gregory, Maxine, Larissa Davies, Themis Kokolakakis, and David Barrett. 2014. *Everything Grows Outside—Including Jobs and the Economy*; Sheffield Sport Industry Research Centre, Sheffield Hallam University. Available online: http://www.welcometosheffield.co.uk/content/images/fromassets/100_7204_310816121610.pdf (accessed on 3 January 2019).

Halliday, Josh. 2017. Michael Gove Seeking Way to End 'Bonkers' Felling of Sheffield Trees. *The Guardian*. September 28. Available online: https://www.theguardian.com/uk-news/2017/sep/28/michael-gove-seeking-way-to-end-bonkers-felling-of-sheffield-trees (accessed on 3 January 2019).

Heydon, James. 2018. Sensitising Green Criminology to Procedural Environmental Justice. *International Journal of Crime, Justice and Social Democracy* 7: 67–82. [CrossRef]

Heydon, James, and Matthew Hall. 2018. Written Evidence Submitted by Dr James Heydon and Professor Matthew Hall, University of Lincoln Centre for Environmental Law and Justice. Available online: http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/25-year-environment-plan/written/78900.html (accessed on 3 January 2019).

House of Commons Committee of Public Accounts. 2018. *Private Finance Initiatives*. Available online: https://publications.parliament.uk/pa/cm201719/cmselect/cmpubacc/894/894.pdf (accessed on 3 January 2019).

Hunold, Christian, and Iris Marion Young. 1998. Justice, Democracy and Hazardous Siting. *Political Studies* 46: 82–95. [CrossRef]

James, Peter, Rachel Banay, Jaime Hart, and Francine Laden. 2015. A Review of the Health Benefits of Greenness. *Current Epidemiology Reports* 2: 131–142. [CrossRef] [PubMed]

Joint Nature Conservation Committee. 2010. UK Priority Species Pages—Version 2. Available online: http://jncc.defra.gov.uk/_speciespages/2586.pdf (accessed on 3 January 2019).

Kirby, Dean. 2017. The Battle to Save Trees in Sheffield, Britain's Greenest City. *iNews*. March 30. Available online: https://inews.co.uk/essentials/news/environment/battle-save-trees-sheffield-britains-greenest-city/ (accessed on 3 January 2019).

Kondo, Michelle, Jamie Fluehr, Thomas McKeon, and Charles Branas. 2018. Urban Green Space and its Impact on Human Health. *Environmental Research and Public Health* 15: 445. [CrossRef] [PubMed]

Laurian, Lucie. 2004. Public Participation in Environmental Decision Making: Findings from Communities Facing Toxic Waste Cleanup. *Journal of the American Planning Association* 70: 53–65. [CrossRef]

Lee, Andrew, and Ravi Maheswaran. 2011. The Health Benefits of Urban Green Spaces: A Review of the Evidence. *Journal of Public Health* 33: 212–22. [CrossRef] [PubMed]

Liu, Changfu, and Xiaoma Li. 2012. Carbon Storage and Sequestration by Urban Forests in Shenyang, China. *Urban Forestry & Urban Greening* 11: 121–28.

Lynch, Michael, Paul Stretesky, and Michael Long. 2015. Environmental Justice: A Criminological Perspective. *Environmental Research Letters* 10: 1–6. [CrossRef]

Maas, Jolanda, Robert Verheij, Sjerp de Vries, Peter Spreeuwenberg, Francois Schellevis, and Peter Groenewegen. 2009. Morbidity is Related to a Green Living Environment. *Journal of Epidemiology & Community Health* 63: 967–73.

Mangione, Thomas W. 1995. *Mail Surveys: Improving the Quality*. London: Sage Publications.

McClanahan, Bill, and Nigel South. 2020. 'All Knowledge Begins with the Senses': Towards a Sensory Criminology'. *British Journal of Criminology* 60: 3–23. [CrossRef]

McEwan, Gavin. 2016. Sheffield Labour Party Attacks Council's "Sinister" Tree Felling Operation. *Horticulture Weekly*. Available online: https://www.hortweek.com/sheffield-labour-party-attacks-councils-sinister-tree-felling-operation/arboriculture/article/1417156 (accessed on 3 January 2019).

Mirowski, Philip. 2013. *Never Let a Serious Crisis Go to Waste*. London: Verso.

Moore, A. 2017. Support for Sheffield Tree Felling as Council Releases Survey Data. *The Star*. March 23. Available online: https://www.thestar.co.uk/news/support-for-sheffield-tree-felling-as-council-releases-survey-data-1-8455933 (accessed on 3 January 2019).

Natali, Lorenzo. 2015. *A Visual Approach for Green Criminology*. London: Palgrave.

National Audit Office. 2018a. Financial Sustainability of Local Authorities 2018. Available online: https://www.nao.org.uk/wp-content/uploads/2018/03/Financial-sustainabilty-of-local-authorites-2018.pdf (accessed on 3 January 2019).

National Audit Office. 2018b. PFI and PF2. Available online: https://www.nao.org.uk/wp-content/uploads/2018/01/PFI-and-PF2.pdf (accessed on 3 January 2019).

Newberry, Susan, and June Pallot. 2003. Fiscal (Ir)responsibility: Privileging PPPs in New Zealand. *Accounting, Auditing & Accountability Journal* 16: 467–92.

Nowak, David J., and Daniel E. Crane. 2002. Carbon Storage and Sequestration by Urban Trees in the USA. *Environmental Pollution* 116: 381–89. [CrossRef]

Nowak, David J., Eric Greenfield, Robert Hoehn, and Elizabeth Lapoint. 2013. Carbon Storage and Sequestration by Trees in Urban and Community Areas of the United States. *Environmental Pollution* 178: 229–36. [CrossRef] [PubMed]

Outdoor City. 2019. The Outdoor City, Sheffield. Available online: https://www.theoutdoorcity.co.uk/ (accessed on 3 January 2019).

Peace, L. 2017. Sheffield tree protesters will 'no longer face arrest'. *Sheffield Star*. March 15. Available online: https://www.thestar.co.uk/news/sheffield-tree-protesters-will-no-longer-face-arrest-1-8439143 (accessed on 3 January 2019).

Phillips, Carl, and Ken Sexton. 1999. Science and Policy Implications of Defining Environmental Justice. *Journal of Exposure Analysis and Environmental Epidemiology* 9: 9–17. [CrossRef] [PubMed]

Pidd, Helen. 2018a. Sheffield Council Leader Backs Case against Tree Protestors, Court Told. *The Guardian*. June 5. Available online: https://www.theguardian.com/uk-news/2018/jun/05/sheffield-council-leader-backs-case-against-tree-protesters-court-told (accessed on 3 January 2019).

Pidd, Helen. 2018b. Sheffield Tree Activists Held on False Grounds, Police Watchdog Says. *The Guardian*. August 31. Available online: https://www.theguardian.com/uk-news/2018/aug/31/sheffield-tree-activists-held-arrested-false-grounds-police-watchdog-iopc (accessed on 3 January 2019).

Powell, John. 2017. When a Tree Is Not just a Tree . . . Who Speaks for Urban Trees? *Countryside and Community Research Institute*. Available online: http://www.ccri.ac.uk/urbantrees/ (accessed on 3 January 2019).

Pretty, Jules, Carly Wood, Rachel Bragg, and Jo Barton. 2013. Nature for rehabilitating offenders and facilitating therapeutic outcomes for youth at risk. In *Routledge Handbook of Green Criminology*. Edited by Nigel South and Avi Brisman. London: Routledge.

Pugh, Thomas, Robert MacKenzie, Duncan Whyatt, and Nicholas Hewitt. 2012. Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons. *Environmental Science and Technology* 46: 7692–99. [CrossRef] [PubMed]

Sandford, N. 2015. Sheffield Street Tree Massacre. *Woodland Trust*. Available online: https://www.woodlandtrust.org.uk/blog/2015/09/sheffield-street-tree-massacre/ (accessed on 3 January 2019).

Saul, Jennifer. 2018. Lies, Violence and Spurious Arrests in Sheffield. *Medium*. January 21. Available online: https://medium.com/@jennifersaul/lies-violence-and-spurious-arrests-in-sheffield-4b8c47c0bb19 (accessed on 3 January 2019).

Saxena, Gunjan. 2005. Relationships, Networks and the Learning Regions: Case Evidence from the Peak District National Park. *Tourism Management* 26: 277–89. [CrossRef]

Schlosberg, David. 2007. *Defining Environmental Justice*. Oxford: Oxford University Press.

Schrader-Frachette, Kristin. 2002. *Environmental Justice: Creating Equality, Reclaiming Democracy*. Oxford: Oxford University Press.

Scriven, Paul. 2018. 6th March 2018. Available online: https://twitter.com/paulscriven/status/971040472788553728?lang=en (accessed on 3 January 2019).

Sheffield City Council. 2012. Streets Ahead: Five Year Tree Management Strategy 2012–2017. Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/streetsahead/Streets%20Ahead%205%20Year%20Tree%20Management%20Strategy.pdf (accessed on 3 January 2019).

Sheffield City Council. 2015. Meeting of Council, Wednesday 7 October 2015, 2.00 pm (Item 18.). Available online: http://democracy.sheffield.gov.uk/mgAi.aspx?ID=11455 (accessed on 3 January 2019).

Sheffield City Council. 2016a. Independent Tree Panel for Sheffield Terms of Reference. Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/managingtrees/Managing%20Trees%20Doc2%20Independent%20Tree%20Panel%20Terms%20of%20Reference.pdf (accessed on 3 January 2019).

Sheffield City Council. 2016b. ITP Advice 16.11.16. Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/managingtrees/Managing%20Trees%20Doc35%20ITP%2021%20Rustlings%20Road%20220716.pdf (accessed on 3 January 2019).

Sheffield City Council. 2016c. Roadside Trees. Available online: https://web.archive.org/web/20170131122607/https://www.sheffield.gov.uk/in-your-area/report_request/trees.html (accessed on 3 January 2019).

Sheffield City Council. 2017a. Council Busts Further Myths on Its Street Tree Replacement Programme. Available online: https://sheffieldnewsroom.co.uk/news/treemythbusting2/ (accessed on 3 January 2019).

Sheffield City Council. 2017b. Council Decision on Tree Replacements—27.06.17. Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/managingtrees/Council%20Decision%20on%20Tree%20Replacements%20-%20270617.xlsx (accessed on 3 January 2019).

Sheffield City Council. 2017c. *Managing and Looking After Street Trees*. Available online: https://www.sheffield.gov.uk/home/roads-pavements/managing-street-trees.html (accessed on 3 January 2019).

Sheffield City Council. 2017d. Sheffield City Council 16 Point Plan for the Elm on Chelsea Road/Union Road and Report under S40 of the Natural Environment and Rural Communities (NERC) Act (2006). Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/managingtrees/Elm%20Mitigation.pdf (accessed on 3 January 2019).

Sheffield City Council. 2017e. Streets Ahead Upgrade Work. Available online: https://www.sheffield.gov.uk/streetsahead (accessed on 3 January 2019).

Sheffield City Council. 2018a. Household Survey Results. Available online: https://www.sheffield.gov.uk/content/dam/sheffield/docs/roads-and-pavements/managingtrees/All%20Survey%20Results%20Final%20Copy.pdf (accessed on 3 January 2019).

Sheffield City Council. 2018b. Saving Lives: City Unites around Bold Action to Make Our Air Cleaner and Safer. Available online: https://sheffieldnewsroom.co.uk/news/saving-lives-city-unites-around-bold-action-to-make-our-air-cleaner-and-safer/ (accessed on 3 January 2019).

Sheffield City Council. 2018c. Sheffield's Population. Available online: https://www.sheffield.gov.uk/home/your-city-council/population-in-sheffield.html (accessed on 3 January 2019).

Sheffield Star. 2015. Experts Slam Sheffield Council and Demand Pause on Felling. *Sheffield Star*. Available online: https://www.thestar.co.uk/news/experts-slam-sheffield-council-and-demand-pause-on-tree-felling-1-7441179 (accessed on 3 January 2019).

Sheffield Star. 2016. Secret Plan to Remove Rustlings Road Trees Made by Sheffield Council and Police One Month Before Raid. *Sheffield Star*. December 8. Available online: https://www.thestar.co.uk/news/secret-plan-to-remove-rustlings-road-trees-made-by-sheffield-council-and-police-one-month-before-raid-1-8279010 (accessed on 3 January 2019).

Sheffield Tree Action Groups. 2017. Independent Tree Panel Result Summary—Final. Available online: https://savesheffieldtrees.org.uk/2017/07/31/independent-tree-panel-result-summary-final/ (accessed on 3 January 2019).

Soares, Anna Luisa, Francisco Rego, Gregory McPherson, James Simpson, Paula Peper, and Qingfu Xiao. 2011. Benefits and Costs of Street Trees in Lisbon, Portugal. *Urban Forestry & Urban Greening* 10: 69–78.

Stake, Robert E. 2006. *Multiple Case Study Analysis*. New York: The Guilford Press.

Stoffberg, Gerrit, Margaretha Van Rooyen, Michael Van der Linde, and Hendrik Groeneveld. 2010. Carbon Sequestration Estimates of Indigenous Street Trees in the City of Tshwane, South Africa. *Urban Forestry & Urban Greening* 9: 9–14.

Streeck, Wolfgang. 2017. *Buying Time: The Delayed Crisis of Democratic Capitalism*. London: Verso.

Stretesky, Paul, and Michael Hogan. 1998. Environmental Justice: An Analysis of Superfund Sites in Florida. *Social Problems* 45: 268–84. [CrossRef]

Strohbach, Michael, and Dagmar Haase. 2012. Above-Ground Carbon Storage by Urban Trees in Leipzig, Germany: Analysis of Patterns in a European City. *Landscape and Urban Planning* 104: 95–104. [CrossRef]

Styles, Ruth. 2011. Top 10 Greenest UK Cities. Produced for: The Ecologist—Setting the Environmental Agenda Since 1970. Available online: http://www.theecologist.org/green_green_living/home/807176/top_10_greenest_uk_cities.html (accessed on 3 January 2019).

Tang, Yujia, Anping Chen, and Shuqing Zhao. 2016. Carbon Storage and Sequestration of Urban Street Trees in Beijing, China. *Frontiers in Ecology and Evolution* 4: 1–8.

Taylor, Mark, Benedict Wheeler, Mathew White, Theodoros Economou, and Nicholas Osborne. 2015. Research Note: Urban Street Tree Density and Antidepressant Prescription Rates—A Cross-Sectional Study in London, UK'. *Landscape and Urban Planning* 136: 174–79. [CrossRef]

Torr, G. 2017. Charges Dropped Against Sheffield Councillor and Eight Other Campaigners Arrested over City Tree-Felling'. *Sheffield Star*. March 2. Available online: https://www.thestar.co.uk/news/breaking-charges-dropped-against-sheffield-councillor-and-eight-other-campaigners-arrested-over-city-tree-felling-1-8418350 (accessed on 3 January 2019).

Trade Union and Labour Relations Consolidation Act. 1992. Available online: https://www.legislation.gov.uk/ukpga/1992/52/section/241 (accessed on 3 January 2019).

Transportation Professional. 2012. Sheffield Streets Team Starts City's Core Refurbishment. In *Transportation Professional*. Kent: Barrett Byrd.

Tritter, Jonathan, and Alison McCallum. 2006. The Snakes and Ladders of User Involvement: Moving beyond Arnstein. *Health Policy* 76: 158–68. [CrossRef] [PubMed]

Vailshery, Lionel, Madhumitha Jaganmohan, and Harini Nagendra. 2013. Effect of Street Trees on Microclimate and Air Pollution in a Tropical City. *Urban Forestry & Urban Greening* 12: 408–15.

Van den Berg, Agnes, Jolanda E. Maas, Robert Verheij, and Peter Groenewegen. 2010. Green Space as a Buffer between Stressful Life Events and Health. *Social Science & Medicine* 70: 1203–10.

Walker, Gordon. 2012. *Environmental Justice: Concepts, Evidence and Politics*. Oxon: Routledge.

Walker, Gregg, Susan Senecah, and Steven Daniels. 2006. From the Forest to the River: Citizens' Views of Stakeholder Engagement. *Human Ecology Review* 13: 193–202.

Walters, Lawrence, James Aydelotte, and Jessica Miller. 2000. Putting More Public in Policy Analysis. *Public Administration Review* 60: 349–59. [CrossRef]

Watson, Stephen. 2018. Chief Constable Responds to Lord Scriven Letter. Available online: https://www.southyorks.police.uk/find-out/news/2018/march-2018/chief-constable-responds-to-lord-scriven-letter/ (accessed on 3 January 2019).

Weinstock, Ana Mariel. 2017. A Decade of Social and Environmental Mobilization against Mega-Mining in Chubut, Argentinian Patagonia. In *Environmental Crime in Latin America*. Edited by David Rodriguez Goyes, Hanneke Mol, Avi Brisman and Nigel South. London: Palgrave.

White, Rob. 2007. Green Criminology and the Pursuit of Social and Ecological Justice'. In *Issues in Green Criminology: Confronting Harms against Environments, Humanity and Other Animals*. Edited by Piers Beirne and Nigel South. Devon: Willan Publishing.

White, Matthew, Ian Alcock, Benedict Wheeler, and Michael Depledge. 2013. Would You be Happier Living in a Greener Urban Area? A Fixed-Effects Analysis of Panel Data. *Psychological Science* 24: 920–28. [CrossRef] [PubMed]

Woodland Trust. 2018. Elm, Huntingdon (Ulmus x Hollandica 'Vegeta'). Available online: https://www.woodlandtrust.org.uk/visiting-woods/trees-woods-and-wildlife/british-trees/common-non-native-trees/huntingdon-elm/ (accessed on 3 January 2019).