

Original citation:

Pettinger, Lynne. (2017) Green collar work : conceptualizing and exploring an emerging field of work. *Sociology Compass*, 11 (1). e12443.

Permanent WRAP URL:

<http://wrap.warwick.ac.uk/85984>

Copyright and reuse:

The Warwick Research Archive Portal (WRAP) makes this work by researchers of the University of Warwick available open access under the following conditions. Copyright © and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable the material made available in WRAP has been checked for eligibility before being made available.

Copies of full items can be used for personal research or study, educational, or not-for profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Publisher's statement:

This is the peer reviewed version of the following article: Pettinger, L. Green collar work: Conceptualizing and exploring an emerging field of work, *Sociology Compass* 2017; e12443. doi: 10.1111/soc4.12443., which has been published in final form at <http://dx.doi.org/10.1111/soc4.12443>. This article may be used for non-commercial purposes in accordance with [Wiley Terms and Conditions for Self-Archiving](#).

A note on versions:

The version presented here may differ from the published version or, version of record, if you wish to cite this item you are advised to consult the publisher's version. Please see the 'permanent WRAP url' above for details on accessing the published version and note that access may require a subscription.

For more information, please contact the WRAP Team at: wrap@warwick.ac.uk

'Green Collar' Work: Conceptualising and Exploring an Emerging Field of Work

Final submitted version 5.8.16

Lynne Pettinger

Published in: *Sociology Compass*. Vol 11 (1) e12443

Abstract

In this paper, I consider 'green collar work', broadly defined as work intended to counter environmental degradation. I consider what might count as green collar work, and compare the greening of work in different sectors, including industrial production, service work, working on 'nature' and expert work. I look also at how organisations affect the 'greenness' of work. I stress that 'green work' is not consistent across time and place, and that it is important to understand the interdependencies between different kinds of work. As this is a new topic in sociology, I draw on research from different social science disciplines.

Introduction

A green economy seems like a simple and effective solution to important macro-level threats of environmental degradation and unequal global development. It promises a 'double dividend' of reduced environmental degradation and increased numbers of skilled, decent 'green-collar' jobs. Sociologists must critically consider these kinds of promises. They must attend to the assumptions made about the virtues of economic growth (and the models of capitalism contained therein) and to the processes and implications of such transformations. They may, like me, develop an advanced cynicism as to whether the 'green economy' is anything other than 'business as usual', and argue that the conflicts between ecological protection and economic growth are too significant for a 'green economy' to be possible. In this review paper, I will look specifically at the importance of work – paid and unpaid – in a 'greening' economy. Work matters for what it does in the world. It produces objects and generates value. It matters also for what it does to the lives and bodies of those who work, for the sense of self and identification that is generated in the doing of it. The sociology of work considers how work is organised,

what skills and practices are involved in doing it, who does it, under what kinds of conditions and with what effects. In this paper I ask what is 'green collar work'? What is involved in doing green work? What does understanding green work tell us about broad environmental and economic issues? Green work may include agriculture and manufacturing, tourism and marketing, domestic labour and scientific work, as well as other kinds of occupations in other industries. My intention is to show what those who study work can tell us about 'green collar jobs' in a greening economy – and to raise questions about the future of 'green' work, given the tensions between the promotion of economic growth and ecological catastrophe.

This article is a review of studies that might contribute to an emerging sociology of 'green work', in order to contribute to a better understanding of work in contemporary capitalism and in environmental transformation. I have drawn on environmental sociology and the sociology of work, and I have looked to other social sciences. Such an interdisciplinary methodology is valuable for understanding an emerging, multifaceted phenomenon. Geographers, with their conceptual interest in the nature of place and space, including the material 'objects' of nature and the built environment, consider the interaction of human societies with various non-human objects. Development studies has investigated the lives of communities relying on subsistence agriculture and considers the environmental implications of economic development.

Organization studies provides insight into corporate green practices, including the 'greenness' of jobs that are not directed at the environment. Economics, often working to identify ways of enhancing profits, considers the effects of greening work on productivity. A range of methodologies have been used in the research reported here, from surveys designed to capture 'environmental concern', 'environmental values' or 'environmental behaviour', to discourse analysis of economic, environmental and labour policies to ethnographic attention to the details of the lived experience of green work.

I begin with a short account of environmental sociology, a subdiscipline that has paid little attention to work. I then consider how green work can be defined and measured. Once the scene

is set, I look then at four different fields: industrial production, service work, working on 'nature' and knowledge work about 'nature'. In each of these sections, I pull out themes of particular significance to that field, although these themes are often relevant elsewhere too. I address the greening of organisations to further develop my account of how work is organised and to the contested nature of greenness and conclude by drawing out the implications of my review for future research into green work.

Environmental sociology

'Ecologism' is a philosophy that values the non-human world for its own sake and does not presume that only conscious beings should be the objects of ethical concern (Curry, 2011). Deep green thinkers take an ethical position that reveres earth as the source of natural life. Deep green accounts influenced by left politics see global capitalism as the source of environmental damage because it adheres to profit maximisation, extracting value from labour and nature, and prioritises instrumental values over intrinsic values. Gorz (2010), for example, explicitly links environmental destruction to systemic overproduction and overconsumption and sees the 'exit from capitalism' as depending on small scale, local production using easily shared technology. Similarly, 'treadmill of production' theories see further economic development as likely to generate further environmental degradation and social inequalities (O'Connor, 1998; Gould et al, 2008). For example, although the global south produces lower levels of carbon emissions, especially through consumption, it is both more vulnerable to environmental degradation and less able to ameliorate its effects.

In contrast, anthropocentric understandings of the relationship between nature and society tend to generate instrumental valuations of the natural world. Nature is seen as a resource for human life - including for economic development - and should be protected in order to make human life better. Such views are often associated with 'light green' environmentalists politics

(Dobson, 2000), and with ecological modernisation - the idea that, economic and technological innovation can engender a sustainable future (Sonnenfeld, 2000). Market principles are entrenched the idea of sustainable development, and in environmental policies like carbon trading schemes (Bakker, 2010: 726-7). The promise of ecological modernisation is central to 'green jobs' policies: the UN suggests any transition to a sustainable, low-carbon economy will have to draw on technological innovations, shifts in business and investment strategies, and will involve businesses, workers, communities, and political movements (Renner et al. 2008; 277). These contrasting positions have radically different implications for the organisation of work, and both point to the importance of thinking about work when making sense of the tensions between ecology and economy.

Environmental sociology explores how human society affects physical environments, and how the environment affects human society (Dunlap and Catton, 1979). Environmental sociologists incorporate attention to humans, ecosystems and nonhuman animal species into sociology's well-developed understanding of economic, political, gender and racial inequalities (Pellow and Nyseth Brehm 2013: 231). Research into 'environmental justice' brings these inequalities into focus (e.g. Pellow, 2007; Shiva, 2015)). Goldman and Schurman summarise the contribution of environmental sociologists as being the investigation of "attitudinal, behavioural, and consumer shifts" (2000: 564) in response to environmental concern. Ethical commitment to nature (conceptualised as 'environmental concern') influences everyday practices such as commitment to recycling (e.g. Pettifor (2013) on gender within the household). However, by taking the 'community' or the home as the object of study, environmental sociology has neglected work – despite, for example, the way communities are polluted by the outputs of workplaces. This omission is common in reviews of environmental sociology (Buttel, 1987; Dunlap and Marshall, 2007; Goldman and Schurman, 2000). Whilst environmental movements, consumption and the greening of the economy all affect work, there is not yet much environmental sociology that considers work (Pellow and Nyseth Brehm, 2013), although some occupations (farmers, wildlife

officers) signal environmental changes (Hannigan, 2006: 68).

What is 'Green collar' work?

Attention to ecology and environment is rare in academic scholarship devoted to work. In recent theoretical (e.g. Weeks, 2011) and empirical (e.g. Atzeni, 2014) discussions of contemporary work, there is little relevant material; nor do textbooks make more than a brief mention of the environmental challenges generated by economic growth through consumption (e.g. Williams et al, 2013: 243). Work-focused journals (e.g. *Work and Occupations* and *Work, Employment and Society*) contain few or no articles addressing environmental work. There are few sociological resources for considering what counts as green work.

There is little agreement as to what counts as 'green' amongst those who measure occupations and this means estimates of the impacts of environmental and economic policies on jobs should be treated with caution. Further, the complex processes of industrial and occupational change make any straightforward assessment of the greening of employment problematic. Any definition of green work is politically charged and environmentally significant. For example, 'greening' existing jobs (lessening their impact on the environment) has a different dynamic to creating new 'green' jobs that are intended to ameliorate environmental crises. It is helpful to think about definitional challenges not so much as a problem to be resolved, but as a source of ideas for addressing the complex issue of what counts as 'green work'.

The United Nations Environment Programme (UNEP) report on green jobs defines them as:

“positions in agriculture, manufacturing, construction, installation, and maintenance, as well as scientific and technical, administrative, and service-related activities that contribute substantially to preserving or restoring environmental quality” (Renner, et al. 2008: 34).

Jobs directed at protecting ecosystems and biodiversity, reducing energy, materials, and water

consumption through high efficiency strategies, de-carbonising the economy, and minimising or generation of all forms of waste and pollution are particularly significant (2008: 34-5). The UNEP definition implies 'green work' has a direct impact on nature, and it concentrates attention on jobs connected to those sectors most commonly causing environmental degradation (the polluting effects of energy generation, for example). The idea is that such jobs can be 'greened', that is, made less environmentally damaging, although research into the impact on workers of the transition from non-green to green work would be needed. The International Labour Office's (ILO) account of green work also stresses harm reduction, and adds consideration of decent work (Poschen, 2015). It considers activities that are intended to both mitigate the effects of climate change and to facilitate human adaptation to its effects. Its key insight is that 'green' is not the same across time and place: greening therefore becomes a process, not an attribute. This idea about difference tends to be neglected by other discussions of the 'greenness' of different jobs, such as the typologies produced by Australian researchers (Crowley, 1996; 1999; Goods, 2014).

Crowley (1999) locates the greening of work in the drive towards 'ecological modernisation', whereby economic growth is conceived of in terms that recognise and reflect ecological vulnerability. Crowley differentiates between 'light', 'medium' and 'dark' green work, along multiple axes. Deep green work has a proactive and long-term aim to transform nature and rejects the drive for economic growth as the way to produce greater ecological sustainability and preserve nature (Crowley, 1999: 1017), comparable to non-anthropocentric green politics. Mid-green work is reformist, supporting 'ecological modernisation' by greening existing industry. Light green work may be aimed at reversing ecological decline but contains no critical challenges to economic growth. Light green jobs are "afterthoughts that are created by cleaning up and rehabilitating the mess we have made of the environment" (1999: 1017) and include installing solar panels, retrofitting buildings to make them more efficient, refining waste oil into biodiesel (Jones, 2008).

Goods argues Crowley's typology lacks attention to the conflicts between capital and labour (and between capital and nature) that Marxist theory says characterises economic and social life. Capitalism "wraps itself in a green cloak" (Goods, 2014: 44) by claiming that green jobs can promote the double dividend of economic growth and environmental sustainability, and by looking for technological solutions to environmental degradation. For Goods, (ironically, given his own interest in car manufacture) only deep green jobs address the multiple challenges and antagonisms of the ecological threat engendered by capitalist markets. These challenge the 'treadmill of production' and consider social and ecological needs. More subtly, Stevis' (2013) review of green jobs attends carefully to the interconnections between different parts of the supply chain and regions of a globalised economy. A 'green' industry, such as renewable energy production or waste recycling may generate new kinds of occupations (e.g. energy auditors) and may enhance the greenness of existing occupations. Here we see the arguments about greening as a process not an attribute made clear. However, it may also rely on geographically distant forms of decidedly non-green work, such as the production of the photo-voltaic cells needed by solar panels.

By recognising the normative underpinnings of typologies, and acknowledging that the greenness of jobs may vary between time and place, we can have a flexible means of thinking through the greenness of an activity or occupation. Bear in mind though, that typologies are of limited use where occupations may fit in multiple categories simultaneously, depending on, say, the industry, or geographical specificity. Nor do they help with recognising the global interconnections between different forms of work, how it changes, or what it can mean to people? The relationship between ecological sustainability, modernity and economic development is complex. My green research provides many instances that challenge 'shading' or 'scaling' typologies. Environmental consultants, whose role is to 'remedy' ecological decline, perhaps by protecting and restoring habitats need to be both reactive and proactive, they work in both long and short term. Consultant's work both redefines economic growth (e.g. by showing the costs of growth), and enhances it (e.g. in enabling developments to take place

within regulatory guidelines). Any consultancy may reject and reinvent elements of, say, a development plan, and create a compromise between key actors (Goffey and Pettinger, 2014).

Industrial production and decent work

Social science has a long history of studying industrial work, and has often been concerned to explore the conditions of employment. Pay and conditions, managerial practices, health and safety at work, industrial relations and other factors that affect the experience of paid work are issues for all wage workers. The greenness or greening of sectors and occupations may affect conditions of work in significant ways. This section explores the greening of production with a focus on working conditions and debates about decent work.

Research on green manufacturing foregrounds the questions of labour relations. In sectors, such as mining, where it may be hard for those affected by mine closures to find other kinds of well-paid and skilled work, union resistance to greening is strong. Fear of the job losses that often result from changing an industry may lead unions to resist attempts to green production (Obach, 2004), and action to minimise job losses (Raikkonen, 2011). In other cases, trade union campaigning has supported retraining workers in new techniques or moving to cleaner technologies with lesser impact on the health of workers. The 'Just Transition' to an environmentally sustainable future with care for the interests of workers (e.g. Snell and Fairbrother, 2013) is the key ethical and political banner under which change is organised. Green transition coalitions on the US have sometimes had an effect on local and regional policy making, using the 'green jobs' frame to legitimate environmental policies (Hess, 2012). Goods' (2011) account of the greening of car manufacturing in Australia shows how trade union response to green initiatives affect their adoption, and points to ways in which green discourses and green values can affect how work is organised. Stevis (2013) indicates the factors that affect US trade unions' (different) sensitivities to environmental degradation, and points to the need for more empirical studies that understand the interconnections between 'green' and non-green

jobs, and between good green jobs and poor ones. Greened technology and design are important (Schiederig et al, 2012) to changing manufacturing. But answering Räikkönen's question, "how green is green enough when it comes to the greening of work?" (2011: 118) seems, in the case of car manufacture, to be only a small part of a conversation about the environmental impact of car culture. That is, production must be contextualized in relation to consumption.

The UNEP report on green work (Renner et al, 2008) recognises that many green occupations that mitigate environmental damage do not meet decent work criteria. Extracting precious metals from industrial and consumer waste is dirty and dangerous and damages worker's health as shown by Pellow and Park's (2002) discussion of e-waste. A dramatic example of the damage of recycling can be seen in the ship breaker yards in Bangladesh (Crang et al, 2012); Gregson et al (2014) indicate that the 'dirty work' of waste management and resource recovery take place in Europe is likely to be done by migrant workers, often from elsewhere in the EU. Local workers reject the low-skilled and physically dirty work as tainted; the largely Polish, Turkish or Czech migrant workers valorise themselves by thinking of the work as risky. Heat, dirt and danger mean this 'green' work is not decent. Gregson et al (2014) also point out that whilst recycling is largely a low-skilled activity, policy documents often claim that green work is medium or high skilled. In Ghana, that private waste collection of plastics (mostly water bottles) is also done by workers who have migrated, in this case from other parts of the country (Obeng-Odoom, 2014). Plastic pickers, mostly women, often elderly, sell by weight to a middleman who sells on to a formally registered waste treatment plants. The hidden labour of plastic recycling is, says, Obeng-Odoom, a result of neoliberal governmental policies that encourage consumption of water in bottles, as a substitute for investing in improving supplies of running water. Recycling work takes quite a different form elsewhere, for example, where 'waste' materials are transformed by women working in cooperatives in the Philippines into bags, home accessories or jewellery for sale in global markets (Milgram, 2010). Products are marketed to consumers as ecologically and socially ethical. Paid work is not the only work that counts, and Wheeler and

Glucksmann (2013) show the interdependencies between paid recycling workers, state-mandated recycling and domestic recycling practices, and how these vary across time and space; Fredericks (2012) points to the replacement of paid labour by women's (unpaid) labour in 'participatory' waste management systems in Senegal. 'Green' consumption and green work are interlinked by regulatory practices. They may also be affected by cultural differences in understandings of environmental change (Stern and Dietz, 1994).

Green Services

In this section, the key theme is the interrelationships between production and consumption in a 'greening' economy. How demand for durable or disposable products is created, and the modes through which demands are met (supermarket or farmers market; plastic or cotton bag), are significant for any consideration of green work. Sociology and allied disciplines have studied green consumption (e.g. Lorenzen, 2014); the greenness of the service sector that produces and encourages such consumption is less well understood. Green subjectivity may be a part of consumer self-identity (Connolly and Prothero, 2008), and this can affect orientations to work, as for those who 'downshift' into voluntary simplicity (where people in developed economies decide to live a less resource intensive life) (Kennedy et al, 2013).

Green consumerism relies on commercial workers who address and engage with (and, we might argue, produce) these lifestyles and consumer preferences. Design, marking, branding, and advertising have followed a 'green' turn (Todd 2004; McDonagh and Prothero, 2014) – which a cynic might call greenwashing. Journalists and lifestyle gurus invite consumers to live differently, and entrepreneurs emerge offering produce green consumer goods. Abílio's study of direct sales workers selling 'green' cosmetics in Brazil provides insight into ethical contradictions of a 'green' and socially responsible organisation. *Natura* is a well-known Brazilian brand that makes a great deal of its social and environmental sustainability: One executive was even a Green Party

candidate (Abílio, 2012: 67). People are keen to get a job at *Natura* because they identify with the brand as consumers, but face poor conditions of employment and are not well remunerated. Here, selling 'green' contrasts awkwardly with working precariously.

Ecotourism is an excellent example of the contradictions of 'greening' service work and consumption. Ecotourism in Kenya is defined as conservation, biodiversity, minimising the use of non-renewables and learning (Hayombe et al, 2012). Local communities support ecotourism to the extent that it provides employment for young people. Duffy (2008) posits ecotourism as part of a (neoliberal) market solution to environmental change. Ecotourism seems to generate positive ecological and economic effects, by encouraging the protection of aesthetically pleasing spaces and species, as well as supporting sustainable development and hence providing livelihoods. Duffy is suspicious of such claims, and draws on expert interviews to suggest the benefits of ecotourism are limited. Menial, poorly paid jobs in eco-lodges do not provide small communities with a good living and tourists' reliance on international flights is hardly ecologically good. Other work in tourism directly affects 'nature': car parks for walkers are built and staffed; and promotional material sells some areas as beautiful. As Wilson (1992) shows, 'natural' and 'wild' landscapes are made through work, including by education professionals (see Pokrandt, 2010 for thoughts on 'greening' formal education).

Encountering 'nature'

In this section, the key general theme is the part played by doing (green) work in subjectivity or identity. Research that explores working with natural resources (such as agriculture and forestry) highlights significant tensions between economic and ecological valuations, and between technocratic and local (indigenous) knowledges. As Robbins (2007, cited in Bridge, 2011) suggests, expert-led climate forestry projects overlook the ways trees are already central to life, landscape and livelihood. Ordinary (working) encounters with nature are affected by place and by gendered, classed and raced experiences. For example, the global feminization of

poverty, and the way care and social provisioning are predominantly women's work, affects the work done in response to environmental degradation. Droughts mean women walk further for water; pollution means they have more caring to do. Most research on women's greater responsibility for household survival considers women in the global south, but domestic labour in the face of environmental change affects the global north (MacGregor, 2010).

Communities who work the land shape the ecosystems they encounter. Nightingale's (2006) research in Nepal explores how restrictions on gathering necessary leaf litter (used as fertiliser), were placed on some groups of women by high caste men, influenced by geographically distant conservation experts in the district forest office who saw gathering leaf litter as ecologically damaging. Women resisted the new rules, in subtle ways that saw long established inequalities of gender and caste (e.g. about the gendered division of labour, and about ritual pollution) being used as a resource to support resistance. Nightingale frames the interrelationships between gender, ecology and work in terms useful for this and other cases: "[e]cological conditions in part produce the material and symbolic work practices that constituted gender and other subjectivity, at the same time that the contestation and performance of subjectivity shape ecological change. Labour relations thus are constitutive of ecological conditions" (Nightingale, 2006: 32). Singh's (2013) research into forest conservation in Bangladesh told a different kind of story of how communities related to forest conservation projects. She explored the daily practices of care for the forest as an affective commitment to the land, landscape, community and self. People patrolled the forest everyday, and women also kept a careful eye on the forest when doing other work in it, such as gathering fuel and medicine. Reversing a degradation process was a source of community pride, although not well understood or regarded by the state. The gender dynamics of work and ecology affect farming practices elsewhere. New rural masculine identities emerging amongst young Australian farmers contribute to a push towards greater sustainability (Coldwell, 2007). When Coldwell reads the "cultivation of farming is really about a cultivation of the self" (88), he frames work as being a matter of gendered self-identity, rather than material

production.

Working directly 'encountering nature' shapes identity, and it shapes political action. For example, local development goals and state agendas in Mexico are shaped by local activism and local understandings of nature and biodiversity. Activists and farmers, however have different conceptualization of nature, community and biodiversity to the World Bank economists who promote payments for ecosystems (MacAfee and Shapiro, 2010). There is thus potential for tensions between different social groups as to what constitutes good green work.

Experts

Science plays a critical role in providing insights into environmental degradation and its solutions. In this section's account of expert work as an instance of knowledge work, I foreground the theme of contested knowledge. Little research directly considers scientists and policy makers as workers. However, how science operates to 'know' 'the environment', how science proffers technological remedies, and how managerialist political elites request and respond to such remedies is part of the 'green work' story. Scientists with different specialisms, policy makers, NGO workers and other knowledge workers are part of the epistemic communities (Castree, 2014), on whose work and beliefs others rely.

Flows of knowledge and information that emerge through green science are not neutral (Grasswick, 2014). Alaimo (2012) points to the gendered dynamics of scientific contestation, arguing that the cold, distant neutrality in the face of environmental change that characterizes some scientific responses reflects a masculinized belief in the power of neutral science to provide technological solutions of environmental change, whilst ignoring the vulnerabilities of others. Buck, Gammon and Preston (2013) extend these arguments to look at the science of geoengineering (the deliberate manipulation of climate to ameliorate the effects of climate change), arguing that this environmental 'solution' is dominated of male, US based scientists

with a strong definition of science as power over nature, who valorise technological competence over awareness of the social effects of technology. These are green workers disconnected from 'nature'. As MacGregor (2010) suggests, the 'environment' is not a soft domain, but one that invites scientization and securitization. Male (and western) dominance at the level of the expert narrows the kinds of discussions and understandings that take place between scientists, and in the policy domain.

'Science' is not itself a monolithic activity but full of unexpected social, scientific and economic outcomes. John Losey (cited in Bingham, 2008) discusses how two kinds of scientists: geneticists (working for biotech) and ecologists (working for butterflies) were involved in studying the effect of GMO corn pollen falling on the food source of monarch butterflies. There emerged a politically significant contest over ethics and the nature of science. Lorimer (2008) shows how practical understandings of biodiversity emerge from doing conservation. For the urban ecologists and brownfield conservationists trying to create new 'green roofs', persuading both residents and policy makers – and environmental NGOs - of the virtues of brownfield conservation is a challenge, and demands open-ended conservation strategies. Such arguments show the significance of competing knowledges and ethical stances.

Whilst empirical investigations on how humans 'value' the objects of nature are plentiful, and draw attention to the interdependencies between different ethical positions, attitudes and behaviours (e.g. Stern and Dietz, 1994), few such studies explicitly consider the effect of occupation on values. Textual analysis by Lautensach (2005) shows that ecologists' published scientific papers rarely indicate that they hold conservationist values: curiosity is more commonly presented as the motive for ecological research. Analysis of published papers does not seem an effective means of assessing the values actually held by ecologists. In contrast, Craig, Glasser and Kempton's (1993) interviews with senior environmental policy makers from four European states, reveal a more interesting tension between professionalism, expertise and

'subjective values'. Policies rarely acknowledged that values might be important, but advisors' personal commitments to ecological values were strongly held. These were often presented in abstract, expert social-scientific language (although Craig, Glasser and Kempton do not discuss this). Policy makers were uncertain about, or critical of, the policy outputs they were involved in, when the intrinsic value of nature was reduced to economic value, or when outputs claimed 'value neutrality'.

Goldman's (2001; 2006) account of the World Bank's relationship to greening is instructive for understanding the role of experts in delineating 'acceptable' knowledge. Concepts and practices used in ecological protection, such as biodiversity and conservation are sedimented into regulatory regimes. World Bank employees are 'professionals' designing and implementing investments that act as strategies to govern populations living in resource-rich areas. These professionals are a small cadre of consultants, largely from the global North. Since 2000, environmental NGOs started to do feasibility studies for environmentally significant developments (e.g. dams). NGOs moved from being critics to being 'stakeholders'. The feasibility study system is set up to make critical insights difficult: the World Bank's aim is to invest in development projects, and project organisers do not want to risk funding feasibility studies that say their development should not go ahead. Subtle reshaping of feasibility reports, for example, omitting some things or drawing simple conclusions from nuanced evidence were common (Goldman, 2001: 202). Other populations - those in the precise site of study and those who may be affected - are silenced and absent, or presented as objects of concern who could be made more modern by proposed changes. Where economic development is valued, small-scale production - agriculture, fishing, foraging - is seen as backwards, despite the knowledge such work needs. For Goldman, the World Bank is an imperialising force.

Green organisations

Understanding the greening of work means paying attention not only to occupation and to

industrial sectors, as in the previous sections, but to how employing organisations think about sustainability, greening jobs and greening working environments. Newton (2002), suggests that organisations require only a minimal commitment to ‘moralised’ green politics and practice to ‘green’ the organization, given the networked interdependencies of organizational life. In popular business literature, ‘new corporate environmentalism’ (Jermier et al, 2006) stresses the competitive value of going beyond ‘compliance’. Eco-modernist greening seems to be a pragmatic move, even ‘a seductive script’ (Fineman, 2001: 23), albeit one that may be distrusted by managers, perhaps because they deny the moral status of environmentalist claims (Crane, 2000). Research by economists, intended to contribute to a ‘business case’ for greening organisations, found that new environmental standards increased employees’ effort levels and well-being, especially because employees saw their jobs as more useful (Lafranchi and Pekovic, 2014; Delmas and Pekovic, 2012) and affected whether potential employees saw firms as appealing (Grolleau, Mzoughi and Pekovic, 2012). Showing environmental concern is a strategy used by firms who have caused environmental damage and who are thus facing a hostile community reaction (including from potential and actual workers) (Heyes and Kapur, 2012). Most cynically, Brekke and Nyborg (2008) suggests corporate social responsibility (CSR) is an effective screening device for potential workers as preferences for ethical work are strongly associated with increased productivity.

Zibarras and Ballinger (2011) surveyed UK organisations and found 77% had an environmental policy. Most recycled, but few other strategies were used commonly: 20% sourced energy and food sustainably, and only 10% used carbon offsetting. Organisations rarely evaluated the effectiveness of different strategies, from environmental awareness in vision statements, having ‘green champions’ or using penalties. Initiatives to green work environments, such as ‘green roofs’ on office buildings, offer a new kind of proximity to nature for initially sceptical office workers (Loder, 2014). ICT appears to provide a ‘green’ solution to office life: going paperless

means cutting down fewer carbon-balancing trees; and ICT enables teleworking to 'green' urban spaces by keeping commuters at home (Kawai, 2008).

How employees relate to the green values organizations may claim for themselves is also instructive. A 'cool' business selling ethical leisure products captures and co-opts employees' lifestyles to create brand value, as when the brand blog commends workers who commute by bike, and 'live lightly' (Land and Taylor, 2010: 404). Kenny (2010) looks at how ethical living by those working (paid and unpaid) in a development NGO is policed by colleagues who prefer to work with those who share their values. There is little research on working in explicitly environmental organisations. Munger (2014) notes how the decentralized structures of environmental organisations make desirable collaborations hard to operate. Phillips (2012) shows how 'ecopreneurs' (ecological entrepreneurs) negotiate the tensions they feel between environmental ethics and business commitments. Ecopreneurs stress their own balancing of pragmatism and ethical commitment, comparing themselves to other entrepreneurs and to 'extremist' green activists. They weave narratives of personal growth (as do other entrepreneurs) with a 'big picture' perspective of eco-modernisation. Leonard (2013) finds employees to be suspicious of the 'greening' of organisations. They read 'green' initiatives - hotdesking, open plan offices and removal of bins - as signs of the organisation being 'lean and mean', cheekily disguising its cost-cutting measures. She suggests the symbolism of sustainability is not backed up by material commitments.

Conclusion

There is a limited sociological literature on green work. In this review, I have contextualised green work within debates about the relationship between environment and economy, drawing from environmentalist thinkers and from the 'grey literature' of policy markers. I have shown that the best way to understand 'green' work is by thinking about process and variation over time and space. In my account of industrial production, I considered the treatment of workers in

green work and explored how moves towards greener work may be contested or supported by unions, and. Contestations over change can be seen in service work too, where 'reduce, reuse and recycle' is a challenge to consumerist ways of living and working. There is also contestation between different kinds of experts, and between those who Stengers ironically calls 'our guardians' (2015: 27) and workers like the women who were experts in using leaf litter. The theme of the interplay of production and consumption was to the fore in my account of services, and affects consideration of supply chains (Stevis, 2013) and discourses of consumption as a sign of modernisation. This is tied too to the themes of subjectivity and identity, which I considered by looking at gender, and at 'expert' statuses, but which also concerns identities as consumers and workers. The other theme was contested knowledge, and research into conflict shows us about relationships between the social and the natural in specific locales. These examples show how environmental conflicts reflect and reveal struggles over livelihood and community (and vice versa). Work sociologists could usefully take note of how such accounts place work within a holistic understanding of life – including nature.

Central to the problem of 'greening' work are the contested understandings of the value and risk of economic growth, So many 'green jobs' are effectively just ordinary jobs, rebranded. Others appear green but bring hidden environmental damage: computers and server farms are energy-hungry, even where 'green computing' initiatives (such as clean air technologies and eco-software) are in place. Simple claims that market mechanisms will emerge to deal with the externalities of pollution are naïve; but the 'deep green' preference for a radical shift to a new socio-economic structure looks impossible when the organisation and operation of work in social life is accounted for, not least because work has meaning and generates attachments.

There is scope for more research that addresses green work to ameliorate the environmental damage of current practices. What kinds of questions might such research ask? I suggest:

- What new occupations might emerge in a greener economy? What occupations are changing or disappearing?
- What kinds of skills and capabilities will be needed? What about the affective ties and ethical judgments that would support greening?
- What impacts do transitions to green work involve?
- What is the significance of workers' potential and actual commitments to work, and to environmental and social justice?
- How can green work be decent work?

Whatever the research questions, I suggest understanding green work means thinking carefully about the interdependencies between activities across time and space, and between sectors, supply chains and consumption; about the dangers of relying on technological fixes; and about the interrelationships and tensions between institutional and individual responses. Addressing the dirtiest and most damaging forms of work is also worth doing. We might reflect on the damage done by the advertising executive as well as the bauxite miner, the truck driver or the farmer spraying his polytunnel tomatoes with water and chemicals. Consumer culture is bound up with a promotion system to generate desires beyond imagination. It generates car adverts that pretend there are no traffic jams, no polluted air and no busy carparks. How much do these kinds of seductions get in the way of an economic and social structure that protects the environment?

References

- Abílio, Ludmila Costhek. 2012. "Making up Exploitation: Direct Selling, Cosmetics and Forms of Precarious Labour in Modern Brazil." *International Journal of Management Concepts and Philosophy* 6 (1): 59–70.
- Agarwal B, 1994 *A Field of One's Own: Gender and Land Rights in South Asia* (Cambridge University Press, Cambridge)
- Alaimo, S. (2012). Insurgent vulnerability and the carbon footprint of gender. *Kvinder, Køn & Forskning*, (34).
- Atzeni, M. (2014) (ed) *Workers and Labour in a Globalised Capitalism: contemporary themes and theoretical issues*. Basingstoke, Hampshire: Palgrave Macmillan.
- Bakker, K. (2010). The limits of "neoliberal natures": Debating green neoliberalism. *Progress in Human Geography*, 34(6), 715–735.
- Bingham, N. (2008). Slowing things down: Lessons from the GM controversy. *Geoforum*, 39(1), 111–122.
- Brekke, K. A., & Nyborg, K. (2008). Attracting responsible employees: Green production as labor market screening. *Resource and Energy Economics*, 30(4), 509–526.
- Bridge, G. (2011). Resource geographies 1: Making carbon economies, old and new. *Progress in Human Geography*, 35(6), 820–834.
- Buck, H. J., Gammon, A. R., & Preston, C. J. (2013). Gender and Geoengineering. *Hypatia*. 29 (3), 651-669.
- Buttel, F. H. (1987). New directions in environmental sociology. *Annual Review of Sociology*, 465–488.
- Castree, N. (2014) *Making Sense of Nature: Representation, Politics and Democracy*. London: Routledge .

- Coldwell, I. (2007). New farming masculinities: "More than just shit-kickers", we're "switched-on" farmers wanting to "balance lifestyle, sustainability and coin." *Journal of Sociology*, 43(1), 87–103.
- Connolly, J., & Prothero, A. (2008). Green Consumption: Life-politics, risk and contradictions. *Journal of Consumer Culture*, 8(1), 117–145.
- Craig, Paul P., Harold Glasser, and Willett Kempton, "Ethics and Values in Environmental Policy: The Said and the UNCED." *Environmental Values* 2, no. 2, (1993): 137-157
- Crane, A. (2000) 'Corporate Greening as Amoralization', *Organization Studies* 21(4): 673–96.
- Crang, M. Gregson, N., Ahamed, F., Ferdous, R. and Akhter, N. (2012) 'Death, the Phoenix and Pandora: transforming things and values in Bangladesh. In Alexander, C. and Reno, J. (eds.) *Economies of Recycling: the Global Transformation of Materials, values and social relations*. Zed Books: London and New York. 59-75
- Crowley, K. (1996). Environmental employment opportunities: How green are Australia's green job credentials? *Environmental Politics*, 5(4), 607–631.
- Crowley, K. (1999). Jobs and environment: the "double dividend" of ecological modernisation? *International Journal of Social Economics*, 26(7/8/9), 1013–1027.
- Curry, P. (2011) *Ecological Ethics: An Introduction*. Cambridge, Polity Press.
- Delmas, M. A., & Pekovic, S. (2013). Environmental standards and labor productivity: Understanding the mechanisms that sustain sustainability. *Journal of Organizational Behavior*, 34(2), 230–252.
- Dobson, A. (2000) *Green Political Thought*. Third Edition. London: Routledge.
- Duffy, R. (2008). Neoliberalising Nature: Global Networks and Ecotourism Development in Madagascar. *Journal of Sustainable Tourism*, 16(3), 327–344.
- Dunlap, R. E., Catton, W. R. Jr. 1979. Environmental sociology. *Annual Review of Sociology*, 5, 243- 73

- Dunlap, R. E. and Marshall, B. K. (2007) "Environmental Sociology." Pp. 329-340 in C. D. Bryant and D. L. Peck (eds.), *21st Century Sociology: A Reference Handbook, Vol. 2*. Thousands Oaks, CA: Sage.
- Fineman, S. (2001) 'Fashioning the environment', *Organization* 8(17): 17–31.
- Fredericks, R. (2012) 'Devaluing the Dirty work: gendered trash work in participatory Dakar. In Alexander, C. and Reno, J. (eds.) *Economies of Recycling: the Global Transformation of Materials, values and social relations*. Zed Books: London and New York. 119-143.
- Goffey, A., & Pettinger, L. (2014). Refrains and assemblages: Exploring market negotiations and green subjectivity with Guattari. *Subjectivity*, 7(4), 385–410.
- Goldman M. (2006) *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*. Yale University Press
- Goldman, M. (2001) "The Birth of a discipline. Producing authoritative green knowledge, World Bank-style. *Ethnography*. Vol 2(2) 191-217.
- Goldman, M., & Schurman, R. A. (2000). Closing the " great divide": New social theory on society and nature. *Annual Review of Sociology*, 563–584.
- Goods, C. (2011). Labour Unions, the Environment and Green Jobs. *Journal of Australian Political Economy*, (67), 47.
- Goods, C. (2014) *Greening Auto Jobs: a critical analysis of the Green Job Solution*. Maryland, Lexington Books
- Gorz A. (2010) *The Immaterial*. University of Chicago Press, Chicago.
- Gould KA, Pellow DN, Schnaiberg A. 2008. *The Treadmill of Production: Injustice and Unsustainability in the Global Economy*. Boulder, CO: Paradigm
- Grasswick, H. (2014). Climate Change Science and Responsible Trust: A Situated Approach. *Hypatia*. 29 (3) 541-557.

- Gregson, N., Crang, M., Botticello, J., Calestani, M., & Krzywoszynska, A. (2014). Doing the “dirty work” of the green economy: Resource recovery and migrant labour in the EU. *European Urban and Regional Studies*, 1-15.
- Grolleau, G., Mzoughi, N., & Pekovic, S. (2012). Green not (only) for profit: An empirical examination of the effect of environmental-related standards on employees’ recruitment. *Resource and Energy Economics*, 34(1), 74–92.
- Hannigan, J. (2006) *Environmental Sociology*. 2nd Ed. London and New York: Routledge.
- Hayombe, P. O., Agong, S. G., Nystrom, M., Mossberg, L., Malbert, B., & Odede, F. (2012). Upscaling ecotourism in Kisumu city and its environs: Local community perspectives. *International Journal of Business and Social Research*, 2(7), 158–174.
- Hess, D. (2012) *Good Green Jobs in a Global Economy: Making and Keeping New Industries in the United States*. MIT Press, Cambridge MA.
- Heyes, A., & Kapur, S. (2012). Community pressure for green behavior. *Journal of Environmental Economics and Management*, 64(3), 427–441.
- Hinchliffe S (2008). Reconstituting nature conservation: Towards a careful political ecology. *Geoforum*, 39(1), 88-97
- Jermier, J. M., Forbes, L. C., Benn, S., & Orsato, R. J. (2006). The new corporate environmentalism and green politics. In S. R. Clegg, C. Hardy, T. B. Lawrence & W. Nord (Eds.), *The Sage handbook of organization studies* (2nd ed., pp. 618-650). London, England: SAGE.
- Jones, V. (2008) *The Green Collar Economy. How One Solution Can fix Our Two Biggest Problems*. New York: HarperOne.
- Kadirov, D., & Varey, R. J. (2013). Neo-structuralist analysis of green-marketing discourse: interpreting hybrid car manufacturers and consumers. *Consumption Markets & Culture*, 16(3), 266–289.
- Kawai, Y. (2008) Work/Life Community by Telework—Possibilities and Issues in the Case of Loma Linda. *Journal of Green Building*, 3 (2). 128-139.

- Kennedy, E. H., Krahn, H., & Krogman, N. T. (2013, December). Downshifting: an exploration of motivations, quality of life, and environmental practices. *Sociological Forum* 28 (4), 764-783.
- Kenny, K. M. (2010). Beyond ourselves: Passion and the dark side of identification in an ethical organization. *Human Relations*, 63(6), 857-873.
- Land, C., & Taylor, S. (2010). Surf 's Up: Work, Life, Balance and Brand in a New Age Capitalist Organization. *Sociology* 44(3): 395-413
- Lanfranchi, J., & Pekovic, S. (2014). How green is my firm? Workers' attitudes and behaviors towards job in environmentally-related firms. *Ecological Economics*, 100, 16-29.
- Lautensach, A. K. (2005) 'The Values of Ecologists ' *Environmental Values*, 14 (2), 241-250
- Leonard, P. (2013). Changing Organizational Space: Green? Or Lean and Mean? *Sociology*, 47(2), 333-349.
- Loder, A. (2014). "There's a meadow outside my workplace': A phenomenological exploration of aesthetics and green roofs in Chicago and Toronto. *Landscape and Urban Planning*, 126, 94-106.
- Lorenzen, J. A. (2014). Green consumption and social change: debates over responsibility, private action, and access. *Sociology Compass*, 8(8), 1063-1081.
- Lorimer, J. (2006). What about the nematodes? Taxonomic partialities in the scope of UK biodiversity conservation. *Social & Cultural Geography*, 7(4), 539-558.
- Lorimer, J. (2007). Nonhuman charisma. *Environment and Planning D: Society and Space*, 25(5), 911-932.
- Lorimer, J. (2008). Living roofs and brownfield wildlife: towards a fluid biogeography of UK nature conservation. *Environment and Planning A*, 40(9), 2042-2060.
- MacGregor, S. (2013). Only Resist: Feminist Ecological Citizenship and the Post-politics of Climate Change. *Hypatia*. 29(3) 617-633.
- MacGregor, S. (2009). A stranger silence still: the need for feminist social research on climate change. *The Sociological Review*, 57(s2), 124-140.

- McAfee, K., & Shapiro, E. N. (2010). Payments for Ecosystem Services in Mexico: Nature, Neoliberalism, Social Movements, and the State. *Annals of the Association of American Geographers*, 100(3), 579–599.
- McDonagh, P. and Prothero, A. (2014) 'Sustainability Marketing Research: past, present and future. *Journal of Marketing Management*. Vol. 30, Iss. 11-12, 2014
- Milgram, B. L. (2010). From Trash to Totes: Recycled Production and Cooperative Economy Practice in the Philippines. *Human Organization*, 69(1), 75–85.
- Munger, F. P. (2014). The Structures and Practices of Collaboration among Environmental Organizations in Waterloo Region. Retrieved from <http://scholars.wlu.ca/etd/1626/>
- Newton, T. J. (2002). Creating the new ecological order? Elias and actor-network theory. *Academy of Management Review*, 523–540.
- Nightingale, A. J. (2005). “The experts taught us all we know”: Professionalisation and knowledge in Nepalese community forestry. *Antipode*, 37(3), 581–604.
- Nightingale, A. J. (2006). The nature of gender: work, gender and environment.
- Obach B. 2004. *Labor and the Environmental Movement: The Quest for Common Ground*. Cambridge, MA: MIT Press
- Obeng-Odoom, F. (2014). Green neoliberalism: Recycling and sustainable urban development in Sekondi-Takoradi. *Habitat International*, 41, 129–134.
- O'Connor J. 1988) Capitalism, nature, socialism: a theoretical introduction. *Capitalism, Nature, Socialism*, 1:11–38.
- Pellow DN, Park L. 2002. *The Silicon Valley of Dreams: Environmental Injustice, Immigrant Workers, and the High-Tech Global Economy*. New York: New York Univ. Press
- Pellow, D. N., & Nyseth Brehm, H. (2013). An Environmental Sociology for the Twenty-First Century. *Annual Review of Sociology*, 39(1), 229–250.
- Pellow, D. N. (2004) *Garbage Wars: The Struggle for Environmental Justice in Chicago*. Cambridge, MA: MIT Press

- Pellow, D. N. (2007) *Resisting Global Toxics: Transnational Movements for Environmental Justice*. Cambridge, MA: MIT Press, 2007
- Pettifor, H.J. (2013) *Towards the green household : an investigation into the influences on behaviour change*. University of Essex, Unpublished PhD thesis.
- Phillips, M. (2012). On being green and being enterprising: narrative and the ecopreneurial self. *Organization*. 20 (6) 794-817.
- Pokrandt, R. (2010). What is Green? *The Technology Teacher*. 69, 5-10.
- Poschen, P. (2015) *Decent Work, Green Jobs and the Sustainable Economy: Solutions for Climate change and sustainable development*. Geneva: International Labour Office
- Räikkönen, T. (2011). The Greening of Work: How Green Is Green Enough? *Nordic Journal of Working Life Studies*, 1(1), pp-117.
- Renner, M., Sweeney, S., & Kubit, J. (2008). Green jobs: towards decent work in a sustainable, low-carbon world. Washington: UNEP. *ILO/IOE/ITUC. Worldwatch Institute*.
- Schiederig, T., Tietze, F., & Herstatt, C. (2012). Green innovation in technology and innovation management—an exploratory literature review. *R&D Management*, 42(2), 180–192.
- Shiva, V. (2015). *Soil not oil: Environmental justice in an age of climate crisis*. North Atlantic Books.
- Singh, N. M. (2013). The affective labor of growing forests and the becoming of environmental subjects: Rethinking environmentality in Odisha, India. *Geoforum*, 47, 189–198.
- Snell, D. and Fairbrother, P. (2011) 'Toward a Theory of Union Environmental Politics: Unions and Climate Action in Australia', *Labor Studies Journal*, 36(1): 83-103
- Sonnenfeld D. 2000. Contradictions of ecological modernization: pulp and paper manufacturing in South-East Asia. *Environmental Politics*. 9(1):235–56
- Stengers, I. 2015. *In catastrophic times: Resisting the coming barbarism*, trans. A. Goffey. Lüneburg, Germany: Open Humanities Press/Meson Press.

- Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues*, 50(3), 65–84.
- Stavis, D. (2013). 'Green jobs? Good jobs? Just jobs?'. In Rätzkel, N., & Uzzell, D. (Eds.). *Trade Unions in the Green Economy: Working for the Environment*, London: Routledge, pp179-195.
- Todd, A. M. (2004). The Aesthetic Turn in Green Marketing: Environmental Consumer Ethics of Natural Personal Care Products. *Ethics and the Environment*, 9(2), 86–102.
- Weeks, K., (2011), *The Problem with Work: Feminist, Marxist, Antiwork Politics, and Postwork Imaginaries*, Durham, NC and London: Duke University Press.
- Wheeler K and Glucksmann M (2013) Economies of recycling, 'consumption work' and divisions of labour in Sweden and England. *Sociological Research Online* 18(1): 9.
- Williams, S., Bradley, H., Devadson, R. and Erikson, M. (2013). *Globalization and Work*. Cambridge UK: Polity Press.
- Wilson, A. (1992) *The Culture of Nature: North American Landscape from Disney to the Exxon Valdez*. Blackwell: Cambridge MA and Oxford UK.
- Zibarras, L. and Ballinger, C. (2011). Promoting environmental behaviour in the workplace: a survey of UK organisations. In Bartlett, D. (Ed.), *The Psychology of Sustainability in the Workplace* Leicester: British Psychological Society. Pp84-90