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A Sustainable Campus: The Sydney Declaration on Interspecies Sustainability

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Abstract
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Video link 'A Sustainable campus'

https://vimeo.com/168895965

***Abstract**: Under the remit of an expanded definition of sustainability – one that acknowledges animal agriculture as a key carbon intensive industry, and one that includes interspecies ethics as an integral part of social justice – institutions such as Universities can and should play a role in supporting a wider agenda for sustainable food practices on campus. By drawing out clear connections between sustainability objectives on campus and the shift away from animal based products, the objective of this article is to advocate for a more consistent understanding and implementation of sustainability measures as championed by university campuses at large. We will draw out clear connections between sustainability objectives on campus and the shift away from animal based products. Overall, our arguments are contextualised within broader debates on the relationship between sustainability, social justice and interspecies ethics. We envisage that such discussion will contribute to an enriched, more robust sense of sustainability—one in which food justice refers not only to justice for human consumers and producers of food and the land used by them, but also to justice for the nonhuman animals considered as potential sources of food themselves.*

In response to growing concern about climate change, a number of institutions including government agencies, businesses, media organisations and financial services (including superannuation funds), have announced initiatives to divest from carbon intensive industries and pursue 'sustainability' as a core value. Universities are amongst this group. For example, in February 2015, the University of Sydney (Australia's third largest University, with approximately 52,000 students), announced that it would reduce its carbon footprint in three years to a level that is '20 percent lower than the average blended emission rate of the markets' (Watts), and that it would introduce carbon footprint reporting on investments, become a signatory to the CDP (Carbon Disclosure Project), and join the UN-Led Portfolio Decarbonisation Coalition.[2] Staff and students are encouraged to assist by: recycling; choosing low-carbon travelling options (public transport, cycling, or walking); using energy-efficient equipment; and using reusable coffee cups and water bottles. But notably absent is any mention of food practices that might also impact upon 'sustainability'. Indeed, missing from the University's definition of sustainability is any mention of campus food practices and reliance on, or investment in, animal agriculture, the latter being one of the top three emitters of GHG (greenhouse gases)[3]. Other universities have acknowledged that reducing reliance on animal based foods as part of campus food practices is a key sustainability strategy, but as our example of the University of Sydney demonstrates, this commitment is far from uniform or consistent (as we outline in Part 4: Universities in focus). In this regard, there is scope for 'mainstreaming' the link between campus food practices and reliance on investment in animal agriculture and university sustainability objectives, in order to achieve consistency in how universities, as core institutions, achieve change. We argue here that under the remit of an expanded definition of sustainability – one that acknowledges animal agriculture as a key carbon intensive industry, and

[2] For a link to the Portfolio Decarbonisation Coalition, see United Nations Environmental Programme (UNEP), and for further information on the University of Sydney's strategy, see 'Frequently Asked Questions on the University's Carbon Reduction Strategy.'

[3] See Fiona Probyn-Rapsey for discussion of why the 'handy tips' for helping make the University of Sydney more 'environmentally friendly' does not also include the option of 'veg*nism'. In this article, we use the term veg*nism when both vegan and vegetarian are applicable. We specify one or the other when this is not the case.

one that includes interspecies ethics[4] as an integral part of social justice – institutions can and should play a role in supporting a wider agenda for sustainable food practices on campus. By drawing out clear connections between sustainability objectives on campus and the shift away from animal based products, the objective of this article is to advocate for a more consistent understanding and implementation of sustainability measures as championed by university campuses at large. We will draw out clear connections between sustainability objectives on campus and the shift away from animal based products. Overall, our arguments are contextualised within broader debates on the relationship between sustainability, social justice and interspecies ethics. We envisage that such discussion will contribute to an enriched, more robust sense of sustainability—one in which food justice refers not only to justice for human consumers and producers of food and the land used by them, but also to justice for the nonhuman animals considered as potential sources of food themselves.

Sustainability frameworks provide spaces that can and should be adapted, extended and analysed in ways that make them relevant and responsive to an expanded (more than human[5]) definition of social justice. While social justice has typically focused on human-centred distribution questions such as income inequality, more recently social justice principles have also extended to issues of sustainability, particularly through environmental justice perspectives which emphasise the unequal impact of negative environmental externalities on already disadvantaged communities, including loss of food security (e.g David Schlosberg; Rob Nixon; Raj Patel). A range of thinkers have now also extended social justice theory to include non-human animals, recognising that animals should factor in thinking about citizenship rights, equality and justice (e;g Sue Donaldson and Will Kymlicka; Siobhan O'Sullivan; Robert Garner). A key source for an enriched understanding of sustainability is ecofeminism and its suggestion that sustainability should not be discretely boxed as only a concern for the 'environment'. A sustainable relationship to the environment is linked to care and justice for other animals, women, people of

[4] Boscardin and Bossert call for a 'sentientest egalitarian outlook' to update currently anthropocentric concepts of sustainability. Earnshaw also calls for 'interspecies equity' in sustainability frameworks.
[5] 'more than human' is a concept deployed by Sarah Whatmore in *Hybrid Geographies: Natures, Cultures, Spaces*.

colour, queers and other "others" (e.g. Gaard 2002; Adams and Gruen, eds. 2014). This work suggests that animals are an important emerging consideration for social and environmental justice, and that an analysis of the sustainability of institutional practices – such as the catering practices of universities and their investment portfolio[6] – should take into account the negative impacts of animal-based food consumption not only on the broader environment and human communities, but also on animal communities.

In this article, our expansion of sustainability frameworks to include interspecies ethics and social justice principles engages with at least three areas of scientific knowledge. Specifically we refer to a broad range of research that on the one hand outlines the deleterious environmental impacts of the animal-industrial complex (e.g. Steinfeld et. al., Gerber et al), and on the other argues that veg*n food practices can constitute those with the lowest carbon footprint (Hoolohan et al.; Berners-Lee et al.; Scarborough et al.; Springmann et al; Hallstrom et al). Secondly, we are also aware of the importance of nutritional knowledge not only in outlining the negative health consequences of animal products and the adequacy of vegan food practices, but in further arguing that these can offer prophylactic health benefits not enjoyed by a diet that normalises meat and dairy consumption, especially at high levels. Thirdly, we note advances in knowledge around animal cognition, behaviour, affect and sociality (e.g. Bekoff). Such knowledge has an important bearing for re-evaluating the ethics of human-animal relations. These three areas of scientific research are augmented by other work that makes clear the further enmeshment of the animal-industrial complex in crises related to water sustainability (Mekonnen and Hoekstra) and pollution (Steinfeld et al.), antibiotic use (Twine 2013), zoonoses (Greger) and threats to biodiversity (Machinova et al.). Space prevents us from examining these in more detail here, yet all these issues point to overlaps between these further environmental impacts and harms to the health and flourishing of humans and other animals. We place more focus on the climate change impacts of animal agriculture in this paper because they are often taken to be a primary trigger for sustainability policies. Taken together these bodies of knowledge place serious question marks over the animal-industrial complex and offer a

[6] Note also university use of animals in experimentation.

compelling case for our argument that institutions can, and should, play a role in supporting a wider agenda for sustainable food practices on campus by adopting an expanded definition of sustainability.

Within the political context of scientific knowledge and policy, not all areas of scientific research are given equal weighting. We note that scientific knowledge is both provisional and interested (see Yearley). We enter a policy terrain where 'evidence-based' arguments clearly do not follow a simple linear unfolding of engendering change, as seen in University sustainability policies that exclude animal agriculture from their list of targets to reduce reliance on. Market-based and individualist arguments continue to curtail more radical action against climate change, making it very difficult to translate scientific consensus on anthropogenic climate change into credible policies. Yet this body of knowledge, especially when envisioned broadly, can engender a concerted critique not only of business as usual human/animal relations, but of unreflective anthropocentric understandings of 'sustainability'. Thus we argue that such research urgently deserves greater exposure, so that it may have the full potential for shaping institutional policy and everyday practice.

What follows is divided into four parts. Part 1: Animal Agriculture's Environmental Impacts situates evidence on the impact of animal agriculture on climate change as well as plans to mitigate it. Part 2: The Social and Cultural Conditions for Change is a brief summary of selected literature on what impedes cultural change around meat consumption (which we consider to be a neglected part of the sustainability agenda). Part 3: Solutions is a brief overview of some solutions raised in Parts 1 and 2. Part 4: Universities in focus discusses sustainability initiatives at other universities (in the UK and USA) and what we might learn from them. In conclusion we reiterate the need to expand the definition of sustainability to include an acknowledgment of the contribution made by animal agriculture, and the need to include interspecies ethics as part of sustainability's social justice remit. We also conclude with five 'calls to action' to improve and expand current definitions of sustainability.

Part 1: Animal Agriculture's Environmental Impacts

According to the Food and Agriculture Organization of the United Nations (FAO), animal agriculture contributes significantly to global greenhouse gas emissions. A series of reports (*The State of Food and Agriculture: Livestock in the Balance* released in 2009, *The State of World Fisheries and Aquaculture* released in 2010) have highlighted the link between food practices and GHG emissions, as well as highlighting industry responses (FAO). Much of the discussion goes back to a widely cited 2006 report, *Livestock's Long Shadow: Environmental Issues and Options* (Steinfeld et al. 270-3), which made the following points:

The livestock sector contributes 9% of total carbon dioxide emissions, as well as 37% of methane and 65% of nitrous oxide. That means that the livestock sector overall contributes around 18% of the 'global warming effect,' an 'even larger contribution than the transportation sector worldwide.'

The Livestock sector represents 'the largest of all anthropogenic land uses,' occupying 70% of all agricultural land and 30% of the ice-free land surface of the planet. In some areas, livestock expansion represents the primary reason for deforestation.

The Livestock sector is a 'key player' in increasing water use, water depletion, and water pollution (through, for instance, pesticides for feed crops, 30 million tonnes of ammonia emitted per year by livestock waste, etc.).

Despite the report's conservative figures and industry-centred solutions, its authors warn against 'business as usual' (Steinfeld et al. 284) because this will result in an increase in anthropogenic greenhouse gas emissions and a continuation of land degradation and deforestation. Perhaps surprisingly (for a report that is written largely in favour of sustaining and growing the livestock industry), *Livestock's Long Shadow* notes that there are 'reasons for optimism' (276). One of these reasons for optimism is 'the tendency towards vegetarianism within developed countries' (276). Although it is mentioned only once in *Livestock's Long Shadow*, this particular 'reason for optimism' is a point that has been increasingly taken up by activists and environmentalists as well as agricultural analysts in recent years, buoyed by the fact that positive connections between veg*nism and sustainability are implicitly endorsed even within a report that seeks to extend the

industry.[7] In the discussion that follows, we show that agricultural science has tended to focus on 'solutions' to the problem of GHG emissions that do not include the uptake or promotion of plant-based food practices, but instead are focussed on multiple pronged approaches that include biotechnological changes to the animal body, their feed, their housing and their distribution as products across supply chains. And yet, there are different arguments to be heard from within agricultural science; calls for reduction in meat consumption in the west persist alongside calls for bio-technological change. The fact that animal agriculture is a major contributor to climate change is not in doubt, but agricultural scientists do not agree on what to do about it, as we can see from the following examples.

A common argument is to switch from one animal species to another on the basis of the environmental impacts of growing and feeding different sorts of bodies with varying environmental impacts. One such study is Marion de Vries and Imke de Boer's 'Comparing Environmental Impacts for Livestock Products: A Review of Life Cycle Assessments,' which compares the environmental impacts of livestock 'products' using Life Cycle Assessments (LCAs) of pigs, chicken (including eggs) and cattle (including their milk and 'beef'). De Vries and de Boer find that production of 1 kg of 'beef' used the most land and energy, and caused the most global warming, followed by production of 1 kg of 'pork', chicken, eggs, and then milk. Production of 1 kg of 'beef protein' also had the highest impact, followed by 'pork protein', while 'chicken protein' had the lowest impact. They also find that consumption of 'beef' is responsible for the largest part of the land use and global warming in an average OECD diet. Overall, they conclude that choosing a more environmentally friendly livestock product 'among different types of meat or between protein from meat and eggs' (de Vries and de Boer 2), for example, can potentially mitigate environmental impact. Studies such as this help to bolster the view that chickens are a more 'sustainable' type of animal protein. The costs of this for the chickens is not acknowledged in such definitions of 'sustainability'. See Part 3: Solutions, 'From Cattle to Chicken?' for further discussion of this argument.

[7] See, for example, Robert Goodland and Jeff Anhang, and Siwa Msangi and Mark Rosegrant.

Durk Nijdam, Trudy Rood, and Henk Westhoek review 52 life cycle assessment studies (LCAs) of animal and vegetable sources of protein in order to identify their range of impacts on the environment (760-70). Their analysis focuses on land requirement and carbon footprints based on these LCAs, and they find that the carbon footprint of the most climate-friendly protein sources is up to 100 times smaller than those of the most climate-unfriendly. They argue that the feed production and animal husbandry of these 'protein products' are the most important contributors to their environmental impacts. They conclude that animal food products have higher climate and land-use related impacts than vegetable products. They suggest that there is a large potential for reductions in the environmental impact of food consumption by the choice of low-impact sources of protein, particularly vegetal sources of protein. But they also propose – similarly to de Vries and de Boer – that consuming animal products with 'high feed efficiencies' and some types of seafood[8] also offer chances to mitigate climate change (Nijdam, Rood, and Westhoek 767-8).

Tara Garnett has examined proposals to mitigate emissions at each stage of the livestock food chain. She argues that in addition to efficiency-focused technological mitigation measures, it is also necessary to shift patterns of consumption away from diets rich in greenhouse gas-intensive meat and dairy foods. She believes, however, that although this move may be beneficial for the 'developed' world (food secure, wealthier populations), it raises serious nutritional questions for the 'developing' world (poorer populations). For Garnett, 'a context-specific approach to meat and dairy consumption is required – one that situates livestock farming within a policy framework that integrates agricultural, environmental and nutritional goals' (30). Her analysis lends support to the argument that institutions based in the 'developed' world should calibrate their use of terms like 'sustainability' in ways that acknowledge and include over-consumption of animal products as a major problem that needs addressing.

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[8] Advocating increasing seafood consumption is similarly problematic given the depleted state of the world's oceans and the environmental impacts of fish farming (see, e.g., Felipe Cabello et al.; Joel Bourne Jr.) yet this has not received as much attention as animal-based agriculture. It is also as problematic ethically as nascent research into the inner lives, sentience and abilities of fishes shows (see Jonathan Balcombe and also Dinesh Wadiwel).

Added to the discussion about GHG emissions associated with animal agriculture is also the issue of global phosphorus security (White and Cordell, *Meat the Future*). Stuart White and Dana Cordell argue that the scarcity of the element phosphorus (P), one of the key nutrients required for agricultural production, is a substantial yet under-recognised threat to global food security ('Global Phosphorus Security'). Due to growth in demand, mined rock phosphate has now become the primary means for meeting phosphorus needs. Unlike nitrogen, phosphorus cannot be substituted, it cannot be sourced from the atmosphere, and good quality deposits are limited and geopolitically concentrated. Additionally, there is wastage in the mining and processing of phosphorus, inefficient use of phosphorus in agriculture, and the runoff of inefficiently applied phosphorus in agriculture is a major cause of nutrient pollution in lakes and rivers. The global production of fertiliser from phosphate rock will peak sometime this century, resulting in a threat to global food security. White and Cordell suggest that we need action to reduce the demand for phosphorus through a variety of measures, including improving the efficiency of the agricultural use of phosphorus, reducing food wastage, and recovering the phosphorus in human and animal waste. However, they conclude that we also need to reduce the human consumption of meat and dairy products, as these dominate the phosphorus footprints of high consumption countries, including Australia. White and Cordell compare the impact of livestock production on greenhouse gas emissions with its impact on phosphorus consumption, leading them to argue that we require a significant reduction in phosphorus use by high per capita phosphorus-use countries (countries with high phosphorus footprints from meat consumption), arguing that this 'would make possible a world in which there was an equitable distribution of access to the nutrition afforded by P [phosphorus] as an elemental fertilizer' ('Global Phosphorus Security' 81). Indeed, not only must our carbon footprints be reduced through measures of veg*n sustainability, but also our phosphorus footprints.

Scientific studies into animal agriculture also illustrate the effects on water (both in terms of its use and pollution) by animal agriculture's exploitation of animals. Cattle (beef), sheep, pigs ('pork'), chicken, butter, cheese, and chocolate use the highest volumes of water in their production compared to other common foodstuffs. For example, producing 1 kg of 'beef' consumes 15,415 litres of water, producing 1 kg of sheep meat consumes 10,412 litres of water, and producing 1 kg of 'pork' consumes 5,988 litres of water). Compared to the production of meat, vegetables require considerably less water (e.g., producing 1 kg of potatoes consumes 287

litres of water) (see Mekonnen and Hoekstra 2011, 2012; 'Typical Values for the Volume of Water Required to Produce Common Foodstuffs: Table').

Given what animal agriculture science tells us about the costs of animal agriculture on the environment alone, it is surprising that institutions such as Universities (and others) continue to invest in livestock industries and do so little to promote either a reduction in animal-based consumption or a shift towards more plant-based diets. Even animal scientists interested in finding ways to maintain the livestock industry argue for a *reduction* in the meat-based diets of western countries. On grounds narrowly defined by human interest alone, the promotion of plant-based diets is seen as a 'reason for optimism'. So why do institutions not act? The next section considers some of the social and cultural reasons for this 'evidence-policy gap' (Daly and Twine).

Part 2: The Social and Cultural Conditions for Evidence-based Change

This section considers the social and cultural conditions that stymie evidence-based change as well as the exclusion of veg*nism from policy repertoires regarding sustainability. Obstacles include normative assumptions about meat eating, an erroneous perception that plant-based diets are deficient, the belief that diets are a private matter not up for (political) discussion, the view that animal cruelty is exceptional rather than structural when it comes to animal agriculture, and, more broadly, that the social /political architecture of the animal-industrial complex supports the 'business as usual' approach that many warn against.

Barbara Noske's concept of the 'animal-industrial complex' offers one explanation as to why sustainability debates exclude the consideration of animal agriculture. She uses the concept to describe the complex ways that animal-based products are entangled in all aspects of social life, from the farm to the lab, to the dinner table, to retail, to global and national economies; animal bodies are commoditised and traded as mere 'things' for human use. The concept of the animal-industrial complex also provides us with a framework that allows us to analyse, research and question, for example, the institutional and social life of eating; shared meals; food retail options; and other issues surrounding the production and consumption of animal and non-animal

food products (Noske). Countless humans are also exploited by the animal-industrial complex. This includes millions of Indigenous peoples and peasant farmers whose land has been stolen in processes of 'agricultural dispossession' through 'land-grabbing' (Magdoff; see also Schneider). It includes the appalling psychological and physical costs to workers in CAFOs (Concentrated Agricultural Feeding Operations), and slaughterhouses (Dillard). It includes the associated increases in sexual and domestic violence inflicted on their families and neighbours (Fitzgerald, Kalod, and Dietz). For Twine, the animal-industrial complex concept is a methodological frame and global infrastructure which he defines as 'a partly opaque and multiple set of networks and relationships between the corporate (agricultural) sector, governments, and public and private science. With economic, cultural, social and affective dimensions, it encompasses an extensive range of practices, technologies, images, identities and markets.' ('Revealing the "Animal Industrial Complex"' 23). This can be mobilised to do more political work to reveal the problematic interconnections and intersections between the use of animals as food and the global economy, and the ways in which killing animals for unsustainable food products have become normalised in mainstream (Western) society. This use includes biotechnology, genomics, and the Western policy discourse of food security that involve, as we have seen in responses to GHG emission mitigation, 'varied attempts to make animal agriculture more efficient' (Twine, 'Revealing the "Animal-Industrial Complex"' 13). Techno-capitalist practices of breeding, trading, and "efficiently" killing animals are all constituents of the animal-industrial complex and a 'significant component of the broader global food system' (Twine, 'Revealing the "Animal-Industrial Complex"' 14). Killing animals for unsustainable products is normalised in mainstream (Western) society by its occurrence as part of the animal-industrial complex. On a structural level, Nik Taylor also argues that the media frames 'cruelty to animals' as constituted by exceptional events rather than analysing the structural processes involved in its normalisation, and that this fails to challenge the pervasive normativity of ideas of human domination towards other animals.[9] When we think of animal exploitation or animal cruelty we are, she suggests,

[9] For example, in her co-authored work with Jordan McKenzie, Taylor also examines the European horsemeat 'scandal,' where in early 2013 Europe was subject to a moral panic regarding the undisclosed presence of horse flesh in beef products. The scandal has elicited a lot of commentary, but very little that

encouraged to think of such things as singular events that are punishable, rather than as endemic to our relationship to those animals designated 'livestock'.

Psychologist Melanie Joy uses the term 'carnism' to refer to the invisible belief system (or ideology) that naturalises and normalises meat eating. In Western culture, the centrality of animal flesh – and the marginalization of plant-based meals – and those who adhere to vegan lifestyles (Cole and Morgan) relies heavily on the continued concealment of the violence inherent in the slaughter and dismemberment of billions of animals in the production of meat, as well as the unquestioned socially and culturally constructed value of meat as a food. Joy argues that: 'While it is difficult, if not impossible, to question an ideology that we don't even know exists, it's even more difficult when that ideology actively works to keep itself hidden' (33). Annie Potts suggests that the machinations of carnism can nevertheless be exposed and critiqued by examining 'meat culture', which she defines as 'all the tangible and practical forms through which carnist ideology is expressed and lived' ('What is Meat Culture?'). Meat culture thus 'encompasses the representations and discourses, practices and behaviours, diets and tastes that generate shared beliefs about, perspectives on, and experiences of meat.' Which foods count as healthy, tasty and desirable to eat (and, conversely, which are categorized as inedible or repulsive) are thus shaped by sociocultural and political factors, as well as self and group identities, including, but not limited to, ethnicity, sexuality, socioeconomic status, and shared ideas about 'taste' and 'class'[10].

Carol J. Adams, a trailblazing critic of meat culture, has examined 'texts of meat' in order to reveal the various ways in which 'the production of meat's meaning [occurs] within a political-cultural context' ('The Sexual Politics of Meat' 14). Adams' work demonstrates how meat

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discusses the *practice* of meat-eating per se; meat-eating and animal bodies are 'absent referents' in this discourse. The 'absence' of meat-eating in the commentary on the case therefore *normalises*, and *makes normative*, the practice of meat-eating. Taylor and McKenzie argue that rather than being about health concerns or animal welfare, the horsemeat scandal is about the maintenance of hegemonic species boundaries – and binaries between clean and dirty, moral and immoral – that in turn normalise the cultural practice of eating animals, particularly *some* animals and not others. See Nik Taylor and Jordan McKenzie.

[10] See Nick Fiddes for a detailed consideration of these issues.

culture shapes and is shaped by heterosexist and misogynist rhetoric and images, and also how it relies on the intersecting denigration of women, people of colour, homosexuals and nonhuman animals. Meat is strongly gendered, for instance: within many cultures red meats are masculinized (symbolically associated with power and control, vitality and virility) while other types of food, such as 'white' meats, vegetables and fruits, tend to be feminized and thereby popularly viewed as more fitting for consumption by women or effeminate 'unmanly' men (hence the popular phrase 'real men don't eat quiche'). The gendered construction of meat and of consumptive practices relating to meat, indicates that, at least for those men who value traditional hegemonic masculinity and aspire to maintain 'manly' heteronormative self-identities, any suggested reduction (let alone cessation) of meat-eating may be strongly resisted or rejected (Potts and Parry). As well as this, veg*ns are subject to intense social scrutiny, all of which suggests that food practices are not simply 'personal' choices (if carnist reactions are anything to go by). Jenkins and Twine argue that 'vegans and, to an extent, vegetarians represent resistant socialisation "failures"', because they have 'exercised agency and decided to go against the dominant norm' (231).

Meat culture also promotes the view that plant-based diets are deficient and unhealthy, despite the prevalence of evidence to the contrary (Steinfeld et al. 276). For example, the US Academy of Nutrition and Dietetics maintains that, in addition to their health benefits, well planned vegetarian diets, including vegan diets, are nutritionally adequate and are appropriate for individuals during all stages of life (Craig and Mangels). While some nutrients can be more difficult to obtain on a vegetarian diet (for example, vitamin B12), careful planning and in some cases the use of fortified foods or supplements, can ensure that an individual's nutrition needs are met while maximising the health benefits of a vegetarian or vegan diet (Reid et al.). In fact, there is considerable support for the health benefits of plant-based diets within health science. Vegetarian diets have been associated with increased longevity and a reduced risk of obesity and chronic diseases including cardiovascular disease, type 2 diabetes and some types of cancer (Marsh, Zeuschner, and Saunders). These benefits likely result from both a reduced consumption of potentially harmful dietary components, including saturated fat, cholesterol, animal protein, red meat, and heme iron, and an increased consumption of beneficial dietary components, including fruit, vegetables, whole grains, legumes, and nuts, which are rich in dietary fibre, antioxidants, and phytochemicals (Marsh, Zeuschner, and Saunders 251).

Consistent with these findings, epidemiological studies have shown a positive relationship between intakes of red meat and processed meats and disease risk including risk of obesity (Rosell et al.; Wang and Beydoun; Vergnaud et al.; Rizzo et al.), type 2 diabetes (Pan et al.; Micha et al.; Pan et al.), coronary heart disease (Bernstein et al.; Micha et al.; Clifton et al.), stroke (Kaluza et al.; Chen et al.), and some types of cancer (particularly colorectal cancer)(Cross et al.; Chan et al.; Aune et al.), independent of other lifestyle factors. All-cause mortality, and cardiovascular and cancer mortality, are also increased with higher intakes of meat, and in particular processed meat (Sinha et al.; Larsson and Orsini). The latest findings from the Adventist Health Studies show that overall, vegetarian diets offer protection against cardiovascular diseases, cardiometabolic risk factors, some cancers, and total mortality, and that vegan diets (compared to lacto-ovo-vegetarian diets) offer additional protection against obesity, hypertension, type-2 diabetes, and cardiovascular mortality (Le and Sabate).

Challenging the perception that plant-based diets are deficient is an important strategy for opening up the discussion. It also means questioning the privacy and assumed consumer autonomy in food practices. Food consumption practices reflect a combination of both deeply ingrained cultural norms, and the availability of food resources that are deeply structured by a range of institutional interests and investments, including global animal agriculture businesses. This means food practices that transition diets away from meat challenge deeply held beliefs, customs and investments. In 'Vegan Killjoys at the Table – Contesting Happiness and Negotiating Relationships,' Twine explores relationships between veganism, normativity, and relational subjectivities. Drawing upon interviews with 40 vegans in the UK, Twine brings research on vegan transition into dialogue with Sara Ahmed's figure of the killjoy.[11] He analyses Ahmed's work on affect (specifically the 'affect alien,' or the stranger to the dominant happiness and affective order) and the feminist killjoy in order to reveal contemporary vegans' transgression of normative scripts of happiness and commensality in a dominant meat and dairy consuming culture. Twine argues that veganism 'constitutes a direct challenge to the dominant affective community that celebrates the pleasure of consuming animals. It questions the

[11] See Sara Ahmed, *The Promise of Happiness*.

assumption of shared happiness around such consumption and represents animal consumption as cruel commensality' (628). This brings into view some of the affective barriers to veg*n transition, some of which can be alleviated by institutional support for food practices that are transitioning or shifting away from dominant meat-based diets.

In addition to challenging dominant meat and dairy culture, promoting veg*nism violates the norm that dietary choice *per se* is a private matter. It is one thing for individuals to choose veg*nism for themselves, but quite unacceptable for them to question the private choices of others. Veg*n diets are conceived as a matter of private conscience, akin to temperance, abortion, or religious belief, rather than a matter of social justice (Phelps). This perception may be reinforced by legal developments, like the recent change to the Ontario Human Rights Code which expands the concept of 'creed' to include non-religious practices such as veganism[12], with the implication that such practices should be institutionally accommodated. While accommodation of veg*nism is important for many individuals (especially those in hospitals, schools and prisons), this framing of a non-meat diet as a matter of private conscience is problematic because it implies that a meat diet should also be respected as a matter of private conscience and choice. But this parallel framing obscures the fact that a meat diet has direct victims (the animals consumed) and indirect victims (through environmental impacts, and 'meat grab' economics), which render it urgently, and appropriately, a matter of public justice.

[12] See also IVRA's 'Concluding Declaration of the 1st International Law Symposium on Vegan Rights' http://www.theivra.com/symposium.html

Part 3: Solutions

How can we encourage consumers and policy-makers to develop strategies and change their behaviour and eating habits in order to reduce meat consumption when, for many, 'livestock, their meat and milk are an integral part of a society and its culture, essential for draft power and food, a store of wealth, and define the identity of many peoples' (Revell)? Animal agriculture science suggests solutions for maintaining animal agriculture while reducing emissions. These solutions include forms of production intensification, such as CAFOs and dietary changes, as well as switching from 'beef' to 'monogastric' animals including chickens and pigs. Solutions offered by the social sciences include directing public attention to animal welfare issues, introducing a meat tax, the introduction of legislative mechanisms including national standards on food production and a switch towards 'locavorism'. We examine these solutions and their limitations below. We then explore the potential for expanding the definition of sustainability to include interspecies ethics and social justice.

A number of scientists look to CAFOs as part of a strategy to reduce and contain emissions from agricultural animals. CAFOs are characterised by large numbers of animals crowded into a confined space, imposing significant yet unaccounted for costs on the animals, on taxpayers, and on the communities in which they are present. As Doug Gurian-Sherman writes, CAFOs create 'an unnatural and unhealthy condition that concentrates too much manure in too small an area,' and many of the costly problems caused by CAFOs 'can be attributed to the storage and disposal of this manure and the overuse of antibiotics in livestock to stave off disease' (Gurian-Sherman 1). CAFOs represent a significant environmental burden but also an unethical form of animal 'care'. As zoological, ethological and psychological studies, as well as lab and field research (Nichols) have unequivocally demonstrated, pigs, sheep, goats, cattle, chickens, turkeys, ducks and fish possess 'intelligences' far more complex than have been assumed in anthropocentric societies; and that these animals, when permitted to express their natural behaviours and

inclinations, undoubtedly experience rich social and emotional lives.[13] Pigs, cows, chickens and sheep, for example, have all been shown to form strong memories and readily learn complicated tasks assigned them in experimental conditions; these species can remember dozens of faces (human faces and those of conspecifics), even after long absences; and chickens and sheep will express their dislike of those who have mistreated them by turning from their countenances.[14] Studies also show pigs understand and respond to voice messages as rapidly and as well as dogs do, and are capable of visual perspective taking (the ability to understand what another pig sees), while cattle and chickens demonstrate empathy and behave altruistically towards members of their own herds or flocks (Hatkoff). Given all of this, CAFOs are not sustainable in ethical terms, as well as for reasons outlined by Gurian-Sherman.

A number of agricultural scientists argue that decreasing meat consumption of certain animals, including cattle and sheep, and switching to chickens and pigs would help to mitigate emissions. Others disagree that the calculations on mitigation are correct and suggest that monogastrics (chicken and pigs) do not represent the emissions 'savings' indicated.[15] Switching from different types of meat also fails to address the questions raised alongside CAFOs (see above), particularly regarding animal welfare and the environmental costs of raising animals for meat. These calls are also made in social and political isolation and present simplistic solutions to increasingly complex problems. Given the magnitude of intensive bird farming across the globe, and the calls to

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[13] For a comprehensive overview of this research, see Amy Hatkoff's *The Inner World of Farm Animals*; Jonathan Balcombe's *Pleasurable Kingdom: Animals and the Nature of Feeling Good* and *What a Fish Knows: The Inner Lives of our Underwater Cousins*; Victoria Braithwaite's *Do Fish Feel Pain?*

[14] See Hatkoff; Annie Potts's *Chicken*; Philip Armstrong's *Sheep*. Acute colour vision and detailed memory for faces also helps chickens to maintain harmonious small flocks in nature; quick recognition of conspecifics ensures safe and courteous distances are kept between birds higher and lower in the 'pecking order'. The immensely crowded sheds endured by chicks on broiler meat farms renders these birds in a constant state of anxiety – always striving, yet failing, to recognize all other birds around them and thereby prevented from experiencing the security of a functioning pecking order (see Potts, *Chicken*, 2012).

[15] See, for example, Goodland and Anhang.

intensify this in light of the switch from cattle to chickens, research on avian natural behaviours, cognitions and emotions remains urgent, otherwise the cruellest yet most monetarily efficient modes of farming will intensify unchecked. Those scientists at the forefront of such studies on chickens agree that, while these birds process information differently from mammals, they nevertheless share cognitive capacities equivalent to primates (Rogers; Orosz and Bradshaw; Evans). [16] The prejudice of the 'dim-witted bird-brain' has been thoroughly debunked via experiments confirming that chickens demonstrate object permanence (the ability to remember an object exists even when it is not visible), exercise delayed gratification (the decision to defer a food reward if it is known that a better reward will result if more time passes/more work occurs); and can count and perform basic geometry (Vallortigara). Moreover, in their communications with each other (about predators, food, sex and other concerns), chickens employ syntax and semantics, qualities once thought to be exclusive hallmarks of human language (and therefore human exceptionalism) (Evans and Evans). Chickens, ducks and turkeys exhibit referential learning and are capable of remembering the past, anticipating the future, and therefore (like humans) experiencing frustration, anxiety and fear. This last fact is chilling, given the severe deprivation and other brutalities billions of intensively farmed birds endure each day.

Locavorism has become a popular response to sustainability and animal welfare concerns surrounding intensive factory farms. Kathy Rudy, an advocate of 'locavorism' maintains that current industrial practices which produce cheap meat are indeed unsustainable, but she does not advocate giving up meat-eating and the consumption of other animal products in its entirety;[17] instead, she employs a feminist analytic so as to endorse local meat-eating. She believes that certain forms of feminism, such as Donna Haraway's, 'offer clear thinking about a

[16] While we would argue that it is unnecessary (and inappropriate) to compare another species' intellectual capacities to human forms of intelligence in order to determine whether a species has 'value' or 'rights' relative to humans, it may nevertheless be strategic to do this when arguing for greater respect and/or improved conditions of living.

[17] Rudy's call to eat less and 'better' meat reflects the conclusions of some livestock scientists and agricultural analysts who ask that consumers choose more environmentally-friendly, low-impact, and sustainable sources of protein among different *types* of meat and livestock products. See de Vries and de Boer, and Nijdam, Rood, and Westhoek.

middle way, a way that suggests that animals can be raised well, that 'killing well' is not only possible, but from some perspectives, it is necessary'[18] (Rudy 26).

Although it may be worthwhile to consider plant-based diet locavorism as a potential institutional strategy, as some institutions have already done (see Part 4: University Case Studies), it is clear that the idea of 'sustainable meat' advocated by Rudy is one that is problematic in terms of interspecies ethics, (and, arguably, mischaracterizes (certain) feminism(s))[19]. Stanescu[20] maintains that locavorism and the 'humane meat' movement [21] are harmful to humans, nonhumans, and the environment; 'when advocates for either 'local' or 'free-range' farms dismiss all environmental critiques of livestock production as only applying to 'factory farms,' such claims are ill-informed. Such questions about the carrying capacity of the earth are not issues that the support of local meat, no matter how successful, can ever address'

[18] See also Donna J. Haraway, *When Species Meet*.

[19] See, e.g., Carol Adams, *Another feminist rationalizing eating animals.*

[20] Vasile Stanescu, in 'Why "Loving" Animals is Not Enough: A Response to Kathy Rudy, Locavorism, and the Marketing of "Humane" Meat', builds on his earlier work concerning locavorism, where he critically analysed locavorism in terms of environmental sustainability and argued that it is much less environmentally sustainable than a veg*n diet. He believes that locavores engage in a construction of 'a literary pastoral,' have a desire to return to a nonexistent past, falsely romanticise ideals of a local lifestyle, and have the potential to harbour sexist, racist, speciesist, homophobic, and anti-immigration sentiments within the movement. See Vasile Stanescu, '"Green" Eggs and Ham? The Myth of Sustainable Meat and the Danger of the Local'.

[21] Taylor and Fraser also wish to expose the 'illusion' of the 'happy meat' movement; they state that the "call to eat meat as an act of patriotism, health and history denies the importance of life and discourse of death for slaughtered animals… With meat eating so normalised, the focus slides away from the question of whether it is ethical to eat meat onto other questions about how to 'harvest' meat more humanely. Rather than consider the most obvious effects on the animals of producing meat, that is their death, attention is placed on the lead up to and method of death. Contemporary efforts to promote humane farming and processing practices do just this: use language to sanitise and naturalise their practices" ('Condoned Animal Abuse in the Slaughterhouse,' pp. 11-12 of 16). Twine, moreover, states that "[t]he 'happiness' of farmed animals is linked by producers to more productive animals and the notion of 'better welfare.' In all cases the construction of the 'happy oppressed' helps assuage discomforting affect from those holding power in a particular relationship. In the lively debates over 'welfare-friendly meat' animal activists play killjoy to the happiness order undermining its very possibility and questioning the co-existence of 'happiness' with violence" ('Vegan Killjoys at the Table,' p. 626).

(Stanescu, 'Why "Loving" Animals is Not Enough' 102). Critical reassessments of locavorism also focus on the argument about 'food miles.' In 'Testing the Assertion that "Local Food is Best": The Challenges of an Evidence-Based Approach,' Gareth Edwards-Jones and his co-authors review the philosophical and scientific rationale behind the assertion that 'local food' reduces food miles and greenhouse gas emissions, improves food safety and quality, strengthens local economies, and enhances social capital. They argue that food miles are a poor indicator of the environmental and ethical impacts of food production, and that it is only through combining spatially explicit LCAs (life cycle assessments as conventional scientific approaches)[22] with analyses of social issues that the benefits of local food, and the advantages and disadvantages of alternative food supply chains, can be assessed. Furthermore, David Coley et al. suggest that driving to a local farm produces greater emissions than a customer having their vegetables delivered to their door by a regional large-scale vegetable box supplier (taking into account cold storage and packing, as well as transport) (151).

As in other areas of sustainability, price incentives can be used to influence consumption practices, such as through the use of Government imposed 'Pigovian' taxes. Recently social scientists have explored the potential effectiveness of taxes on meat and dairy as a strategy to influence consumer behaviour and offset the negative externalities generated by these consumption activities (see also Goodland's earlier work from 1997). For example, Sarah Säll and Ing-Marie Gren have recently evaluated the environmental impacts of introducing an environmental tax on meat and dairy consumption in Sweden. Three meat products (beef, pork, and chicken), four dairy products (milk, fermented products, cream, and cheese), and four pollutants generating environmental damage (greenhouse gases, nitrogen, ammonia, and phosphorus) were included in the analysis. Their results show that the simultaneous introduction of a tax on all seven meat and dairy products could decrease emissions of the four pollutants from the livestock sector by up to 12%. Brian Revell, however, argues that for commercial livestock products:

[22] See de Vries and de Boer; Nijdam, Rood, and Westhoek; Röös et al., who use LCAs to determine the carbon footprint and environmental impacts of certain livestock products.

Levying tax at the point of slaughter would probably be the most practical way to implement a tax on Indigenous product, whilst carbon-related import taxes might reduce consumption in regions of excess demand. Taxation is equally applicable to consumption or production of meat, and a consumption tax will still impact on both consumers and producers, the incidence of the tax depending on both the supply and demand elasticities. Given that food consumption taxes may be politically and ethically difficult to justify in poor and less developed countries, the practical issues of acceptability are not without problems, both for consumers and producers (593).

While there may be political impediments to the imposition of such taxes, there is evidence that there may be few legal barriers. Cordelia Bähr has also recently analysed three examples of EU taxes that could be imposed on the consumption of domestic and imported meat, examining them in relation to the international climate change regime, human rights law, and the legal regimes of the World Trade Organisation and the EU. She argues that a carefully designed EU meat tax is consistent with these bodies of law. However, Bähr stresses that to adequately address the industrial sectors that give rise to global warming, governments will need to overcome the cultural taboos relating to the concept of a meat tax.[23]

The Heinrich Böll Foundation and Friends of the Earth Europe's *Meat Atlas: Facts and Figures About the Animals We Eat* makes a number of suggestions regarding political solutions for radical rethinking of the way we produce and consume meat and dairy (Chemnitz and Becheva). The report presents a global perspective on the impacts of industrial meat and dairy production, and illustrates its increasingly devastating impact on society and the environment. Focusing on the European Union (EU), the *Meat Atlas* recommends that EU institutions publicly acknowledge the need for action on meat production and consumption, stop support for industrial livestock production through CAP subsidies, reinforce environmental and food legislation to stop damage from industrial livestock production, introduce clear green food procurement standards to ensure that meals paid for by the public purse reflect environmental and health factors, measure

[23] White and Cordell in 'Global Phosphorus Security,' pp. 83-84, also discuss how there is potential to apply a price signal to meat and dairy products in a similar way to taxes on cigarettes and alcohol.

resource use and introduce targets to reduce demand for land and water connected to the production of animal products, and review current and future food product labelling and information, among other measures.[24] *The Meat Atlas* also recommends that member state governments acknowledge the need for urgent action to set guidelines, targets, and policies to achieve more sustainable diets, undertake research to identify the best mechanisms for change, modify official guidelines on healthy eating, and introduce 'clear and mandatory standards to ensure that meals paid for by taxpayers in schools, hospitals, care homes, and all government departments reflect environmental and health factors' (Friends of the Earth Europe 5). These are all measures that university institutions, in particular, could support and implement.

Another solution, and one that we support, is the promotion of plant-based diets on the grounds of sustainability, redefined to include interspecies ethics. Plant-based diets are reframed here not as simply a dietary practice (Hsiung 2), but a broader ideological commitment to interspecies justice and a boycott of 'the industrialization… of animals themselves' (Taylor and Fraser 12). As a broader movement of principled action, veg*nism requires institutional collective support for those who have made alternative dietary choices within an unsupportive, omnivorous wider society. That institutional support is necessary for this to occur can be seen in the 2015 Faunalytics report *Study of Current and Former Vegetarians and Vegans: Qualitative Findings*[25], where Kathryn Asher and her co-authors examined data on what prompted vegetarians and vegans to move away from their diet, as well as what they felt they needed in order to adopt it once more. The survey findings reveal the difficulties of maintaining veg*nism while surrounded by meat culture, which exceptionalises the boycotting of animal products as either a personal dietary choice, or an anomaly unrelated to broader questions of sustainability, environmentalism and interspecies ethics. By reframing sustainability as a matter of social and interspecies ethics, and not just individual conscience, the trap of the institutional

[24] See Friends of the Earth Europe, *Summary & Policy Demands*. This is the Executive Summary of the *Meat Atlas*.

[25] The two initial reports were Asher et al., *Study of Current and Former Vegetarians and Vegans: Initial Findings*; and Asher et al., *Study of Current and Former Vegetarians and Vegans: Companion to the Initial Findings*.

'accommodation' of veg*nism as one possible personal choice amongst many for living ethically and sustainably can be avoided. Institutions can play an important role in framing the issue in terms of social justice rather than individual choice. Some Universities (discussed in the final section below) have taken the preliminary step of acknowledging the GHG impact of meat and dairy diets, and incorporating reduction strategies as a matter of institutional policy. Ideally, this shift from private conscience to public policy needs to be integrated with a shift from intra-human to interspecies ethics.

Part 4: Universities in Focus

Sustainability and environmental issues have been on the agenda for many Universities over the last three decades, as indicated by the Talloires Declaration, a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations, and outreach at colleges and universities. Composed by the University Leaders for a Sustainable Future (ULSF) in 1990 at an international conference in Talloires, France, this is the first official statement made by university administrators of a commitment to environmental sustainability in higher education. It has been signed by over 350 university presidents and chancellors in over 40 countries, [26] and it declares that universities have a 'major role in the education, research, policy formation, and information exchange' that is necessary to address 'unprecedented scale and speed of environmental pollution and degradation, and the depletion of natural resources' brought about by 'inequitable and unsustainable production and consumption patterns' (Talloires Declaration). This declaration provides a prompt for including food practices and animal agriculture in sustainability agendas. And yet, as public health researchers have observed,

[26] Australian signatories include the Australian National University, La Trobe University, Monash University, University of Melbourne, University of New South Wales, University of Queensland, University of Tasmania, University of Technology Sydney, University of Wollongong, and Western Sydney University. The University of Sydney is not a signatory, and those that are do not necessarily have sustainability policies that address animal agriculture and food practices on campus.

universities remain a largely untapped site for effecting the systemic change of food practices, with the possibility of achieving co-benefits to health and sustainability (Doherty).

The provision of more sustainable foods has been recommended as part of sustainability measures implemented at a number of universities worldwide, to various degrees. An interesting institutional case of the (attempted) implementation of measures for veg*n sustainability is that of Wadham College at the University of Oxford. In June 2014, Wadham College decided to serve exclusively vegan meals five nights a week, citing as its reason that "[r]educing the consumption of meat is one of many steps needed to reduce the effects of climate change" (See 'University of Oxford College Votes for Vegan Meals to Help Fight Climate Change'). A month later, however, Wadham College reversed the decision, the Warden stating that the college is still committed to 'specific dietary needs' of students. Such a statement redirects the discussion from a politics of climate-changed diets back to a privatised issue of student's individual 'dietary needs' (See 'University of Oxford College Makes U-turn on Vegan Meals'). As Jenkins and Twine point out, the linking of the idea of food "choice" with autonomy and privacy is key to the 'depoliticization of human-animal relations and to the deflection of critical thinking around food practices' (2014, 225).

Other universities in the UK draw an explicit link between food practices and climate change. For example, the University of Exeter's Sustainable Food Policy commits to an objective that 'non meat dishes are being promoted as part of a balanced, climate friendly diet, increasing the range of vegetarian options available' ('Environmental Sustainability Policy'). The University of Central Lancashire also seeks to 'expand the provision of meat free and therefore lower carbon alternatives' ('Healthy, Sustainable and Safe Food Policy'). The University College London's 'Healthy Sustainable Food Policy and Strategy' includes a commitment to reducing the consumption of animal products: 'We will monitor and seek to reduce the amount of dairy, meat and processed meats that are served, in line with customer feedback' without necessarily linking such a move to GHG reduction (see 'Healthy Sustainable Food Policy and Strategy'), while the University of Leicester makes reference to 'animal welfare' as part of its commitment to ethical consumption ('Sustainable food policy'). Such an inclusion departs from other university sustainability policies, where 'ethical' products often refer only to human labour conditions (under the terms of 'fairtrade'). Other universities are making commitments to increase the availability of plant-based foods, notably Yale University, which intends to 'increase

the purchase and preparation of plant-based foods in Yale Dining by 15% over 2013 levels by June 2016' ('Sustainability Strategic Plan 2013–2016').

At least some universities are slowly, but increasingly, situating food practices as a part of sustainability agendas, thus highlighting the interplay of discourses surrounding health (often 'human' only), the environment, and less often, 'animal welfare'. Boston University provides one example of how these factors comes together, but also how they fall short of tackling the problem of animal agriculture as both an environmental issue and a question of interspecies ethics. According to the Boston University Sustainability website, the University has a Dining Services Sustainability Program that works to reduce its impact through 'informed purchasing decisions, smart food choices, and waste reduction and diversion' (Trustees of Boston University). The website states that 'BU purchases many food products whenever economically feasible, and all eggs served on campus have been cage free since September 2012. In addition, all seafood is purchased according to guidelines set by the Monterey Bay Aquarium and the Marine Stewardship Council. Linking sustainability to locavorism more than veg*nism, the university also provides plant-based meal options in all dining halls on campus, promotes sustainable food choices with 'Make a Difference Monday' ('a day reserved for local, organic and sustainable foods with a lower carbon footprint'), and buys locally-grown and locally-processed food from 45 farms and 130 different producers in an attempt to reduce fuel use and greenhouse gas emissions.

In a similar manner to Boston University, York University has made recommendations for policy aimed at governing campus food service operations that enables and supports the implementation of sustainable consumption practices. As part of the Institute for Research and Innovation in Sustainability's Examining Campus Food Sustainability at York University, a survey of the York community about their views, concerns, and desires related to eating on campus was carried out (Morris et al.). The survey results indicate the need for a greater variety of more readily available fruits and vegetables, alternative protein sources, and plant-based options on university campuses.

Here questions of how best to frame the issue of sustainability for the management and administration of the expectations around sustainable food consumption within institutions come strongly to the fore. Although also connecting sustainability to locavorism more than veg*nism,

and connecting *human* health to reduction in meat and dairy consumption, these university policies and recommendations provide some worthwhile suggestions for an engagement with institutional management on the issue of interspecies sustainability. All offer examples of what sustainable food practice at a climate-conscious institution might start to look like, highlighting the point that institutions can play an important role in framing the issue in terms of social justice rather than individual choice. As we can see some universities have taken the preliminary step of acknowledging the GHG impact of meat and dairy diets, and incorporating reduction strategies as a matter of institutional policy. Ideally, this shift from private conscience to public policy needs to be integrated with a shift from intra-human to interspecies ethics.

Conclusion

One central objective in this article has been to argue for an expanded definition of sustainability that includes interspecies ethics. To be sure, when sustainability is defined simply in terms of the goal of carbon footprint reduction, veg*nism simply becomes one possible strategy among many in order to attain this goal. As has been demonstrated, sustainability is a term that can be mobilised in different, sometimes contradictory ways, such as when it is deployed to defend intensive factory farming of animals and CAFOs. As Twine argues, '[a]ny contemporary discussion on 'sustainability' must account for the politics around the concept itself' (Twine 2010, 122). One central objective in this article has been to argue for an expanded definition of sustainability that includes interspecies ethics – i.e. *interspecies sustainability*. Unlike traditional sustainability discourses, which frame animals as renewable resources to be protected only insofar as they sustain intergenerational human survival, interspecies sustainability recognizes that animals, too, have a right to the social, material and ecological bases for flourishing lives, sustained over time. As noted by Grendellyn Earnshaw: 'Supporting the health and well-being of other animal species-namely by ceasing exploitation - supports the health and well-being of the human species and the environment. Therefore, in an effort to develop truly sustainable societies, decision-makers must begin to incorporate principles of interspecies equity'(143).

The concept of interspecies sustainability allows us to overcome many of the limitations, and internal contradictions, of current sustainability discourse, which on the one hand recognizes the value of 'conserving the vitality and diversity of natural ecosystems' while at the same time failing utterly in the protection of those ecosystems due to the persistent and self-defeating conceptualization of animals as exploitable resource (Earnshaw 124). When sustainability is defined narrowly in terms of the goal of carbon footprint reduction, veg*nism simply becomes one possible strategy (often ignored or downplayed) among many for attaining this goal. And, as has been demonstrated, sustainability is a term that can be mobilised in different, sometimes contradictory ways, such as when it is deployed to defend intensive factory farming or animals and CAFOs. It often stigmatizes animals as yet one more problematic source of GHG emissions, like cars or cement factories, rather than recognizing them as subjects who, like us, must cope with the devastating impacts of climate change. Non-human animals aren't the cause of GHG emissions; *human exploitation of them is*.

As an alternative to 'sustainable' animal exploitation or 'animal blame', interspecies sustainability opens up the possibility of cooperating with, and learning from, other animals about living lightly on the earth – leaving 'enough, and as good' for others. Many animals are exemplars of a freegan, recycle and reuse lifestyle; of harnessing solar, thermal, wind and tidal power rather than relying on fossil fuels; of living simply rather than living for accumulation. And plant-based living, rather than being a deprivation, or posing a threat to identity, offers a compelling and coherent pathway to a more just and sustainable future. When we focus on animal agriculture, not only in terms of GHG emissions, but comprehensively in relation to failures of social justice, including interspecies ethics, it becomes clear that socially responsible sustainability begins where animal exploitation ends. As such, we have come up with five 'calls to action' that extend current sustainability frameworks and commitments:

1) A university defines carbon footprint to include the contribution made by animal agriculture
2) A university defines environmental sustainability to include considerations of food practices
3) A university commits to producing knowledge to educate students and the broader community on the key contributors to climate change and areas for action (energy, transport, animal agriculture)
4) A university ensures that its social justice commitments include interspecies ethics.
5) A university promotes plant-based diets (understood here as food free of animal products) to optimize staff and student health and wellbeing, and supports individual choice and transition via institutional structures, campaigns and incentives

Our hope is that these calls to action can mobilise 'sustainability' for future policy directions.

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