

# DOES THE RULE OF ECOLOGICAL LAW DEMAND VEGANISM?: ECOLOGICAL LAW, INTERSPECIES JUSTICE, AND THE GLOBAL FOOD SYSTEM

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## INTRODUCTION

The concept of ecological law challenges many fundamental assumptions and norms of our conventional understandings of law and requires profound changes to our usual approaches to sustainability.<sup>1</sup> A somewhat less explored issue is whether ecological law requires or leads us toward interspecies justice. To tackle this question, I have chosen the case study of our global industrialized food system, focusing in particular on animal foods. Not only does eating animal products directly raise the issue of interspecies justice, but it acutely demonstrates the challenges of achieving human justice (both inter- and intragenerational) and justice for

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1. See Geoffrey Garver, *The Rule of Ecological Law: The Legal Complement to Degrowth Economics*, 5 SUSTAINABILITY 316, 325 (2013) (theorizing that “[t]he rule of ecological law must overcome the limitations of contemporary environmental law,” namely its protection of consumption-based lifestyles that are “rooted in strong notions of property rights and personal freedom”).

other species at the same time.<sup>2</sup> It is therefore interesting to ask the question: does ecological law demand veganism?<sup>3</sup> While this short Essay does not attempt to provide a complete and final answer to this question, it provides an excellent opportunity for an initial thought experiment on how ecological law would change one of the most ecologically harmful and unjust aspects of our global food system.<sup>4</sup>

In understanding and actualizing ecological law, several related concepts are helpful. One purpose of the law is to achieve justice. Klaus Bosselmann has proposed a concept of “ecological justice,” which requires three kinds of justice: intergenerational, intragenerational, and interspecies.<sup>5</sup> Our current globalized, industrialized food system is a challenge to all three.<sup>6</sup> To overcome this challenge, our dominant food system, and the laws and policies that shape it, must be changed. Although it is true that what we eat is often a personal choice, this choice, for many of us, is significantly shaped and limited by the modern industrial food system, which is colonial, exploitative, and creates injustice to present and future generations of human and non-human animals.<sup>7</sup> This is particularly true in relation to industrial animal agriculture, especially industrial meat production.<sup>8</sup> Arguments in favor of the industrial food system emphasize the need to increase food production to feed a growing global population,<sup>9</sup> especially in

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2. See *infra* Part I (explaining how the global food system’s focus on industrial animal agriculture contributes to inter- and intragenerational as well as interspecies injustice).

3. This Essay is an introductory thought experiment—rather than a comprehensive review of how ecological law would reform the global, regional, and local food systems—and is certainly not intended to answer the question of whether each person’s or group’s food choices meets any particular ethic of ecological law.

4. See *infra* Part IV (analyzing how Garver’s ten features of ecological law would reform the global food system).

5. Klaus Bosselmann, *Ecological Justice and Law*, in ENVIRONMENTAL LAW FOR SUSTAINABILITY: A READER 129, 160 (Benjamin J. Richardson & Stepan Wood eds., 2006).

6. See *infra* notes 116–21 and accompanying text (explaining how the developed world’s consumption of meat contributes to food insecurity, thereby causing intergenerational injustice).

7. See *infra* notes 97–101 and accompanying text (outlining the ways in which the legal system incentivizes and promotes the modern global food system).

8. See *Global Meat Production and Consumption Continue to Rise*, WORLDWATCH INST., <http://www.worldwatch.org/global-meat-production-and-consumption-continue-rise> (last visited Apr. 14, 2019) [hereinafter *Global Meat Production*] (discussing the negative impacts that industrialized meat production has on animals, humans, and the climate).

9. See, e.g., *Who Will Feed Us? The Industrial Food Chain vs the Peasant Food Web*, ETC GROUP (Oct. 16, 2017) [hereinafter *Who Will Feed Us?*], <http://www.etcgroup.org/content/who-will-feed-us-industrial-food-chain-vs-peasant-food-web> (“We are told that it is big agribusiness, with its flashy techno-fixes and financial clout, that will save the world from widespread hunger and malnutrition . . .”).

regions where financial wealth is increasing.<sup>10</sup> However, there is very little discussion about tackling hunger by other means, such as addressing human population growth, reducing food waste, enhancing redistribution of food, and producing food with more efficient energy ratios.

Therefore, this Essay specifically asks: (1) Does ecological law require interspecies justice? (2) Does interspecies justice demand (human) veganism?<sup>11</sup> (3) Would veganism enhance or challenge inter- and intragenerational human justice?

I will use Geoffrey Garver's ten features of ecological law<sup>12</sup> to explore these issues and to propose changes to our food systems, with a particular focus on industrial animal agriculture.<sup>13</sup> I conclude that ecological law would respect indigenous approaches to food, which permit non-human animals to fulfill their ecological and natural roles.<sup>14</sup> Similarly, ecological law may permit traditional small-scale animal husbandry, with its system of

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10. See *Global Meat Production*, *supra* note 8 (documenting that “[w]orldwide meat production has tripled over the last four decades,” especially in industrial countries that consume “nearly double the quantity [of] developing countries”).

11. Another interesting question to consider is whether interspecies justice requires an end to non-human animal *unrewarded* labor, but this is beyond the scope of this Essay. See *Workshop on ‘Animal Labour: Ethical, Legal and Political Perspectives on Recognizing Animals’ Work*, ANIMALS PHIL., POL., L. & ETHICS (Feb. 21, 2018), <http://animalpolitics.queensu.ca/workshop-animal-labour/> (promoting workshop that “aim[s] . . . to explore the potential benefits and pitfalls of recognizing animals as workers”); *Charlotte Blattner On ‘Animals Are (Forced) Workers, Too,’* ANIMALS PHIL., POL., L. & ETHICS (Feb. 21, 2018), <http://animalpolitics.queensu.ca/charlotte-blattner-on-animals-are-forced-workers-too/> (examining “whether animals require a right against forced labour and explor[ing] how this right can be secured”).

12. Garver, *supra* note 1, at 325–30.

13. See *infra* Part IV (applying Garver's ten features of ecological law to the industrial animal food system).

14. As Angela Lee has written:

Looking to other kinds of belief systems can help us to envision alternative, non-technological ways in which meat eating might occur ethically, though here, we must be vigilant so as not [to] pick and choose those elements of other cultures that are convenient or favourable to our position, while discarding those that are not. We must also be careful to avoid the assumption that “indigenous people cannot maintain traditional values if their use of native implements has been supplanted by technology and practices imported from the dominant white culture.” A “primitive” subsistence culture is not the only one in which meat-eating could defensively take place. Instead of being guided by rigid rules or absolute prohibitions, value systems and worldviews predicated on different set of principles can teach us to think more relationally about the environment we live in and the food that it provides. For example, Aboriginal attitudes towards hunting and meat-eating frequently reflect a profound reverence for animal life within a system of kinship, and underscore the ethical responsibilities associated with taking that life away.

Angela Lee, *The Milkmaid's Tale: Veganism, Feminism, and Dystopian Food Futures*, WINDSOR REV. LEGAL & SOC. ISSUES (forthcoming 2019) (manuscript at 31–32) (on file with author) (footnotes omitted) (quoting J. Douglas Rabb, *The Vegetarian Fox and Indigenous Philosophy: Speciesism, Racism, and Sexism*, 24 ENVTL. ETHICS 275, 286 (2002)).

mutual dependence between human and non-human animals.<sup>15</sup> However, these food systems alone are unlikely to feed the rapidly growing global human population; thus, these systems may not achieve inter- and intragenerational equity.<sup>16</sup> If ecological law also requires interspecies justice, it is difficult to justify significant human consumption of animal products where humans can feed themselves adequately from plant-based sources—a complex idea explored in more detail below.<sup>17</sup> While a dramatic shift away from animal food products will not occur overnight, and may never be fully achieved, ecological law still demands the dismantling of the myriad laws—including environmental laws—that encourage and perpetuate our current globalized industrial food system’s reliance on animal food products.<sup>18</sup> A shift from animal-product consumption would also allow us to solve some of the more pressing problems of the industrial-animal-agriculture system.

#### I. DEFINING “ECOLOGICAL LAW” AND THE “GLOBAL (ANIMAL) FOOD SYSTEM”

Garver explains ecological law as follows:

Systems-based ecological boundaries that promote the flourishing of life systems provide the base of a structure of ecological law (in the legal sense) that must be respected and enforced to fend off catastrophe and enhance the capacity for life. The looming prospect of transgressing critical ecological points of no return requires the global community to fashion a systems-based legal and institutional structure that is built on the

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15. See *infra* notes 166–73 and accompanying text (highlighting how ecological law could encourage local food movements).

16. See Tamar Haspel, *Why Small, Local, Organic Farms Aren’t the Key to Fixing Our Food System*, WASH. POST (Sept. 22, 2017), [https://www.washingtonpost.com/lifestyle/food/why-small-local-organic-farms-arent-the-key-to-fixing-our-food-system/2017/09/21/146f72b2-9e4d-11e7-8ea1-ed975285475e\\_story.html?utm\\_term=.fbd57989db0a](https://www.washingtonpost.com/lifestyle/food/why-small-local-organic-farms-arent-the-key-to-fixing-our-food-system/2017/09/21/146f72b2-9e4d-11e7-8ea1-ed975285475e_story.html?utm_term=.fbd57989db0a) (positing that local farms cannot solve issues in the food system because (i) they do not produce the right crops, (ii) they are not equipped to grow such crops, (iii) cropland is not situated close enough to populated areas, and (iv) local food is only available for limited seasons). *But see Who Will Feed Us?*, *supra* note 9 (“[A] new report . . . shows that in fact, it is a diverse network of small-scale producers, dubbed the Peasant Food Web, that feeds 70% of the world . . .”).

17. See *infra* Part III (discussing whether interspecies justice demands human veganism).

18. See *infra* Part IV (arguing that ecological law requires reducing reliance on industrial-animal-agriculture systems).

foundation of ecological law under an expanded notion of the rule of law.<sup>19</sup>

Many others have used different terms to describe similar approaches and challenges.<sup>20</sup> More specifically, Garver proposes ten features of ecological law: (1) ecological law should recognize humans are part of Earth's life systems; (2) ecological limits must have primacy over social and economic regimes; (3) ecological law must permeate all areas of law; (4) ecological law should focus on radically reducing material and energy output; (5) ecological law must be global but distributed (otherwise referred to as the principle of subsidiarity and common but differentiated responsibility); (6) ecological law should ensure a fair sharing of resources among present and future generations of humans and other life; (7) ecological law must be "binding . . . and supranational, with supremacy over sub-global legal regimes as necessary"; (8) ecological law requires "greatly expanded program[s] of research and monitoring"; (9) ecological law requires precaution in relation to crossing global ecological boundaries; and (10) ecological law must be adaptive.<sup>21</sup>

According to Garver, ecological law grows out of two competing impossibilities:

The call for the rule of ecological law emerges from the tension between opposing narratives of impossibility. On the one hand is the seeming impossibility of ending the current intransigent commitment to infinite economic growth, the primacy of short-term economic interests and the overriding belief in technological solutions to ecological challenges . . . . On the other hand are the systemic impossibilities and long-term catastrophic socio-ecological consequences if the economy grows infinitely and economic and political trade-offs continue to outweigh non-negotiable ecological limits.<sup>22</sup>

The current global food system's approach to animal food products is at exactly this juncture of impossibilities, and this is why ecological law could be particularly relevant in trying to transform the system to achieve

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19. Garver, *supra* note 1, at 317–18; *see also id.* at 319 (“[T]he ‘rule of law’ means that global regulatory limits required to meet ecological limits and ensure fair sharing of the earth’s bounty must be respected.” (quoting PETER G. BROWN & GEOFFREY GARVER, *RIGHT RELATIONSHIP: BUILDING A WHOLE EARTH ECONOMY* 135 (2009))).

20. *See id.* at 318–19 (explaining various concepts analogous to Garver’s theory of ecological law).

21. *Id.* at 325–29.

22. *Id.* at 330.

ecological sustainability and justice. But in fact, what *is* the global food system? According to the Committee on World Food Security:

[A] food system encompasses all the stages of keeping us fed: growing, harvesting, packing, processing, transforming, marketing, consuming and disposing of food. The most common food system is the agro-industrial food system that is global. It is dominated by a few multinational corporations through vertical integration. This is a very complex system with a long supply chain and it has a lot of processed foods.<sup>23</sup>

The global food system, particularly since World War II, has been increasingly focused on and driven by industrialization, corporatization, and monopolization, including in the production and marketing of animal-based foods.<sup>24</sup> In addition, this model is being exported: industrial animal operations “are becoming increasingly prevalent in developing regions.”<sup>25</sup> For example, “[i]n East and Southeast Asia . . . meat production increased by 25 million tons, or 31 percent, between 2001 and 2007 alone, and most of this growth took place in industrial systems.”<sup>26</sup> The Food and Agriculture Organization of the United Nations (FAO) “estimates that 80 percent of growth in the livestock sector now comes from industrial production systems. And in many developing regions, environmental, animal welfare, public health, and labor standards are not as well established as in North America and Europe.”<sup>27</sup> Industrial animal agriculture causes significant harm to the climate and water and requires land use change—not to mention the harms to animal and human health.<sup>28</sup> It also affects access to healthy, sustainable, and ecologically and culturally appropriate foods.<sup>29</sup>

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23. Myriam Welvaert, *The Future Food System: The World on One Plate?*, COMMITTEE ON WORLD FOOD SECURITY (Oct. 20, 2016), <http://www.fao.org/cfs/home/blog/blog-articles/article/en/c/448182/>.

24. Heather McLeod-Kilmurray, *Commoditizing Nonhuman Animals and Their Consumers: Industrial Livestock Production, Animal Welfare, and Ecological Justice*, 32 BULL. SCI., TECH. & SOC'Y 71, 73, 77, 80 (2012) [hereinafter McLeod-Kilmurray, *Commoditizing Animals*].

25. *Rising Number of Farm Animals Poses Environmental and Public Health Risks*, WORLDWATCH INST., <http://www.worldwatch.org/rising-number-farm-animals-poses-environmental-and-public-health-risks-0> (last visited Apr. 14, 2019) [hereinafter WORLDWATCH INST., *Farm Animals*].

26. WORLDWATCH INST., VITAL SIGNS VOLUME 20: THE TRENDS THAT ARE SHAPING OUR FUTURE 56 (2013) [hereinafter VITAL SIGNS].

27. *Id.* (footnote omitted).

28. FOOD & AGRIC. ORG. OF THE UNITED NATIONS, LIVESTOCK'S LONG SHADOW: ENVIRONMENTAL ISSUES AND OPTIONS 4, 6, 16 (2006), <http://www.fao.org/3/a-a0701e.pdf> [hereinafter FOOD & AGRIC. ORG., LIVESTOCK].

29. BRIGHTER GREEN & THE GLOB. FOREST COAL., INDUSTRIAL AGRICULTURE, LIVESTOCK FARMING AND CLIMATE CHANGE: GLOBAL SOCIAL, CULTURAL, ECOLOGICAL, AND ETHICAL IMPACTS OF AN UNSUSTAINABLE INDUSTRY 4, <https://globalforestcoalition.org/wp-content/uploads/2013/05/>

If the current global food system causes so many health and justice problems to the environment, economy, humans, and animals, why have we structured it this way to date? While the evolution of the current system is a long—though surprisingly recent—story, some of the key arguments for maintaining, and even expanding, this system include: (1) the lack of adequate food for millions of people;<sup>30</sup> (2) the increasing wealth of the human population, which has led to rising demand for animal food products;<sup>31</sup> and (3) the risks that climate change poses to food production.<sup>32</sup> What would ecological law have to say about each of these arguments?

First, it would question more specifically *why* there is a lack of adequate food for the current generation and why the dominant food system's prescription for fixing this problem is so heavily focused on increasing the food supply.<sup>33</sup> It is widely documented that the world currently produces sufficient food to feed every human on Earth, and the problem is one of distribution.<sup>34</sup> In addition, food waste is an enormous problem, and some have estimated that roughly 33% of produced food is wasted.<sup>35</sup> Second, ecological law would emphasize tackling the human population growth problem itself, rather than accepting it and placing the extra burden on the ecosystem and other lives within it.<sup>36</sup> Third, if hunger persisted despite reduced waste, fairer distribution, and human population control, ecological law would ask whether increasing growth through

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MM\_Brighter-Green-and-the-Global-Forest-Coalition\_WSF\_Industrial\_Livestock-FINAL.pdf (last visited Apr. 14, 2019).

30. See FOOD & AGRIC. ORG. OF THE UNITED NATIONS, *THE STATE OF FOOD SECURITY AND NUTRITION IN THE WORLD 2* (2018) (“The absolute number of undernourished people in the world is now estimated to have increased from around 804 million in 2016 to almost 821 million in 2017.”).

31. WORLDWATCH INST., *Farm Animals*, *supra* note 25.

32. See Renee Cho, *How Climate Change Will Alter Our Food*, COLUM. U.: EARTH INST. (July 25, 2018), <https://blogs.ei.columbia.edu/2018/07/25/climate-change-food-agriculture/> (describing how climate change will likely result in decreased yields in all food production because of increased temperatures and extreme weather fluctuations).

33. See Garver, *supra* note 1, at 326–27 (explaining that ecological law calls for both a “fair sharing of resources among present and future generations” as well as a “radical re-focusing of the economy on reduc[ing]” consumption and energy).

34. Eric Holt-Giménez et al., *We Already Grow Enough Food for 10 Billion People . . . and Still Can't End Hunger*, 36 J. SUSTAINABLE AGRIC. 595, 595 (2012).

35. *Key Facts on Food Loss and Waste You Should Know!*, FOOD & AGRIC. ORG. UNITED NATIONS, <http://www.fao.org/save-food/resources/keyfindings/en/> (last visited Apr. 14, 2019) [hereinafter *Facts on Food Loss*].

36. Garver, *supra* note 1 (“The primary concern of the human community must be the preservation and enhancement of [the community of all living species].” (quoting THOMAS BERRY, *GREAT WORK: OUR WAY INTO THE FUTURE* 58 (1999))).

animal food products is the most efficient or fair system—both in terms of justice to humans and the ecosystem.<sup>37</sup>

Second, some have argued that industrial animal agriculture is the most efficient way to satisfy the demands of the growing global human population and its increasing wealth.<sup>38</sup> However, ecological law might ask whether more animal products are a need or a want.<sup>39</sup> Ecological law would ask about the ecological realities of the peoples in question to answer this. For example, the human need to eat meat is very different in the far North or in extreme drought conditions than in Western urban contexts.<sup>40</sup> In addition, while eating animal products is a personal choice,<sup>41</sup> these choices are very often shaped and limited by the industrial food system, the laws and subsidies that support it,<sup>42</sup> and the economic realities and practical

37. See *id.* at 327 (“[T]he rule of ecological law must ensure fair sharing of resources among present and future generations . . .”).

38. See, e.g., Ron Smith, *Population Growth Demands Improved Farm Efficiency*, SOUTHWEST FARM PRESS (Apr. 22, 2010), <https://www.farmprogress.com/management/population-growth-demands-improved-farm-efficiency> (arguing that to feed 9 billion people by 2050, farmers and ranchers “must find ways to make significant improvement in farm productivity and efficiency”).

39. See Garver, *supra* note 1, at 326–27 (advocating for a cultural shift to an economy that produces only things that are needed).

40. See Marcelo Gleiser, *Is a No-Meat World Really Better?*, NAT’L PUB. RADIO (June 28, 2017), <https://www.npr.org/sections/13.7/2017/06/28/532880755/is-a-no-meat-world-really-better> (“[I]t is clear that less meat is good morally and environmentally, but no meat may not be as good as some may think. Some poor regions in the world need all the meat they can get.”); see also Tiff-Annie Kenny et al., *Dietary Sources of Energy and Nutrients in the Contemporary Diet of Inuit Adults: Results from the 2007–08 Inuit Health Survey*, 21 PUB. HEALTH NUTRITION 1319, 1319–20 (2018) (chronicling that “[i]n the latter half of the 20th century,” the Inuit decreased their consumption of “country foods,” which are those “harvested from northern ecosystems, through cultural practices, traditions and detailed environmental knowledge” while increasing their consumption of foods “purchased in stores”); Ursula King & Christopher Furgal, *Is Hunting Still Healthy? Understanding the Interrelationships Between Indigenous Participation in Land-Based Practices and Human-Environmental Health*, 11 INT’L J. ENVTL. RES. & PUB. HEALTH 5751, 5772 (2014) (arguing for a transdisciplinary approach to “better understand” the complexity between hunting and “[l]and-human health interrelationships”).

41. Of course, this assumes that the person in question has the ability to exercise choice in relation to food—clearly millions of people do not exercise free choice in relation to food for a variety of reasons, including income, accessibility, and other barriers. See, e.g., Rebecca Seguin et al., *Understanding Barriers and Facilitators to Healthy Eating and Active Living in Rural Communities*, J. NUTRITION & METABOLISM, 2014, at 5–6, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4276670/pdf/JNME2014-146502.pdf> (“The cost of fresh food was identified as a barrier to eating healthy, especially among low-income members of the community.”).

42. See, e.g., Adam Spiers, *The Public Health Dilemma of Excessive Meat Consumption*, NETWORK FOR PUB. HEALTH L.: PUB. HEALTH L. BLOG (May 9, 2013, 12:14 PM), [https://www.networkforphl.org/the\\_network\\_blog/2013/05/09/179/the\\_public\\_health\\_dilemma\\_of\\_excessive\\_meat\\_consumption](https://www.networkforphl.org/the_network_blog/2013/05/09/179/the_public_health_dilemma_of_excessive_meat_consumption) (“Between 1995 and 2009, the federal government spent approximately \$250 billion to subsidize the agricultural industry — approximately 63 percent of these expenditures supported the meat and dairy industries.”).



availability of options for variously situated people.<sup>43</sup> Therefore, ecological law would question this argument as an appropriate solution to global hunger.

Third, if the goal is to tackle hunger, expanding food systems that exacerbate ecological harms will only worsen the problem. For example, animal food products are among the greatest cause of reduced food availability—both currently and in the future—due to their serious role in exacerbating climate change, which also challenges food production itself.<sup>44</sup> For example:

The production of animal products generates the majority of food-related GHG emissions (72–78% of total agricultural emissions), which is due to low feed-conversion efficiencies, enteric fermentation in ruminants, and manure-related emissions; the feed-related impacts of animal products also contribute to bluewater use (around 10%) and pressures on cropland, as well as nitrogen and phosphorus application (20–25% each).<sup>45</sup>

Apart from its effects on climate, the industrial food system is colonial, exploitative, and creates injustice to the current and future generations of human and non-human animals. The feed conversion ratio creates inter- and intragenerational inequalities.<sup>46</sup> Fears of future food scarcity drive land grabbing and other injustices.<sup>47</sup> The industrial food system also creates path

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43. See Gleiser, *supra* note 40 (explaining that in many places, raising animals is easier or the only option available given the state of the land).

44. FOOD & AGRIC. ORG., LIVESTOCK, *supra* note 28, at 4–6.

45. Marco Springmann et al., *Options for Keeping the Food System Within Environmental Limits*, 562 NATURE 519, 520 (2018) (footnote omitted); see also Walter Willett et al., *Food in the Anthropocene: The EAT–Lancet Commission on Healthy Diets from Sustainable Food Systems*, 393 LANCET COMMISSIONS 447, 449 (2019) (“Food production is the largest cause of global environmental change.”). For further details on how industrial meat production impacts climate change and causes other environmental harm, see Robert Goodland & Jeff Anhang, *Livestock and Climate Change: What if the Key Actors in Climate Change are . . . Cows, Pigs and Chickens?*, WORLDWATCH INST., Nov.–Dec. 2009, at 10–11, <http://www.worldwatch.org/node/6294> (explaining that livestock contributes between 18 and 51% of annual worldwide greenhouse gas emissions); FOOD & AGRIC. ORG., LIVESTOCK, *supra* note 28, at iii (outlining the “very substantial contribution of animal agriculture to climate change and air pollution, to land, soil and water degradation and to the reduction of biodiversity”); see also Heather McLeod-Kilmurray, *Vegetarianism and Food Governance: Sustainability and Ecological Justice*, in GLOBALISATION AND ECOLOGICAL INTEGRITY IN SCIENCE AND INTERNATIONAL LAW 57, 58–59 (Laura Westra et al. eds., 2011) [hereinafter McLeod-Kilmurray, *Vegetarianism*] (reporting that intensive livestock production is one of the greatest emitters of greenhouse gases).

46. See *infra* notes 115–22 and accompanying text (explaining that because industrial agricultural has a high feed-conversion ratio it can only feed a small percentage of planet).

47. Kihwan Seo & Natalia Rodriguez, *Land Grab, Food Security and Climate Change: A Vicious Circle in the Global South*, in HUMAN AND SOCIAL DIMENSIONS OF CLIMATE CHANGE 165, 167 (Netra Chhetri ed., 2012), <https://www.intechopen.com/chapter/pdf-download/40834>.

dependence, making us forget that there may be other, better systems and approaches available<sup>48</sup> and causing us to look to economic and technological fixes.<sup>49</sup> For example, some have suggested that genetic engineering could reduce methane emissions from meat production.<sup>50</sup> Yet the risks of genetically modified foods have not been fully tested or understood and could create systemic ecological harms, which in turn could harm humans as well as the animals, both farmed and wild, and plants they rely on.<sup>51</sup> These technological approaches also have a tendency to cause even further corporatization and concentration of power in the food system.<sup>52</sup> Given the challenges of the current global industrial-animal-agricultural system, how could ecological law, and its commitment to interspecies justice, help?

## II. DOES ECOLOGICAL LAW REQUIRE INTERSPECIES JUSTICE?

Many ecological law scholars make reference to some aspects of interspecies justice. For example, as stated above, Bosselmann explicitly argues that ecological justice requires intergenerational, intragenerational and *interspecies* justice.<sup>53</sup> The Earth Charter, which “is an ethical

48. See, e.g., MICHAEL POLLAN, *THE OMNIVORE’S DILEMMA* 130–33 (2006) (contrasting a “conventional 500-acre corn-and-bean operation in Churdan, Iowa” with a 550-acre sustainable, organic farm in Swoope, Virginia).

49. See, e.g., Shenggen Fan, *Innovations in Food Systems: The Key to Human and Planetary Health*, INT’L FOOD POL’Y RES. INST.: IFPRI BLOG (Mar. 27, 2018), <http://www.ifpri.org/blog/innovations-food-systems-key-human-and-planetary-health> (promoting “new and potentially transformative technologies” in the global food system, such as “lab-grown meat” and gene-edited seeds). But see Angela Lee, *An Ecofeminist Perspective on New Food Technologies*, 5 CAN. FOOD STUD. 63, 69 (2018) (“Given the social, political, economic, and ethical contexts that food occupies, technical evaluations of new food technologies are conspicuously incomplete, and require a more nuanced consideration of their systemic implications.”).

50. See, e.g., Geoff Geddes, *Burps and Bovine: Dairy Genomics Project Cuts Feed Costs, Emissions*, GENOME ALTA.: GENOMICS BLOG (Feb. 2, 2016), <http://genomealberta.ca/genomics/burps-and-bovines-dairy-genomics-project-cuts-feed-costs-emissions.aspx> (describing a research initiative “aimed at harnessing genomics to boost feed efficiency and reduce methane emissions in dairy cattle”).

51. See JEFFREY M. SMITH, *GENETIC ROULETTE: THE DOCUMENTED HEALTH RISKS OF GENETICALLY ENGINEERED FOODS* 194 (2007) (“Since GM food is proclaimed by proponents and some regulators to be as safe as its non-GM counterpart, the pressure on researchers to not contradict this assumption is considerable. . . . This helps explain the lack of serious studies on GM foods . . .”).

52. See, e.g., Leonid Bershidsky, *Why the EU Approved Bayer-Monsanto*, BLOOMBERG (Mar. 23, 2018), <https://www.bloomberg.com/opinion/articles/2018-03-23/bayer-monsanto-analysis-eu-approval-is-about-competition> (explaining that, if a merger is approved, three companies will control 61% of the seed and pesticide market); see also Jennifer Clapp, *Mega-Mergers on the Menu: Corporate Concentration and the Politics of Sustainability in a Global Food System*, 18 GLOBAL ENVTL. POL. 12, 12 (2018) (examining “the environmental dimensions of corporate concentration in the agricultural input industry as well as the challenges involved in establishing international policy and governance on this issue”).

53. Bosselmann, *supra* note 5, at 160.

framework for building a just, sustainable, and peaceful global society,”<sup>54</sup> recognizes the interdependence of species, and the value of all living things, regardless of their utility for human animals.<sup>55</sup> Cormac Cullinan claims that “the essential *purpose* of human governance systems should be to support people to play a mutually enhancing role within the community of life on Earth.”<sup>56</sup> Maintaining the focus on Garver’s ten features, features 1, 2, and 6 seem to lead us toward interspecies justice.<sup>57</sup> Feature 1, requiring us to “recognize[] that humans are part of Earth’s life systems,” moves us away from anthropocentric approaches to food law.<sup>58</sup> “[L]ife systems” seem to include all species, including non-human life, as something humans must relate to in a balanced and systemic way.<sup>59</sup> Feature 6 clearly encompasses all three types of justice in Bosselmann’s definition, when it requires laws to “ensure fair sharing of resources among present and future generations of humans and other life forms.”<sup>60</sup>

### III. DOES INTERSPECIES JUSTICE DEMAND (HUMAN) VEGANISM?

At first glance, it would seem that an ecological law that includes interspecies justice would make veganism a non-negotiable necessity—it is unjust for humans to subordinate other species’ right to life to their human tastes and preferences.<sup>61</sup> A full analysis of whether ecological law—or more narrowly interspecies justice—presumes a non-human animal right to life is beyond the scope of this Essay. However, the consumption of animal products may not undermine the goal of interspecies justice *per se* and certainly not in all cases.<sup>62</sup> Thomas Berry argues that:

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54. *What is the Earth Charter?*, EARTH CHARTER INITIATIVE, <http://earthcharter.org/discover/what-is-the-earth-charter/> (last visited Apr. 14, 2019).

55. *See The Earth Charter*, EARTH CHARTER INITIATIVE, <http://earthcharter.org/discover/the-earth-charter/> (last visited Apr. 14, 2019) (outlining the foundational principle “that all beings are interdependent and every form of life has value regardless of its worth to human beings”).

56. Garver, *supra* note 1, at 318 (quoting CORMAC CULLINAN, *WILD LAW: A MANIFESTO FOR EARTH JUSTICE* 29 (2d ed. 2011)).

57. *Id.* at 325–27.

58. *Id.* at 325.

59. *Id.* (explaining that “Earth’s life systems” includes “the community of all living species” (quoting BERRY, *supra* note 36)).

60. *Id.* at 327.

61. *See* Bosselmann, *supra* note 5, at 154 (explaining how interspecies justice requires recognizing “the intrinsic value of the non-human natural world”).

62. *See* Thomas Berry, *Rights of the Earth: We Need a New Legal Framework Which Recognises the Rights of All Living Beings*, in *EXPLORING WILD LAW: THE PHILOSOPHY OF EARTH JURISPRUDENCE* 227, 229 (Peter Burdon ed., 2012) (acknowledging that “predatory-prey relationships” are part “of the Earth community”).

(2) Every component of the Earth community has three rights: the right to be, the right to habitat, and the right to fulfil[] its role in the ever-renewing processes of the Earth community.

(3) All rights are specific and limited. Rivers have river rights. Birds have bird rights. Insects have insect rights. Humans have human rights. Difference in rights is qualitative, not quantitative. The rights of an insect would be of no value to a tree or a fish.

(6) These rights are based on the intrinsic relations that the various components of Earth have to each other. The planet Earth is a single community whose members are bound together with interdependent relationships. No living being nourishes itself. Each component of the Earth community is dependent on every other member of the community for the nourishment and assistance it needs for its own survival. This mutual nourishment, which includes predator-prey relationships, is integral with the role that each component of the Earth has within the comprehensive community of existence.<sup>63</sup>

Also, it is important to recall that not all animal-product production is industrial or exploitative.<sup>64</sup> Many societies—such as some indigenous peoples, hunter-gatherers, and fishing groups—have maintained balanced relationships with other species and ecosystems for generations as interdependent communities of life without captivity, cruelty, or exploitation of other species and ecosystems.<sup>65</sup>

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63. *Id.*

64. See JENNIFER CLAPP, FOOD 181–82 (2d ed. 2016) (introducing alternative food movements, which “seek to address the ecological damage associated with industrial farming practices by promoting ecologically sound farming methods”).

65. See Nancy J. Turner et al., *Traditional Ecological Knowledge and Wisdom of Aboriginal Peoples in British Columbia*, 10 *ECOLOGICAL APPLICATIONS* 1275, 1276 (2000) (“Practices of aboriginal peoples to maintain and enhance their lands, waters, and living resources are derived from generations of experimentation and observation, leading to an understanding of complex ecological and physical principles.”). Indigenous nations, cultures, and individuals obviously differ vastly in their approaches to food and the food system. For example, some indigenous scholars have advocated veganism as not incompatible with some indigenous cultures. Compare Margaret Robinson, *Veganism and Mi’kmaq Legends*, 33 *CAN. J. NATIVE STUD.* 189, 190 (2013) (acknowledging that in Mi’kmaq culture, “[t]he killing of a moose acted as a symbol of a boy’s entry into manhood,” but “propos[ing] a postcolonial ecofeminist reading of Mi’kmaq legends as the basis for a vegan diet rooted in indigenous culture”), with Priscilla Settee, *Indigenous Food Sovereignty in Canada*, in *TRADITIONAL ECOLOGICAL KNOWLEDGE: LEARNING FROM INDIGENOUS PRACTICES FOR ENVIRONMENTAL SUSTAINABILITY* 175, 179 (Melissa K. Nelson & Dan Shilling eds., 2018) (“Indigenous peoples hold lands, foods, medicines, and animals as sacred and freely gifted. Without them, Indigenous values of reciprocity and relationship diminish and a loss of Indigenous humanity results.”).

It is important to remember that ecological law and justice do not *only* require interspecies justice, but also inter- and intragenerational human justice.<sup>66</sup> While vegan food systems, and some indigenous or other more symbiotic human–animal systems, may appear to more adequately achieve interspecies justice than the global industrial food system, would they be able to achieve inter- and intragenerational human justice—particularly if we do not address the problems of food waste and human population growth?

Focusing on industrial animal farming practices, it would be difficult to qualify forcibly ending the lives of animals raised for food, reducing the quality of their shortened lives drastically, and breeding or genetically altering animals to produce more protein faster—despite the pain and shortened lifespans this may cause<sup>67</sup>—merely to satisfy human *wants*, as interspecies justice.<sup>68</sup> Thus, although ecological law and its commitment to interspecies justice would have a nuanced view of veganism greatly depending on place, culture, and ethical reasons for eating animal products, ecological law would require an end to, or a drastic reduction in, industrial animal agriculture.<sup>69</sup> However, would this actually lead to inter- or intragenerational justice?

For example, would ecological law always favor plant-based alternatives to animal products? Would ecological law lead a particular human consumer, all other factors being equal, to opt for a mass-produced, processed plant-based burger over a wild caught salmon? Rather than providing a complete, unequivocal answer, I think that ecological law leads us to ask helpful questions to guide us to possible answers, leading to a choice that enhances ecological justice for all species, now and in the future. For example, the plant-based burger does not involve the intentional raising, reproducing, and killing of animals in an industrial environment, which seems to enhance interspecies justice.<sup>70</sup> However, if producing the plant-based burger challenges the amount or viability of subsistence crops in a developing country to provide processed, corporate foods for wealthier

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66. Garver, *supra* note 1, at 327.

67. See McLeod-Kilmurray, *Commoditizing Animals*, *supra* note 24, at 73–74 (highlighting the animal suffering that occurs at intensive livestock operations).

68. Cf. Nigel Barber, *Do Humans Need Meat?*, PSYCHOL. TODAY (Oct. 12, 2016), <https://www.psychologytoday.com/us/blog/the-human-beast/201610/do-humans-need-meat> (“In general, modern-day vegetarians are as healthy as their meat-eating counterparts and actually have lower rates of heart disease.”).

69. See *infra* Part IV (analyzing the question of whether ecological justice requires veganism).

70. See Rina Raphael, *Meatless Burger vs. Beef: How Beyond Meat’s Environmental Impact Stacks Up*, FAST COMPANY (Sept. 26, 2018), <https://www.fastcompany.com/90241836/meatless-burgers-vs-beef-how-beyond-meats-environmental-impact-stacks-up> (describing the environmental benefits of plant-based burgers).

consumers in the global North, this might not enhance intragenerational justice. How much does the burger cost in comparison to meat burgers? Where can the plant-based burger be accessed and by whom? How much water, energy, transportation emissions, and waste are involved in producing, packaging, and distributing it? Is the move towards these meat alternatives transferring more power to large industrial food corporations to further control the shape and future of the global industrial food system? The answers to these questions might suggest that the plant-based burger is not even enhancing equity among consumers within the Western market in which it is sold. Whether catching the wild salmon would reduce interspecies justice may depend on a wide range of other factors. Would the consumer be catching that fish him- or herself? Would this reduce reliance on corporate foods? Would it also reduce the income of large fish farming companies that may be creating unnecessary and uncontrollable risks to wild fish and other elements of aquatic ecosystems? For the human consumer, which food choice has more nutrients, calories, or other impacts on health? Thus, although the rule of ecological law may not lead us to one clear and simple answer, it provides specific guiding principles for getting closer to finding a rational, sustainable, and just answer.

#### IV. WOULD ENDING OR REDUCING INDUSTRIAL ANIMAL AGRICULTURE ENHANCE OR CHALLENGE INTER- AND INTRAGENERATIONAL HUMAN JUSTICE? THE 10 FEATURES OF ECOLOGICAL LAW AND THE INDUSTRIAL ANIMAL FOOD SYSTEM

If we focus solely on Garver's ten features of ecological law, they provide helpful guidance in rethinking the industrial production of animal products for food. The features can be helpfully separated into three sections: features 1, 2, 4, 6, and 9 highlight the ecological law injustices the industrial animal food system causes.<sup>71</sup> Features 3, 5, 7, and 8 suggest changes to the legal system to tackle these problems.<sup>72</sup> Finally, feature 10 provides a nuanced answer to the question of whether ecological law demands an end to industrial animal agriculture.<sup>73</sup>

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71. See *infra* notes 76–130 and accompanying text (explaining how Garver's theory of ecological law illustrates why the global food system causes inter- and intragenerational, as well as interspecies, injustice).

72. See *infra* notes 112–31 and accompanying text (arguing that Garver's theory of ecological law requires reducing meat consumption, overconsumption of food, and food waste).

73. See *infra* notes 143–47 and accompanying text (asserting that ecological law requires a drastic reduction, but not complete elimination, of meat consumption).

Feature 1 provides that ecological law “recognizes that humans are part of Earth’s life systems.”<sup>74</sup> This highlights that humans have an interdependent relationship with all species, suggesting that ecological law does embrace interspecies justice.<sup>75</sup> The idea of “systems” is important.<sup>76</sup>

First, ecological law emphasizes the importance of Earth’s life systems.<sup>77</sup> If our global industrial animal food system threatens these life systems, then the food system should change.<sup>78</sup> Some argue that the solution to global hunger is to produce *more* food; yet, producing even more food, particularly meat, often<sup>79</sup> directly contravenes planetary boundaries, causing threats to interspecies and human justice for current and future generations.<sup>80</sup> This idea of respecting ecological limits will be raised again in the discussion of feature 2 below.<sup>81</sup>

ecological law also asks why we produce food in a global system in the first place.<sup>82</sup> What are the advantages of a global system as opposed to a more regional, local, or even individual approach to food production? Garver suggests that one way to achieve the related second feature of ecological law—ensuring that “ecological limits” have primacy over social, political, and legal concerns<sup>83</sup>—is by changing the driver of human systems (including legal systems) from “growth-driven economic globalization” to de-growth economics (i.e., ensuring that we live within the basic limits of ecology and planetary boundaries).<sup>84</sup> A few examples suggest that industrial animal agriculture is failing to achieve this.

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74. Garver, *supra* note 1.

75. *Id.*

76. *Id.*

77. *Id.* (“First, and most fundamentally, the rule of ecological law recognizes that humans are part of Earth’s life systems, not separate from it.”).

78. *See id.* at 326 (“[L]egal regimes must be constrained by ecological considerations necessary to avoid catastrophic outcomes and promote the enhancement of life . . .”).

79. Some argue for “[s]ustainable intensification . . . as a process or system where yields are increased without adverse environmental impact and without the cultivation of more land.” Jules Pretty & Zareen Pervez Bharucha, *Sustainable Intensification in Agricultural Systems*, 114 *ANNALS BOTANY* 1571, 1578 (2014). I thank Angela Lee for this observation.

80. *See supra* notes 24–29 and accompanying text (describing how meat production and expanding food systems threaten ecological health).

81. *See infra* notes 84–101 and accompanying text (exploring how Garver’s second feature of ecological law would change industrial animal agriculture).

82. *See* Garver, *supra* note 1, at 328 (explaining that ecological law has a “preference for establishing policy at the local level”).

83. *Id.* at 326. This is a *nested* sustainability approach. Pretty & Bharucha, *supra* note 79, at 1571.

84. Garver, *supra* note 1; *see, e.g.*, Johan Rockström et al., *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*, 14 *ECOLOGY & SOC’Y* 32, 33 (2009) (presenting the “novel concept” of “planetary boundaries, for estimating a safe operating space for humanity with respect to the functioning of the Earth System”).

The Canadian government's approach to agricultural food policy is largely based on "growth-driven economic globalization."<sup>85</sup> In 2017, it adopted as one goal of its national budget to increase agricultural-food exports from \$50 billion to \$75 billion by 2025.<sup>86</sup> Although Canada intends to do this sustainably, ecological balance is not currently a specific targeted goal of the budget in the same way as this enumerated economic growth target is.<sup>87</sup>

In addition, ecological law, similar to Green Legal Theory,<sup>88</sup> would ask us to examine why and how our current food system came to be structured as it is, and, specifically, why we have moved so quickly to increasing and exporting our industrial animal-food-production system.<sup>89</sup> As I have noted elsewhere, the history of corn illustrates a major reason why these Intensive Livestock Operations (ILOs) and Concentrated Animal Feedlot Operations (CAFOs) have grown.<sup>90</sup> While other scholars have elaborated on the concept, the main idea is that subsidies and increased centralization led to a grain surplus, which was fed to livestock.<sup>91</sup> This meant that industrial

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85. Garver, *supra* note 1.

86. DEP'T OF FIN. CAN., BUILDING A STRONG MIDDLE CLASS 107 (2017) [hereinafter 2017 Budget], <https://www.budget.gc.ca/2017/docs/plan/budget-2017-en.pdf>; see also Kelsey Johnson, *Ottawa Wants Farmers to Grow the Economy, Agriculture Exports*, IPOLITICS (Mar. 21, 2017), <https://ipolitics.ca/2017/03/21/agriculture/> (explaining that the Canadian government seeks to grow agriculture exports from \$50 billion to \$75 billion by 2025); *Agri-Info Newsletter – May 2017*, AGRIC. & AGRI-FOOD CAN., <http://www.agr.gc.ca/eng/about-us/publications/agri-info-newsletter/agri-info-newsletter-may-2017/?id=1493224585244> (last visited Apr. 14, 2019) ("To support Canada's farmers and food processors, Budget 2017 sets an ambitious target to grow Canada's agri-food exports to at least \$75 billion annually by 2025, and launches several initiatives, from investments in science and innovation to value-added processing and infrastructure."). Canada set this goal after the government asked the Advisory Council on Economic Growth for a report, which it entitled *Unleashing the Growth Potential of Key Sectors*, where it identified the agri-food sector as an area with potential for significant growth. ADVISORY COUNCIL ON ECON. GROWTH, UNLEASHING THE GROWTH POTENTIAL OF KEY SECTORS 2 (2017), <https://www.budget.gc.ca/aceg-ccce/pdf/key-sectors-secteurs-cles-eng.pdf>. A clearer example of Garver's "growth-driven economic globalization" would be hard to find. Garver, *supra* note 1.

87. See 2017 Budget, *supra* note 86, at 108 (outlining funding for "advanced research in agricultural science and genomics," "agricultural discovery science and innovation, with a focus on addressing emerging priorities, such as climate change," and the "expanded adoption of clean technology by Canadian agricultural producers").

88. See *Green Legal Theory*, POLIS PROJECT ON ECOLOGICAL GOVERNANCE, <https://www.polisproject.org/projects/greenlegaltheory> (last updated Jan. 22, 2013) ("[Green Legal Theory] seeks to understand how to create self-sustaining social, economic and political institutions that are ecologically based . . .").

89. See Garver, *supra* note 1, at 325–26 (explaining that ecological law challenges "growth-driven economic[s]" and focuses on reducing the material and energy demands of the economy).

90. McLeod-Kilmurray, *Commoditizing Animals*, *supra* note 24, at 73.

91. See DAVID N. CASSUTO, ANIMALS & SOC'Y INST., THE CAFO HOTHOUSE: CLIMATE CHANGE, INDUSTRIAL AGRICULTURE & THE LAW 3–4 (2010) (citing Pollan, *supra* note 48, at 54–64), [http://www.planetaverde.org/arquivos/biblioteca/arquivo\\_20131031141640\\_2453.pdf](http://www.planetaverde.org/arquivos/biblioteca/arquivo_20131031141640_2453.pdf); see also JEREMY



farmers could feed livestock more cheaply with corn and soy than small-scale farmers could with their own grazing land, creating strong economic incentives for centralization and industrialization of livestock production.<sup>92</sup> So neither human health, animal welfare, environmental sustainability, nor human food preferences have been the driving force behind industrialization of livestock production.<sup>93</sup> The transition to an industrial-animal-agriculture system was based on producing more at less cost.<sup>94</sup> These industrial efficiencies, and the technologies that enable them, are best achieved by large corporations.<sup>95</sup>

The FAO reports that industrial animal production systems are increasing at six times the rate of traditional mixed farming systems and at twice the rate of grazing systems. At least 50% of the world's pigmeat and over 70% of the world's poultry meat and eggs are produced in industrial systems.<sup>96</sup>

This is still due in part to the many economic subsidies and legal rules that promote the industrialization of our animal food supply.<sup>97</sup> For example, the World Society for the Protection of Animals notes that industrial meat production in Canada would not be economically viable without

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RIFKIN, *BEYOND BEEF: THE RISE AND FALL OF THE CATTLE CULTURE* 93 (Penguin Books 1992) (“America came up with a unique scheme. For the first time in agricultural history, they brought together cattle production and grain production into a new symbiotic relationship . . .”).

92. McLeod-Kilmurray, *Commoditizing Animals*, *supra* note 24, at 73.

93. *Id.*

94. *Id.*

95. *Id.* (“The real control of th[e] [industrial livestock] ‘industry’ is now highly centralized in the hands of a small number of very powerful corporations . . .”).

96. COMPASSION IN WORLD FARMING, *GLOBAL WARNING: CLIMATE CHANGE AND FARM ANIMAL WELFARE* 4 (2009), <https://www.ciwf.org.uk/media/381777/global-warning-full-report.pdf>.

The high levels of concentration that exist in livestock production are a result of two trends in the agribusiness world: consolidation, or the joining together of firms through mergers or strategic alliances, and vertical integration, the process by which one agribusiness buys up control of firms along the production chain for a food product. . . . The small and mid-sized operations that until recently supplied most of our domestically-produced meat have disappeared, to be replaced by large-scale animal feeding operations. Specialization has replaced diversity on the farm. . . . And uniformity has replaced variety—in the kinds of feed crops grown, the breeds of livestock raised, and the companies to which farmers sell their products and from which consumers buy them.

Elanor Starmer, *Corporate Power in Livestock Production: How it's Hurting Farmers, Consumers, and Communities—And What We Can Do About It*, ISSUE BRIEF 1 (AGRIBUSINESS ACCOUNTABILITY INITIATIVE), at 1–2, [http://www.ase.tufts.edu/gdae/Pubs/rp/AAI\\_Issue\\_Brief\\_1\\_3.pdf](http://www.ase.tufts.edu/gdae/Pubs/rp/AAI_Issue_Brief_1_3.pdf) (last visited Apr. 14, 2019).

97. McLeod-Kilmurray, *Commoditizing Animals*, *supra* note 24, at 73, 74.

government subsidies, such as the \$4 billion given to hog producers since 1996 (“with nearly three-quarters going to the largest corporations”).<sup>98</sup>

Laws also assist industrial animal food producers.<sup>99</sup> For example, Canadian animal welfare and transport laws are very weak, which reduces the cost for producers at the expense of animal welfare but also creates waste—a presumed percentage of deaths per voyage.<sup>100</sup> Some countries criminalize those raising awareness of cruelty to animals raised for food, thus legally protecting the practice and reducing the agency of consumers by limiting information.<sup>101</sup>

Feature 9 of ecological law also refers to ecological boundaries, cautioning that the law should enforce precaution in relation to crossing them.<sup>102</sup> The global industrialized food system is a significant threat to planetary boundaries.<sup>103</sup> Indeed, of the nine planetary boundaries identified by Johan Rockström et al.,<sup>104</sup> the four that have already been transgressed

98. WORLD SOC’Y FOR THE PROT. OF ANIMALS, WHAT’S ON YOUR PLATE?: THE HIDDEN COSTS OF INDUSTRIAL ANIMAL AGRICULTURE IN CANADA 19 (2012).

Canada’s hog production sector would not even be viable were it not for multi-million dollar taxpayer-funded subsidies. Since 1996, taxpayers have given more than \$4 billion to hog producers, with nearly three-quarters going to the largest corporations. In 2009, the largest 28 percent (with annual revenues greater than \$1 million) collected 72 percent of the support. Federal and provincial governments have facilitated the proliferation of ILOs and the size of them by steadily increasing the maximum subsidy per operation. Each operation can now receive up to \$3 million per year – triple what they could have received 13 years ago – essentially working to triple the size of the ILO. In addition, there are tax exemptions for building materials, subsidies to packers and tens of billions of dollars worth of subsidies paid to grain farmers which facilitate the production and sale of feed grains below actual costs of production. All of this demonstrates that our food system is actually very inefficient. Many ILOs would not be able to turn a profit without these subsidies.

*Id.*

99. Anna Pippus, *The Fox Regulating the Henhouse: How the Law Fails Animals Farmed for Food*, in FOOD LAW AND POLICY IN CANADA (Heather McLeod-Kilmurray, Angela Lee & Natalie Chalifour eds.) (forthcoming 2019) (manuscript at 23–24) (on file with author).

100. *Id.*

101. See, e.g., *What Is Ag-Gag Legislation?*, AM. SOC’Y FOR PREVENTION CRUELTY ANIMALS, <https://www.aspc.org/animal-protection/public-policy/what-ag-gag-legislation> (last visited Apr. 14, 2019) [hereinafter *What Is Ag-Gag*] (discussing how seven states in the U.S. “penaliz[e] whistleblowers who investigate the day-to-day activities of industrial farms”).

102. See Garver, *supra* note 1, at 329 (“[T]he rule of ecological law requires precaution about crossing planetary boundaries, with margins of safety to ensure both that the boundaries are respected from the global to the local level, and that Earth’s life systems have the capacity to thrive.”).

103. Compare *id.* (explaining the precautionary planetary boundaries set for climate change), with McLeod-Kilmurray, *Vegetarianism*, *supra* note 45, at 58–59 (highlighting the significant contributions industrialized livestock production makes to climate change).

104. Rockström, *supra* note 84, at 37–38 (identifying the nine planetary boundaries as the “nitrogen, phosphorous, carbon, and water [cycles]; the [planet’s] physical circulation systems . . . (the climate, stratosphere, ocean systems); biophysical features of Earth . . . (marine and terrestrial

are genetic diversity,<sup>105</sup> biochemical flows (particularly of nitrogen),<sup>106</sup> climate change, and land system change.<sup>107</sup>

In relation to genetic diversity—apart from strongly encouraging the consumption of a limited number of animals such as cows, pigs, and chickens—industrial meat production also limits the genetic diversity within these three main animals raised and consumed as food.<sup>108</sup> The Worldwatch Institute suggests that “as the global livestock population increases, its diversity declines,” which is dangerous for sustainability in the face of climate change and its resulting effects on resources.<sup>109</sup> Large-scale meat farming also significantly reduces crop diversity and induces land system change.<sup>110</sup>

Furthermore, feature 4 of ecological law requires “a radical re-focusing of the economy on reduction of its throughput of material and energy.”<sup>111</sup> Feature 4 is reminiscent of Sustainable Development Goal 12, which

biodiversity, land systems); and two critical features associated with anthropogenic global change (aerosol loading and chemical pollution”).

105. Will Steffen et al., *Planetary Boundaries: Guiding Human Development on a Changing Planet*, 347 *SCI.* 736, 736 (2015).

106. Nina Chestney, *Meat and Dairy Consumption Should Be Halved in Europe to Cut Nitrogen: Report*, *SCI. AM.*, <https://www.scientificamerican.com/article/meat-and-dairy-consumption-should-be-halved-in-europe-to-cut-nitrogen-report/> (last visited Apr. 14, 2019) (“Around 79-88 percent of total emissions in the EU related to nitrogen are from livestock production. The nitrogen footprint of meat and dairy is considerably higher than that from plant-based products . . . .”); see also Henk Westhoek et al., *Food Choices, Health and Environment: Effects of Cutting Europe’s Meat and Dairy Intake*, 26 *GLOBAL ENVTL. CHANGE* 196, 196 (2014) (“Concerns about animal welfare, reactive nitrogen and greenhouse gas emissions have stimulated public debate in Europe about eating less meat and dairy products.”).

107. Will Steffen et al., *supra* note 105.

108. VITAL SIGNS, *supra* note 26, at 55.

109. *Id.*

Industrial meat operations rely on a narrow range of commercial breeds selected for their high productivity—two cow breeds, Holstein and Jersey, make up 97 percent of the US dairy-cow herd. As a result, indigenous livestock breeds, which have evolved to the specific climate, terrestrial, and disease characteristics of their regions, are rapidly disappearing: in 2010, FAO reported that at least 21 percent of the world’s livestock breeds are at risk of extinction. It is estimated that between 2002 and 2007, one breed of cattle, goats, pigs, horses, or poultry was lost every month on average. This narrowing of genetic diversity greatly compromises livestock producers’ ability to withstand the challenges of climate change, including water supply changes, lack of forage, disease expansion, and increasing temperature variation.

*Id.* (footnotes omitted).

110. See, e.g., *id.* (“[C]ountries in South America are clearing large swaths of forest and other land to grow feed crops like maize and soybean.”).

111. Garver, *supra* note 1, at 326.

requires “[r]esponsible consumption and production.”<sup>112</sup> Garver suggests that to do this, we need systems that “improve[] resource productivity.”<sup>113</sup> Closely connected, feature 6 provides that ecological law should “ensure fair sharing of resources among present and future generations of humans and other life forms.”<sup>114</sup> However, an increased focus on animal products, particularly those that are industrially produced, does not seem to achieve this goal.

For one thing, many advocates point out that, as compared to plant-based diets, producing and eating meat and dairy is inefficient due to the “Feed-Conversion Ratio[],” meaning the amount of energy, water, and other inputs needed to produce and consume animals.<sup>115</sup> For example, “[o]ne kilogramme of edible boneless beef requires around 20 kg of animal feed and 15,500 litres of water to produce . . . . One calorie of food energy obtained from beef requires inputs of 9 calories of food energy from plants and 40 calories of fossil fuel energy.”<sup>116</sup> The Pew Commission claims that “the ratio of energy input to output for industrially produced meat can reach as high as 35:1.”<sup>117</sup> Another way of looking at this is to say that “the American diet would feed only 2.5 billion people globally.”<sup>118</sup> This suggests that the dietary choices of wealthier people, mainly in the developed world, is currently one factor causing the food insecurity of the poorer in the developing world.<sup>119</sup> This is a situation of intragenerational inequity caused by diets high in products with significant environmental footprints, including animal products.<sup>120</sup> Not only is increasing meat and dairy consumption unjust to the animal victims of this food system, but also to the current and future generations of humans consuming them.

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112. *Goal 12: Responsible Consumption and Production*, UNITED NATIONS DEV. PROGRAMME, <http://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-12-responsible-consumption-and-production.html> (last visited Apr. 14, 2019).

113. Garver, *supra* note 1, at 327.

114. *Id.*

115. *Animals are Inefficient Converters of Food*, A WELL-FED WORLD: NOURISHING PEOPLE/SAVING ANIMALS, <https://awfw.org/feed-ratios/> (last visited Apr. 14, 2019); see also Alon Shepon et al., *Energy and Protein Feed-To-Food Conversion Efficiencies in the US and Potential Food Security Gains from Dietary Changes*, 11 ENVTL. RES. LETTERS, Oct. 2016, at 5 (“Plant-based diets can . . . serve as a viable replacement for animal products, and confer larger mean environmental and food availability gains.” (citation omitted)).

116. McLeod-Kilmurray, *Vegetarianism*, *supra* note 45, at 59 (alteration in original) (footnotes omitted) (quoting COMPASSION IN WORLD FARMING, BEYOND FACTOR FARMING: SUSTAINABLE SOLUTIONS FOR ANIMALS AND THE PLANET 19 (2009)).

117. See Cassuto, *supra* note 91, at 7 (citing PEW COMM’N ON INDUS. FARM ANIMAL PROD., PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA 19 (2008)).

118. McLeod-Kilmurray, *Vegetarianism*, *supra* note 45, at 59.

119. FOOD & AGRIC. ORG., LIVESTOCK, *supra* note 28, at 6.

120. *Id.* at 10.

Responsible consumption and production—and “a radical re-focusing of the economy on reduction of its throughput of material and energy”—also both point to reducing food waste.<sup>121</sup> “Roughly one third of the food produced in the world for human consumption every year—approximately 1.3 billion tonnes—gets lost or wasted.”<sup>122</sup> “Food losses and waste amounts to roughly US\$ 680 billion in industrialized countries and US\$ 310 billion in developing countries.”<sup>123</sup> “Global quantitative food losses and waste per year are roughly 30% for cereals, 40-50% for root crops, fruits and vegetables, 20% for oil seeds, meat and dairy plus 35% for fish.”<sup>124</sup>

Although food waste occurs at every stage of the food system including farming, transporting, selling, consuming, and throwing away food—and while these statistics suggest that meat and dairy are a relatively low contributor to overall food waste<sup>125</sup>—ecological law, particularly features 4 and 6, would require significantly reducing food waste before expanding industrial animal food production.<sup>126</sup>

Features 4 and 6 would also require us to focus on tackling the growing problem of overconsumption of food. The rates of over-nutrition are rising globally, with numbers in the developing world recently almost attaining levels in developed countries.<sup>127</sup> Although its causes are complex and varied, contributing factors include the growing availability of fast and processed foods, poor nutritional education, lack of time for home cooking, the comparative costs of fast versus fresh food, and the massive, relentless marketing campaigns of global food corporations.<sup>128</sup> Increased consumption

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121. Garver, *supra* note 1, at 326–27.

122. *Facts on Food Loss*, *supra* note 35.

123. *Id.*

124. *Id.*

125. *Id.*

126. Compare Garver, *supra* note 1, at 316 (summarizing the fourth and sixth features of ecological law, which demand reducing material and energy, and sharing resources with future generations of human life), with *Facts on Food Loss*, *supra* note 35 (detailing the quantities of materials wasted each year in the food system, of which animal food products are a part).

127. See Paul Allen, *Overeating Hits the Developing World*, *GUARDIAN* (Apr. 22, 2014), <https://www.theguardian.com/global-development-professionals-network/2014/apr/22/eat-smaller-and-smarter> (“In the past three decades, the number of obese people in the developing world has tripled . . .”); Daniel Hoffman, *Obesity in Developing Countries: Causes and Implications*, 28 *FOOD, NUTRITION & AGRIC. REV.* 35, 38 (2001), <http://www.fao.org/docrep/pdf/003/y0600m/y0600m04.pdf> (reporting that the rate of obesity is increasing worldwide, partly due to over-nutrition).

128. See Andrea Freeman, *The Unbearable Whiteness of Milk: Food Oppression and the USDA*, 3 *U.C. IRVINE L. REV.* 1251, 1253–54, 1270–71 (2013) (detailing how fast food contributes to over-nutrition in developed nations); see also *Cooking at Home Tonight? It’s Likely Cheaper and Healthier*, *Study Finds*, *SCI. DAILY: SCI. NEWS* (Mar. 14, 2017) (mentioning that many lack the time to prepare nutritious meals).

of animal products is clearly a part of these trends.<sup>129</sup> A more ecological global food system would encourage and enable the production and consumption of diets that promote good health, which would help to rebalance the two global challenges of under- and over-nourishment.<sup>130</sup>

This quick examination of features 1, 2, 4, 6, and 9 of Garver's ecological law have raised a number of questions about our industrial-animal-agriculture system: why we created the system; whether continuing it advances or reduces interspecies justice; and whether the system is fair to present and future humans. The remaining features guide us more directly to the legal aspects of this dilemma.

Features 3, 5, and 7–9 focus more specifically on how law itself can help put ecological law into practice to achieve its goals. The third feature demands that ecological law “permeate” all legal systems.<sup>131</sup> Food law and policy is itself an excellent example of a field that cannot be reformed without changing many different areas of law, which all permeate each other, such as environmental, health, trade, and social justice law.<sup>132</sup> In the evolving debate on a new national food policy for Canada, for example, some are calling for a “joined-up food policy”—which tackles both the problems of government and research silos<sup>133</sup> and food governance—that links health, social, economic, and environmental concerns, and moves away from economic growth as its dominating goal.<sup>134</sup>

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129. See, e.g., *Global Meat Production*, *supra* note 8 (explaining that a high-meat diet “can lead to a host of health problems, including obesity”).

130. See Garver, *supra* note 1, at 327 (highlighting that ecological law puts the “protection of the global commons and public goods paramount” and “must ensure fair sharing of resources”); WORLD HEALTH ORG., *THE DOUBLE BURDEN OF MALNUTRITION: POLICY BRIEF 2* (2017) (explaining “[t]he double burden of malnutrition,” which is “the coexistence of undernutrition along with overweight, obesity or diet-related” noncommunicable diseases).

131. Garver, *supra* note 1, at 326.

132. See *What is Food Law?*, LEGAL CAREER PATH, <https://legalcareerpath.com/food-law/> (last visited Apr. 14, 2019) (summarizing “the collection of laws and regulations” that relate to food production, including those governing “pesticide use, tariffs on agricultural imports . . . restaurant cleanliness,” bottled water, the claims supplement producers can make “about the effectiveness of their products,” and food stamps).

133. For example, food law and policy in Canada is governed by a wide variety of ministries and at three levels of government, not including the international level. See CENTRE FOR FOOD IN CAN., *GOVERNING FOOD: POLICIES, LAWS, AND REGULATIONS FOR FOOD IN CANADA* 13–14 (2011) (“[Policies, laws, and regulations] and bureaucratic structures exist at all levels of government, with multiple agencies responsible for the numerous functions being carried out.”). Within the federal government alone, for example, food law and policy involves, among other groups, Health Canada, Environment and Climate Change Canada, Agriculture and Agri-Food Canada, Industry Canada, and the trade department. *Id.* at 13. Despite increasing efforts, coordination remains difficult. *Id.*

134. Rod MacRae, *A Joined-Up Food Policy for Canada*, 6 J. HUNGER & ENVTL. NUTRITION 424, 424–25 (2011). MacRae notes:

[F]ood policy in the 21st century must be designed and implemented to reflect fully the essential reality of our biological and social dependence on food and the

Garver's fifth feature posits that ecological law must be global, but distributed.<sup>135</sup> This recalls the legal doctrines of subsidiarity<sup>136</sup> and the common but differentiated responsibility approach in the climate change treaties.<sup>137</sup> As a side note, the most recent IPCC report emphasizes reducing meat consumption as a rapid and effective way to tackle climate change.<sup>138</sup> In addition, Garver's fifth feature reminds us that in developing international food law and policy—and the global food system structure—the current food production and consumption patterns of wealthy nations, as well as their influence on global food trade policies, have resulted in the neglect of their heightened responsibilities to ensure inter- and intragenerational justice to food producers and consumers in poorer countries.<sup>139</sup> Feature 7, which requires that ecological law “be binding . . . and supranational, with supremacy over sub-global legal regimes as necessary,” reinforces these ideas.<sup>140</sup> Feature 7 also reminds us how trade law influences global food sustainability and justice as well as how corporate and trade laws are more effectively binding and global than

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resources needed to produce it sustainably. During the 20th century, rules about food were framed in the industrial world by the dominant view of markets. Food was primarily something to be bought and sold, rather than a biological and cultural necessity. . . . Overproduction at the farm level was positive for food firms because it helped keep farm and processor prices low. The food system was designed, directly and indirectly, to encourage people to overconsume because this contributed to firm profitability, and aggregate levels of food waste received limited attention. This consumption, and the diseases it produced, actually appeared to be economically positive because it drove up health care costs and made some of Canada's economic accounts (eg, gross national product) look better.

*Id.*

135. Garver, *supra* note 1, at 327.

136. See 14957 Canada Ltée v. Hudson, 2001 SCC 40, [2001] 2 S.C.R. 241, 249 (Can.) (describing the doctrine of subsidiarity, which assumes that the local level of government is the most efficient law-making body because it is closest to the people).

137. See United Nations Framework Convention on Climate Change, art 3.1, May 9, 1992, 1771 U.N.T.S. 107, <https://unfccc.int/resource/docs/convkp/conveng.pdf> (“The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their *common but differentiated responsibilities* and respective capabilities.” (emphasis added)).

138. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SPECIAL REPORT: GLOBAL WARMING OF 1.5°C, at 327 (2018), <https://www.ipcc.ch/sr15/> (estimating that reducing “the demand for meat and other livestock products” could “bring large co-benefits, through GHG mitigation and improvements in the overall efficiency of food systems”).

139. See Carmen G. Gonzalez, *The Global Food System, Environmental Protection, and Human Rights*, 26 NAT. RESOURCES & ENV'T 7, 9–10 (2012) (outlining how international trade law “placed small farmers in ruinous competition with subsidized agricultural producers in the United States and the European Union”); see also *supra* notes 71–130 (overviewing how the global food system produces inter- and intragenerational injustice).

140. Garver, *supra* note 1, at 328.

human rights and international environmental law.<sup>141</sup> ecological law suggests that international trade, as well as corporate and environmental laws, should be changed to address the power of multinational animal-food corporations to build a more ecological food system.<sup>142</sup>

Finally,<sup>143</sup> but perhaps most importantly, feature 10 requires ecological law to be adaptive.<sup>144</sup> Once again, this captures a wide range of ideas and goals, but two come to mind as crucial. First, ecology adapts to changes, and ecological law must mirror this.<sup>145</sup> If our laws are not producing the effects we desire, or are producing surprising results, we must adapt the laws to these new circumstances. For example, if we make a herculean effort to reduce food waste but we still have significant global hunger problems, then perhaps it would be time to turn back to ideas of increased growth. Second, being adaptive suggests that whether a food is ecologically appropriate depends on the particular place, society, group, or person.<sup>146</sup> This brings us back to our original question: does ecological law demand veganism? As stated at the outset, increasing consumption of industrial-animal products is not an adaptive response to the growing realities of food insecurity that climate change will create.<sup>147</sup> However, where plant-based diets do not provide healthy, nutritious, and culturally appropriate sustenance, sustainable meat production and consumption—particularly place-based hunting and fishing—may be, as it has always been, the most sustainable, appropriate, and adaptive response to satisfy food needs and sustain a balanced ecosystem.

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141. See Gonzalez, *supra* note 139, at 8–10 (“[I]nternational trade law has taken precedence over human rights and international environmental law, to the detriment of small farmers, agrobiodiversity, and efforts to forestall climate change.”).

142. See, e.g., CLAPP, *supra* note 64 (explaining that some in the alternative food movement promote “transnational efforts to make legally enforceable improvements to the rules and norms that govern” the global food system); see also Jennifer Clapp, *Agribusiness Mega-Mergers Won’t Help to Feed the World*, HILL TIMES (Jan. 18, 2017) [hereinafter Clapp, *Agribusiness*], <https://www.hilltimes.com/2017/01/18/agribusinessmega-mergers-wont-help-feed-world/92980> (arguing that because agribusiness is driven by profits, it will not create “sustainable food security”).

143. This Essay does not allow room to explore feature 8, which requires “greatly expanded program[s] of research and monitoring.” Garver, *supra* note 1, at 329. However, an initial thought is that ecological law requires us to be vigilant about *what* we are researching and monitoring to guard against unexamined technological fixes for industrial animal agriculture and to appropriately balance the various goals of an ecological and just food system. See, e.g., Lee, *supra* note 49, at 65 (“Although an ecofeminist interrogation of the political, social, and ethical dimensions of new food technologies may be imperfect, it is arguably a necessary corrective . . . [given] the narrow grounds on which the benefits and impacts of technologies are assessed under a purportedly more ‘science-based’ approach.”).

144. Garver, *supra* note 1, at 330.

145. *Id.* at 329–30.

146. *Id.* at 330.

147. See *supra* notes 23–29 (explaining the various problems associated with the current global food system).



## CONCLUSION: SOME SOLUTIONS THAT ECOLOGICAL LAW MIGHT POINT TOWARD

Thinking through a few of the implications of the features of ecological law has suggested some possible alternatives to maintaining and expanding the industrial-animal-agriculture system, such as reducing population growth, reducing food waste, and adopting ecological law—rather than economic growth alone—as a guiding principle for food governance.<sup>148</sup> The following are further measures that ecological law might suggest for improving, reducing, or even ending the industrial-animal-agriculture system.

In order to move toward interspecies justice, ecological law would consider the long-term advantages and disadvantages of creating substantive rights for non-human animals. There have been a few attempts at this recently, such as habeas corpus claims brought unsuccessfully in New York,<sup>149</sup> but successfully in Argentina.<sup>150</sup> If not full substantive rights, perhaps non-human animals should enjoy procedural rights, such as legal standing to protect their interests.<sup>151</sup>

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148. See *supra* Part IV (discussing how ecological law might reform the global food system).

149. *In re Nonhuman Rights Project ex rel. Tommy v. Lavery*, 100 N.E.3d 846, 846 (N.Y. 2018).

150. Richard Lough, *Captive Orangutan Has Human Right to Freedom, Argentine Court Rules*, REUTERS (Dec. 24, 2014), <https://www.reuters.com/article/us-argentina-orangutan-idUSKBN0JZ0Q620141221>. Relatedly, in New Zealand, the Whanganui River has been recognized as having the status of “a legal person [with] all the [corresponding] rights, powers, duties, and liabilities.” Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, cls 12, 14 (N.Z.); see also Dan Cheater, *I am the River and the River is Me: Legal Personhood and the Emerging Rights of Nature*, W. COAST ENVTL. L. (Mar. 22, 2018), <https://www.wcel.org/blog/i-am-river-and-river-me-legal-personhood-and-emerging-rights-nature> (highlighting New Zealand’s 2017 legislation recognizing the Whanganui River as a legal person); WHANGANUI TRIBUNAL, THE WHANGANUI RIVER REPORT 309–10 (1999), [https://forms.justice.govt.nz/search/Documents/WT/wt\\_DOC\\_68450539/Whanganui%20River%20Report%201999.pdf](https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68450539/Whanganui%20River%20Report%201999.pdf) (mentioning New Zealand laws that recognize the intrinsic value of natural resources). In addition, in March 2017, the High Court of Uttarakhand, India declared the Ganga and Yamuna Rivers “as juristic/legal persons/living entities having the status of a legal person with all corresponding rights, duties and liabilities of a living person.” *Salim v. State of Uttarakhand*, Writ Petition (PIL) No. 126 of 2014, ¶ 19 (Uttarakhand HC) (India). In July 2017, however, the Supreme Court of India stayed the High Court’s order. *State of Uttarakhand v. Salim*, Petition(s) for Special Leave to Appeal (July 7, 2017) (India); see also A Vaidyanathan, *No, Ganga and Yamuna are Not Living Entities*, *Says Supreme Court*, NDTV, <https://www.ndtv.com/india-news/no-yamuna-and-ganga-are-not-living-entities-says-supreme-court-1721833> (last updated July 7, 2017) (outlining the Supreme Court’s ruling).

151. See Christopher Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450, 464 (1972) (arguing that natural objects should have the legal authority to sue); David Cassuto, Jonathan Lovvorn & Katherine Meyer, *Confronting Barriers to the Courtroom for Animal Advocates: Legal Standing for Animals and Advocates*, 13 ANIMAL L. 61, 61 (2006) (examining the issue of “legal standing for non-human animals and their human advocates”).

Alternatively, humans could have legal duties not to cause the suffering of animals farmed for food. For example, several countries have banned certain industrial farming practices such as battery cages<sup>152</sup> and others are working to achieve this soon.<sup>153</sup> Laws could be enacted to ensure the five basic freedoms: from discomfort; from hunger and thirst; from fear and distress; from pain, injury, and disease; and to express natural behavior.<sup>154</sup> Where these measures are resisted on the basis that they increase costs for producers and consumers, ecological law would encourage a full accounting of the costs, including the externalized costs of failing to enact these protections.

Various legal tools could enhance support for such measures by ensuring greater access to information about the industrial-animal-agriculture system. So-called “ag-gag” laws could be revoked.<sup>155</sup> Animal “welfare” labels could be required on animal-based food products.<sup>156</sup> To enhance food literacy and consumer agency, which is part of the broader consumer right to know, labels on animal products could also indicate: water, soil, antibiotic, and other inputs; emissions; and feed-conversion ratios.<sup>157</sup> Carbon taxes, and other taxes on industrially produced animal products, could help to alter producer and consumer behavior through “free” market mechanisms (indeed, how can the market be truly free if there is such limited information about the food we eat?). For example, a price on carbon would impact the price of local foods competing with those

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152. See James Andrews, *European Union Bans Battery Cages for Egg-Laying Hens*, FOOD SAFETY NEWS (Jan. 9, 2012), <https://www.foodsafetynews.com/2012/01/european-union-bans-battery-cages-for-egg-laying-hens/> (describing the E.U.’s ban on battery cages).

153. See *Canada’s Battery Cage Phase-Out Officially Begins*, HUMANE CAN. (Mar. 27, 2017), [https://www.humanecanada.ca/canadas\\_battery\\_cage\\_phase\\_out\\_officially\\_begins](https://www.humanecanada.ca/canadas_battery_cage_phase_out_officially_begins) (“As of April 1, 2017, no new barren battery cages will be built in Canada . . .”).

154. McLeod-Kilmurray, *Commoditizing Animals*, *supra* note 24, at 76–77.

155. “Ag-gag” laws are “designed to silence whistleblowers revealing animal abuses on industrial farms.” *What is Ag-Gag*, *supra* note 102. In some states, these laws are being challenged as unconstitutional. See, e.g., *Animal Legal Def. Fund v. Reynolds*, 4:17-cv-00362–JEG-HCA, 2019 WL 140069, at \*2, 9 (S.D. Iowa Jan. 1, 2019) (invalidating IOWA CODE ANN. § 717A.3A (2012), which “prohibit[s] conduct and speech related to agricultural operations,” as facially unconstitutional under the First Amendment).

156. See, e.g., *Labelling Related to Animal Welfare*, EUROPEAN COMMISSION, [https://ec.europa.eu/food/animals/welfare/other\\_aspects/labelling\\_en](https://ec.europa.eu/food/animals/welfare/other_aspects/labelling_en) (last visited Apr. 14, 2019) (explaining that despite increasing consumer interest for “information on how animals are treated on farms and in livestock facilities,” “there is only one EU-wide system of compulsory labeling on animal welfare - for table eggs”).

157. See David Alan Nauheim, *Food Labeling and the Consumer’s Right to Know: Give the People What They Want*, 4 LIBERTY U. L. REV. 97, 99–102 (2009) (discussing the consumer’s right to know in the context of food labeling).

packaged and transported long distances and might encourage the reduction of food waste.<sup>158</sup>

National food guides are another tool that could significantly raise awareness of the ecological law problems that industrial animal agriculture creates. Brazil's newest food guide provides that "[h]ealthy [d]iets [d]erive [f]rom [s]ocially and [e]nvironmentally [s]ustainable [f]ood [s]ystems" and that "[d]ietary recommendations need to take into account the impact of the means of production and distribution of food on social justice and environmental integrity."<sup>159</sup> Sweden's 2015 food guidelines take a systemic approach,<sup>160</sup> linking human and environmental health.<sup>161</sup> The guidelines link Swedish consumers' food choices to climate change, which highlights intragenerational justice.<sup>162</sup> The guidelines justify their recommendation to eat less processed meats based upon the benefits to human health, animal welfare, and the environment.<sup>163</sup> The Canadian government issued a revised Food Guide in January 2019,<sup>164</sup> and although it does not make an explicit link to environmental sustainability, its recommended *food plate* is quite similar to the EAT-Lancet Commission's Planetary Diet<sup>165</sup> in recommending significant reduction in animal-based foods and significant increases in vegetable, fruit, and grain consumption.<sup>166</sup> The Canadian government is also devising its first national food policy.<sup>167</sup> It is interesting

158. Cf. *Eat Your Way to a Smaller Carbon Footprint*, TERRAPASS: THE FOOTPRINT BLOG, <https://www.terrapass.com/eat-your-way-to-a-smaller-carbon-footprint> (last visited Apr. 14, 2019) (explaining that by eating locally, carbon footprints can be reduced by up to 7%).

159. MINISTRY OF HEALTH OF BRAZ., DIETARY GUIDELINES FOR THE BRAZILIAN POPULATION 18 (2d ed. 2014), [http://bvsms.saude.gov.br/bvs/publicacoes/dietary\\_guidelines\\_brazilian\\_population.pdf](http://bvsms.saude.gov.br/bvs/publicacoes/dietary_guidelines_brazilian_population.pdf).

160. NAT'L FOOD AGENCY, FIND YOUR WAY: TO EAT GREENER, NOT TOO MUCH AND BE ACTIVE 1 (2015), <https://www.livsmedelsverket.se/globalassets/publikationsdatabas/andrasprak/kostraden/kostraden-eng-a4-utskriftversion.pdf> ("When it comes to food, it's easy to concentrate on individual nutrients or foods to the exclusion of everything else. But all aspects are interlinked, so it's important to maintain a holistic approach.")

161. *Id.* ("[W]e've devised this advice on how you can eat sustainably – to the benefit of both your health and the environment. So that you don't have to choose.")

162. *See id.* ("[O]ne-quarter of the climate impact of Swedish households comes from the food we eat — or throw away. Economising on the Earth's resources will ensure we have good food to eat in the future.")

163. *Id.* at 9.

164. *See generally* HEALTH CAN., CANADA'S DIETARY GUIDELINES: FOR HEALTH PROFESSIONALS AND POLICY MAKERS (2019) [hereinafter CANADA'S DIETARY GUIDELINES], <https://food-guide.canada.ca/static/assets/pdf/CDG-EN-2018.pdf> (providing Health Canada's guidelines and considerations on healthy eating).

165. Willett et al., *supra* note 45, at 447.

166. CANADA'S DIETARY GUIDELINES, *supra* note 164, at 9, 15.

167. *Revision Process for Canada's Food Guide*, GOV'T CAN., <https://www.canada.ca/en/health-canada/services/canada-food-guide/about/revision-process.html> (last visited Apr. 14, 2019) (explaining that Canada is revising its "food guide so that it meets the needs of

to imagine how our food system would change if ecological law was adopted as a guiding principle for this new policy.

Governments could also move toward a more ecological law approach to food by creating institutional food projects such as farm to school lunch programs.<sup>168</sup> These programs would require food procurement policies, which could enhance local and sustainable food production.<sup>169</sup> School lunch programs could also, as in Japan, be added to the school curriculum to enhance food literacy from a young age.<sup>170</sup> This would be particularly effective if the programs enhanced the plant-based food options in these meals.<sup>171</sup> Governments could also pass laws to improve food sustainability, justice, and sovereignty.<sup>172</sup> For example, a right to food could be enacted.<sup>173</sup> Governments could also promote an ecological law approach by changing competition laws to address the concentration and corporatization of the food system, particularly the massive power of multinational food corporations.<sup>174</sup>

However, ecological law does not necessarily encourage relying solely, or even primarily, on centralized government control. From a more bottom-up perspective, ecological law would also encourage empowering local food movements—farmers markets, urban agriculture, and similar

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different Canadian audiences”); see, e.g., *Canada’s Food Guide*, GOV’T CAN., <https://food-guide.canada.ca/en/> (last visited Apr. 14, 2019) (showing Canada’s new interactive food guide).

168. See *What is Farm to School?*, NAT’L FARM TO SCH. NETWORK, <http://www.farmtoschool.org/about/what-is-farm-to-school> (last visited Apr. 14, 2019) (highlighting the benefits of existing farm to school programs).

169. See *id.* (noting that farm to school programs “always include[,]” among other things, procurement, meaning that “[l]ocal foods are purchased, promoted, and served in the cafeteria”).

170. See Nobuko Tanaka & Miki Miyoshi, *School Lunch Program for Health Promotion Among Children in Japan*, 21 ASIA PAC. J. CLINICAL NUTRITION 155, 156 (2012) (discussing curriculum objectives for the Japanese school lunch program); see also Alexis Agliano Sanborn, *More than a Meal: School Lunch in Japan*, 22 EDUC. ABOUT ASIA 45, 45 (2017), <http://aas2.asian-studies.org/EAA/EAA-Archives/22/1/1468.pdf> (discussing how Japan’s school lunch program focuses around local foods and educates students about food production issues).

171. See *supra* notes 115–20 and accompanying text (highlighting the environmental benefits of widespread adoption of the plant-based diet).

172. See, e.g., Earl Blumenauer, *A Green New Deal Must Include Food and Farming*, 10 YEARS CIVIL EATS (Jan. 30, 2019), <https://civileats.com/2019/01/30/a-green-new-deal-must-include-food-and-farming/> (“A Green New Deal can start by incorporating the principles of agricultural reform and applying them to practices that will decarbonize the economy, while bringing justice to the food system.”).

173. See, e.g., *What is the Human Right to Food?*, NAT’L ECON. & SOC. RTS. INITIATIVE, <https://www.nesri.org/about/mission-vision> (last visited Apr. 14, 2019) (listing the various United Nation treaties that prove a right to food).

174. See Clapp, *Agribusiness*, *supra* note 142 (arguing that agribusiness mega-mergers allow for corporate concentration, which does not effectively tackle hunger).

endeavors—through law and policy, individual and group activism, and regional and international support.<sup>175</sup>

Garver's ten features of ecological law are an excellent vehicle for assessing and proposing alternatives to our current industrial-animal-agriculture system.<sup>176</sup> Although ecological law strives to achieve interspecies justice, it also seeks inter- and intragenerational human justice, so it does not provide a clear and simple answer to whether it "demands" veganism.<sup>177</sup> Instead, ecological law prompts us to ask probing questions to guide us to food systems that enhance ecological justice for all species now and in the future.

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175. See Garver, *supra* note 1, at 329 (discussing how ecological law encourages "global[], regional[] and local[]" connections).

176. See *supra* notes 131–47 and accompanying text (suggesting how ecological law principles would reform the global food system).

177. See *supra* notes 40–43, 143–47 and accompanying text (concluding that ecological law would permit eating meat in some circumstances).