

Book Review

Weis, Tony. 2013. *The ecological hoofprint: the global burden of industrial livestock*. London / New York: Zed Books. 188pp. ISBN 9781780320977; paper US\$24.95.

Reviewed by Feliu López-i-Gelats [feliu.lopez "at" upc.edu](mailto:feliu.lopez@upc.edu)

Without doubt, major transformations are occurring in human diets on a global scale. One of the most fundamental aspects of this is the rising consumption of animal flesh and derivatives. There exists wide consensus that industrial livestock production is a crucial driving force behind this. Influential studies report rapid growth in both animal-source-food consumption and world population. Specifically, it is expected that about one third more people and two-thirds more meat will be produced over the next four decades. Wide disparities are hidden behind this broad picture, however, with much greater consumption in rich countries. This transformation is often termed the *livestock revolution*. It is described as a transition towards improved diets, with the rising consumption of animal protein portrayed as an inevitable aspiration as individuals and societies become wealthier. Based on this, prominent actors insist that further yield enhancement is critical not only to solve present and future world food problems, but also to reduce pollution loads, extensive use of natural resources, and greenhouse gas emissions of the livestock sector. In this book, Tony Weis excels in the problematization of this narrative.

Concerns about the trajectory and unexpected effects of livestock production are beginning to penetrate among activists and scientists. However, the author claims that too often responses are framed in limited ways, centered mainly on individual ethical and welfare concerns but without connection to other struggles. This diminishes the interconnectedness of problems and their magnitude, and diverts attention away from the critical issue, that is, the *system of production* itself. The objective of the book is to draw attention to the hidden impacts that surround the increasing production and consumption of cheap animal-source food, and to stress the urgency of opposing this trajectory. Throughout the book Tony Weis makes use of multiple examples and uses information consistently to illustrate that the logic of efficiency that determines the price of cheap animal-source food turns out to be an illusion. This is because, he notes, in the end industrial livestock production is simply a technological amplification of the biological simplification inherent in any agricultural activity. Accordingly he shows that the trajectory of industrial livestock production and the rising consumption of animal-source food not only reflect global inequalities, but increase them. Capital accumulation, instead of meeting nutritional considerations or food security, seem to drive the cycling of massive quantities of grain and oilseed through animals – this characterizes industrial livestock production.

The author starts by questioning the influential assumption that global animal-source food must double by 2050. He organizes the reasoning in two main points:

- (i) the *meatification* of diets, and
- (ii) the *ecological hoofprint* of industrial livestock production.

Firstly, instead of seeing the increasing consumption of animal protein as a marker of development - nutritional transition theories suggests humans climb up the *animal protein ladder* with increasing economic development - the author employs the term *meatification* of diets to make sense the growing and highly uneven global consumption of meat. Not until the arrival of industrial livestock production did animal flesh and derivatives become central to human diets on a world scale. Weis does not see this as natural, inevitable or benign, but led by capital accumulation and influential narratives about the apparent superiority of animal protein. The author warns against the fact that if different parts of the world are perceived as located at different stages along the same trajectory, with all moving towards an advanced state, it can serve to legitimize the course itself and naturalize inherent inequalities.

Secondly, the author sheds light on the particular dynamics of the industrial grain-oilseed-livestock complex to unravel the scope of its wide-ranging environmental and social burdens, and to demystify its celebrated efficiency. The discussion centers on livestock feed. Increases in yield and output per farmer are

attained through the articulation of islands of concentrated livestock production and seas of crop monocultures, and through mechanization, standardization and biological simplification of production systems. This exacerbates a range of biophysical instabilities that are then overridden by an array of inorganic fertilizers, synthetic pesticides, irrigation, fossil-fuel-powered machines, pharmaceuticals, high-yielding seeds and animals, etc., which entail additional resource demands and pollutions loads. The high productivity and low price of industrial livestock production create a chronic ecological hoofprint (e.g. biodiversity loss, soil degradation, diminishing freshwater availability, climate change, decline in non-renewable resources, public health problems, dehumanizing work, etc.). The massive increases in volumes of feed burned in animals, triggered by gains in feed conversion, have become an additional magnifying effect. But there are insurmountable intrinsic feed conversion inefficiencies.

In a world of persistent hunger, growing livestock production is consumed disproportionately by the wealthy. The tremendous productivity per worker and high yields of feed and meat offered by industrial livestock production are thus only conceivable by ignoring many of its costs. Commodities comprise multiple socio-ecological relations that are obscured when consumers encounter them in markets. Despite the grain-oilseed-livestock complex destroying much more protein than it provides, transforming it into a *reverse protein factory*; these undervalued costs and the higher unit value of animal-source products compared with grains and oilseeds make it *profitable* to burn large volumes of usable nutrition in the metabolism of livestock.

The book is organized in four chapters. Chapter 1 describes the environmental problems posed by the growth of industrial livestock production. The author also reviews influential narratives that picture the current environmental problems as human population growth pressing up against biophysical limits. Then the author proposes the ecological footprint as a valuable pedagogical tool to examine the resource budgets and pollution loads that accompany a livestock population bomb. Chapter 2 depicts the shift of animal-source food from the periphery to the center of human diets in the last decades, the uneven *meatification* of diets and the geographical distribution of the industrial grain-oilseed-livestock complex. Root causes are the process of commodification of animal-source food, and the promise of modernization and development being linked to *meatification*. It is suggested that soaring livestock production and consumption is in essence not about better nutrition, but led by economic pressures to expand capital accumulation by means of absorbing chronic surpluses of industrial grain through fast-rising populations of concentrated animals. The uneven *meatification* of diets and the imbalanced geography of the industrial grain-oilseed-livestock complex provide a basis for understanding the asymmetrical burden of the ecological hoofprint. Chapter 3 aims at deconstructing the celebrated efficiency of industrial livestock production. The impressive productivity per worker and high yields of plants and animals are seen as a consequence of the usage of narrow metrics. The true costs of the grain-oilseed-livestock and associated biophysical instabilities are ignored. Finally, chapter 4 reviews the massive ecological hoofprint associated with industrial livestock production, in terms of land, water, atmosphere, public health, inter-species relations and the dehumanization of work. Despite the powerful momentum behind this trajectory, from corporate complexes to consumer desires and narratives about diet and development, the author claims it is far from inevitable. He concludes that to attain a more sustainable, fair and humane world, it is critical an urgent and drastic reduction in the livestock population, a deindustrialization of this production system, and a *demeatification* of diets.

Page after page, with a profusion of examples and facts and in a readable style, Tony Weis weaves a compelling storyline to reveal the feet of clay on which industrial livestock production and the current *meatification* of our diets stand. In sum, this book is a commendable intellectual exercise, didactic and scientifically sound. It is worth reading not only by scholars and students, but for anyone wishing to have a critical look on our food system.

Feliu López-i-Gelats is a postdoctoral researcher at Center for Agro-food Economy and Development (CREDA-UPC-IRTA) in Barcelona. His research interests include pastoralism, smallholder agriculture, rural sociology, organic production, and global environmental change, particularly in mountains and drylands.

Book Review

Gareau, Brian J., 2013. *From precaution to profit: contemporary challenges to environmental protection in the Montreal Protocol*. New Haven: Yale University Press. ISBN: 9780300175264; US\$55.

Reviewed by Deborah Scott [debby "at" eden.rutgers.edu](mailto:debby@eden.rutgers.edu)

The "Montreal Protocol on Substances that Deplete the Ozone Layer" is widely considered one of the most successful international environmental agreements. All of the world's countries have ratified the Montreal Protocol, agreeing to legally binding commitments to reduce and ultimately phase out ozone-depleting substances. As one of few environmental treaties with wide membership and 'hard' commitments, the Montreal Protocol is considered a potential model for dealing with other global environmental issues. *From precaution to profit* warns that the Montreal Protocol may instead demonstrate the dangers of international governance in an age of neoliberalism, providing a "cautionary tale about what can go wrong with even the most successful of environmental agreements" (p.18). Gareau lays out this tale in an engaging fashion, describing the inner-workings of a UN treaty in an accessible fashion and providing an excellent study of the deployment of science/knowledge within an environmental treaty.

The book's focus is the controversy within the Montreal Protocol around the phase-out of Methyl Bromide (MeBr). MeBr is a toxic and ozone-depleting substance used primarily as a pre-plant fumigant in strawberry and tomato production, killing "everything it touches - insects, bacteria, fungi, mold, everything" (p.17). Gareau compares the Montreal Protocol's early success in the late 1980s and early 1990s in establishing comprehensive phase-outs of chlorofluorocarbons (CFCs) with the protracted and difficult negotiations from 2003-2008 on MeBr. The United States in particular has fought against phasing out MeBr, defending not only its California strawberry growers but also its particular knowledge base of science generated by the private sector.

Gareau's framework for analysis is the sociological theory of social capital, although this is directly addressed primarily in just one chapter on the Montreal Protocol as a 'social institution' (Ch. 4). The book seems less engaged with social capital than with other theories: the "neoliberal turn" in governance; the impact of conditions of production on global environmental governance; and the governmentality of groups and individuals engaging in the Montreal Protocol process.

Gareau explains the trajectory of modern global environmental governance. He tracks the shift from the international political atmosphere in the early 1970s that encouraged precaution and had faith in global science, to today's global political stage, defined by neoliberal interest in profits and private-sector science (Ch. 2). Against this back-drop, Gareau compares the Montreal Protocol's experiences with CFC and MeBr, including the state of scientific knowledge, the economic and political interests in play, and the motivations of industry representatives (Ch. 3). A major change was in the basis for exemptions to phase-outs. For CFCs, country Parties could apply for "essential use" exemptions, such as specific uses for asthma treatments, space shuttles, and laboratory uses. For MeBr, Parties could apply for "critical use" exemptions on the grounds that not using MeBr would result in significant market disruption and that no technically and economically feasible alternatives were available to the user. This shift in policy led to changes in the functioning of the Montreal Protocol: exaggerating tensions among nation states over economic competition (Ch. 5); pressuring scientists to interpret findings in line with their nation-state delegations (Ch. 6); and non-governmental organizations (NGOs) only attracting notice and gaining influence when they adopt a neoliberal rhetoric, dropping arguments based on global socio-ecological concerns that aren't legible within the neoliberal context of the Protocol (Chapter 7).

From reading the book, it seems that the shift from CFC exemptions based on global welfare claims, to MeBr exemptions based on individual economic impacts, was a fulcrum in the Montreal Protocol's shift from precaution to profit. Indeed, the Montreal Protocol's MeBr critical use exemptions are a blatant case of neoliberal logic, providing an ideal case study of the impacts of neoliberal governance on the development of global environmental governance mechanisms. It is also a strong warning against using the Montreal Protocol as a model for other governance regimes. The MeBr's critical use exemptions are *such* a perfect case study, I wonder to what degree these findings apply to agreements that are more muddled, with policies that follow

neoliberal logics less blatantly. Wisely, Gareau does not offer his case as a typical example of neoliberal governance, but rather as a potential "harbinger of future problems in global environmental governance", if the Montreal Protocol really is taken as a model for addressing environmental problems (p.61).

An interesting aspect of the Montreal Protocol not addressed in the book is that it is regularly held up as a model for its *legal structure*, not just for its end results. The Protocol came out of the 1985 Vienna Convention for the Protection of the Ozone Layer – a "framework convention" that did not place legally binding responsibilities on Parties but instead provided the context for negotiating what would become legally binding Protocols. Together, the Vienna Convention and the Montreal Protocol are commonly referenced as an early example of the success of the framework / protocol approach for global environmental problems, particularly for issues still moving from scientific uncertainty to certainty (Bodansky 1999; Hendricks 1998; McGraw 2002). Gareau provides an alternative to the predominant narrative of the Montreal Protocol, particularly in the timing and sources of scientific knowledge and the role of corporate actors. I would love to see Gareau take this alternative narrative and his findings from the MeBr negotiations and directly address the argument that the Vienna Convention/Montreal Protocol approach to a framework/protocol is ideal for developing global environmental governance.

This book would be an excellent monograph for graduate seminars on global governance, climate politics, and science/policy; it lays out a complicated UN agreement in an engaging fashion and traces the co-production of science and politics clearly. Graduate students studying processes of governance may find Gareau's use of data from his attendance at Montreal Protocol meetings from 2003-2007 a useful model of research design, with interviews conducted during those meetings, and historical and archival research.

Perhaps the audience with the most to gain from this book are those actively involved in the Montreal Protocol, the climate change regime, and other global environmental governance institutions. Indeed, Gareau focuses on the links between science, technology, and political and economic interests because "state delegates and policymakers seldom grasp its full importance" (p.62). His suggestions for ways forward for the Montreal Protocol involve reconfiguring ozone governance to allow the entire scientific community (and not just industry) and global civil society to have more influence. As Gareau puts it, this will necessitate "liberated insider support" (p.266). Hopefully this book inspires and guides some insiders, as well as providing a fascinating case study for scholars.

Debb Scott is a Ph.D. candidate in the Department of Geography, Rutgers University, USA.

Book Review

Eizenberg, Efrat. 2013. *From the ground up: community gardens in New York City and the politics of spatial transformation*. Farnham: Ashgate. 196pp. ISBN 978-1-4094-2909-8.

Reviewed by Matt W. Murray [mattwmurray "at" hotmail.com](mailto:mattwmurray@hotmail.com)

In Efrat Eizenberg's *From the Ground Up*, we are given an exploration of New York City (NYC)'s community gardens as spaces that provide an alternative to ongoing commodification of land with neoliberalization. As Eizenberg explains, through community gardens, resisting the ongoing allocation of land to private commercial, industrial and residential activities, local residents are able to interact and work together, creating common spaces and goals which solidify interpersonal ties as well as food that residents enjoy.

Eizenberg provides a detailed history of community gardens in NYC, including key events such as the economic crisis of the 1970s (Ch. 1). At that time, private disinvestment and an expansion of immigrant neighborhoods led primarily Black and Hispanic residents to slowly transform "rubble-strewn vacant land into communal green spaces for recreational gardening and even small-scale urban farming" (p. 20). As the real estate market started to recover in the 1980s, the value of land in NYC's various urban areas increased and many of the gardens were threatened by pressures of gentrification.

With the historical foundation laid, Eisenberg builds on three elements of Lefebvre's concept of space: "*material space*—the actual space and its forms and objects; *representational space*— the knowledge that is produced about space and its production; and *lived space*— the emotional experience of space and the subjective practices that are attached to the space" (p. 10). Engaging this conceptualization in relation to NYC's community gardens, the book provides a compelling discussion of the transformations that occur within three interrelated levels of analysis: individual (Ch. 2, 3), collective (Ch. 4, 5), and institutional (Ch. 6). Starting with the individual level of experience, Eizenberg details the personal experiences that people have in community gardens, as they create memories, develop a sense of control and ownership over the land, and use it as a creative outlet. The collective level is then examined through the lens of a social space. Here the gardeners' actions and experiences lead to the development of a multi-purpose space, where time, expertise and knowledge are exchanged for free, via workshops, parties, and everyday gardening practices. The gardeners work together and learn new gardening techniques, as well as the skills necessary to organize to defend the gardens from land use changes.

The institutional level is then explored by investigating social movements, across the spectrum from informal and formal organizations (including two existing organizations: More Gardens! and Times Up!). As well, Eizenberg focuses on city organizations such as the Parks and Recreation Department, Operation Green Thumb and the New York City Community Garden Coalition. Based on years of observation, experience, and countless interviews, Eizenberg explains how NYC gardeners have learned that the institutionalized groups provide a number of benefits, even demonstrating significant sway with political figures. Protesting government decisions on commercial development, however, is an action more suited to grassroots coalitions.

One other challenge that arises as groups become more institutionalized is that the interests of the many can be stomped out by the interests of the few. For example, the New York Restoration Project (NYRP) founded by actress Bette Midler purchased 57 community gardens that were set to be auctioned in the 1990s. The NYRP purchased the gardens and redesigned each one, utilizing the skills of "designers...on the cutting edge of open-space development and green design." Sadly, a result of this process is that those community members who previously tended these gardens and took pride in the creation and design process were often left feeling detached from the gardens that they were once an integral part of (p. 69). Examples like this are difficult because the funding from NYRP saved them from private development, but it seems that some become alienated in the process.

Significantly adding to the flow of this book, each section also includes excerpts from interviews with NYC community gardeners. These first-hand accounts bring the text to life, as they bridge the gap between the conceptual foundations and the more tangible realities that exist at each level of the discourse.

One thing I would have found useful would be a stronger sense of how this case study relates to the broader set of issues affecting other cities, whether related to community gardening, or the demographics of those participating gardeners. For instance, given that most gardeners in NYC are identified as Black or Hispanic, what might these findings mean for other communities characterized by more affluent or White communities? As well, given NYC is in many ways an exceptional city (in terms of land prices, size, etc.), what might be the implications of this work for other large, medium or small sized cities with residents interested in promoting urban food or community cohesion? Agency within individual gardeners is explained as developing through time within the garden community. I would be interested to learn more about the development of socially conscious actors outside of the garden context. Would we find that they become active in the same way or for the same reasons? Do the motivations for action vary between people focused on neo-liberal domination of space and people focused on other topics, such as climate justice, human rights or animal rights?

By delivering a firm theoretical foundation and building upon it with first hand stories of real gardeners in NYC, Eizenberg bridges the gap between theory and reality. This pairing creates a tangible and holistic picture of the phenomenon of community gardens in NYC, how they form and how – with much social struggle – they either evolve over time or disappear with land use change.

From the Ground Up might most appropriately be seen in the hands of a scholar, or a person working in the planning profession. Yet, given that the language employed throughout makes it highly accessible; it would also be a useful and compelling read for anyone with an interest in community gardens, or paths to inner city development of culture and community. Particularly for those involved with community gardens, whether local level organizers and gardeners to government officials, the book is an essential read.

Matt Murray is a recent graduate in Natural Resource Conservation, Faculty of Forestry at the University of British Columbia, Canada.