

# A FUTURE BEYOND GROWTH

Towards a steady state economy

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# 4

## CHOOSING A PLANET OF LIFE

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VIRGINIA TECH

One of the commonplace of environmental writing these days is a population forecast of 10 billion (or more) people by century's end (UN 2012). Indeed, this projection is endlessly repeated, as if it were as inevitable as the calculable trajectory of an asteroid hurtling through space. Besides being a facile 'meme' amenable to replication, this recurrent demographic report signals a widely shared fatalism: the coming growth has too much inertia behind it, and is far too politically sensitive, to question. At the same time, the projection reinforces a collective impression that nothing can be done to change it. Ironically, the incantation of '10 billion' seems at work as a self-fulfilling prophecy, for without urgent, concerted, and proactive intervention it is roughly the number to be expected. So do we hypnotize and propel ourselves in the predicted direction.

Environmental analysts have divergent responses to this particular figure (which is the latest United Nations estimate). Some are incredulous that such a number can be approached – let alone sustained – and contend that the consequences of moving in that direction will be disastrous (for example, Ehrlich and Ehrlich 2014; Brown 2011a). They suggest that a catastrophe or combination of catastrophes is bound to derail professional demographers' expectations, and humanity (after enduring much suffering, or perhaps experiencing some kind of wake-up call) will stabilize at lower numbers. But other environmental observers, describing themselves as more 'optimistic', are endeavouring to figure out strategies that might sustain the expected billions. They hope that with the right developments and innovations in crop genetics, irrigation technologies, fertilizer application ('responsible nutrient management'), efficiency gains (including closing 'yield gaps' and curbing food waste), requisite energy transitions, and other advances, the planet might feed, provide water for, house, educate, and medicate – at an acceptable standard of living for all – the coming 10 billion (Foley 2014; Shellenberger and Nordhaus 2011). There is reason to wager, optimists maintain,



that humanity might succeed at the task, since people are resourceful, determined, and apt to get out of a tight spot even in the nick of time.

Thus where some see disaster on the immediate horizon, others submit that with another techno-managerial turn of the screw, humanity might avert grim penalties to population growth. Yet despite considerable divergence in outlook, all environmental analysts agree that (even as our global numbers continue to climb) we face grueling challenges, each immense in its own right but dizzying in their unpredictable synergies: biodiversity destruction, climate change, freshwater depletion, ceilings on agricultural productivity, all manner of pollution, topsoil loss, and ocean acidification to mention some prominent examples.

Rather than taking sides between the forecast of impending tragedy versus optimism about feeding the world, there is another way to tell the near future's story. On that telling, the issue is not whether it is possible for 10 billion people to eat industrial food, commune with iPhones, and make a decent living on planet Earth (an outlying scenario, but perhaps stranger things have happened in the universe). The point to focus on instead is that a world of so many billions does not, in any case, turn out well: because such a world is only possible by taking a spellbindingly life-abundant planet and turning it into a human food plantation, gridded with industrial infrastructures, webbed densely by networks of high-traffic global trade and travel, in which remnants of natural areas – simulacra or residues of wilderness – are zoned for ecological services and ecotourism. In such a world, cruise ships with all-you-can-eat buffets will circumnavigate seas stripped of their plenitude of living beings, on waters awash with plastic refuse decomposing into bite-sized and eventually microscopic particles destined for incorporation into the worldwide food web.

What's more, a sustainable geopolitical status quo of 10 billion consumers will require comprehensive mega-technological support: offshore dike projects; more dams, which are already being constructed at 'a furious pace' (Bisello 2009); desalinization plant construction with accompanying transport infrastructures; scaling-up of industrial aquaculture; genetic modification of crops and animals to adapt to climatic and consumer demands; cultivating so-called marginal lands to grow grasses and other plants for biofuels; the spread of the fracking scourge; climate engineering at global and regional scales; and the spread and normalization of factory farms. *The Economist* (2011) praises the efficiency of the latter institution over traditional husbandry, calling it – in apparent oblivion of the term's Orwellian malodour – 'the livestock revolution'.

In such a world, corporations are likely to continue reigning supreme, for the coming technological gigantism, not to mention the escalation of mass consumption, will make them indispensable. Corporate expertise and products will be required to keep the biosphere on permanent 'dialysis' – to borrow a fitting metaphor from James Lovelock (2007). Corporations will continue generating enormous revenues, via tax-based subsidies for their 'public works' and by catering their products to huge numbers of people. (Any doubt regarding the relationship between private-sector opulence and consumer population size is dispelled by taking note of the

correlation between today's wealthiest companies and their bulging middle-class client base. Indeed, capitalism is quite partial to the twin perks of population growth: cheap labour and mass clientele.) Whatever relatively natural places remain will be slated as the real estate and vacation destinations of the most affluent – as they are to a large degree today. But regardless of whether or not corporations and the gilded class entrench their reign, everyone (including the rich) will be wretchedly dispossessed, hustling for happiness on a planet degraded to serve a bloated user-species.

In such a world – whatever it augurs for humanity, which seems bleak to say the least – the exuberance of Life will suffer a tremendous blow. This Life is barely hanging on in the present world; it will not survive a world that is a magnified version of the one we live in. I use the word Life, with a capital 'L', to mean something akin to what life scientists call 'biodiversity'. Unfortunately, though, the latter term is often mistakenly conflated with numbers of species on Earth. While numbers of species are a significant dimension of Life's fecundity, Life is far greater than a total species inventory – as extravagant as that inventory may be. Life is bewildering in its creative expressions, its beauty, strangeness, and unexpectedness, its variety of physical types and kinds of awareness, and its dynamic, burgeoning, and interweaving world-making.

Earth's story is about Life, whose phenomena emerge in each place uniquely and over the whole planet diversely, always contiguous and interconnected at local, regional, and global levels. Life fills niches and also creates them; life-forms accommodate other life-forms via niche construction and by their edible, breathable, or otherwise consumable waste by-products (including, ultimately, their own corpses). With the exception of mass extinction events, Life is always enabling more of itself to surge (Wilson 1999; Dirzo and Raven 2003). There's ceaseless feeding on one another and on each other's by-products, as well as a co-moulding of a physical and chemical environment in which more life is supported to flourish (see Crist 2010). Importantly, a vast array of life-forms – from all five kingdoms of life – are involved in building soil, which is not only Life's foundation but itself a living phenomenon. Through organism-mediated processes, the land brings nutrients to the seas, and the seas (through organism-mediated processes) return nutrients to the land. Forest canopies feed the life in the understory, and life in the forest understory feeds the trees and all who live in their canopies. Beings in the seas' upper layers sustain the strange menagerie of abyssal creatures, and organism-created nutrients in the depths well up and nourish fellow beings in the upper zones.

In the interdisciplinary dance of Life – where phenomena of physics, organismal biology, biochemistry, behaviour, awareness, and chaos jostle in established and spontaneous patterns – Life creates abundance. For example, hundreds of millions of eggs wash to the sea's edge, feeding multitudes before a fraction develop into the organisms that spawned them. Prey species proliferate wildly in response to the pressure of their predators – incalculable numbers of marine creatures once sustained the tens (and perhaps hundreds) of millions of sharks, seals, and whales



who existed before their concerted extermination began. Enormous, ever-on-the-move ungulate herds do not decimate the lush grasslands that feed them, on the contrary the grasses grow because of them, and the animals and grasses (with other life-forms) together create more soil. Freely moving, pristine rivers teemed with fish even in recent history. Great flocks of birds graced skies, wetlands, and seashores. And land, sea, and air animal migrations have not only told the seasons' stories but contributed to bringing the seasons into being. The intermingled manifestations of Life on Earth – when Earth is allowed to manifest them – have no finitude.

As for a popularized claim that, alas, life is all about struggle, competition, and selfishness, it is best to turn away from such claptrap: for it is only within a planet of Life, a Life-world, that phenomena of struggle, competition, and selfishness arise and pass away in their relevant contexts (Rolston 1992; Margulis 1999). The Life-world itself is far more encompassing in the kinds of phenomena it manifests and cannot be reduced to a one-dimensional schema. Except for the one thing we know in the marrow of our bones and in our hearts: that the Life-world is All-good.

And here's the crux of the matter: humanity can choose to live on a planet of Life instead of haplessly plunging toward a human-colonized planet on dialysis ('wisely managed'). To live on a planet of Life it is necessary to *limit ourselves* so as to allow the biosphere freedom to express its ecological and evolutionary arts. For that, we in turn need to cultivate the breadth of imagination to give the concept of freedom wider scope – pushing its territory beyond the sheath of human exclusivity. In the name of a higher freedom that encompasses Earth and its entire community of beings, we can choose to let the world be the magnificence and wealth it was – and still can be. Borrowing words from nature writer Julia Whitty's 'Deep Blue Home', this path is about cultivating intimacy with the natural world, taking as our lover the way things really are and finding our way home (2011).

But the wisdom of limitations – of our numbers, economies, and places of habitation – is rarely entertained in mainstream thought for what it is: the elegant way home and the surest means for addressing the deepening (and likely self-endangering) problems of extinctions, ecosystem destruction and simplification, rapid climate change, freshwater and topsoil depletions, as well as (relatedly) mounting concerns about 'feeding the world'. The path of limitations is rarely entertained, for it is assumed to be unrealistic and thus politically ineffectual. But knowledge of the multiple stresses on the biosphere, along with an understanding of the adverse, volatile ways these may compound one another, yield the recognition that drastically scaling down the human project is the most realistic approach to imminent catastrophes (see Washington 2013). If political expediency cannot see that, then political expediency and those who speak for it need to be deposed so we can get on with the real work.

In the meantime, even as the available option of limitations is bypassed as ostensibly unrealistic, the prevailing question (voiced with increasingly shrill urgency) is: Can the Earth feed 10 billion people? By most expert accounts,

because of population growth along with the rise of meat and animal product consumption, food production will have to essentially double by 2050 to meet demand (FAO 2011) – and the big question is: Can it be done? There is an effort underway to figure this out, by experimenting in research and development labs, working in research stations, and analyzing agricultural databases (see Anon 2010). And because it is well known that most (and certainly the most fertile) arable lands are already in cultivation, and that the areas where wild creatures live are already pushed to their limits, the effort to increase food production (to double it in about forty years and triple it by century's end) is invariably escorted by the caveat that it must be done without 'further damage to biodiversity' or 'taking over more uncultivated lands'.

Since at least the early 2000s, this 'ecologically correct' sound-bite has been activated in environmental writings, journalistic reports, and corporate web pages: we must produce more crops (for food, feed, and fuel), as well as more meat and animal products, by means of careful planning and management, with minimal additional ecological impacts (for example, Clay 2011). Oddly, the latter disclaimer is stated as if tropical forests are not today giving way to soybean monocultures, cattle ranches, and oil palm, sugar, tea, and other plantations; as if large-scale acquisitions recruiting land in Africa and elsewhere are not already underway in the name of 'food security'; as if marine life is not being chewed up by the industrial machine; and as if rivers are not today so taxed by damming, extraction, diversion, and pollution that the crisis of freshwater Life may well be the gravest extinction site on Earth (a big non-event as far as the public and its elected officials are concerned). Despite all these things happening already today (in a global economy of 7.3 billion), those at work to figure out if food production can be doubled and eventually tripled (to serve a world of 9, 10, or more billion in an intensified global economy) always add that it must be done 'without additional ecological damage'. When we encounter such pious declarations of intent we'd do well to recall Hamlet's sardonic response to the question, 'What do you read?'. *Words, words, words.*

Those endeavouring to figure out how to increase food production without more harm to nature may well be sincere; but they are in the throes of wishful thinking posing as optimism. For even if for a moment we ignore the fact that present-day industrial agriculture, industrial aquaculture, and industrial fishing constitute a mounting planet-wide disaster – which goes largely unremarked only because it is equalled by planet-wide unawareness – simply saying that we need to grow more food 'without further ecological destruction' is not going to stop hungry and acquisitive people from taking what they need and think they need: clearing more forests and grasslands, moving up slopes, overgrazing pasture and rangelands, decimating sea creatures, replacing mangrove forests with shrimp operations, or killing wild animals for cash or food.

Even so, the most pernicious thing about this formulaic mandate-plus-caveat – grow more food, don't damage more nature – has yet to be stated: namely, that it insinuates that the *current* damage our food system inflicts is acceptable and



irreversible. Hands down, however, industrial food production is the most ecologically devastating enterprise on Earth. (More on this shortly.) Yet mainstream discourses do not tend to flag the food system's earth-shattering demands on the biosphere. Instead, the current ability to produce ample amounts of food – enough for all, including those not yet at the table – appears to merit a different cluster of conclusions: that humanity's food-producing capacity is not constrained by natural limits; that we may be able to stretch that productivity even further via managerial and technological innovations; and that *Homo sapiens* is unlike all other species, which are checked by nature whenever their numbers exceed the capacity of the environment to sustain them. Indeed, the belief that humans are exempt from any natural 'carrying capacity' is a cornerstone of the mission to continue expanding food production to support the coming billions (see Ellis *et al.* 2013 and Ellis 2013 for recent expositions of these views).

The demographic idea of carrying capacity refers to the maximal population of a species that its environment can support, without that environment becoming too degraded to support the species in the future. If a species, for some reason or other, does exceed its carrying capacity – with numbers mounting beyond what the natural setting can sustain – the consequences are implacable: starvation, disease, and death follow, until the population is brought back within a supportable range. While this natural law of the relationship between population size and sustenance appears broadly applicable in the animal kingdom, here's the key point regarding human exemption: it is widely believed that history has shown that it 'does not apply to us'.

At the turn of the nineteenth century Reverend Thomas Robert Malthus sought to apply the logic of natural limits, and the severe costs of transgressing them, to humanity. He predicted that because population grows faster than food production, human numbers would outstrip the available food supply and people would reap the woes of famine, disease, and war (Malthus 2008). But the two centuries following his analysis did not see a human population crash, as food production kept up with mounting numbers of people; in fact, during the last half of the twentieth century the rate of food production even outpaced the rate of population growth. So the Malthusian thesis came to be viewed as repudiated, and the doctrine of human *exemptionalism* from natural limits received a victorious boost.

Indeed, the foreboding forecast that the human population would inevitably exceed the amount of available food to (at least in principle) feed everyone did not come to pass. It was refuted by converting Earth's most fertile lands for agriculture (after being denuded of their life-rich forests, grasslands, and wetlands): by taking over extensive swathes of natural areas for domestic animal grazing; by appropriating half the world's freshwater – with the biggest share diverted for agriculture; by applying enormous quantities of synthetic chemical and fertilizer pollutants; and by plundering untold numbers of wild fish. In other words, the prediction of human tribulation in the wake of unsustainable numbers was refuted by means of the near-conversion of the biosphere into a human food pantry.

The seemingly 'winning argument' that humanity is uniquely capable of keeping food production apace with (or ahead of) demographic growth reveals a profound lack of insight into the bigger picture of what stretching our food-producing capacity has really portended. It reveals an inability to appreciate – or even to entertain as a passing thought – that human carrying capacity (how many people the Earth can support) has been extended not simply because we are so clever at manipulating natural processes and inventing stuff, but through forcefully taking over the carrying capacity of other life-forms and, in the process, wiping them out regionally or globally. Moreover, the exemptionalism thereby displayed – that we are not bound by natural conditions like other species – beyond the superficial 'fact' that it seems to be, serves conveniently as an ideological handmaiden of human *expansionism*. For what the doctrine of exemptionalism tacitly conveys and inculcates is that because humanity is so special by comparison to all other creatures, it is proportionately that much more entitled; and thus the acts of war on the natural world that undergird human expansionism (for food production in particular) become unrecognizable as acts of war.

The question of whether ultimately there are (or not) natural limits to our food-producing ability, which will (or not) check human demographic growth, is not so interesting; the experiment required for the final verdict is an ugly one either way. Instead, I along with other deep ecologists, invite consideration of something far more enticing: that by choosing the wisdom of limitations and humility, humanity can reject life on a planet converted into a human food factory and allow for the rewinding of vast expanses of the biosphere's landscapes and seascapes. To drive home why the latter option is much more beautiful (as well as more prudent), I turn to the highlights of how food production is contributing the lion's share of anthropogenic ecological havoc.

Cropland uses a portion of the planet the size of South America, while land for grazing farm animals eats up an even larger share – an area the size of Africa (Foley 2012). Effectively, humanity has seized the temperate zone for agriculture, wiping out all or most former nonhumans and ecologies in order to mine the soil. (How did *they* get on top of *our* soil?) The raising of tens of billions of farm animals has exacted the eradication or displacement of wild animals from their former habitats, the persecution and slaughter of carnivores viewed as threats to domestic animals (themselves reduced to being 'live-stock'), and the erosion and degradation of lands from overgrazing. And the alternative to grazing – *The Economist's* so-called livestock revolution – constitutes a pollution nightmare and an egregious violation of basic decency in the treatment of animals. (Yet factory farming is a production method that today both supplements grazing and is swiftly spreading.) Regarding the seas, the human food factory has demanded that 98 percent of them be fishable. This reign of terror for marine species is partly underwritten by an institution called, without the slightest irony, 'the freedom of the seas'. As a consequence, only about 10 percent of the big fish are left and there is no end in sight to the demand on everything from krill to sharks (Jackson 2008). In the literal and figurative industrial mowing of the world's oceans, the countless beings who suffer



and die in the name of mass consumption and profit are referred to as 'catch' and 'bycatch' (for a recent overview of the endangered oceans, see Danson 2011).

Industrial food production, and most especially the meat and animal products sector, contributes at least 30 percent of anthropogenic greenhouse gases – more than any other economic activity (Goodland and Anhang 2009; Gilbert 2012). These greenhouse gases are driving a climate change episode that (barring the energy transition everyone is still waiting for) could egg the planet to an average temperature increase in the ballpark of the Paleocene–Eocene Thermal Maximum. (If you have never heard of the Paleocene–Eocene Thermal Maximum, please Wiki it.) The food factory – the one often touted as a miracle of ingenuity bestowing the badge of exceptionalism on *Homo sapiens* – consumes upward of 70 percent of the freshwater taken from ecological watersheds, thus depriving the nonhumans who called that water home, and killing or driving them to extinction (in many cases even before we could meet them). Food production drives soil erosion and desertification, giving rise to ocean-spanning dust storms. It also depends on constant applications of fertilizers, pesticides, herbicides, and other biocides: indeed, many consumers and growers, alike, have been duped by corporate salesmen (and their government gofers) into believing that it is normal and necessary to poison the biosphere for the purpose of producing human nourishment. Streams, rivers, lakes, wetlands, and estuaries around the world are fouled or deadened by agricultural runoff and farm animal excrement – all just 'how things have to be' if we are to eat.

This unprecedented impact on the living world allows for the production of so much food as to seemingly demonstrate our ability to feed billions and, with some additional resourcefulness, perhaps feed even more. From a deep ecological perspective, however, the unprecedented ecological impact demanded for the production of so much food has demonstrated our capacity to take a magnificent planet – second to none in the known universe – and turn it into, or use it as, a human feedlot, and then muster the arrogance to call this act of pilfering and degradation an 'achievement'.

In his latest work, *Countdown* (2013), author Alan Weisman sums our current Green Revolution food system as involving 'fossil fuel glutony', 'river fouling', 'fertilizers', 'dependence on poisons', and 'monocultural menace to biodiversity'. So how is the amount of food we produce to be doubled or more without additional damage? Remarkably, one of the strategies being considered is to extend the productivity of Green Revolution methodologies to places they have not yet fully penetrated, such as Africa and Eastern Europe (see Foley 2012). Indeed, as the global population continues to grow, spreading the Green Revolution in order to feed the world will be the likely tack of the present-day policy framework, which is beholden to (in no particular order) corporate interests, institutional inertia, and acute anthropocentrism. Predictably, the call to extend the Green Revolution is cushioned by all the ecologically-correct pleas for wiser uses of water, more efficient application of fertilizers, prudent deployment of pesticides and herbicides, inclusion of no-till agriculture, and so forth: an appeal to 'greening' the Green

Revolution that not only is politic but also constitutes necessary re-tooling in time of potential phosphate shortages, expanding dead zones, water wars, and fossil fuel price volatility. But making a destructive food model more efficient does not make the model 'good'. At best it yields a world – as Rachel Carson (1962) so cuttingly put it – that is *not quite lethal*.

I have digressed into the ecological discontents of humanity's current food production in order to submit the following: that the social mission to double output is *madness*. But the proposal to move deliberately in the direction of more than halving our global population, and simultaneously radically changing our food system, is not.

If women (and their partners) today were voluntarily to choose having an average of one child (meaning many would choose none, many one, and others no more than two), then the world's population – instead of climbing toward 10 billion – would stabilize and then begin descending toward 2 billion (see Weisman 2007; Crist 2012). Were the current generation of child-bearing women to embrace this voluntary mandate for the sake of a living planet and the quality of life (perhaps even survival) of future people, how could this possibly be construed as a sacrifice? It is intelligent and compassionate action that many people would be willing to take if only they became properly informed and knowledgeable about the planetary emergency we are in. As for those who hear 'coercion' in such a proposal – and respond by defending 'human reproductive rights' – they should at least take a moment to acknowledge a fact that population experts have long been well aware of: that some of the grossest violations of human rights are perpetrated in societies that force women to start (involuntarily) having children when they are barely beyond childhood themselves, and to continue reproducing until their bodies give way or they are no longer fertile. The population question is indeed pressing in countries where patriarchal, polygamous, fundamentalist, and military cultures are keeping women handcuffed, and thus adding roadblocks to a restored future.

Yet population size is not strictly a 'developing world' problem but a global issue and task. One of the most effective and tangible ways to address climate disruption, as well as to curb the excessive consumption of everything (including food), is to move toward the substantial reduction of the number of consumers worldwide, meaning both the populations of the developed world and of 'emerging economies' in Asia, Southeast Asia, and Latin America. Concerning the developed world's responsibility in addressing overpopulation, it is also reasonable to insist that monetarily affluent nations and institutions should provision the financial backing and expertise for bringing state-of-the-art reproductive health services around the world – including their own home territories. For example, about half the pregnancies that occur in the United States are unintended – a statistic that speaks to a social, cultural, and educational failure, not just to a weakness of human nature. The important work of demographic expert Robert Engelman (2008; 2012) has shown that if unintended pregnancies (everywhere) were reduced to a humanly possible minimal, this alone would lead to a reduction in both population size and numbers of abortions.



Wherever concerted policies to lower birth rates have been implemented, birth rates have declined with alacrity (Potts 2009). By concerted policies I include the following: prominent, unembarrassed public discourse and campaigning on the issue; prioritizing the education of girls and women; establishing reproductive clinics that are accessible and affordable to all; training large numbers of health workers for grassroots education and support; making marriage counselling widely available; bringing sex education to school curricula; providing the full array of modern contraceptive methods for free or at minimal cost; and instituting legal, safe abortion services. (On the latter controversial point, it needs to be added that implementing all the above measures would significantly lower the number of abortions worldwide as well as the number of deaths from slipshod, illicit abortions.) Implementing these population policies worldwide, on a massive scale and in a rational manner, is what our predicament calls for. As Paul and Anne Ehrlich (2014) recently put it, 'only dramatic changes, on the scale of World War 2 mobilisations, hold out... hope'.

I expressly do not include immigration restrictions among the population policies sorely needed, because confronting overpopulation is a global environmental emergency that should not be bogged down or obfuscated by political sideshows. The restless, massive movement of poor people today is driven by economic suffering and environmental degradation, which are both (more often than not) causally tied to the activities of the global North. Attempting to restrict the emigration of people from South to North – in the name of an *ecological* cause – is incoherent and backfires against that very cause. The reason it is incoherent is that affluent nations cannot, on one hand, export environmental destruction while, on the other, refuse to import it. The reason calls for 'immigration restriction' (in the name of ecology) backfire against the imperative of bringing our global numbers down is that such calls understandably foment acrimony precisely for being incoherent. I regard overpopulation as a global problem that should be solved by means of the voluntary reduction of fertility rates below replacement *everywhere*. We live on one Earth and we are all one family, humans and nonhumans included.

The combination of heightened public awareness, the empowerment of women, and the availability and affordability of up-to-date reproductive information and services yields swift declines in birth rates (see Brown 2011b; Potts 2009). Such declines have nothing to do with the imposition of some top-down coercion, but follow from a straightforward bio-cultural cause: that the vast majority of women, when they attain free choice, rarely want more than one or two children, because numerous offspring are hard on the female organism and also take time away from self-realization pursuits. As the peerless work of population analyst Martha Campbell has shown, this natural female propensity for few offspring surfaces straight away once barriers to reproductive services are removed and freedom of choice becomes reality (see, for example, Campbell and Bedford 2009). If, additionally, today's fertile women were presented with the beautiful and compassionate mandate to help alleviate the world's most pressing ecological and social problems, then the average fertility rate might well shrink even further. Does this sound unreasonable? Certainly not more so than the unthinkable mission to

double or triple food production, which augurs a colonized and ecologically impoverished biosphere, haunted by scarcity, extinctions, and human and animal starvations, and possibly marauded by nasty social mayhem to boot.

Bringing our global population down to, say, 2 billion will not be the magic bullet that solves every ecological and social problem. But we can rest assured that it will be a magic bullet for doing so. Significantly lowering our numbers facilitates a more harmonious way of life on Earth in at least two ways. First, many problems – from traffic jams, to health care budgets, to climate change – become more tractable as the dimension that magnifies them is curtailed. Lowering our numbers, in other words, helps downscale harms: for example, there is a yawning difference between a world of 1 billion vehicles (causing damage enough) versus a world of 2, 3, or 4 billion vehicles (the direction we are headed). There is also a vast difference between urban settlements beautified and balanced by an abundance of open, green spaces versus the nightmare of unending road, housing, and strip-mall construction to serve the glut of sprawl.

The second way in which significantly lowering our global population supports the turn to what we might call 'beautiful human habitation' involves food production: a lower population will make possible the radical transformation of an industrial food regime that is currently bludgeoning ecologies, wild and domestic animals, and human wellness. (Four leading causes of disease and death are linked to industrial food, and especially to the consumption of mass-produced animal products: heart disease, diabetes, cancer, and stroke.) The whole world can indeed be fed: with organically grown, nutritious food; by prioritizing local and regional food economies; without mining, polluting, and dispersing the soil but by caring for it and building it; through diversified, smaller-scale farm operations modelled on natural ecosystems; in lovely and fecund interfaces with wild nature ('farming with the wild'); and by forsaking high quantities of animal foods, for the occasional consumption of such foods produced with due consideration to ethical and nutritional values. This wholesome turn only becomes possible if our global numbers are *far lower than today's*.

We need an authentic 'green revolution'. Instead of holding demographic growth as given, and a biosphere-wrecking food system as 'normal', let's imagine what the world could look like if we actively renounced both. Such a world would be dramatically more beautiful and sane following expansive rewilding – with abundant food, ecologically and ethically produced; with streams, rivers, lakes, and estuaries returned to being living waters; with deforestation halted and grassland ecologies reinstated; with the extinction crisis arrested and seas thriving again with life; and with climate change made more manageable via carbon-sequestering forests and grasslands and decelerated emissions. If all these things can be achieved, what is keeping us from pursuing such a world? Indeed, what is detaining us from creating a civilization in harmony with wild Earth?

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