Contemporary Systems Thinking

Janet J. McIntyre-Mills
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From Polarisation to Multispecies Relationships

Re-Generation of the Commons in the Era of Mass Extinctions

Springer

Contemporary Systems Thinking

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Contemporary Systems Thinking is a series of texts, each of which deals comparatively and/or critically with different aspects of holistic thinking at the frontiers of the discipline. Traditionally, writings by systems thinkers have been concerned with single theme propositions like General Systems Theory, Cybernetics, Operations Research, System Dynamics, Soft Systems Methodology and many others. Recently there have been attempts to fulfill a different yet equally important role by comparative analyses of viewpoints and approaches, each addressing disparate areas of study such as: modeling and simulation, measurement, management, 'problem solving' methods, international relations, social theory and last, but not exhaustively or least, philosophy. Bringing together many sources yields several achievements, among which is showing a great diversity of approaches, ideas and application areas that systems thinking contributes to (although, often with difficulties unresolved). There is a need for a series of books, each focusing in detail on the study areas mentioned above. While modeling and simulation are served well in the scientific literature, this is not the case for systems thinking in management, 'problem solving' methods, social theory, or philosophy to name a handful. Each book in this series makes a contribution by concentrating on one of these topics.

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Alan Rayner (2020) featuring every major group of organic life forms currently resident on planet Earth and their watery evolutionary origin as fluid expressions, not fixed products of genetic code

"We shall awaken from our dullness and rise vigorously toward justice. If we fall in love with creation deeper and deeper, we will respond to its endangerment with passion."

Hildegard of Bingen[1]

[1] https://quotestats.com/topic/quotes-about-hildegard-of-bingen/.

The book is dedicated

to our colleague the late Dr. Joyce Karel who co-authored Chapter 28 of this volume

and

to the late son of Pat Lethole who drew attention to the rights of those in need of care.

Pat co-authored Chapter 6

May their contributions help to achieve greater justice for all.

Acknowledgements

Each chapter and vignette in the volume can be read separately or they can be read as part of an overall argument, namely, that the wellbeing of living systems is determined by the well-being of the food web.

It is thus an *a priori* argument about rights, buttressed by *a posteriori indicators* to support social, economic and environmental indicators of well-being that balance individual needs and the common good, because 'A is better off when B is better off', according to the cyberneticist, Von Foerster (1995).

Our thanks to those who have made this edited volume possible through supporting visits to their universities and engaging with me to explore some of the pressing issues facing us today, namely food, water, the protection of diverse habitat and energy security. If academic enterprise is to have transformative potential it needs to be both rapid and relevant.

The chapters[2] in this volume include conference papers written for International Systems Sciences and earlier versions appear in the Proceedings of the 63rd Annual Meeting of the ISSS—2019 Corvallis, Oregon (OR), USA and the Proceedings of

[2] Chapters 9 and 17 are versions of papers presented to ISSS , 2019

McIntyre-Mills, J. 2019. Social engagement to redress the banality of evil and the frontiers of justice: *Limitations of the social contract to protect habitat and why an international law to prevent the crime of ecocide matters* Proceedings of International Systems Sciences The 63rd Annual Meeting of ISSS, Oregon State University, Corvallis, Nature's Enduring Patterns: A Path to Systems Literacy., 2nd-5th July.

McIntyre-Mills, J. 2019. The potential of eco-facturing to re-generate rural-urban balance through eco-villages and city hubs: promoting social and environmental justice through vocational education and training hubs Proceedings of International Systems Sciences The 63rd Annual Meeting of ISSS, Oregon State University, Corvallis, Nature's Enduring Patterns: A Path to Systems Literacy, 2nd–5th July.

Chapter 37 draw on fieldwork supported by Universitas Padjadjaran and versions of papers presented as (1) Plenary Papers entitled: (1) 'Voices from below for social and environmental justice : Sustainable Development goals and post national regional implications' for the conference '*Democratisation and social challenges in South East Asia',* Universitas Sultan Ageng Tirtayasa, Indonesia, 4th–5th September, 2019.

(2) Plenary Paper: 'Social engagement to protect multispecies habitat: implications for food security'. Food Security Conference, Universitas Sultan Ageng Tirtayasa, Indonesia, 8th–9th September, 2019. Chapter 15 is an extended version of this paper based on joint fieldwork and collaborative.

the 62nd Annual Meeting of the ISSS—2018 Corvallis, OR, USA. An earlier version of the Plenary Paper: 'Social engagement to protect multispecies habitat: implications for food security' was presented at the Food Security Conference, Universitas Sultan Ageng Tirtayasa, Indonesia, 8th–9th September, 2019. The chapter has been extended based on collaborative research supported by the University of Padjadjaran and Universitas Sultan Ageng Tirtayasa.

Chapter 28 entitled 'Systemic Praxis: narratives on steps towards re-generation', was possible as a result of in-kind support from the University of South Africa.[3]

The section on 'Recognising our hybridity and interconnectedness' is adapted from an interview for 'Current Sociology' as Sociologist of the Month as it addresses some of the core themes raised in this book.

[3] It cites: Romm, NRA and McIntyre-Mills, J.J. 2019. 'Systemic Thinking for Re-Generative Development' in Cabrera, L, Cabrera, D and Midgley, G. (ed) Handbook of Systems Thinking. Routledge. London. Accepted.

McIntyre-Mills, J, Romm, NRA, Karel, J and Arko-Achemfuor, A. 2019. 'Efforts to inspire transformative research with farmers in a small town in the North West Province of South Africa'. International Journal for Transformative Research (IJTR), volume 6(1) pp. 10–19. DOI: https://doi.org/10.1515/ijtr-2019-0003. One of 5 invited papers for special edition with Emeritus Professor Donna Mertens and Prof Sharlene Hesse Biber. ISSN 2332-3736.

Prologue: No Longer Top Predator

Introduction

The composition Jaara Nyilamum by Dr. Lou Bennet (2020) accompanied by the Australian String Quartet evokes emotion and connection to country. Bennet sings of a child who was returned to country after decades in a museum. She explains in an interview (2019) the ancestral connection to the land and that language is rooted in country and that it 'connects to health and wellbeing'. She stresses the need to learn language *in country* (or context) and to stay in relationship with our home. Bennet's explanation resonates with what I had learned from my mentors in Alice Springs about extending kinship to organic and inorganic life (McIntyre-Mills, 2003, see also Hume, 2004). Indigenous cultures believe that organic and inorganic life are kin in one living system. The destruction of heritage (Yalata Oak Community and Matingley, 2012) and listed sites for mining have raised the point that heritage is the natural landscape where evidence of some of the earliest human culture remains. Field (2020) explains that the divide between the organic and inorganic is permeable:

'In Gamilaraay culture, my Garruu taught me that when we die we may return. Perhaps not as a person but as a bird or fish or tree. Perhaps even as a river or watering hole. We may return perhaps not as a person but instead as a place. Here lies a fundamental barrier between Indigenous and non-Indigenous people: the line between animate and inanimate'.

This blurring of taxonomic boundaries was explained to me by Olive Veverbrants an Arrernte elder in Alice Springs, (pers com, 2000; McIntyre-Mills, 2004) that when a pregnant woman feels her foetus move, she links the movement with a creature or feature in the landscape. It may be a bird, a lizard, a plant or a rock formation. This becomes a totem to which the child is related in her or his place. Totems are part of family and are not merely potential food items that need to be protected from overhunting or overgathering by declaring them sacred by some groups—to which they are affiliated and thus they refrain from eating them. Totems are also ways of binding people to a specific place and fostering an ethic of care or custodianship. In Western Culture we have categories that distinguish between the organic and

inorganic, but in Indigenous cultures a relationship can be formed which transcends this divide (see Chapter 3 this volume for further discussion).

This edited volume comprising nineteen contributors from Africa, Australia, Asia (Indonesia, Bangladesh, Vietnam), USA, UK and Europe (McIntyre-Mills et al., 2020) uses multi-methods, cross-cultural and cross-disciplinary approaches to follow strands of the food web and the destruction of diverse habitats in a series of essays and vignettes and the approach resonates with that of Tsing's (2011, 2015), Midgley's (2000, 2007) and Wadsworth's (2010) systemic interventionism for living systems. Communication through sound, through dance, sharing chemical signals is widespread throughout living systems.

Many species are able to communicate as highlighted by Meijer (2016) who stresses that bats sing, bees dance, domestic dogs, cats and horses read our behaviour and body language, parrots use language to achieve goals, primates have learned sign language and dolphins have specific sounds which are recognised by members of a group. Species-specific intelligence needs to be respected. Many species demonstrate *a sense of self*, if the mirror test is not used and instead *species-specific* intelligence is taken into account. Meijer (2016) explains that dogs can recognise their own urine smells and are less interested in this smell than the smell of other dogs, for example. This demonstrates a sense of self. The relevance to sociology is that human beings co-evolved with dogs as they were able to hunt more effectively and dogs were able to share the protein and their company around fires which enabled their mutual resilience. This needs to extend to appreciating the need to make kinship with many species (see Haraway, 2004, 2018)

Meijer (2016: 74) also stresses that although a gorilla does not gaze at a mirror, this is because *gazing at another* would be regarded as aggressive. Similarly, she stresses that in some cultures, this is also regarded as impolite. Thus, the mirror test, developed by Western male academics should not be regarded as the basis for determining whether the subject has a sense of self.

The species-specific intelligence of birds varies and responds to their environments (Ackerman, 2016). Some birds are able to remember where they have stashed supplies for the winter months and this develops particular pathways in their brains which other species may not need to develop (Ackerman, 2016: 210). But research has found that birds are capable of passing on new useful knowledge to others, such as how to open a food dispenser (Meijer, 2016: 72) that demonstrates the ability to convey information that is retained and passed on to the next generations living within the region long after the first birds had died. Thus, birds can communicate and create local cultures that help the survival of their group. Furthermore, turtles (Michelmore, 2020) and birds (Ackerman, 2016) are able to navigate across the seas and skies to return to breeding or feeding sites, they do not need a compass. Squirrels imported by colonisers along with the acorns oak saplings to the Cape, carry a mental map of where they have stashed their supply of winter acorns. It is now accepted by researchers that consciousness spans single to complex cells and many species (including plants) are able to 'learn and remember' (Gagliano et al., 2018). Their research demonstrates that plants communicate, make decisions and in some instances, for example, fungi share resources for the common good of plants within

a shared habitat (Rayner, 2010). Rayner (2010: 100) a biologist who specialises in plants and specifically fungi, sums up a lesson on plant politics (and economics) which demonstrates that some plants have the capability to *pool and redistribute* resources.

Hence the inescapable truth is that the ecological and evolutionary sustainability of natural life forms, from the cells and tissues in a human body to the trees in a forest depend upon close attunement with the diversity, complementary nature and changeability of all within their neighbourhood, to which they themselves contribute. When energy supplies become scarce, sustainable living systems pool and redistribute internal resources within integrated structures and survival capsules, they do not compete to proliferate faster on the dwindling supplies.

Similarly, Peter Wohlleben (see Wohlleben, 2016) a forester and ecologists Suzanne Simard (see Wohlleben & Simard, 2016) and Camille Defrenne (see Simard & Defrenne, 2019) explain the ways trees support one another through communicating through a network that shares chemicals and through hybrid fungi that help to regulate and share nutrients.

Living systems are indeed a continuum from organic to inorganic life. Human beings are animals who have close relatives with many species (from laboratory rats with whom we share 98% of our genes see Greenfield, 2000), to primates who can be taught to use sign language and who show empathy as do other species such as elephants and dogs with whom we are co-evolved (Haraway, 2003; De Waal, 2009). According to Kirksey et al. (2014: 1):

> Ethnographers are now exploring how '"the human' has been formed and transformed amid encounters with multiple species of plants, animals, fungi, and microbes. Rather than simply celebrate multispecies mingling, ethnographers have begun to explore a central question: Who benefits, cui bono, when species meet?

The notion of what constitutes rights, relationships and responsibilities needs to be explored across cultures to understand human, plant and animal relationships. The eradication of species as a result of rapid urbanisation places humanity at risk. The issues raised by Rose Bird about *the lack of kinship and love* for other species (2010, 2011) need to be urgently faced by *those who have lost their connection to nature*, whilst acknowledging that totemism (kinship with nature) *is still a norm in parts of South Africa and Australia* (see Romm & Lethole, 2020; Romm, 2020, McIntyre-Mills, 2020, in this volume). Narrow anthropocentrism has focused on the stories of human beings at the expense of other species and the environment. Sociology needs to explore *a priori norms*, narratives and the re-framing of laws at the national and post-national level to ensure *a posteriori consequences are implemented to* protect multiple species. Institutional capacity and powers need to be strengthened to address the UN 2030 Sustainable Development Agenda but even more importantly the agenda needs to be extended to draw on local wisdom (Polanyi, 1966,1968)and to support UNDRIP (2007), in order to redeem our relationship with First Nations and the natural environment. Our fragile interdependence requires a recognition of 'our hybridity and interconnectedness' (McIntyre-Mills et al., 2017) within the web of life (Capra, 1996).

Human beings have applied an exploitative approach that has commodified plants and animals and the result has been profitable for some at the expense of the majority of living systems. The ability to make political and or ethical decisions and the ability to communicate are not purely human characteristics. Thus, human beings should question their sense of dominion over other species. Animal behaviourists and interspecies researchers have stressed that the boundaries across species need to be rethought. This has implications for ethics, democracy and governance. As stressed above, the Belmont Report that guides human-ethics focuses on respect for person and beneficence (1979: 4).

Respect and beneficence however, also needs to be extended to multiple species by human researchers, practitioners and members of the public. Human beings need to recognise our kinship with many species and our interdependency. Fuentes (2019) sums up the importance of kinship across-species by extending our sense of what it means *to be* family:

> For me, the most important contribution in this proposal is the broadening of the Belmont concept of 'respect for persons' to include other animals… The writer Armistead Maupin tells us that we live in a world filled with both biological kin and logical kin. He refers to those kinship relations that we are born into as biological, and those that we choose, construct, and nourish, as logical

Respect for multiple species needs to be based on recognition of our 'hybridity and interconnectedness' (McIntyre-Mills, 2020) informed by a sense of awe and supported by norms rooted in a belief in our precarious interdependency and the implications of dispossession (see Butler, 2011; Butler & Athanasiou, 2013). A moral compass to protect diversity needs to be buttressed by a Global Covenant (Held, 2004) and the Ecocide Law (Higgins et al., 2013. Higgins, 2018). The lack of gendered, non-anthropocentric emphasis on the way in which nature has been *controlled* and mastered needs to be remedied. Few (with the exception of Deborah Bird Rose, Donna Haraway and Anna Tsing) have spoken out about multispecies relations and fewer have stressed *the need for a multispecies approach that honours the rights of all sentient beings to a habitat* that makes life worth living, with perhaps the exception of Donaldson and Kymlicka in their work 'Zoopolis' in which they argue that habitat for all animals needs should be considered a right: from appropriate space for domesticated animals (such as pets and agricultural animals) to the liminal creatures that share our cities and gardens with us and the wild animals who have a right to their own habitat. Cochrane and Cooke (2016) also develop an argument for human intervention to protect animal rights. As stewards we have a responsibility to ensure their rights are met through passing and implementing laws to protect them. Many species demonstrate empathy and altruism, from bats who regurgitate food for members of their kinship group (Dawkins, 2019), to dolphins who help to push drowning human beings to the surface or zoo elephants who share their water to other neighbouring creatures (De Waal, 2009; Bates et al., 2008). Similarly, all species develop forms of communication which support their survival. Suzanne Simard explains that trees, for example, 'communicate' through their root systems in 'a below ground web' (Simard, 2016) that responds to chemicals. Consciousness

has now been accepted along a wider continuum to include a range of both sentient beings and plants, it is not the preserve of human beings.

We may never know what it means to be conscious as a member of another living system, but that does not mean that consciousness is not experienced by trees that release chemicals to indicate distress as a result of lack of nutrients or a threat. Species-specific consciousness was accepted as a possibility by Nagel (1974) who stressed that consciousness is more than brain function and cannot be reduced to a machine-like function. But more importantly, he stressed that being a bat or being a human being is about *personal experience*. We can never have access to the consciousness of another human being, but this does not mean that we deny that our parents, children or partners have consciousness, even if sometimes we do not understand them. For example, a Vampire Bat has species-specific consciousness, shares food and reciprocates favours, thereby ensuring their mutual survival, because bats remember that they are not always successful in finding food and they need to rely on one another (Dawkins, 2019: 245–6). Reciprocal altruism is not the preserve of human beings, the time to extend altruism to other sentient beings is overdue.

Habitat and Rights for Multiple Species

The World Health Organisation declared a pandemic on 12th March 2020. As I write this chapter over 9 million people had been infected and by 21th July as I check the volume for publication, the statistic has risen to close to 15 million. The COVID-19 pandemic represents the 'worst crisis' since World War II, according to the UN chief, Gutteres (2020) who emphasised that the human death toll, social and economic suffering is unprecedented In his Nelson Mandela Annual lecture he stressed that in order to address inequality we are only as strong as the weakest link and that the global community will stand or fall together.[4] According to the UN the world faces famine as a result of morbidity and mortality associated with the pandemic which augments the challenges posed by droughts and other natural disasters, including locust plagues and displacements caused by conflicts.

Trafficking and transportation of animals, confining them in conditions that undermine their capability to live a life worth living is one of the 'Frontiers of Justice' (Nussbaum, 2006) that is overdue for reform. The epidemics associated with abusing

[4] See https://www.nelsonmandela.org/content/page/annual-lecture-2020. In his Nelson Mandela Guterres stressed that: "More than 70% of the world's people are living with rising income and wealth inequality. The 26 richest people in the world hold as much wealth as half the global population," …He added: "But income, pay and wealth are not the only measures of inequality. People's chances in life depend on their gender, family and ethnic background, race, whether or not they have a disability and other factors. "Multiple inequalities intersect and reinforce each other across the generations. The lives and expectations of millions of people are largely determined by their circumstances at birth." (Karrim, A, 2020 at https://www.news24.com/news24/SouthAfrica/News/un-secretary-general-lays-bare-the-greed-of-elites-failures-of-government-to-address-inequality-20200719?isapp=true accessed 20/07/2020.

farm animals through confining them have resulted in swine flu and avian flu, whilst mad cow disease was caused by feeding cows offal containing infected protein in food lots. The risks associated with 'Frankenstein Food', (Beck,1999: 48–49, 106) has escalated and Beck relates how The Daily Mirror took the British Government to task in the wake of the Bovine spongiform encephalopathy (BSE or mad cow disease) caused by feeding cattle offal (comprising diseased tissue) instead of allowing them to graze as herbivores.

The COVID-19 pandemic has provided Goodall (2020)[5] the platform to speak out about how cross-species infections are caused by the way human beings are encroaching on the habitat of wild animals such as pangolins and bats. Her stature as a leading primatologist and conservationist has enabled her to speak out about previous epidemics such as swine and avian flu and to highlight the treatment of farmed and trafficked animals.

Enabling farm animals and wild animals 'space for a life worth living' would also protect us from illness. One of the positive aspects of the COVID-19 epidemic is that it has raised awareness of cross-species pathways for epidemics that can reach pandemic proportion as species are thrust into increasingly closer contact as urbanisation and habitat loss escalates. Gorbalenya et al. (2020) stress that corona viruses occur amongst many animals:

In the midst of the global COVID-19 public health emergency, it is reasonable to wonder why the origins of the pandemic matter. Detailed understanding of how an animal virus jumped species boundaries to infect humans so productively will help in the prevention of future zoonotic events.

The potential to jump across-species is caused by the way in which their freedom and habitat have been curtailed as they are farmed, transported, contained and marketed. Gorbalenya et al. (2020) suggest that many of these species would never normally come into contact with bats and pangolins. They have no immunity against the virus because they have never previously been in contact. It is only when they are kept together in close confines in wet markets with other displaced animals that they become cross-infected. The next step in the evolution of an epidemic is when human beings are in contact with a mutated virus that has become more adept at crossing species.

Kirksey et al. (2014: 4) explain that Anna Tsing suggests that 'human nature is an interspecies relationship' which raises the question, what is the nature of this relationship? The answer is that it is a very mixed one, in the most part it is a relationship of exploitation, but paradoxically mixed with awe and a great deal of denial. The notion that as human animals we can own, commodify and exploit other species has brought us to 2020, a year of rising temperatures, bush fires, multispecies loss and a global pandemic. A 'multispecies turn' has been underlined as a result of COVID-19. Some may say it is the virus we had to have as it has made human beings pause and reflect on their place in the web of living systems. It has also highlighted the need to reconsider rights and responsibilities as we reflect on what the new normal

[5] https://www.cnn.com/videos/us/2020/03/19/coronavirus-jane-goodall-acfc-full-episode-vpx.cnn.

will be as we move towards 2021 and beyond. Climate change, economic recessions and political instability are the current global challenges. How should we live our lives and why did we not anticipate that business as usual is unsustainable?

One of the positive aspects of the Covid-19 epidemic is that it has raised awareness of cross-species pathways for epidemics that can reach pandemic proportion as species are thrust into increasingly closer contact as urbanisation and habitat loss escalates.

The possibility that the emergence of this pandemic is the result of increasing proximity across-species is a core concern that needs to be addressed through changing the way in which we live our lives. The rapid governance re-actions globally to the virus shows that it could be possible to respond proactively to climate change and reduce carbon emissions and reduce the risks to forests and agricultural habitat. This will be vital, if biopolitical responses are to have a hope of averting future pandemics (Dulaney, 2020).

A Way Forward?

Naess and Haukeland (2002) have stressed that transformation is not impossible: ethical living requires 'doing small things in a big way' on an everyday basis. Whereas, Abrahams (2020) stresses that the worldwide governance responses to the pandemic have resulted in a rapid adaptation and mitigation of 'unlimited growth, unlimited travel, and unlimited consumption'.

Mair (2020) reflects on the situation and sums up the challenge for the future, as follows: a centralised or decentralised response that either prioritises exchange values or the protection of life. Mair (2020) explains the four extreme options elegantly as:

1. State capitalism: centralised response, prioritising exchange value
2. Barbarism: decentralised response prioritising exchange value
3. State socialism: centralised response, prioritising the protection of life
4. Mutual aid: decentralised response prioritising the protection of life.

The *first two* options prioritise economics and profit. The *second two* options prioritise people and the environment.

This volume suggests a fifth option that fosters the protection of all living systems and that strives to balance individualism and collectivism. Society needs to face up to the implications of no longer being top predator and to learn from the implications of the COVID-19 pandemic that has required us to pause and to reflect on what we value and why. We could choose to maximise social and environmental factors and meaningful jobs, rather than focusing on business as usual, where a minority win at the expense of current and future generations of life. Clearly nation states need to pivot quickly to mitigate and adapt to the pandemic. Australia has demonstrated that society is capable of rapid transformation to flatten the curve of COVID-19, but it needs to apply this zeal to flattening our carbon footprint to minimise the

risks of further loss of life through climate-related disasters that result death and displacement on an unprecedented scale. Perhaps a positive aspect of COVID-19 could be a rapid U-turn towards new form of governance that cares for people and supports partnerships to enable the common good. Clearly human beings have learned they are no longer the top predator, but sadly the positive impact on climate change caused by a slowing economy has reversed as the world economy begins to open up (Carrington & Kommenda, 2020).

Bearing in mind these points, a new approach is suggested in this volume based on reconceptualisng the way in which we relate to other species in which the fourth governance option is stressed, namely, mutual aid. The lack of gendered, non-anthropocentric emphasis on the way in which nature has been controlled and mastered needs to be remedied. Few (with the exception of Deborah Bird Rose, Donna Haraway and Anna Tsing) have spoken out about multispecies relations and fewer have stressed *the need for a multispecies approach that honours the rights of all sentient beings to a habitat* that makes life worth living, with perhaps the exception of Donaldson and Kymlicka in their work 'Zoopolis' in which they argue that habitat for all animals needs should be considered a right: from appropriate space for domesticated animals (such as pets and agricultural animals) to the liminal creatures that share our cities and gardens with us and the wild animals who have a right to their own habitat. As stewards we have a responsibility to ensure their rights are met through passing and implementing laws to protect them.

Social, Economic and Environmental Transformation Needs to Occur at a Post National Level to Protect the Common Good

The world's poorest workers are involved in agriculture, it is hardly surprising that poverty (linked with climate change) is driving people into the cities. The rate at which world hunger is increasing has been highlighted in the Report by the Secretary-General.[6] Urbanisation has increased beyond expectations, according to a recent UN Report (2014) that stresses that by 2050 the majority of the world's population will be in Asia and Africa. In these latter contexts unemployment in cities and social exclusion (as highlighted by the Sendai Risk Platform) will pose a *human security* risk.

If nothing else, COVID-19 will underline the importance of facing up to the need to prevent and plan for pandemics. This requires the ability of post-national systems of governance to think about the relationship between human beings and the many

[6] https://sustainabledevelopment.un.org/sdg2. Report of the Secretary-General, Special edition: progress towards the Sustainable Development Goals: "An estimated 821 million people – approximately 1 in 9 people in the world – were undernourished in 2017, up from 784 million in 2015".

other species with which they share habitat and rethink ways to establish regenerative development.

Sentient beings have rights simply because they are sentient. They depend on diverse habitats. The capability to live a life worth living depends on the protection of habitats of the multiple diverse species that make up a living system.

All species are part of one food chain. Human beings (until very recently) have been the top predators able to shape the planet to suit their needs. Commodification of plants, animals and people was fostered by explorers who collected 'so called' specimens for museums, zoos and herbariums. The will to increase the productivity of nation states led to the increasing enclosure of open or shared landscapes and increased colonisation to extend their access to potential products.

Human Security and Resilience as Vulnerable Multispecies Relationships and Pathways Towards Well-being

Industrialised agriculture and planning has increasingly displaced people, plants and creatures. Unwanted people are proletarianised, unwanted plants become weeds and unwanted creatures become pests. The so-called Green Revolution, however has arguably backfired as the clearance of natural habitat and the planting of single crops has left us less biologically diverse and open to disease. The arguments about the control of nature and the genetic control crops that do not self-seed have been presented by Vandana Shiva (2012), suffice to say profit before regeneration poses the threat of mass extinctions

The notion that human beings have the right to commodify plants has been disputed by Vandana Shiva, whilst the notion that human beings have the right to commodify animals has been clearly challenged by Martha Nussbaum (2006) in her work on the need to extend the 'Frontiers of Social Justice' to protect voiceless sentient beings who live lives that are not worth living. She developed the capabilities approach that stresses the need for all animals to have a right to live lives in which they can express their species-specific capabilities to the full. Her contribution to an essentialist approach that stresses that sentient beings have *a priori rights—simply because they exist*—resonates, nevertheless sentience needs *to be extended to many other* species within living systems and the *a posteriori responsibilities and consequences of development decisions* need to be measured by social, economic and environmental indicators to protect all sentient beings.

The central argument in this (and previous work to date) is that democracy and governance need to be underpinned by individual and collective norms and values supported by governance systems that enable the balancing of interests for current and future generations of living systems. Interspecies relationships to food, water and energy are central to life.

The responsibility to ensure the rights of sentient beings to a life worth living is an area of research that is long overdue the right to produce food and the responsibility to protect shared habitat equally so.

Underpinning the rights and responsibilities for all sentient beings is the need to protect habitat in terms of the Ecocide Law (Higgins et al., 2013) applied at both a national level and international level as stressed by Arthur Galston and Polly Higgins, respectively.

The high road to morality is accepting our place as a strand within the web of living systems and respecting the rights of all species, especially sentient beings and their habitat. The low road to morality is understanding that the consequences of abusing sentient creatures are pain and suffering for all those who share the food chain.

We look at the world through species-specific lenses. Our understanding of the world is also shaped by our cultural background, gender and the specific environment in which we live. For example, city dwellers have little understanding of nature if they are unable to connect with the natural environment and have little appreciation that we are dependent on nature for our survival. Perhaps this is why policymakers in power make foolish decisions about the destruction of habitat without realising the negative cascading effects on human security.

The abuse of confined farm animals fed an inappropriate diet results in a range of cascading effects, not the least of which is antibiotic resistance, avian flu, swine flu and mad cow disease[7] and it is hypothesised by the World Wild Life Society (2020) that the confinement of animals at wet markets led to cross-species infection and COVID-19. The abuse of animals is unacceptable and can be attributed to Descartes mistaken notion that human beings have feelings and other animals without a human mind lack both feelings and rights. The volume addresses this mistaken idea and makes a strong link between pandemics, industrialised farming and climate change.

Alan Rayner's (2010, 2012, 2017) notion of 'natural inclusion' developed as a result of his extensive research on fungi, root systems and interconnections beneath the surface. When we destroy trees, we disrupt entire habitats. The same is true when we disrupt the balance in all ecosystems, most importantly the ocean and waterways (Tuddenham, 2019, keynote address,[8] UNESCO, 2017; Mannix, 2020).

Shoshana Zuboff (2019) warns that the process of commodification has now moved beyond people, animals and nature. Our behavioural patterns and human engagement, mobility and interactions can and are used for marketing and control. The national interest continues to be put before post-national planetary concerns, that require digital citizenship and new forms of engagement and information that span conceptual and spatial boundaries.

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[7] https://www.wcs.org/get-involved/updates/a-primer-on-the-coronavirus The Wildlife Conservation Society (17th March, 2020) hypothesises that sick caged bats infected trafficked South African pangolins and that the virus was then transmitted to humans. The series of transmissions can occur in markets, such as the Wuhan markets.

[8] https://isss2019corvallis.sched.com/event/RRml/presidents-address-peter-tuddenham-3633-natures-enduring-patterns-as-a-path-to-systems-literacy-menti-code-652634.

New laws are needed to address the challenges as habitat disappears and multiple species are displaced, such as the 'Ecocide Law' (Higgens et al., 2013) to enable monitoring from above and below.

The widespread use of insecticides is killing bees at an alarming rate and in his talk (Stamets, 2019) he stresses that more than 50% of bees are dying in the USA. The systemic interconnections discussed by Stamets between fungae and their ability to regenerate soil from polluted sites is also important as is the point that fungae create soil by removing calcium from rocks. Food security depends on multiple factors ranging from access to land, water and pollinators. Bees and other pollinators are central to food security which requires eliminating harmful pesticides and vocational education and training in regenerative, sustainable farming methods.

The notion that reciprocal rights should only be given to citizens who are useful has been successfully critiqued by Nussbaum (2006) who stresses that the way it has been used does not follow the intention of Rawlsian philosophy based on the notion justice as a form of fairness based on the 'veil of ignorance' which helps us to make decisions by which we would be prepared to abide if they were applied to our own lives. This basic notion of compassion and fairness should be applied in all contexts if justice is to be achieved.

Mahayana Buddhists believe in the necessity to show compassion to all sentient creatures who have been our mothers in past lives and who sustain us in our current lives. It is believed that ethical actions flow from mindfulness that compassionate actions ripen as karma, as do cruel actions. Both have consequences in this life and the next. The Dalai Lama (2005: 145) explains in the chapter 'Towards a science of consciousness' in which he discusses 'The Mind and Life conference in Dharamsala' (2004). Brain plasticity was discussed in relation to the Buddhist belief that meditation supports clarity of the mind. Presenters confirmed that those who meditate "have more activity in the left frontal lobe". The consequence is that the emotions are managed and relationships with others improve as meditators focus on thinking about the consequences of their thoughts and actions. Allan Rayner, Peter Wohlleben (2016) a forester and ecologists Suzanne Simard (see Simard, 2016) and Camille Defrenne (2019) explain the ways trees support one another through communicating through a network that shares chemicals and how hybrid fungae help to regulate and share nutrients.

A Way Forward: New Forms of Economics and Governance in Ecovillage Hubs Supporting Cities

The patterns *from above* that are currently used to control should be balanced out by surveillance *from below* as detailed elsewhere (McIntyre-Mills, 2017) to support a so-called 'eco-systemic' approach to living with nature in ways that are regenerative, rather than exploitative. Pariser (2011) highlights the way in which algorithms are able to control us from above. We need to counter that by governing from below. We

need to emulate the mycelia that create natures internet beneath the earth to nurture the common good and draw on local indigenous wisdom to achieve transformation (Cram & Mertens, 2015) and try to ensure that the internet is used to bring people together, rather than to alienate us from one another as we spend more and more time behind a screen, rather than connecting with one another and nature (Greenfield, 2008).

The New Zealand Prime Minister, Jacinda Ardern's support of the Maori notion of holistic well-being was upheld in the policy report, 'Wellbeing an idea whose time has come' (New Zealand Public Health, 2007) and extended by Ardern who has supported the notion of a 'Wellbeing Budget'.[9]

Reframing rights, relationships and accountability requires rethinking who we are as a species in relationship to other species. It also requires a new form of economics based on protecting the well-being of living systems of which we are a strand. The eradication of species as a result of rapid urbanisation places humanity at risk. Narrow anthropocentrism has focused on the stories of human beings at the expense of other species and the environment. From Polarisation to Multispecies Relationships explores *a priori norms*, narratives and laws and *a posteriori actions* that include and protect multiple species, based on the maxim that all species should be free and diverse to the extent that they do not undermine the common good.

Eco-villages (Shiva, 2020) need to support urban hubs to regenerate rural–urban balance and reverse the plantationocene (Mitman in conversation with Tsing and Haraway, 2019). The thesis developed is the need to protect appropriate habitat and to reverse current trends. One of the ways forward is by creating green enterprises based on Gunter Pauli's (2010) concept that in nature there is no waste and that sources of abundance can be found by working with nature and through designs that mimic nature. The notion that the mantle of citizenship should only be given to those of voting age and with the right to cast a ballot is problematic. The environment on which we depend is also entirely controlled by the voting citizens of nation states. In 'Frontiers of Justice', Nussbaum (2006) develops an argument for extending the social contract to those sentient beings who are not protected. Her starting point is to stress the need for individual capabilities to be protected, in order to be able to live a life worth living. Her argument includes being able to live in an environment that *supports a life in which capabilities can be achieved*. Current debates hinge on whether cosmopolitan universal rights can be given to sentient beings as a whole or whether rights for human sentients and animal sentients should differ.

Donaldson and Kymlicka (2011) link rights to habitat. Thus, the citizenship of domestic animals living in the household may be closer to the citizenship of human sentients. Existential risks are the result of not recognising our hybridity and interconnectedness. Dualist thinking pervades our consciousness and is reflected in socially unjust and environmentally unsustainable designs for society. Designs need to be supported by constitutions, based on a priori norms, and consequentialist or a posteriori approaches, based on testing out ideas within context and with future generations

[9] https://www.weforum.org/agenda/2019/05/new-zealand-is-publishing-its-first-well-being-budget/.

in mind. Current forms of democracy, governance and economics need to be reframed by recognising that we are interdependent. This is as relevant to nation states and to the wider post-national regions of which they are a part. In an increasingly interdependent world, climate change results in the displacement of people in numbers greater than those displaced during the Second World War, according to António Guterres, the previous UN High Commissioner for Refugees (2017).

From Species Centrism to Multispecies Relationships

The concept 'species' is a central concern in relation to the issue of categorisation, membership, displacement and decision-making (in terms of state sovereignty, territory, colonisation and its implications for human, animal and plant life). As urbanisation encroaches on the wild spaces and displaces other forms of life, relationships that are Anthropocentric need to be reframed to enable regeneration and sustainable living that is non-anthropocentric.

The contributions made by Donaldson and Kymlicka (2011) to animal rights through exploring our relationships with other animals need to be given centre stage in redressing the current political impasse in animal rights. Frans De Waal (2009) stresses the need to recognise that we evolved not only through our ability to compete but through our ability to cooperate and to show empathy to others and a shared sense of cross-species community. Cross-species rights are necessary for transformation to a more ethical way of life and for our collective survival. For example, interspecies resilience to support bees as major pollinators is vital. What we define as food will need to be revised along with our notion of what it means to hold dominion over other life forms and other cultures. Reconsidering commodification and property rights is core to this argument (McIntyre-Mills, 2020) to protect habitat and prevent cross-species infection linked to research, trafficking, containment and handling of wild animals such as bats and pangolins. It is likely, however, the virus has been mutating for a whilst and that the outbreak is not surprising, *given the current destruction of habitat*. In order to achieve a life worth living *for both human beings and other sentient beings*, a new approach to post-national governance is need to focus on food, energy and water security.

The world's poorest workers are involved in agriculture, it is hardly surprising that poverty (linked with climate change) is driving people into the cities. The rate at which world hunger is increasing has been highlighted in the Report by the Secretary-General[10]. Urbanisation has increased beyond expectations, according to a recent UN Report (2014) that stresses that by 2050 the majority of the world's population will be in Asia and Africa. In these latter context's unemployment in cities and social

[10] https://sustainabledevelopment.un.org/sdg2. Report of the Secretary-General, Special edition: progress towards the Sustainable Development Goals: "An estimated 821 million people – approximately 1 in 9 people in the world – were undernourished in 2017, up from 784 million in 2015".

exclusion (as highlighted by the Sendai Risk Platform) will pose a *human security* risk.

The Brookings Institute (2020) discussion highlights the way in which government departments need to maintain structures (Hill, 2020) that are capable of dealing with pandemics. But even more important is the need to ask why pandemics are occurring through considering social, economic and environmental aspects which have contributed to the pandemic, namely, unsustainable socio-economic growth at the expense of biodiversity. As Sen (1999) stressed, the birth rate decreases as the empowerment of women increases so they have agency at a personal and public level. If nothing else, COVID-19 will underline the importance of facing up to the need to prevent and plan for pandemics. This requires the ability of post-national systems of governance to think about the relationship between human beings and the many other species with which they share habitat and rethink ways to establish regenerative development.

Sentient beings have rights *simply because they are sentient* . The capability to live a life worth living depends on the protection of habitats of the multiple diverse species that make up a living system. Ceballos et al. (2017) caution that population losses constitute a mass extinction in a paper presented at the Academy of Social Sciences. They stress that this is based on a misconception that human population growth is sustainable on a finite planet. The will to increase the productivity of nation states led to the increasing enclosure of open or shared landscapes and increased colonisation to extend their access to potential products. Eventually industrialised agriculture and planning has increasingly displaced people, plants and creatures. Unwanted people are proletarianised, unwanted plants become weeds and unwanted creatures become pests. The so-called Green Revolution, however, has backfired as the clearance of natural habitat and the planting of single crops has left us less biologically diverse and open to disease. The arguments about the control of nature and the genetically modified crops that do not self-seed have been presented by Vandana Shiva (2012a, 2012b), suffice to say profit before regeneration poses the threat of mass extinctions. The notion that human beings have the right to *commodify plants* has been disputed by Vandana Shiva, whilst the notion that human beings have the right to *commodify animals* has been clearly challenged by Martha Nussbaum (2006) in her work on the need to extend the 'Frontiers of Social Justice' to protect *voiceless sentient beings* who live lives that are not worth living. She developed the capabilities approach that stresses the need for all animals to have a right to live lives in which they can express their *species-specific capabilities* to the full.

Social ecological engagement on food security, quality education and sustainable communities needs to be a focus of transformational sociological research. McIntyre-Mills et al. (2019, 2020) formed a community of practice network to enhance capabilities and human rights in Indonesia and South Africa. Given the foremost role of women in the community with respect to all these issues, gender is the central focus of this research (Kabeer, 1999, 2005). As such, it addresses SDG 5—gender equality. The aim is to enhance social and environmental justice outcomes in line with specific UN Sustainable Development Goals and Nussbaum's (2011) ten capabilities

to enhance human rights and the rights of sentient beings including the most vulnerable (such as women, children, the elderly and the disabled). The United Nations 2030 Agenda provides an opportunity for strengthening common regional platforms and mechanisms that give greater emphasis to the benefits of. Highly urbanised regions face food and water insecurity and are at risk of becoming food deserts (Crush & Riley, 2017) unless diverse habitats are protected and everyday strategies are explored with service users and providers to find better pathways to protect multiple species. This is one of the bitter lessons being learned during lock down in many parts of the world, such as South Africa where hunger is as much of a threat as the virus. Brown (2020) stressed that hungry children in Peddie gathered plants to supplement their diets and in the same article cites:

> the National Income Dynamics Study (NIDS) – Coronavirus Rapid Mobile Survey (NIDS-CRAM) … found that 47% of respondents reported that their household ran out of money to buy food in April 2020. Before the lockdown, 21% of households reported that they ran out of money to buy food in the previous year.

Another bitter lesson, which will (hopefully) be learned from the second wave outbreak in Victoria, Australia is that insecure working conditions and profit represents not only 'false economy', but social injustice that will have cascading effects on the entire population. An enquiry has resulted in workers coming forward to share that they were hired by WhatsApp (sometimes only a day before their first shift) (Baker, 2020). Work insecurity is also faced paradoxically in the Australian government Centrelink call centre where some workers had to forego wages or apply for government relief, as a result of the transmission of the virus in the workplace (Sakkal, 2020).

Conclusion

The volume makes an axiologically case for transformative research (Mertens, 2010, 2017) to protect multiple species and that cross-disciplinary, mixed methods research needs to take the 'multispecies turn' (Kirksey et al., 2014). Shiva (2011, 2020a, 2020b) stresses that ecocide and femicide have walked hand in hand and are a result of 'ecological apartheid' (Shiva, 2020) and cautions that we face desertification through land loss, the creation of large commercial farms and genetically modified interventions by big corporations that destroy seed diversity and regard the people and the plants that do not comply as weeds for eradication.

If socio-political thinking is about who, gets what, when, why and to what effect, it is time to address *bio-politics* (Foucault, 2008) and *cross-species engagement* to ensure the balance of individual and collective needs. Scott (1998) in 'Seeing like a State' extends Foucault (2008) by giving detailed examples of the way in which the state has crushed diversity—from designing monocultures in forestry to ironing out diverse political opinions.

If we accept the concept of the banality of evil (Arendt, 1963)—the notion that everyday decisions *can collectively* result in a normalisation and acceptance of evil—then we have to rethink many of the aspects of society that we take for granted today.

An ecosystemic perspective that respects multi-species relationships (McIntyre-Mills & Romm, 2019; McIntyre-Mills, 2020) needs to acknowledge our interconnectedness, based on recognition and respect. The Ecocide Law (Higgins et al., 2013) is central to protect *multiple species* as the earth needs a good lawyer to disrupt the cycle of greed, over-exploitation, lack of distribution, poverty and conflict, in order to balance individual and collective needs for the common good. Evolution is the result of both competition for resources and the ability to cooperate (De Waal, 2009). The scales have tipped to far on the side of social, economic and environmental competition in the interests of the few at the expense of the majority of living systems in this generation and the next (IPPC, 2018; Shiva, 2020a, 2020b).

Climate change and capitalism have destroyed vast tracks of the environment and the notion that 'ownership' of land or the right to licence or patent life needs to be challenged. The TRIPS[11] agreement has provided minimal protection for Indigenous people as it removed the moral right of authors, according to Whimp and Busse (2000: 13).

Kathy Whimp explains that the law allows the removal of legal rights, but then suggests that moral protection be provided, which seems a cynical option, because property rights are based on possession, creativity and discovery in Western Law. By invoking discovery as a right to dispossess others, colonial countries dismissed the different notion of relationships to kin and nature. Another aspect which was not emphasised is the notion of consumption and what constitutes the right to consume and the nature of consumption. The scale of destruction caused by consuming the planet (Urry, 2010; IPPC, 2018) to extinction (Bostrom, 2011) is part of the problem, the other is the growing size of the human population at the expense of other living systems on which we rely. The notion that the land is a resource for profit as opposed to sacred Pachamama, needs to be stressed. According to Gudynas (2011: 443) both Ecuador and Bolivia have recognised the intrinsic rights of the land, but despite this constitutional decree, the environment has been 'sold out' to market interests. For example, the critics of Prime Minister Morales have claimed that corruption by government representatives is widespread.[12] It is suggested that the practice of governance and accountability is quite different from the rhetoric of care. Thus, care

[11] According to Correa (2002: 1): "The Doha Declaration on the TRIPS Agreement and Public Health, adopted by the WTO Ministerial Conference in November 2001, which affirms that the TRIPS Agreement should be interpreted and implemented so as to protect public health and promote access to medicines for all, marked a watershed in international trade demonstrating that a *rules-based* trading system should be compatible with *public health interests.* The Declaration enshrines the principle WHO has publicly advocated and advanced over the last four years, namely the reaffirmation of the right of WTO Members to make full use of the safeguard provisions of the TRIPS Agreement to protect public health and enhance access to medicines" (my emphasis).

[12] https://www.theguardian.com/world/2019/nov/15/evo-morales-indigenous-leader-who-changed-bolivia-but-stayed-too-long.

requires not only *a priori norms*, but also to monitor and govern in an open and transparent manner, based on *a posteriori indicators* of governance (McIntyre-Mills et al., 2014; McIntyre-Mills, 2017).

The way forward is to give rights to multiple species and their habitat. This requires a new Ecocide Law. The human relationship with other species has varied from instrumental, to spiritual. Few have accorded constitutional rights, except for Ecuador that has attributed rights to the land. Individual species rights for animals are still a long way off. Europe has made a few tentative steps towards decent conditions for farm animals, but they cannot be regarded as enabling full capabilities for animals to express their functional and emotional lives. New Zealand has banned animal transportation. These are very small steps away from the dismal record of abuse of other sentient beings.

Nussbaum's capabilities for sentient beings (2011) are presented as a human development approach and are thus anthropocentric, but to her credit, she takes a step towards emphasising the rights of all sentient beings. Disability rights for the voiceless and frail have led to Judith Butler stressing the need for a recognition of human interdependency and care (see Butler and Taylor, 2010; Butler and Athenasiou, 2013). But we need to stop, pause and reconsider what this actually means.

Animals and plants communicate. Communication per se does not require human voices. It can rely on text, signalling and symbols. Sounds, movements, chemicals can convey information and the whole realm of communication is opened up by Meier (2016) and Gaglioni et al. (2018) on animal and plant communications. We need to focus on a non-anthropocentric future.

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