

“From paleo-anthropology to culinary culture; animism to activism to animal rights; displaced societies to invasive species to unsustainable icons; Singapore will be transformed after you read these exciting explorations into her past, present and future. Diverse dots are connected, silos deconstructed, sacred cows challenged and eloquent voice given to the forgotten, marginalised, ignored, hidden or unspoken. If ‘leadership means influencing the community to face its problems’ these writers are our leaders for a sustainable future.”

—Geh Min, Immediate Past President, Nature Society Singapore
and former Nominated Member of Parliament

“Read this book and become inspired by the feisty intellect and elegant writing of Singapore’s climate generation. These emerging scholars write with a sense of urgency, mobilising their impressive literary and scholarly talents to command our attention. Their essays reorient our values, priorities and politics, demanding that we recognise the ethical responsibilities we have to the multispecies world we live in. As they analyse the entanglements of humans and nature in one of the world’s most technology obsessed cities, their voices offer a glimmer of hope for the future of Singapore and other cities in the Anthropocene. As the brilliant introduction notes: ‘Everything is environmental ... Even Singapore!’ The city is an environment where diverse biological life teems alongside a new generation of inspiring thinkers. Listen to them as they rethink the ethical demands of a world where the ‘life’ we celebrate is not simply human but biological.”

—Erik Harms, Associate Professor of Anthropology and
Southeast Asia Studies, Yale University

“This spirited anthology connects seemingly ordinary Singaporean subjects to larger concerns of animal rights, environmental protection or simply, how to live ethically. Written with eloquence and empathy, these youthful contributors are the reason why we are ever hopeful for a better Singapore, in a better world.”

—Harvey Neo, Senior Fellow and Programme Head at Lee Kuan Yew Centre
for Innovative Cities, Singapore University of Technology and Design

“These thoughtful and diverse essays deserve to be read by anyone seriously interested in environmental issues in Singapore. Our youth authors raise important questions about how we have come to understand and interact with nature and the environment we live in, and offer plausible ways forward. We must listen and act now.”

—Melissa Low, Research Fellow, Energy Studies Institute,
National University of Singapore

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Environmental Perspectives on Life in Singapore
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ENVIRONMENTAL PERSPECTIVES ON LIFE IN SINGAPORE
edited by MATTHEW SCHNEIDER-MAYERSON

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Foreword

Tan Tai Yong
President, Yale-NUS College

“THOUGH SINGAPORE TODAY lacks wilderness—the pristine, untouched areas we have come to associate with ‘nature’—it’s a techno-natural wonder, a rojak laboratory of culture and hydra-headed life, and therefore an ideal place to examine the world that humans have built in this time of incredible peril,” writes Dr Matthew Schneider-Mayerson in his introduction to this timely collection of essays.

Reading this, I was immediately reminded of the towering, slightly menacing-looking, man-made “Supertrees” at Gardens by the Bay; I was also reminded of a current exhibition at the Lee Kong Chian Natural History Museum, titled *200: A Natural History*.

The exhibition publication is a fascinating document and catalogue of animals, plants, people and places that form an intricate narrative tapestry of Singapore’s natural history. “The natural history of Singapore abounds with stories that are as remarkable as they are diverse” the book blurb notes. “Some discoveries are field-changing, like the only land snail that produces light.” At the same time, we are also reminded of how, following the arrival of the British and the age of empire, nature came to be treated as something to be discovered, tamed, documented, exploited, commoditised and defended (against competing claims of discoveries by rival colonial powers).

Why am I recounting this? In the 1820s, Singapore was largely covered in tropical rainforest. But by the 1850s, the spread of gambier and pepper plantations on the island had led to the denuding of the rainforest. While the island was shorn of its forest cover, the Singapore Botanic Gardens was set up in 1859 as a scientific garden. The Gardens’ first director, who earned

the nickname “Mad Ridley” for his enthusiastic and tireless promotion of rubber as a cash crop, is also known as the father of the rubber industry. At around the same period, Indian convicts in Singapore were summoned to take on the dangerous task of hunting down tigers, which had become a threat as the human population continued to encroach on the island’s interior. In 1874, a decision was made by the Legislative Council of Singapore to establish a library and a museum. Four years later, the Raffles Library and Museum, the earliest predecessor of the Lee Kong Chian Natural History Museum, was made a legal entity.

The museum’s long and chequered history, including the manner in which its collection was handled in the years after independence, is in part a reflection of our uneasy relationship with nature. An unwanted orphan was how one commentator described the natural history collection. In 1974, the National Museum, which had inherited the collection, gave away to Malaysia its most iconic exhibit—the skeleton of an Indian fin whale. Natural history and by extension nature were considered dispensable, seemingly irrelevant or an afterthought to other concerns that were deemed more pressing. At best, we are reminded of the natural environment through the occasional sighting of crocodiles, wild boars, otters and hornbills.

This volume is an eloquent call to recognise that modern Singapore’s relations with nature are much more intricate and problematic now. The essays in this volume invite us to rethink the way we view life in Singapore and to be more conscious of the effect that state priorities and human behaviour have had on the environment and climate. They offer insightful perspectives on the choices, contradictions, contestations and costs that come with the way in which Singapore has developed as a city-state that is closely tied to the workings of the global economy. The authors draw on a range of disciplines and topics to get their heartfelt messages across, but fundamentally, their essays—honest and sometimes hard-hitting—examine Singapore’s relations with nature through a humanistic lens. This book makes an important contribution to learning what it means to see Singapore and the world with new eyes.

Introduction: Seeing Singapore with New Eyes

Matthew Schneider-Mayerson

IN MY EARLY twenties a friend informed me that I would never truly understand or appreciate nature because I grew up in a city. To be fair, I was never much of a nature lover. I have no warm memories of camping trips with my family, catching fireflies at dusk or memorising the Latin names of my favourite species. I didn’t backpack, hike or birdwatch; too far away, too hot, too many mosquitoes. Now, I didn’t turn down a pretty sunset, and I appreciated wildlife when it came my way—I watched the David Attenborough specials, or at least I started them—but direct contact with nature was rarely something I actively sought. Yet somehow I find myself teaching, writing and editing books about our relationship with the environment. What changed?

For me, as for so many others, the increasingly undeniable gravity of today’s global environmental crises compelled me to learn, think about and critically reflect on humanity’s place within the broader web of life. Since I dove headfirst into climate change over a decade ago, I’ve slowly learned to see the world with new eyes.¹ This has sometimes been a painful process, but I’ve frequently found it to be a great source of comfort and connection, too. Instead of standing alone with the solitary burden of sentience, we humans are suddenly part of a raucous, lively crowd of beings, each one unique, agential and interdependent. Such a perspective generates a sense of wonder and awe at the dizzying abundance, complexity and majesty of this world we were born into. Slowly, fitfully, I’ve learned to appreciate all that we stand to lose.

This book will help you see Singapore through this lens. To call this viewpoint an environmental perspective is in some ways misleading, since

the very word “environmental” is part of the problem. Today in Singapore, as in many places in the early twenty-first century, “the environment” is something that is *out there*, to be accessed on a weekend or holiday. It’s exhibited in Gardens by the Bay, preserved in Sungei Buloh, photographed on a beach in Thailand or appreciated in a jungle in Borneo. “The environment” is something we “save” when we recycle a single-use plastic container, a precious and dwindling resource that should be conserved through small and ultimately insignificant acts of moral virtue. It’s external, distant, beautiful, boring and seemingly irrelevant to our day-to-day lives. Correspondingly, most of us have thought of environmentalism as something akin to golf or mahjong—an optional, niche interest that one can choose to enjoy, or not. The environment: take it or leave it. Given this common conception, it’s not surprising that environmentalists have so often been dismissed as just another special interest group—“greenies,” as *The Straits Times* recently put it²—and one that’s not particularly important to the way the modern world *really* works.

If it’s not clear to you already, it will be soon: this way of thinking is tragically outdated. Every typhoon, flood, drought, hazy day and centimetre of sea level rise is teaching us that we’ve been looking at the world all wrong. Everything is environmental, from transportation to taxes, work to love, cities to sex. Even Singapore! Though Singapore today lacks wilderness—the pristine, untouched areas that we’ve come to associate with nature—it’s a techno-natural wonder, a rojak laboratory of culture and hydra-headed life, and therefore an ideal place to examine the world that humans have built in this moment of incredible peril. This world is increasingly being termed “the Anthropocene,” the epoch of humans. It’s a term that originated in the early 2000s in stratigraphy—the branch of geology concerned with layers of rocks and geological timescales—but has spread beyond the sciences to describe the novelty of the world that (some) humans have created in the last few decades and centuries.³ The term has proven useful in acknowledging and announcing that we’re now inhabiting a different planet than the one our grandparents were born into. This novelty is marked above all by climate change, but also by the other global socio-ecological processes and phenomena that receive less attention but are similarly catastrophic, such

as deforestation, ocean acidification, extinction, factory farming and plastic pollution.

The essays in this collection offer an introduction to the way that we might view life in Singapore in the Anthropocene. The perspectives they offer come from the emerging field of environmental humanities.⁴ In Singapore, as in many places in this strange and anomalous period we’ve come to think of as normal, we’ve tended to view environmental issues as problems that are approached and resolved through science, technology and policy. All three are incredibly important, but we’ve fundamentally misunderstood what they are, and are capable of doing. Science helps us understand the world, while technology and policy are tools to shape it. Tools can be used in many different ways, of course. A hammer can be used to pound a nail into a board—the first step in constructing a sleek and sustainable modular bamboo house, let’s say.⁵ But it can also be used to smash a window, or bludgeon an animal to death. Sadly, that’s what our technology and policy have generally been doing, except the window we’re breaking is part of our only home, the teeming biosphere of planet Earth, and the animal represents the 60 per cent of mammals, birds, fish and reptiles that have disappeared since 1970.⁶ What directs the planetary hammers that we hold in our hands today are our desires, values and priorities. The direction of the world we’re co-constructing is being determined not by science, technology and policy, but by the desires, values and priorities of those who wield these all-powerful tools. To some extent that’s you and me: regular people in high-consumption countries, whose actions aggregate globally. But we should be clear about the fact that these tools are being wielded primarily by the political, economic and corporate elites that hold disproportionate power around the world today.

Desires, values, priorities and politics are the province of the humanities and social sciences. These essays draw liberally on the sciences, from archaeology to ecology, biology to climatology, but they examine “life in Singapore” through a fundamentally humanistic lens, employing history, philosophy, cultural studies, anthropology, sociology and psychology. When we think of “the environment” we don’t automatically think of these fields, but we should. The world we live in doesn’t sort itself into neat and narrow categories—trade, education, health, et cetera—so a holistic understanding

of the world must draw on multiple disciplines, areas of study and ways of knowing. This is what the field of environmental humanities offers us today. At one point in time the humanities might have seemed like a frivolous and superfluous enterprise, a luxury that a forward-looking nation like Singapore could not afford, but the rising seas, hazy skies and blistering temperatures are teaching us a new lesson. If human beings are going to survive climate change it will be because of a dramatic shift in desires, values and priorities, which will redirect technology, policy and broader political and economic systems.

This book hopes to play a small role in that transformation. Its title is a case in point, referring to the problematic duality in the way we frequently view the world. I'll bet that you read "life in Singapore" as a reference to the lives of *humans* in Singapore: our endlessly fascinating cultures, tastes and activities. And indeed, this book is concerned with Singaporean culture, from chilli crab to orang minyak films, Jewel Changi to Pulau Semakau, O-levels to Tiger Beer. But "life in Singapore" also refers to *biological* life in Singapore, the trillions of nonhuman lives—short, long and in-between—that rarely enter our limited, anthropocentric fields of vision. Singapore is well-known as a hotspot for biodiversity, and we share this island with countless other species, including macaques, monitor lizards, civets, colugos, kingfishers, stingrays, pandas, otters, wild pigs, cats, crocodiles and dogs. But the copious critters you'll encounter in these pages are not so much a reflection of Singapore's unique wonders as they are a window into the incredible diversity of life that still exists on our beautiful planet, even in this era of defaunation and mass extinction.⁷ When scientists measured the mass of all living things on Earth, they found that humans, all 7.7 billion of us, are just 0.01 per cent of the total.⁸ And that figure didn't even include the nonhuman life that's inside of us—only 43 per cent of the cells in our own bodies are human, with the rest being bacteria, viruses, fungi and archaea.⁹ In this context, isolating human beings as the only organism that *matters*—that deserves moral and legal consideration—is not only myopic and narcissistic, but paints a factually inaccurate picture of who we are and the world we inhabit.

Viewing "life in Singapore" in this dual yet inextricably interconnected way demonstrates that we humans, despite our magnificent cleverness, are

never an island unto ourselves. And neither is Singapore. The delimited sovereign territory composed of solid landmass and azure ocean that we now refer to as "Singapore" has been a meeting place for a wide variety of human and nonhuman beings since the Stone Age. They include countless generations of Orang Laut—the indigenous people of Singapore—as well as Srivijayan royalty, Siamese and Vietnamese traders, Chinese merchants, Indian coolies, Bugis, Chinese and Malay traders, British colonisers and modern-day, multicultural Singaporeans, along with hundreds of thousands of migrant labourers from Malaysia, the Philippines, Myanmar, Bangladesh, Indonesia, China and elsewhere.¹⁰ Due to its geographic location, mobility has long been central to the residents of this island.¹¹ The sovereign Republic of Singapore has only existed for fifty odd years—a blink of time in the long span of the island—yet the sway of nationalism is so strong that we tend to conflate Singapore (the geographical location) with Singapore (the country). While fully cognisant of the godlike power of modern nation-states to control and shape all of the "life" within their borders, this book views "Singapore" within a broader spatio-temporal context.

As its history demonstrates, Singapore has frequently been a place in transition, a waystation for a vibrant multispecies community of human and nonhuman beings.¹² This moment is no different. But this moment is also *very* different, because you are reading these words at a moment of unprecedented and historic transition. Amidst the rising temperatures and sea level and the increasingly frequent and severe typhoons, floods and wildfires, humans in every country, on every continent are belatedly recognising that the way that some of us have been living for the last half-century has been wildly, gluttonously unsustainable. It's now clear that in this era of climate crisis, fundamental change is on the horizon, one way or another—to the places we've known and the lives we've come to enjoy and expect. This reality has been slow to arrive in Singapore, but seemed to publicly hit home in 2019 with the SG Climate Rally, Singapore's first major climate protest. That event was organised not by veteran activists but by young people in their teens and twenties, some of whom are contributors to this book. Around the world, young people have become the most vocal, passionate and effective messengers demanding the kinds of aggressive measures that

are now required to preserve a stable life on Earth.¹³ The Climate Generation, as they've been called, will suffer the worst consequences of climate change, despite contributing almost nothing to the problem. The upside is that they are the least desensitised to this deeply disturbing state of affairs. Many of them didn't come of age thinking that the environment was encompassed by "reduce, reuse and recycle," but associate the environment with the life-supporting, life-shaping, life-destroying forces that will define the twenty-first century. They're pushing the rest of us to see the world as it is.

All of the essays in this book were written by authors born between 1993 and 1998. We're accustomed to thinking of elders as teachers and young people as students, but in this time of youth climate strikes and a global movement spearheaded by a Swedish teenager, familiar roles have been reversed.¹⁴ The authors of this book were born decades after climate change was publicly acknowledged and understood, years after governments around the world repeatedly assured us that there was nothing to worry about, that we should be practical, stay calm and trust in their expertise. They were children when we ignored the scientists and activists who were repeatedly sounding the alarm, when our politicians, year after year, failed to take appropriate action. They understand that their lives will be lived in the shadow of climate change, and they are comparatively unencumbered by the social and cultural biases and norms that have paralysed most of us for far too long.¹⁵ We have a great deal to learn from them, if we're willing to listen.

There is pain in these pages. There is frustration, disappointment, anger and even despair. All will be a regular part of life in the Anthropocene, in Singapore and everywhere else. The sooner we can accept this—the sooner we acknowledge our new reality and shed our twentieth-century ideas and expectations—the better off we will be, collectively and individually. But, as the authors of this volume demonstrate, moving forward requires a sober, judicious and at times difficult assessment of the present and the past, including things that we've long taken for granted. Standing as we all are on the cusp of irreversible climatic destabilisation, constructive criticism and new ways of seeing, feeling, thinking and acting are needed. It is in this spirit of constructive and affectionate criticism that these chapters were written and this book was edited.

But there's also wonder, beauty and solidarity in these pages. Especially in this time of coronavirus, it's hard not to notice that sealing ourselves off from the world outside leads to a psychological and spiritual impoverishment. Recognising our fundamental interconnectedness with so many previously ignored forms of life is a monumental intragalactic discovery. It pushes us, as it's pushed me, towards a soul-deep appreciation of and sense of connection to this glorious web of life that we and our ancestors have always been part of. Forget Mars: the aliens we've been seeking are already here! They're in the jungle; soaring high above; crawling beneath your feet; and on your plate. They're all around us, if we're willing to look.

This book is a snapshot of environmental perspectives on life in Singapore in the early twenty-first century. It's not a final word on the subject, but an invitation to conversation, critical thought and, above all, action. Because action—immediate and transformational—is what is now needed to preserve Singapore's very existence as a nation and global city. Sadly, this statement is not hyperbole. We are well into the era of climate change, and scientists report that we are likely nearing biogeophysical tipping points that, if passed, will shift our climate into a radically different state.¹⁶ In that state it's quite possible, and perhaps even inevitable, that the island we call home would become nearly uninhabitable, due to a combination of extreme heat and sea level rise.¹⁷

As I write these words in my office in Clementi, the mynahs chirping after a cooling February rain, Singapore is an unlikely, magical place in the midst of a historic transition—to what we do not know. Will Singapore rise to the challenge, as it did in the post-independence years of nation building, and, more recently, in response to the coronavirus pandemic?¹⁸ Will it pioneer a much-needed model of a truly sustainable, egalitarian, multi-species metropolis by using its nimbleness to refashion itself in response to changing circumstances? Will it dedicate its impressive financial resources, expertise and global standing to driving a necessary transition in policy, infrastructure and culture throughout Southeast Asia? Or will it become a barely-habitable, solipsistic, fossil-fuelled fortress in a region besieged by climate chaos, suffering and displacement?¹⁹

The future is yet to be written. But the time to write it is now.

Endnotes

1. I borrow the phrase “seeing with new eyes” from environmental thinker Joanna Macy, for whom “seeing with new eyes” is a part of “the work that reconnects” us to the world around us. The journey that Macy recommends in this time of environmental crisis is a spiral that is composed of “coming from gratitude,” “honoring our pain for the world,” “seeing with new/ancient eyes” and “going forth” to take action. See Joanna Macy and Chris Johnstone, *Active Hope: How to Face the Mess We’re in without Going Crazy* (New World Library, 2012). “Seeing with new eyes” is a useful metaphor, but it’s important to note that this book builds on the work of a multitude of scholars, thinkers, advocates and activists who have applied an environmental lens to Singapore over the years, including but not limited to Ooi Giok Ling, Victor Savage, Daniel P.S. Goh, Ng Weng Hoong and Timothy P. Barnard.
2. See Sarah Ang, “‘Greenie’ label trivialises climate change cause,” *The Straits Times*, September 30, 2019.
3. For the sake of simplicity, this book uses the “Anthropocene” terminology, though it has been widely and rightly critiqued for its flaws. For example, the Anthropocene concept implicitly places the blame for climate change (and the broader nature crisis) on *anthropo* (“man”), meaning humans in general, whereas many critics contend that the actual historical responsibility should be attributed to a small number of wealthy countries, to elite decision-makers within those countries, to political economic systems (such as capitalism) or to systems such as colonialism and imperialism. For a thorough explanation of the origins, competing definitions and criticisms of the Anthropocene concept, see Yadvinder Malhi, “The Concept of the Anthropocene,” *Annual Review of Environment and Resources* 42 (2017): 77–104.
4. For a primer on the environmental humanities, see Deborah Bird Rose, Thom van Dooren, Matthew Chrulew, Stuart Cooke, Matthew Kearnes and Emily O’Gorman, “Thinking through the environment, unsettling the humanities,” *Environmental Humanities* 1, no. 1 (2012): 1–5; and Robert S. Emmett and David E. Nye, *The Environmental Humanities: A Critical Introduction* (MIT Press, 2017).
5. See, for example, Zafuan Husri, Mohd Sabri Abd Rashid, Suzana Said and Razali Kamisan, “Bamboo Modular System (BMS) for New Eco Architecture,” *International Colloquium of Art and Design Education Research* (Springer, 2015): 525–539.
6. Monique Grooten and Rosamunde Almond, *Living Planet Report 2018: Aiming Higher*. World Wildlife Fund, 2018.
7. For a primer on the ongoing mass extinction, see Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (Henry Holt and Company, 2014).
8. Yinon M. Bar-On, Rob Phillips and Ron Milo, “The biomass distribution on Earth,” *Proceedings of the National Academy of Sciences* 115.25 (2018): 6506–6511.
9. Ron Sender, Shai Fuchs and Ron Milo, “Are we really vastly outnumbered? Revisiting the ratio of bacterial to host cells in humans,” *Cell* 164.3 (2016): 337–340. This percentage is an approximation—it could be slightly more or less for any individual at any given moment.
10. See, for example, Kwa Chong Guan, Derek Heng, Peter Borschberg and Tan Tai Yong, *Seven Hundred Years: A History of Singapore* (Marshall Cavendish International Asia Pte Ltd, 2019).
11. See, for example, Tan Tai Yong, *The Idea of Singapore: Smallness Unconstrained* (World Scientific Publishing, 2020).
12. On cities as multispecies communities, see James Scott, *Against the Grain: A Deep History of the Earliest States* (Yale University Press, 2017). On the history of animals in Singapore, see Timothy P. Barnard, *Imperial Creatures: Humans and Other Animals in Colonial Singapore, 1819–1942* (NUS Press, 2019).
13. See, for example, *Emissions Gap Report 2019*, United Nations Environment Programme. UNEP,

Nairobi, 2019. In the foreword, Inger Andersen, the UN’s Executive Director, writes, “Our collective failure to act strongly and early means that we must now implement deep and urgent cuts” to the production of greenhouse gases. “This report tells us that to get in line with the Paris Agreement, emissions must drop 7.6 per cent per year from 2020 to 2030 for the 1.5 degrees Celsius goal and 2.7 per cent per year for the 2 degrees Celsius goal. The size of these annual cuts may seem shocking, particularly for 1.5 degrees Celsius. They may also seem impossible, at least for next year. But we have to try ... [G]oing beyond 1.5 degrees Celsius will increase the frequency and intensity of climate impacts, such as the heatwaves and storms witnessed across the globe in the last few years ... This report gives us a stark choice: set in motion the radical transformations we need now, or face the consequences of a planet radically altered by climate change” (xiii).

14. I refer here to Greta Thunberg. But Thunberg is far from the only young person who is leading by publicly demanding an appropriate response to climate change. One could also point to Helena Gualinga (Ecuador), Bertine Lakjohn (Marshall Islands), Hilda Flavia Nakabuye (Uganda), Luisa-Marie Neubauer (Germany), Saoi O’Connor (Ireland), Autumn Peltier (Canada), Lilly Platt (the Netherlands), Xiuhtezcatl Martinez (United States), Yinka Lawanson (Nigeria), Ridhima Pandey (India), Lilly Satid-tanasarn (Thailand), Tekanang (Tuvalu), Artemisa Xakriabá (Brazil), Marinel Ubaldo (Philippines) and Eyal Weintraub (Argentina), among millions of others.

15. See Kari Norgaard, *Living in Denial: Climate Change, Emotions, and Everyday Life* (MIT Press, 2011). On Singapore in particular, see Ajay Nair, “A Climate Emergency Was Declared. Why Aren’t Singaporeans Talking About It?” *RICE Media*, May 7, 2019.

16. See Timothy M. Lenton, Johan Rockström, Owen Gaffney, Stefan Rahmstorf, Katherine Richardson, Will Steffen and Hans Joachim Schellnhub, “Climate tipping points – too risky to bet against,” *Nature* 575: 592–595.

17. On the likelihood of extreme heat in Singapore, see Low Youjin, “Temperatures in Singapore could hit 40°C as early as 2045: Scientists,” *TODAY*, July 4, 2019. On sea level rise in Singapore, see Winston Chow, “Commentary: How effectively can Singapore adapt to sea level rise?” *CNA*, August 25, 2019. On climate change as an “existential” problem for Singapore, see “National Statement of Singapore by Mr Masagos Zulkifli, Minister for the Environment and Water Resources, at the UNFCCC COP-25 High Level Segment, 10 December 2019,” Ministry of the Environment and Water Resources, <https://www.mewr.gov.sg/news/national-statement-of-singapore-by-mr-masagos-zulkifli--minister-for-the-environment-and-water-resources--at-the-unfccc-cop-25-high-level-segment--10-december-2019>. It’s worth noting that the last time the Earth was 2 degrees Celsius warmer than pre-industrial temperatures, sea levels were more than 5 metres higher than they are today. See Dumitru, Oana A., Jacqueline Austermann, Victor J. Polyak, Joan J. Fornós, Yemane Asmerom, Joaquín Ginés, Angel Ginés and Bogdan P. Onac, “Constraints on global mean sea level during Pliocene warmth,” *Nature* 574, no. 7777 (2019): 233–236.

18. On the international recognition of Singapore’s initial response to COVID-19, see, for example, Benjamin J. Cowling and Wey Wen Lim, “They’ve Contained the Virus. Here’s How,” *The New York Times*, March 13, 2020; Adam Rogers, “Singapore Was Ready for Covid-19—Other Countries, Take Note,” *WIRED*, March 12, 2020. However, as I write this footnote in mid-April, outbreaks are occurring in migrant workers’ dormitories throughout Singapore. The future of the pandemic in Singapore is uncertain. But these outbreaks demonstrate that for the coronavirus, as for climate change and other global, interconnected socio-environmental challenges, a response that concerns itself only with the safety and security of a privileged few is not only unjust, but destined to fail. On the lessons that we can draw from the robust and international response to the coronavirus pandemic and apply to climate change, see, for example, Andrew Norton, “Coronavirus and climate change are two crises that need humanity to unite,” *Climate Home News*, March 12, 2020; David Comerford, “Can the coronavirus give us hope in tackling climate change?” *Eco-Business*, March 10, 2020.

19. On these possibilities, see Matthew Schneider-Mayerson, “Some Islands Will Rise: Singapore in the Anthropocene,” *Resilience: A Journal of the Environmental Humanities* 4.2–3 (2017).

Eating Chilli Crab in the Anthropocene: Nature, Culture and Care

Neo Xiaoyun

I ARRIVE AT Sunset Way, where Chin Huat Live Seafood Restaurant is inconspicuously located in a public housing estate. I'm here to enjoy one of Singapore's beloved and iconic culinary delights, chilli crab. As I enter the restaurant memories arise: Mum ordering *la jiao pang xie, shao la* ("chilli crab, less spicy" in Mandarin) to accommodate my low tolerance for spicy food, Dad extracting silky slivers of flesh beneath the hard shell, and a can of chrysanthemum tea ready to douse the conflagration in my taste buds. I can recall the powerful texture and taste of the gravy—sweet, sour, thickened with a swirl of egg and tinged with chilli, tomato and garlic. The chilli crab owes its fame to this gravy, which has been described by chefs and food reviewers as "piquant and flavourful" with a "fluffy texture" and "all gooey with egg."¹ Soon, I behold the chilli-soaked crustacean served on a white platter. Especially since it can get messy, the best way to enjoy chilli crab is with one's hands. Like all the other diners, my partner and I order accompanying deep-fried buns called mantou. Crispy on the outside and soft on the inside, mantous soaked with gravy complete the meal. Our serving plates fringed with crab carcasses and our fingers greased with paste, a waitress serves us small bowls of water freshened with cut lime to clean our fingers.

Destined for stopovers at places like Chin Huat Live Seafood Restaurant on their way to the bowels of hungry humans, 6,000 giant mud crabs (*Scylla serrata*) are imported into Singapore every day.² Though "chilli crabs" are commonly dubbed "Sri Lankans," they are also sourced from Indonesia, the Philippines, India and as far as the east coast of Africa to meet consumer demand.³ Consuming crabs has become a central part of the

Singaporean habitus: we have a “common sense” about the chilli crab, manifest in our shared familiarity with and preferences about how we think crabs should be cooked and eaten.⁴ For practical purposes, most Singaporeans know a good deal about chilli crab—enough to develop a set of dispositions and judgments: we inspect seafood tanks, place an order and enjoy a hearty meal. We rarely consider the crab in any other light. Fisheries, on the other hand, know enough about the crab’s life cycle and ethology (behaviour) to maximise production and profit. Our general lack of interest in nonhuman animals apart from their utilitarian functions (i.e. deliciousness) extends, of course, beyond this specific human-animal encounter. It symbolises a broader disregard for nonhuman life and the natural world—a disregard which is incongruent with our ability to influence nature on an epic scale. Indeed, scientists argue that we have entered a new epoch, the “Anthropocene,” in which humans are the dominant geologic force on planet Earth.

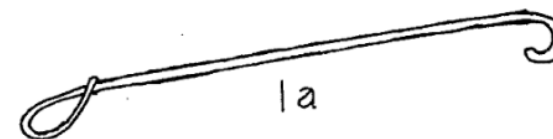
This chapter celebrates an ancient creature evolved in its own right, as the protagonist of its own story.⁵ But this chapter isn’t only for animal lovers. As theorist Richard Grusin notes, nearly every significant problem in the Anthropocene “entails [human] engagement with nonhumans—from climate change, drought and famine ... to genocide, terrorism and war.”⁶ In this light, this chapter aligns with emerging discourse and activism that imagines and develops relationships with nonhuman animals that are more mindful of ecological limits. Whether these ecologically conscious attitudes and beliefs translate into more humane housing conditions for crabs, merciful methods of slaughter or a vegetarian diet is up to you, the reader, to decide. But by focusing on the humble crab, this chapter reminds us of the “complex tapestry of environmental values” that compete and coexist in Singapore’s past and present.⁷

The Crab throughout History

Let’s start with the long history of crabs in Singapore. The shallow waters off of Singapore’s and Malaysia’s coasts have always nourished an abundance of shellfish, including crabs, shrimp and mussels. These conditions were favourable for early settlements of Orang Laut (“sea people” in Malay), the indigenous people of Singapore.⁸ The Orang Laut were likely the first

people to harvest mud crabs locally—on top of gathering turtle eggs and oysters and catching prawns and fish for their subsistence.⁹ By the early nineteenth century there were more than 1,000 Orang Laut living in present-day Singapore on their sampan panjang (“long house-boats” in Malay) along the Singapore River, the Seletar River, the Kallang River and the cluster of small islands that have become Jurong Island.¹⁰ Three mud crab species can still be harvested in Singapore waters today—the green *Scylla paramamosain*, the orange-brown *Scylla olivacea* and the purple *Scylla tanquebarica*—all of which belong to the same *Scylla* genus as the popularly consumed giants, but grow to a smaller width of just 15 to 20 centimetres.¹¹

The mud crab influenced not just the diets of Orang Laut but the tools they used, their social relations and the power structures in their communities. To extricate ketam bangkang—as mud crabs are locally known—from crevices, the Orang Laut employed tools such as the kais ketam (“crab scratcher” in Malay), a thin iron rod with a gently curved end that avoids wounding the crab when hooking them out of rocks, tree roots or burrows at low tide.¹² A more passive harvesting method involved fashioning traps from woven bamboo and rattan, with spikes that turn inward, so that curious crustaceans enter easily but find it impossible to escape. These tools are still used today. They are simple, time-honoured techniques that have proved remarkably effective at gathering crabs—for centuries, if not millennia—thus providing the Orang Laut with a delicious source of protein.¹³ As ketam bangkang were able to fetch high market prices, the Orang Laut also valued crabs as a product to barter for rice, cloth and iron tools.¹⁴



A kais ketam.

Source: Cynthia Chou, *The Orang Suku Laut of Riau, Indonesia: The Inalienable Gift of Territory*.

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About the Contributors

Tan Tai Yong is a Professor of Humanities (History) at Yale-NUS College and President of Yale-NUS College. He has published extensively on the history of Singapore, and his recent books include *Singapore: Seven Hundred Years—A History of Singapore*, *Creating Greater Malaysia: Decolonization and the Politics of Merger*, and *The Idea of Singapore: Smallness Unconstrained*. He was a Nominated Member of Parliament from 2014 to 2015.

Matthew Schneider-Mayerson is Assistant Professor of Environmental Studies at Yale-NUS College, where he writes and teaches about climate change, environmental politics and environmental literature. He received his PhD from the University of Minnesota and served as the Cultures of Energy Postdoctoral Fellow at Rice University. He is the co-editor of *An Ecotopian Lexicon* and author of *Peak Oil: Apocalyptic Environmentalism and Libertarian Political Culture*. He has lived in Singapore since 2015.

Neo Xiaoyun is a policy officer concerned with advancing constructive international relations to secure Singapore’s strategic aviation interests. When she isn’t firing email submissions, she is wielding her chungkol at Ground-Up Initiative, a non-profit community located in the heartland of Yishun. Sometimes she guides visitors to harvest their favourite veggies from the soil and bake artisan bread and pizzas from an earth oven, but mostly she enjoys the iterative, calming, grounding process of loosening soil, digging trenches, burying compost and reshaping plantbeds. Since her college days, Xiaoyun has been straddling her varied research interests of Southeast Asian history, environmental humanities, international politics, biodiversity conservation and pop culture. Her essay “Eating Chilli Crab in the Anthropocene” reflects these interdisciplinary musings and preoccupations.

Heeun Monica Kim is a literature major at Yale-NUS College. She is currently hooked on dystopian science fiction but has always been an avid reader of epic fantasies and Shounen manga. Apart from reading, she enjoys drawing comics and playing basketball. She also particularly enjoys being outdoors, and will spend her free time watching birds, catching frogs or chasing (from a safe distance) the occasional otter family.

Sarah Novak is a strategy consultant, writer and policy researcher originally from New Zealand. She completed her undergraduate degree in Philosophy, Politics and Economics (PPE) at Yale-NUS College in 2018. Recently, Sarah has worked on climate change policy in government and researched nature-based solutions as one path towards achieving a zero-carbon future. Sarah holds a MSc in Environmental Change and Management from the University of Oxford.

Ng Xin is a Cancer sun who is always wishing she could do more in the world. A recent graduate of Yale-NUS College, she staunchly believes in community care, education and the force of young people in effecting change on environmental and social fronts. She hopes that this book will help people find comfort and courage on this tiny, lush island. When she's not consuming tigers, she spends her free time on books, walks and karaoke. She has been told to keep it down multiple times in her college career.

Fu Xiyao is a senior at Yale-NUS College, majoring in Environmental Studies. She grew up in Beijing before she moved to Singapore to attend college. She likes to ride bikes, climb mountains and grow her own vegetables. She loves seeing the sunrise from mountain tops or watching clouds outside of her apartment window. Her appreciation for the natural world makes it impossible for her to ignore the climate crisis. The closer she looks into environmental problems, the more she realises that they are not about nature "out there," but rather about ourselves: about what we believe and how we live as Earth dwellers.

Michele Chong is an Urban Studies major at Yale-NUS College. Her adventures with monkeys began at a young age of 3, with her first and favourite jet-black spider monkey stuffed toy she affectionately calls Moomy. Other encounters with primates over the years include spotting the furry creatures through the car window on the way to Mandai crematorium, a close call with a macaque in Bali after her brother made wild gestures and faces at it, and the memorable classroom visitor described in her chapter. Michele hopes to pursue a career in urban planning and is especially interested in its intersection with the natural environment.

Born in Kenya, **Jin Hee Lee** has lived in South Korea, the United States, Uganda, Rwanda and now Singapore. As a third culture kid (TCK), a term used for folks who have lived across multiple cultural backgrounds, she feels that she belongs everywhere and nowhere. She currently studies philosophy at Yale-NUS College, with a keen interest in feminism and environmental philosophy. In her free time, she reads, bakes, sketches and watches a lot of YouTube videos.

Yogesh Tuls is a recent graduate of Yale-NUS College who is fascinated by Indian Ocean literatures, cultural studies and digital humanities. Yogesh's projects bring old texts into conversation with new issues, producing intersections through which we can think through issues in cultural thought. In addition to his article in this collection, Yogesh recently completed his thesis exploring the encounter with the strange as represented across pre-modern and contemporary Indian Ocean texts. He hopes to advance the use of literary and aesthetic thought as a key approach to interrogating pertinent cultural issues. In his free time, Yogesh enjoys bad movies and video essays.

Mathias Ooi is an Environmental Studies major at Yale-NUS College. He has always been a nature lover, but can't decide if he likes the mountains or the ocean more. This indecision places a strain on his wallet, as he enjoys both rock-climbing and scuba-diving—two hobbies that are unfortunately expensive to pursue. While he doesn't necessarily identify as an activist, Mathias hopes that his voice and perspective can nonetheless move people to take up climate action. He believes that everyone has a unique role to play, and wants to bring positive change to the world in his own little way.

Aidan Mock is a recent graduate of Yale-NUS College's Environmental Studies programme. He is a founding member of Fossil Free Yale-NUS, a movement that campaigns for NUS to stop investing its six-billion-dollar endowment in fossil fuel companies. He was also one of the organisers of the first SG Climate Rally, which was held at Hong Lim Park on the 21st of September, 2019. Outside of activism, he facilitates environmental spirituality practices in the tradition of the Work That Reconnects, enjoys observing the living world and seeks to perfect the soundtrack of his life.

Al Lim is a researcher of Southeast Asian urban studies. He starts his PhD in Anthropology at Yale University in 2020, after completing an MSc in Urbanisation and Development at the London School of Economics and Political Science and a B.A. (Hons) in Urban Studies at Yale-NUS College. His academic publications have been featured in *IAAPS Perspectives*, the *Yale-NUS Undergraduate Journal*, and *Singapore Policy Journal*. His creative works have also been featured in over 20 publications, such as *STAPLE Magazine*, Harvard's *Tuesday Magazine* and *Twin Cities* (Landmark Books).

Feroz Khan is a researcher and communicator of disaster and climate risk. He graduated from Yale-NUS College in 2018 with a B.A. (Hons) in Environmental Studies. He was born and raised in Singapore. He lives between Macritchie Reservoir and Bishan Park, and is on a journey to overcome years of ecophobic conditioning to learn to love those spaces and all of the beautiful nonhuman lives within them.

Bertrand Seah is a graduate in political science at the National University of Singapore, and currently a research assistant at the Asia Research Institute in NUS. As a student, his research focused on the intersections of political theory, environmental politics and state-society relations. He has been involved with several climate movements and groups, including fossil fuel divestment in NUS, 350 Singapore and SG Climate Rally.

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The most important thing you can do about climate change is talk about it. Here's how to organise your own *Eating Chilli Crab* book club in five easy steps:

1. Assemble your book club! Introduce *Eating Chilli Crab in the Anthropocene* to a book club you're part of, or start a new one by reaching out to friends, colleagues and family members who already share your interests—or whom you would like to share and discuss this book with.
2. Make sure everyone has a copy of *Eating Chilli Crab in the Anthropocene* to refer to. You can order a copy from the Ethos Books website, local bookstores or your nearest library. This title is also available as an ebook, and would make a great gift.
3. Pick a date, time and place for your book club. If a physical meeting is not possible, try holding it online using platforms like Discord, Google Hangouts or Skype. This way, your book club can transcend distance and time zones.
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