


SPECIAL ISSUE ARTICLE

Interspecies politics and the global rat: Ecology, extermination, experiment

Rafi Youatt* 

New School for Social Research, New York, New York, United States

*Corresponding author. Email: youattr@newschool.edu

(Received 14 May 2021; revised 24 March 2022; accepted 28 March 2022)

Abstract

Rats tend to thrive wherever humans do. In recent centuries, the growth of human populations around the planet has meant the growth of a nearly equivalent global population of rats, particularly in cities, where they thrive on trash, food scraps, and infrastructure, and widely stymie human efforts to get rid of them. This forced coexistence has inspired a wide range of human responses, ranging from revulsion and extermination efforts as vermin, to religious veneration and use as experimental lab animals. At the same time, the political figure of the rat has played a constitutive role in violence and experimentation against human populations who are deemed as rat-like. To understand these linked dynamics, the article frames the idea of interspecies internationality, against both Anthropocene and geopolitical readings of the planetary condition. It then elaborates three axes around which rat assemblages have been formed – exterminative, experimental, and ecological. The article concludes by arguing that the rat, as interspecies figure of politics and as living creature, allows us to understand important dynamics around the generation of disposable life, political difference, and conditions of coexistence, in ways that are critical to the entwined politics of life on the planet.

Keywords: Interspecies; Planetary Politics; Violence; Environmental Governance

Introduction

Never been a rat problem in Baltimore, always been a people problem ... I love them ... I kill them. Yeah, puts food on your table.

Veteran Baltimore city rat catcher, *Rat Film*, directed by Theo Anthony

Rats thrive wherever humans thrive. Global rat populations, comprised of more than sixty species, are impossible to specify with any precision, but even conservative estimates suggest that there are more rats than people on earth, clustered particularly in cities, where humans are unable either to drive them out or to find them a beneficial part of the urban landscape. Yet with few exceptions, little attention is paid to rats or to the ways that they matter to the entwined politics and ecology of the contemporary era. But as we start to come to grips with the transformed ecology of a planet driven by late capitalism, resource extractivism, rising urbanisation, and radical global inequality, considering the political and ecological space we share with other co-inhabitants of the Anthropocene is critical. Whether we like it or not, the biota with whom we will live and die is, in the near future, likely to involve more species who, like rats, tolerate and even thrive in human presences. A multi-century history of rat extermination efforts following both plague and pestilence, a global history of rats following human circuits of trade, war, and settler-colonial expansion, and a contested politics of laboratory rat experimentation all testify to the direct

impacts that rats have had on global political life. The recent, renewed public interest in zoonotic disease transmissions across species lines as a result of COVID-19 is only the latest chapter in this saga. As such, the way we interact directly with rats is itself consequential.

At the same time, it is not just our direct interactions with rats that have mattered. It is also the political power of ideas about rats, circulating in both metaphorical and referential ways, and attaching to humans as well as non-humans. The concept of rats as reviled, diseased vermin to be exterminated has been politically transferred onto a variety of human populations who have been tagged as rat-like, as humanrats, or simply, as rats, with deeply negative consequences. For example, migrants from the Middle East and North Africa to the European Union, Jews in Nazi Germany, and colonised people of Rhodesia have all been rendered as rats in ethno-national political frames. Transferred upwards to the sovereign, the 'rat king' (*rattenkönig*) was an epithet historically used to describe a sovereign leader who sits atop the tails of the people, themselves rats ensnared in a tangled mass of their own tails.¹ In a less extreme example, striking labour unions in New York have for decades used a large inflatable rat outside of picket sites to shame both management and picket-crossing workers, who were once drawn predominantly from new immigrant communities. While frequently reviled, rats are also sometimes thought of as inhabiting common forms and spaces with humans. Even as we assume the lives of rats to be essentially disposable, we nonetheless test and experiment widely on laboratory rats precisely because we think that both their bodies and intelligence resemble ours in some important ways. Yet something about their ability to thrive in major global cities – Tokyo, New York, New Delhi, London, and Beijing, among many – and their ability to migrate with humans for centuries, across oceans onto all continents except Antarctica, and onto remote islands – has also made them a reflection of human success. For all the efforts to eradicate them, their success gives lie to the conceit that humans control the levers of nature, even in their own cities.

Building on a growing body of work in International Relations (IR) that examines the connections between interspecies relations and international politics, both theoretically and empirically, this article makes three specific contributions around rats. First, although there has been growing work in IR on pressing planetary and environmental questions, on the one hand, and a new materialist emphasis on non-human actancy, on the other, it is not always done with attention to the specificities of how different varieties of non-human life intersect extant forms of human politics. A focus on interspecies sites and questions – broadly taken to refer not just to be animal life but all forms of life, whether fungal, plant, insect, or forms of categorisation outside Western taxonomies – brings planetary and actancy questions into sharper contextual relief. Second, the absence of rats from the political bestiary of sovereign power and the state, which has been traced through a number of species – wolves, foxes, sheep – is striking.² By focusing on rats, the piece contributes a particular slice to this international political bestiary, one that has dynamics that do not necessarily exist in every context where human and non-human life interact, but nonetheless circulate with outsize importance in particular ways. Third, it suggests that the three categories that most clearly characterise human-rat relations – extermination, ecology, and experiment – are particularly critical sites of contemporary global politics, writ large. It argues, then, that they are usefully understood as spaces that show us the interspecies pathways that generate contemporary intertwining of violence, exclusion, and the conditions of shared life, across species lines.

¹The rat king represents an exploitative sovereign who sits on the tails of their own subjects, apocryphally, appearing in 1500s Germany during the Protestant Reformation; Martin Luther is quoted as calling the Pope as a rat king. Adrian Daub, 'All Hail the Rat King', Longreads (12 November 2019), available at: {<https://longreads.com/2019/12/11/rat-king-germany-nutcracker/>}.

²Jacques Derrida's final lectures on animals and politics begins one such political bestiary, via the figure of the wolf, both through tracing the relationship of domestic sovereigns to animality (the fox, the lion, the sheep), and by considering the sovereign a wolf in international relations among other sovereigns. Jacques Derrida, *The Beast and the Sovereign, Volume 1* (Chicago, IL: University of Chicago Press, 2009).

The first part of the article frames the idea of *interspecies internationality*, against both Anthropocene and geopolitical readings of the planetary condition. Drawing on work in relational, post-human, and planetary IR, and building on my own recent work on interspecies politics, the article suggests that international relations is often deeply structured by a dual interspecies quality: an enmeshment of humans and non-human species in an ecological sense, and a deep and abiding set of political metaphors and ideas about non-human life such as rats, which create forms of difference and multiplicity. These ideas are frequently drawn from and are reproduced by actual interspecies relationships themselves.

In order to better access the political stakes of these formations, the article then takes particular aim at a kind of thinking that puts species-differences at the leading edge of the scholarly encounter between international politics and interspecies questions, which I suggest is an analytic distinction that ultimately sustains anthropocentric political life, with negative consequences for both human and non-human. Instead, taking the human-rat interaction as an exemplary instance, the article suggests that we need to understand how the boundaries between human and rat are being drawn and redrawn along *contextual* axes, not species ones. Species difference itself matters, but the political, social, and ecological contexts within which the boundaries are drawn are equally, if not more, important. In this vein, this article considers two linked elements of a particular interspecies political formation: rats, a globally distributed creature that has moved and thrived with and against humans for centuries, and a variety of political ideas that draw on rats implicitly or explicitly in ways that structure hierarchy and difference in human populations.

The remainder of the article then traces three of the more specific contexts in which global rat assemblages have been formed: exterminative, experimental, and ecological. These contexts pertain not just to human-rat interactions, but are themselves indicative of the wider geography of the Anthropocene. Compared to many other species, rats are ‘awkward creatures’, particularly in Western cultures where they both repulse or inspire fear in humans, and are creatures of cultural fascination.³ They do not easily fit many of the Western environmental ethical frameworks with which we typically approach non-human life. They are not charismatic enough to be flagship species for conservation efforts, nor keystones in the functioning of healthy ecosystems. Equally, although animal rights campaigns have regularly and actively criticised and tried to stop the use of lab rats, the awkwardness of rats means that such campaigns have not attracted widespread public support, compared to other creatures who can more easily draw sympathetic reactions. Yet efforts to eradicate rats from human-populated areas have had modest results at best, and living with them in cities in particular seems nearly unavoidable. This awkwardness constitutes the political figure of the rat as well, as an ambiguous creature that crosses and recrosses the line between the politico-mythical and the biological as it is read onto human populations. This article suggests that the awkwardness of rats mark a deeper kind of awkwardness in our current relations with nature, which is not simply instrumentally reducible to its extractive value, with its negative externalities extinguishable, nor is it simply savable as a virtuous good in conservationist terms. Rather, rats provoke us to approach awkward nature as a question of difficult coexistence with life forms, ones which we neither freely choose nor ones we can control, but with whom we must nonetheless share space and life.

These three contexts do not just mark human-rat relations, however; they are also indicative of wider structures in contemporary global politics. Focusing intersections between actual rats and ideas of rats in exterminative contexts, for example, allow us to see more explicitly the political pathways by which dehumanisation works – not as a stripping away of humanity from particular populations, and their reduction to bare biological life, but rather as an politico-ecological operation that rests on an hierarchical vision of nature, in which forms of life are sorted and organised, and species itself does not always determine political worth within that hierarchy, via

³Franklin Ginn, Uli Beisel, and Mann Barua, ‘Flourishing with awkward creatures: Togetherness, vulnerability, and killing’, *Environmental Humanities*, 4 (2014), pp. 113–23.

the power of metaphor and its materialisation.⁴ Similarly the politics of nativeness and invasiveness that characterise ecological relations with rats rest on, and generate, a multispecies conception of political community, belonging, and migration. Invasive species and invasive migrants are not purely ecological and political categories, but often come together under logics of what Miriam Ticktin calls ‘invasive otherness’, which are generated in sites such as contestations over rats, and generated by what rats do and how they live as much as they are by human processes.⁵ Lastly, experimenting on rats is itself a dry run for the ways in which human populations are sometimes treated as natural experiments, whether in serious life-threatening situations such as disease mitigation; market-testing of under-regulated products; or the contemporary planetary experiment of climate change on all forms of life. The article concludes by suggesting the contemporary rat, as interspecies figure knotted up with humans and as living creature, is not just a canary in the coalmine for the Anthropocene that marks the paradoxical triumph of the human; rather, it is the kind of ground on which conditions of awkward life in the Anthropocene are being reworked, in ways both violent and accommodating.

Interspecies internationality

Anthropocene, geopolitics, planetary

IR theory has a long-neglected relationship with non-human life, bracketing off much of the foundational space of geopolitics from the pressing questions, ethical and biological, that come from its enmeshment in ecology.⁶ In more recent years this situation has begun to change, through a series of moments where the purview of the international has clearly begun to intersect ecological questions, under a series of different scholarly rubrics. One dominant approach to this has been thinking about this as the Anthropocene, migrating from the climate sciences, which whether for good or for ill, notes the dominance of human species and in particular the processes of industrialisation and modernity, on the planet.⁷ In its more politically aware moments, it locates those developments in historical context, and thereby assigns past blame and future responsibility not to the species as a whole, but to particular collectives of people (industrialising classes of capital, predominantly European and American in location), over time. For all the wars over the naming over the era, its use remains somewhat limited outside academia,⁸ but at its core, it nonetheless retains a managerial approach to nature, and an anthropocentric sensibility about what the political looks like in proceeding – it is about planetary boundaries to be managed by a now dominant human species, and a ‘mystification’ of global inequality.⁹ Yet, the lesson of the Anthropocene is surely that we cannot proceed with the same assumptions that guided us in. And indeed the very failures of those approaches suggest that we need to rethink anthropocentrism, not by jettisoning it for a vaguely non-anthropocentric commitment to planetary

⁴For examples illustrating this dynamic in the context of American interrogations at Guantánamo Bay, see Joseph Pugliese, *State Violence and the Execution of Law: Biopolitical Caesurae of Torture, Black Sites, Drones* (New York, NY: Routledge, 2013), p. 93; Rafi Youatt, *Interspecies Politics: Nature, Borders, States* (Ann Arbor, MI: University of Michigan Press, 2020), pp. 64–5.

⁵Miriam Ticktin, ‘Invasive others: Toward a contaminated world’, *Social Research*, 84:1 (2017), pp. xxi–xxxiv.

⁶For earlier accounts of this problematique, see Eric Laferrière, ‘Emancipating International Relations theory: An ecological perspective’, *Millennium*, 25:1 (1996), pp. 53–75; and Robyn Eckersley, *The Green State: Rethinking Democracy and Sovereignty* (Cambridge, MA: MIT Press, 2004). More recently, see Anthony Burke, Stefanie Fishel, Audra Mitchell et al., ‘Planet politics: A manifesto from the end of IR’, *Millennium*, 44:3 (2016), pp. 499–523; Joana Castro Pereira, ‘The limitations of IR theory regarding the environment: Lessons from the Anthropocene’, *Revisita Brasileira de Política Internacional*, 60:1 (2017), e018.

⁷John Dryzek and Jonathan Pickering, *The Politics of the Anthropocene* (Oxford, UK: Oxford University Press, 2019).

⁸Frank Biermann, ‘The future of “environmental” policy in the Anthropocene: Time for a paradigm shift’, *Environmental Politics*, online (November 2020), pp. 61–80.

⁹Timothy Luke, ‘The Anthropocene and freedom: Terrestrial time as political mystification’, *Platypus Review*, 60 (2013), p. 2.

sustainability or replacing it with biocentrism, but working from questions about grounded inter-species relations (whether animal, plant, bacterial, human) – exemplified in rats, as ‘unintended consequences’ of urbanisation that cannot be managed away, resulting in a forced cohabitation.

At the same time, we remain beholden to pasts – geopolitical, colonial, imperial – in ways that cannot be wiped cleanly away, as they map both possible constraints and pathways forward.¹⁰ Here, the Anthropocene encounters *geopolitics*, itself largely based on an anthropocentric set of assumptions, not the least of which is the way that it sees ecology primarily as a question of resource extraction and the question of other species as derivative of that assumption, whether in the extinction of biological and the diminishment of cultural formations that sustain them; the biomass ‘success’ of livestock raised for meat over wild animals, or polluting practices of climate change.¹¹ This idea is arguably foundational to sovereignty itself;¹² but it is certainly bound to the practice of global politics, in its mutual implications of resource extractions, humanism, and species – both past and present. While the geopolitical cannot be ignored and must be encountered in any global political formation,¹³ it too is insufficient in getting to the intertwinement of interspecies and international.

Through a series of diverse pathways, *planetary* framings are an emergent idea and reality that has come to matter in international politics, through strands as diverse as greenhouse gas sciences dating to the early twentieth century, the possibility of nuclear self-destruction, the emergence of global environmentalism as a diverse movement in the mid-twentieth century, and the anticipated (and now arrived) effects of global habitat destruction and biodiversity loss.¹⁴ As a normative and scientific call for planetary governance focused on managing the intersections of human production and natural systems, this itself already clearly calls for a sea change in politics at many levels, including the international. At the same time, planetary politics has called forward questions around the relationships of human inequality, and calls for an alliance of planetary-oriented social movements with movements for environmental justice, economic, and postcolonial justice.¹⁵ Increasingly, planetary survival is itself directly linked to normative questions of environmental justice and just transitions, yoked to both technical political questions about global nature.

In other ways, though, the planetary moment also clearly calls out for a revisiting of deeper questions about how to engage other forms of life, both human and non-human, and with the questions of anthropocentrism that have structured these relations. In this respect, relational

¹⁰Jairus Grove, *Savage Ecology: War and Geopolitics at the End of the World* (Durham, NC: Duke University Press, 2019).

¹¹Anthony Burke, ‘Blue screen biosphere: The absent presence of biodiversity in international law’, *International Political Sociology*, 13:3 (2019), pp. 333–51; Audra Mitchell, ‘Beyond biodiversity and species: Problematizing extinction’, *Theory and Event*, 33:5 (2016), pp. 23–42; Leonardo Figueroa-Helland, Cassidy Thomas, and Abigail Perez-Aguilar, ‘Decolonizing food systems: Food sovereignty, Indigenous revitalization, and agro-ecology as counter-hegemonic movements’, *Perspectives on Global Development and Technology*, 17:1–2 (2018), pp. 173, fn. 201. On anthropocentrism in IR, see Audra Mitchell, ‘Only human? A worldly approach to security’, *Security Dialogue*, 45:1 (2014), pp. 5–21; Rafi Youatt, ‘Interspecies relations, international relations: Rethinking Anthropocentric politics’, *Millennium: Journal of International Studies*, 43:1 (2014), pp. 207–23.

¹²Mick Smith, ‘Against ecological sovereignty: Agamben, politics, and globalisation’, *Environmental Politics*, 18:1 (2009), pp. 99–116.

¹³Olaf Corry, ‘Concluding discussion: The planetary is not the end of the international’, in Joana Castro Pereira and André Saramago (eds), *Nonhuman Nature in World Politics: Theory and Practice* (Cham: Springer Press, 2020), pp. 337–52.

¹⁴The first nuclear blasts in 1945 have been debated by geologists as possibly marking the beginning of the Anthropocene, making it not just an ecological event but also a thermo-nuclear-geological one. See also Rens van Munster and Casper Sylvest, ‘Reclaiming nuclear politics? Nuclear realism, the H-Bomb, and globality’, *Security Dialogue*, 45:6 (2014), pp. 530–47; Ramachandra Guha, *Environmentalism: A Global History* (Harlow, UK: Pearson Longman, 2000).

¹⁵William Connolly, *Facing the Planetary: Entangled Humanism and the Politics of Swarming* (Durham, NC: Duke University Press, 2017); Dipesh Chakrabarty, ‘The climate of history: Four theses’, *Critical Inquiry*, 35:2 (2009), pp. 197–222; Miriam Iris Ticktin, ‘From human to planetary: Speculative futures of care’, *Medicine, Anthropology, Theory*, 6:3 (2019), pp. 133–60; Phillip Conway, ‘On the way to planet politics: From disciplinary demise to cosmopolitical coordination’, *International Relations*, 34:2 (2020), pp. 157–79; Nigel Clark and Bronislaw Szerszynski, *Planetary Social Thought: The Anthropocene Challenge to the Social Sciences* (Cambridge, UK: Polity Press, 2021).

approaches to world politics have increasingly looked across the human-non-human divide to understand more about the production of contemporary community and division, including the ways they intersect axes of race, nation, and culture/worlds. These relational approaches include post-humanist and new materialist work that suggests an ontology of entanglement, and therefore a politics of human-non-human collectives, as well as more anthropologically inspired work that emphasises the ways that different worlds intersect but are not fully commensurable.¹⁶

But arguably it is in the interaction between different living things, both in relation to abiotic environments and to each other, that most frames the political-ecological questions raised in the planetary condition: what does it mean not only to live well with others (human and non-human), but also to deal with the invariable fact that living entails killing, to borrow from Donna Haraway?¹⁷ And more specifically and more pertinently for IR, what are the pathways of violence, inclusion, and exclusion, and justice once we take the subjects of global politics to be not just human? Indeed, when political hierarchy itself works in interspecies ways that sometimes elevate non-human over human and vice versa, in a ‘more than human biopolitics’ that bring together laws and practices of war and environment?¹⁸

We might then think instead in terms of *interspecies internationality*, as particular way to understand the co-mingling of the geopolitical and the ecological.¹⁹ It refers to the entanglement of life, forms of signification, and materiality of the world, and the production of significant cleavages, violence, and inequality and forms of commonality from within different arrangements of these elements.²⁰ Extending Justin Rosenberg and Milja Kurki’s analyses that multiplicity is indeed IR’s ‘big idea’, and that it is not just societal multiplicity that IR is pursuing but the multiplicity of worlds, assemblages, and power relations,²¹ interspecies internationality understands as political the generation of those differences, by and via multiple interspecies assemblages. It refers to the relations between heterogeneous actors in world politics that generate both forms of collective difference that lead to multiplicity; and to forms of commonality and affiliation (whether community, network, or assemblage. Drawing on an internationalist vocabulary of collectivities in interaction, rather than on an incorporation of non-human life into existing structures with nation-states (such as rights and citizenship), interspecies politics is a way of analysing of the relations and interactions between multiple species about the conditions of shared life.

In many ways, it also draws out and specifies the empirical and meso-theoretical implications of the planetary politics discussed above, which vary significantly by context. To do so, it has a particular politics of *scale* that differs from either geopolitical or Anthropocenic accounts. While the scale of planetary politics is a macro-scale that is on par with the global and the international,

¹⁶Mark Salter (ed.), *Making Things International 1: Circuits and Motion* (Minneapolis, MN: University of Minnesota Press, 2015); Milja Kurki, *International Relations in a Relational Universe* (Oxford, UK: Oxford University Press, 2020); David Blaney and Arlene Tickner, ‘Worlding, ontological politics, and the possibility of a decolonial IR’, *Millennium*, 45:3 (2017), pp. 293–311; Anna Agathangelou and L. H. M. Ling, *Transforming World Politics: From Empire to Multiple Worlds* (New York, NY: Routledge, 2009).

¹⁷Donna Haraway, *When Species Meet* (Minneapolis, MN: University of Minnesota Press, 2008), p. 296.

¹⁸Joseph Pugliese, *Biopolitics of the More-Than-Human: Forensic Ecologies of Violence* (Durham, NC: Duke University Press, 2020), p. 6.

¹⁹For a full development of interspecies internationality as I use it here, see Rafi Youatt, *Interspecies Politics: Nature, Borders, States* (Ann Arbor, MI: University of Michigan Press, 2020); Youatt, ‘Interspecies relations, international relations’.

²⁰Gitte DuPlessis, ‘When pathogens determine the territory: Toward a conception of nonhuman borders’, *European Journal of International Relations*, 24:2 (2018), pp. 391–413; Stefanie Fishel, *The Microbial State: Global Thriving and the Body Politic* (Minneapolis, MN: University of Minnesota Press, 2017); Matthew Leep, *Cosmopolitan Belongingness and War: Animals, Loss, and Spectral-Poetic Moments* (Albany, NY: SUNY Press, 2021); Delf Rothe, ‘Jellyfish encounters: Science, technology, and security in the Anthropocene ocean’, *Critical Studies on Security*, 8:2 (2020), pp. 145–59.

²¹Justin Rosenberg, ‘International Relations in the prison of political science’, *International Relations*, 30:2 (2016), pp. 127–53; Milja Kurki, ‘Multiplicity expanded: IR theories, multiplicity, and the potential of trans-disciplinary dialogue’, *Globalizations*, 17:3 (2020), pp. 560–75.

where global climate change is the dominant issue, often thought of alongside the international system of states, many interspecies approaches are more interested in how combinations of political scales work together than they are in the macro-scale alone. While the macro-scale is important, it does not always supervene downwards cleanly. Indeed, the imagery of vertical scales and levels of analysis is itself problematic, and arguably, the way to address macro-scale planetary issues requires as much focus on the transformative and resistant potentials of meso- and even micro-scales.

Instead, then, a focus on interspecies questions suggests three linked moves: first, a focus on sites where actual interspecies relations intersect interspecies logics; second a turn to understanding those sites as places where ‘global forms’ surrounding the nation-state and internationality touch down;²² and third, a focus on IR’s questions of multiplicity as involving the interactions of multiple interspecies and intraspecies assemblages.

The rat and contextual rats

How, then, might we think about rats as part and parcel of such an interspecies politics? The dominant conception of the rat in Euro-American histories of recent centuries was founded on a Cartesian conception of the animal – whereas humans have minds, souls, reasoning, and culture, non-human animals (or, ‘the animal’ as a singular term) do not think, instead mindlessly pursuing biological urges and encountering the world much as machines.²³ That is, we tend to think of the rat as having a single set of limited capacities regardless of contexts; as a species capable only of reaction to external stimulus, not response in a more open-ended way; and, in a biopolitical sense, a form of *zoe* (life in general), not *bios* (qualified, specific life, including political life). This rat is a vector of disease, a gnawing and unthinking creature, its species’ life force overwhelming humans via its high-octane reproductive capacities. The human-animal divide that the rat exemplifies is, moreover, is one that has been frequently deployed politically to structure human relations, both directly and indirectly. In colonial politics, the divides between reason/culture, and unthinking animality were read onto colonial populations, including specific vocabularies and practices of violence around the killing of vermin.²⁴ Postcolonial narratives have sometimes been more indirect, relying for example on the ways that as ‘construct[ing] racial difference by casting the Other as “savage” or uncivilized on basis of their interactions with animals’ – those who must live near rats, are by coloured by their very proximity, tarred first with narratives of uncleanliness and then by the toxicity of rat extermination processes.²⁵ Moreover, the Cartesian rat is a Euro-American creature and idea that has had particular currency and power, but this belies the cultural variations that surround alternative visions of the rat, whether as sacred animals of veneration in the Indian temple of Karni Mata, or as creatures whose unique sensory capabilities aid humans in recent landmine detection efforts in Cambodia.

Both in light of this political critique of ‘the animal’ as central to both the construction of Western humanism and a problematic node in colonial power relations, and in light of

²²I borrow this idea of sites and global forms from anthropologists Aiwaha Ong and Stephen Collier, ‘Global assemblages, anthropological problems’, in Aiwaha Ong and Stephen Collier (eds), *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems* (Malden, MA: Blackwell, 2005), pp. 3–21. Similar analysis is found in Anna Tsing, *Friction: An Ethnography of Global Connection* (Princeton, NJ: Princeton University Press).

²³René Descartes, *Discourse on Method* (Cambridge, MA: Hackett, 1998), Part V, pp. 23–32. On the animal, see Jacques Derrida, *The Animal That Therefore I Am* (New York, NY: Fordham University Press, 2006), p. 47. Derrida’s move from The Animal to ‘animot’ is a guiding idea here, blending the linguistic term with the biological being.

²⁴Mavhunga Clapperton Chakanetsa, ‘Vermin beings: On pestiferous animals and human game’, *Social Text*, 106 (2011), pp. 151–76.

²⁵Glen Elder, Jennifer Wolch, and Jody Emel, ‘Le Pratique Sauvage: Race, place, and the human-animal divide’, in Jennifer Wolch and Jody Emel (eds), *Animal Geographies: Place, Politics, and Identity in the Nature-Culture Borderlands* (New York, NY: Verso), p. 72.

post-Cartesian rethinkings of non-human life itself in more sentient and complex terms, recent work in political theory and international relations has argued that a better guide to thinking about ecological relations among species is *contextual*.²⁶ That is, it is not the species itself that matters most in thinking about interspecies ethics and politics, but the socio-ecological context, including both its material and symbolic elements, that matter in generating outcomes. Though what I offer below is an ideal-type of human-rat contexts, it is important to understand that these contexts are not only analytic abstractions, but are concrete and generative historico-material events. As such, these contexts are experienced by the living creatures in them, in different ways, sensitive both to species-differences and to the ecological context of each creature, or what Jacob von Uexkull called the ‘*umwelt*’ of each organism.²⁷ For Uexkull, the *umwelt* is the semiotic world of a particular organism – that is, what sorts of sign-relations each creature experiences in an environment. *Umwelts* among different individuals are interconnected, both through direct interactions and encounters, and through indirect chains of interaction. Added together, the *umwelts* of many creatures form a semiosphere, or a whole environment of partially overlapping *umwelts*, which we can call a ‘context’ here.

Contexts are generally localised, in order to understand what individual and groups ‘do’ in them, rather than what they ‘are’ in a species sense.²⁸ But in these localisations, different creatures bring in their own apparatus of scale, memory, expectation, and significance, which are partly dependent on species; and here, human ideas and the structures we carry within us such as those surrounding internationality emerge and are forged and reformed. Jake Kosek’s work on the overlaps between honeybees, American military research programmes, and the politics and tactical warfare of swarms, for example, shows how these elements intersect in a particular interspecies context.²⁹ Contexts are productive and generative of future trajectories. The outcomes, or ‘products’ of these contexts are not just different human ethical attitudes to other forms of life, an account that would leave the ethico-reasoning human subject at its unacknowledged centre. Rather, pushing further towards a multispecies politics, we can understand that these contexts help to produce particular political outcomes for humans, and new ways of being for both rats and humans.

Contexts also demand thinking *less* in the register of *species*, and more in the level of *populations* and *communities*, in the ecological sense of subgroups of species in a particular habitat, and mixed-species groups in particular habitats. Thus, what rats do in various boroughs of New York City is different from what they do in experimental laboratory settings, which is different than what they do on islands in New Zealand. The outcomes of these contexts should not assume a symmetrical form of power between the different species involved – indeed, while work on non-human agency has frequently stressed an analytic symmetry that allows for multiple sources of agency, the realities of power frequently mean asymmetrical outcomes, and ones that may re-establish or generate both anthropocentric and interhuman hierarchies. For example, the very discovery of the agency of rats in twentieth-century Indian bubonic plague – which involved industrialised rat-killing, cataloguing, and study, and a subsequent identification of poor slums as

²⁶On contextuality in animal ethics, see Clare Palmer, *Animal Ethics in Context* (New York, NY: Columbia University Press, 2010); Sue Donaldson and Will Kymlicka, *Zoopolis: A Political Theory of Animal Rights* (New York, NY: Oxford University Press, 2011). See also Erika Cudworth and Stephen Hobden, ‘Civilization and the domination of the animal’, *Millennium*, 42:3 (2014), pp. 746–66; Matthew Leep, ‘Stray dogs and posthumanism, and cosmopolitan belongingness: Interspecies hospitality in times of war’, *Millennium*, 47:1 (2018), pp. 45–66; Mine Yildirim, ‘Between Care and Violence: Stray Dogs of Istanbul’ (PhD dissertation, New School for Social Research, New York, April 2021).

²⁷Jacob von Uexkull, *A Foray into the Worlds of Animals and Humans*, trans. Joseph D. O’Neill (Minneapolis, MN: University of Minnesota Press, 2010).

²⁸For this argument as applied to lab rats, see Alex Taylor, ‘What lines, rats, and sheep can tell us’, *Design Issues*, 33:3 (2017), pp. 25–36 (p. 30).

²⁹Jake Kosek, ‘The natures of the beast: On the new uses of honeybees’, in Richard Peet, Paul Robbins, and Michael Watts (eds), *Global Political Ecology* (New York, NY: Routledge, 2011), pp. 227–55.

primary vectors of plague – paradoxically ended up reinscribing many of the very categories of Indian social hierarchy and leading to rat extermination campaigns.³⁰ The point is thus not to argue for the power or agency of non-human wildlife in the abstract, as this is an empirical question; rather it is to understand the productions of particular interspecies interactions.

Rats point the way to the limits of human life as a sovereign, territorially bounded life – geopolitics sees ecology primarily as a resource question and the conditions necessary to sustain extraction, but rats show some of the limits of that by the inherent commensalism that other species will undertake to any life-activity on earth. And instead of Anthropocene rendering of planetary condition of tragic human dominance, rats highlight the sometimes-unwanted dependencies that occur as an inherent component of that condition. At the same time, human-rat practices help to generate an ongoing apparatus of hierarchical life that structure forms of violence and exclusion towards both human and non-human in forms of ‘racio-speciesism’,³¹ and conversely forms of belonging and coexistence.

How do these lines between human and rat, so clearly drawn in biology, cross in the practice of life, then? What different kinds of interspecies internationality been generated over time through the figure of the rat (biologically, metaphorically, practically), and with what consequences? While indeed rats are far from the only way one might approach the intertwining of the ecological and the international over the past few centuries, they nonetheless offer a particularly useful window onto some of its dynamics. The next section illustrates how some of these dynamics have worked, particularly in the context of forms of violence central to the contemporary political landscape.³²

Extermination, ecology, experiment

The exterminative, the ecological, and the experimental considered below are ideal-type contexts, though in the specifics of each context, they nonetheless offer some purchase on how interspecies processes have worked. An exterminative context is one in which rats are widely killed through highly directed means, usually by state authorities. The rationales for extermination are variable, but the baseline assumption of life-outside-political consideration (zoe) is operative. An ecological context is one in which an understanding of rats is generated through a multispecies knowledge framework, and does not inexorably lead to extermination, though it sometimes can, when rats are understood as invasive species, rendering them disposable; it can also include commensalism of the human-rat relationship. Finally, the experimental context is one in which rats are used in laboratory experiments, both as disposable objects and as a mirror species, though these increasingly are blurring the lines between laboratory and ‘in nature’. Across all three contexts, the narrative below points to the ways that relations between humans and rats also implies and generates certain kinds of political relations between humans. Given the ongoing salience of exterminative political projects, the continuing power of ideas of nativeness and invasiveness, and the collective experimentation on forms of life in the name of global health and well-being, these contexts show some of the ways that key arenas of global politics are structured by interspecies relations. This moves us well beyond rats as an environmental political question, and into an intertwined politics of life.

³⁰Nicholas H. A. Evans, ‘Blaming the rat?: Accounting for plague in colonial India’, *Medical Anthropology Theory*, 5:3 (2018), pp. 15–42.

³¹Pugliese, *Biopolitics of the More-Than-Human*, p. 54.

³²One issue, raised thoughtfully by a reviewer, is whether focusing on contexts of violence ultimately reproduces a problematic understanding of what IR is about. This point has some merit, especially as IR re-evaluates who and what it is for, to paraphrase Robert Cox, in a world seemingly beset by problems that ought to take a front seat compared to traditional geopolitics, whether climate change or pandemics. While scholarship obviously plays a role in reproducing and in changing the world, I do not think that focusing on understanding contexts of violence should therefore be set aside. If anything, it might be the opposite – contexts of violence require facing directly and critically, so that we better understand how they work, which is part of the aim of this article’s analysis. A fuller rendering of human-rat relations would, however, explore additional contexts, as noted in later in the text.

Extermination: From plague, to war

The most commonly remembered starting point for human-rat interactions in Western contexts is the fourteenth-century bubonic plague, or the Black Death, and the subsequent politics of extermination and control. For many contemporary rat-human interactions, the plague still offers a clearly narrativised guidepost: a past, in which rats were vectors of a deadly disease that killed nearly a quarter of the populations of Europe; an implied account of the present, in which modernised and scientifically knowledgeable communities have slowly pushed back against their deadly force via a technologically advancing policy of extermination; and an imagined future, in which rats are eradicated from cities and human health improves.

Rats have been associated with the plague in this way since at least the nineteenth century, when the links between rats and plague were discovered as part of the wider study of infectious diseases.³³ While most accounts of the plague at the time assumed that plague came through ‘miasmas’, it in fact came into Europe via ‘traders, rats, and fleas’ along the Silk Road. As Robert Sullivan puts it, ‘the humans followed their long-established trading paths, the rats following their long-established habit of following humans’, carrying fleas and lice which in turn carried plague that jumped to humans.³⁴ Although more recent research suggests that it may have been *human* fleas and body lice that were the main vector of death, rather than rat fleas, this plague association with rats remains the driver of an exterminative machine aimed at eradicating rats from cities. Cities spend tens of millions of dollars globally on rat extermination each year, comprising everything from redesigned garbage bins, to pesticides and dry ice, to public reporting of rat inspections by property – New York City put \$32 million towards rat control in 2017, while Paris launched a 1.5 million euro rat control plan in 2016.

But rats as a vector of plague transmission was not discovered in Europe; rather, it was in India, where an early twentieth-century outbreak of bubonic plague killed ten million people, and another two million in China.³⁵ In colonial Bombay, 200,000 rats were killed, collected, weighed, and dissected, then catalogued and studied. Curiously, the zoonotic capacity of plague to leap from rat to human was not investigated, as instead, colonial narratives of racial purity, urban cleanliness, and tropical environment filled the gap. What was called ‘contingent contagionism’ highlighted multiple factors in causing plague, including rats alongside the ‘local conditions of poverty and filth’.³⁶ Ironically, as Evans notes, the very focus on the apparent agency of rats in producing plague was a way of assigning moral responsibility for the plague to the Indian population; similar cautions about the radical power of zoonosis to undermine human exceptionality and demonstrate ecological entanglement apply to contemporary COVID-19 politics, as already amply taken up in the ‘Asianisation’ of coronavirus narratives by the nativist right, paired with the apparent origins of COVID-19 in forest habitat destruction.

The twentieth-century politics of urban rat extermination were not limited to killing rats, though. It also brought with it a wider knowledge apparatus and new forms of political control. In other words, rats do not only fill niches in an ecological sense, but they fill socioecological niches. As Dawn Day Biehler notes in her history of rat politics in the civil rights era in New York City, ‘rats filled the niche created by the forces of racism and disinvestment’, appearing where public housing authorities were unwilling or unable to commit to providing adequate infrastructure.³⁷ Ecology, here, means understanding along with black neighborhood activists that rats are ‘part of a web that entangled the physical environment with racial injustice, urban

³³Jonathan Burt, *Rat* (London, UK: Reaktion Books, 2006), p. 150.

³⁴Robert Sullivan, *Rats: Observations on the History and Habitat of the City's Most Unwanted Inhabitants* (New York, NY: Bloomsbury Press, 2004), p. 138.

³⁵Evans, ‘Blaming the rat?’.

³⁶*Ibid.*, p. 19.

³⁷Dawn Day Biehler, *Pests in the City: Flies, Bedbugs, Cockroaches, Rats* (Seattle, WA: University of Washington Press, 2013), p. 150.

politics, and even federal housing policy.³⁸ Biehler details how different affected communities perceived the rats: whereas government and public authorities often responded to demands for improved conditions with strategies of pest control, activists like Jesse Gray pointed out that treating rats as pests would do nothing to address failing heating systems, leaking toilets, and crumbling walls.³⁹ Meanwhile, the federal programme initiated by the Johnson administration, the Urban Rat Control Programme, was only able to pass Congress by being put into a health-spending bill, given opposition from those who deemed the rat problem to be a problem generated by the disorderly and unsanitary actions of local communities. It came with its own strings attached. Communities received some funding for rat control, but these ‘came attached with a string of discipline, blame, and demands for physical work matched by limited new investment’.⁴⁰ Others organised grassroots, ‘self-help’ rat extermination efforts, but inadvertently exposed local communities to heightened levels of Warfarin pesticide. Warfarin, ironically, was selected as the pesticide of choice precisely because it did not harm ‘non-target species.’ But because rats lived in an environmental context with lots of available food in the prolific amounts of city garbage, they often ingested only moderate amounts of the pesticide, making new, more resistant populations that were ultimately harder to control via pesticide.⁴¹

These dynamics persist today in cities around the world: Paris, Jakarta, Chicago, New York. In New York City, where the main modes of rat control efforts involve continued extermination efforts via poison, a ‘name and shame’ mapping campaign for rat violations (the Rat Information Portal (RIP) mapping tool) and a widespread public awareness and accountability campaign surrounding secure trash disposal. Targeted inspections regimes are routine, with a shaming regime making failed inspections public online to hold property owners accountable, in highly detailed, building-by-building maps of inspections and their outcomes.

Yet while this plague-driven narrative and practice of rat extermination remains powerful, it has also been widely unsuccessful.⁴² Rat populations in cities around the world remain robust, and in many ways impervious to current exterminative methods of rat control, which, while killing thousands of rats, cannot eradicate them. In short, while *extermination* itself continues to present itself as the desired outcome in cities, the reality is that *coexistence* with rats is now tacitly accepted at the species level, even while death is pursued at individual and sub-population levels. This violent minimisation is pursued on health and sanitation grounds, and via efforts to create rules and structures for people to self-monitor their behaviour in order to produce less of the food sources that are so desirable to rats. This is an odd *détente*, a move from the ‘war on rats’ that was started in NYC 1997 by Mayor Rudy Giuliani, and more recently continued and doubled down on by New York City’s Mayor Bill DeBlasio.⁴³ Governments all over the world, have drawn on the war metaphor, ranging from 1950s state campaigns against rats in the Philippines that were infused with both military and technocratic dimensions, to exterminative ‘war on rats’ efforts on islands in New Zealand, to what can more broadly be called the ‘global war on the rat’ between 1898–1948, which formed some of the early coordinates of what Christos Lynteris calls the ‘epistemic emergence of zoonosis’.⁴⁴ The question, then, is why this discourse of

³⁸Ibid.

³⁹Biehler, *Pests in the City*, p. 155.

⁴⁰Ibid., p. 162.

⁴¹Ibid., p. 170.

⁴²Non-urban areas have been more successful in their eradication efforts than cities – Alberta, Canada notably claims to have no breeding rats whatsoever, with a patrolled rat control zone along its eastern border and newspaper headlines generated at the mere appearance of a rat.

⁴³Tyler Foggatt, ‘Rat Academy is in session’, *New Yorker* (20 August 2018), available at: {<https://www.newyorker.com/magazine/2018/08/20/rat-academy-is-in-session>} accessed 13 May 2021.

⁴⁴Patricio N. Abinales, ‘Let them eat rats! The politics of rodent infestation in the postwar Philippines’, *Philippine Studies*, 60:1 (2012), pp. 67–99; Ed Yong, ‘New Zealand’s war on rats could change the world’, *The Atlantic* (16 November 2017); on the ‘epistemic emergence of zoonosis’, see the Global War Against the Rat project, led by Christos Lynteris, available at: {<https://wwrat.wp.st-andrews.ac.uk/>}.

an ‘war on rats’ continues to be used, in light of an apparently unavoidable coexistence at a species level, and what its political effects are.

The ubiquity of rats in the trenches of the First World War, and in military campaigns around the world before and since, is one directly ecological link between intrahuman war and rats, as is the collection of data from rats who were the only form of life able to survive the atomic explosions on Bikini Atoll.⁴⁵ But the links are more than ecological – they are biopolitical as well, a window into the changing nature of war, as it has proceeded from armies in fields, to totalitarian campaigns of extinguishing civilian populations, to nuclear standoff with proxy wars, to contemporary biopolitical wars that are based as much on minimising threats and reorganising societies, as they are aimed at on direct victory on a battlefield.⁴⁶ At the same time, contemporary rat campaigns draw on and meld war with the ‘plague town’ famously used by Foucault to posit the paradigmatic, generative site of disciplinary power.⁴⁷ The plague town did not know that rats were a cause, or indeed, that plague was a zoonotic disease; the lockdown society, fears of contagion, and forms of social sorting (including quarantines, closures, marking), and surveillance remain today. But if this was the seventeenth-century ‘political dream’ of the plague, it shifted by the twentieth century, where the political dream of a rat extermination that is in fact impossible to achieve is an ongoing war society.

At another level, then, the shift away from pure extermination of species, towards individual killing and regimes of monitoring and control, opens doors for racial and other forms of hierarchical politics. Hierarchy in human society can regenerate itself through a long-term ‘war’ on rats, associated with undesirable places and lesser communities, which is constantly fought but never won. Looking at interwar South Africa, Branwyn Polykett shows how a ‘sanitation syndrome’ served to connect white settlement with the idea of sanitary cordon.⁴⁸ Anti-rat campaigns, she writes, were powerful instruments for allying the health of the nation with whiteness and proposing white settlement as a prophylaxis against epidemic disease. As with other cities, the ‘war on the rat’ in South Africa generated and drew on ecologically inflected tactics and discourses of public health, with state-imposed quarantine in the areas where ‘settler rats’ had migrated (which were also racially mixed); and ultimately, creating ‘fire-belts’ of rodent-free zones around the cities, ensured through war-like tactics of gassing, shooting, and poisoning rats, on the one hand, and creating ‘hygienic’ white middle-class norms of living across the country.

A shift away from extermination was long foreshadowed by those on the front lines of rat control. In 1936, the Exterminators Association of NYC changed their name to the Pest Control Association, worried that ‘extermination’ of rats set the bar too high for what they could actually achieve.⁴⁹ In large part, this coexistence is thus also due to what rats are able to do in cities – work their way underground, find and take part in the plentiful food sources generated by societies of massive food waste, and frequently remain away from humans.

The extermination context, in short, is a site for generating war – not geopolitical war, but war in the sense of interspecies government of life with violence as a mode of ordering conduct. Most directly, extermination applied to rats can be moved directly onto humans who are cast as rats, genocidal politics has done. But more broadly, it also shows how an exterminative orientation can be created that propels itself forward whether or not the promised violence occurs, rendering

⁴⁵Jeffrey Sasha Davis, ‘Representing place: “Deserted isles” and the reproduction of Bikini Atoll’, *Annals of the Association of American Geographers*, 95:3 (2005), pp. 607–25 (p. 616).

⁴⁶Mark Duffield, *Development, Security, and Unending War* (Malden, MA: Polity Press, 2007); Michael Dillon and Julian Reid, *The Liberal Way of War: The Martial Face of Global Biopolitics* (New York, NY: Routledge, 2009).

⁴⁷Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York, NY: Vintage Books, 2012 [orig. pub. 1975]), p. 195.

⁴⁸Branwyn Polykett, ‘Building out the rat: Animal intimacies and prophylactic settlement in 1920s S. Africa’, *Engagement blog* (2017), available at: {<https://aesengagement.wordpress.com/2017/02/07/building-out-the-rat-animal-intimacies-and-prophylactic-settlement-in-1920s-south-africa/>}.

⁴⁹Sullivan, *Rats*, p. 98.

certain forms of life politically disposable and creating opportunities for discourses of perpetual wars. Similarly, the very failures of rat extermination are themselves politically instructive, as exterminative orientations come to be partially replaced with new modes of governance, knowledge projects, and control.

Ecology: Native-invasive rats

Unlike much scientific knowledge of ecology that has been forged in studies of natural life outside of major human centres of habitation, the sciences and policy knowledge around rats has had a particularly urban genesis. Not only was rat knowledge borne out of the plagues, but the working sciences of rats came from pest management programmes, both government and private. A critical project in the United States was the Johns Hopkins Rat Project, which was initiated at first as a way to investigate the possibility that enemies of state, notably Germany, might use the rats as a weapon – either as a threat to American food sources or as a way to spread disease.⁵⁰ Contemporary research continues in a wide range of urban rat contexts.

But ecological rat-knowledge that is generative of violence also has a second lineage – a more traditional ecological knowledge drawing from rural and wild sites more dominated by other species. In particular, rat knowledge has come from the study of tropical island ecosystems.⁵¹ Even though islands are not particularly representative of the world's land habitat, they have had an outsized effect on ecological thinking, particularly on categories of native and invasiveness.⁵² More recently, this knowledge has framed around questions around rats as invasive species, carried by trading ships and early colonial arrivals, such as those arriving in Polynesia seven to eight centuries ago via early European explorers, and then via the mass emigration of colonists to New Zealand in the 1800s. Rats (Polynesian rats) were in fact first brought to New Zealand by the Maori, who migrated and settled there around the fourteenth century, an introduction which led to early disruptions of the island ecology, including impact on local bird fauna who are the now the target of conservation. South Georgia Island in New Zealand, after spending \$13 million over a decade, and dumping three hundred metric tons of poison, eradicated its rat population. Dropping poison from above via helicopters, a 'copy-book military operation' as one sanctuary manager put it, the poisoning nonetheless permitted the return and flourishing of a number of native species.⁵³ This effort has been succeeded by a larger, high-profile project in New Zealand, called Predator Free 2050, promoted by former New Zealand Prime Minister John Key, though it is rooted in decades of rat control and eradication efforts going back to at least the 1960s.⁵⁴

Central to this formation of the rat is the distinction between native and invasive species, which has long been a distinction that has had both an ecological and political valence.⁵⁵ Ecologically, it is a pairing used by scientists to distinguish between species that have either been relatively indigenous and those that are not only introduced or new, but are deeply harmful to the existing ecosystem. Politically, the focus has been more squarely on the generative power of these discourses, and how they both draw on and reproduce specific and sometimes mistaken ideas about who and what is native, or is invading a particular space. Listed by the International Union for the Conservation of Nature (IUCN) one of the 'world's worst invasive

⁵⁰Burt, *Rat*, p. 48.

⁵¹Karen Varnham, 'Invasive Rats on Tropical Islands: Their History, Ecology, Impacts, and Eradication', RSPB Research Report No. 41 (Bedfordshire: RSPB Conservation Science Department).

⁵²Thanks to Mihnea Tanasescu for discussion on these points.

⁵³Quoted in: {<https://www.bbc.com/news/world-asia-48702762>}.

⁵⁴David Towns and Keith Broome, 'From small Maria to massive Campbell: Forty years of rat eradications from New Zealand islands', *New Zealand Journal of Zoology*, 30:4 (2016), pp. 377–98 (pp. 377–8).

⁵⁵Daniel Simberloff, 'Confronting introduced species: A form of xenophobia', *Biological Invasions*, 5 (2003), pp. 179–92; Banu Subramaniam, 'The aliens have landed! Reflections on the rhetoric of biological invasions', *Meridians*, 2:1 (2001), pp. 26–40; Youatt, *Interspecies Politics*, pp. 27–50.

species', that 'will feed and damage almost any edible thing', this 'native of the Indian sub-continent ... is most frequently identified with catastrophic declines of birds on islands'.⁵⁶ On the other hand, the distinction has mapped onto political accounts of belonging, both in nationalistic terms and, in New Zealand's case, as a kind of postcolonial restoration ecology effort. What this highlights is that rat management is rarely just about rats, in a biological sense; it is also about the politics of belonging and community and the legacies of colonial history, and offers an ongoing window into the drivers of attachment that guide the uneven forms of contemporary globalisation.

Experiments: In the lab and in the wild

Finally, the experimental context provides a much more direct form of politics around life and death, disposability, and collective good. The experimental lab rat is *Rattus norvegicus*, biologically, the same species as the rats that migrated across Europe during the plague, and jumped aboard ships to South America, Florida, and New York City and New Zealand. But it is a deeply different form of life than the *Rattus norvegicus* who has migrated to a remote island by ship, or established rat societies in urban spaces. It is more disposable, as a form of life – not only is it made killable, but it is killed almost universally. Oddly, though, it is brought into being precisely for its similarity to human life. The rat lab sustains an industry that creates millions of lab rats for use in laboratories around the world – as a 'speeded up version of the human', in terms not only of breeding cycles, but in terms of growth. The standardised albino lab rat (along with mice) contains within it a world of diversity: mice and rats with specific diseases, cancers, and disorders.⁵⁷

The genesis of the lab rat, as a specific sort of creature, came first from the plague as well – plague research in India and China led, in turn, to the realisation that rats could be killed and used for medical experiments.⁵⁸ From here, it was an evolution to the genetically modified lab rat, a kind of life produced literally as a tweakable piece of equipment for biological experimentation. As Donna Haraway explored in her late 1990s work on OncoMouse™, a rat used for breast cancer research is not just lab rat but a rat that is also commodified, trademarked, and gendered.⁵⁹ As such, it is a form of life that is directly at the intersection of science and politics, and yet not reducible to either.

As Jonathan Burt notes, 'the commonplace that the rat is an ideal experimental animal contains within it the fact that science itself has created this ideal, while in turn also constructing itself, literally so in the case of laboratory equipment and housing around its creation.'⁶⁰ But at the same time, these experiments ask questions that are deeply tailored to the laboratory's infrastructure – they ask not, what rats are curious about in the world, but rather, how rats react to a world that is artificial to them and which may or may not interest them deeply.⁶¹ In other words, they ask what creatures 'are', but they do not ask what they do, in the world: 'experimental research of this kind does everything in its power to compartmentalize and purify the conditions, but in so doing, it strips the experiments of precisely those things that make the world meaningful.'⁶² So while the laboratory experiment, on the one hand, denies the meaningful

⁵⁶IUCN Global Invasive Species Database, available at: {http://www.iucngisd.org/gisd/100_worst.php} accessed 13 April 2021.

⁵⁷Burt, *Rat*, p. 99; see also Lynda Birke, 'Who – or what – are the rats and mice in the laboratory?', *Society and Animals*, 11:3 (2003).

⁵⁸Evans, 'Blaming the rat?', p. 33.

⁵⁹Donna Haraway, *Modest_Witness@Second_Millennium.FemaleMan(c)_Meets_Oncomouse(tm)* (New York, NY: Routledge, 1997).

⁶⁰Burt, *Rat*, p. 89.

⁶¹Vinciane Despret, 'Thinking like a rat', *Angelaki*, 20:2 (2015), pp. 121–34.

⁶²Taylor, 'What lines, rats, and sheep can tell us', p. 31.

world of the rat, ironically it is also an assertion of commonality across rats and humans. The stripping away of worlds manufactures the idea of a common, basic condition, one rooted in animality and *zoe*, and more recently, with the mapping of the gene sequence of *rattus norvegicus* in 2004, in genomic commonality. Rats are not considered animals under US legal code, interestingly, and as such they are exempt from much of the animal welfare legal apparatus and its efforts to regulate the ethical use of non-human animal life. Lab rats are used for an incredibly wide range of experiments that are intended, ultimately, to produce knowledge for human benefit. More recently, they are also sites where they are used to generate information on the genetic modification of rats that would be used to eradicate them in the wild, such as the islands in New Zealand.⁶³

If the plague town and war are the paradigmatic cornerstones of the exterminative apparatus, the maze was one of the central spaces of the mid-twentieth-century global experimental lab rat. Instead of testing not biological and chemical elements on disposable rat bodies, following rats in the maze was a pathway to greater understanding of the processes of cognitive mapping. The maze was also a way by which emerging twentieth-century forms of urban environment came to be understood, with city streets and questions of population density. In Theo Anthony's *Rat Film*, which takes rats in Baltimore as a vehicle to ask larger questions about disposable life, race and class, and urban design in America, the synergy between humans and rats in designed spaces allows him to present, too, the ways that rat control efforts intersect racial histories of redlining and class differences in urban environments – through a simultaneous presentation of a virtual rat's-eye view of the maze and a portrayal of human residents stuck in cycles of poverty. In one striking segment of the film, he presents an engagement with John Calhoun's 1940s experiments in crowding, in which rats were placed in a confined space with all their needs met, except for space.⁶⁴ The experiments, which Calhoun repeated in many ways and forms, moved invariably to a violent threshold where the rats turned on each other (the 'behavioural sink'); the purpose was to see what the carrying capacity of the space would be, resonating with emerging ecological concerns over the carrying capacity of the planet, as well as with urban planning issues over population density.

Conclusion

In an interspecies-international framing, two developments are thought together – on the one hand, material, ecological relations that are both biological and material, and on the other, the political generation of collective difference, belonging, and violence that proceeds through semiotic means. Rather than assuming that we observe rats in nature, draw (negative) analogies to humans, and then act in response, this article suggests that political hierarchy is often imagined and practiced interspecifically – often in ways where 'species' itself (that is, being human or rat)

⁶³By the late twentieth and early twenty-first centuries, the rat gaze became more specifically aimed at genes. Here, though, the laboratory space and the ecological space are increasingly fused. The New Zealand Rat Eradication Programme is one of the many contexts pondering the use of gene-editing technologies (especially through CRISPR) either to create self-deleting organisms or to modify them in ways more suitable to contemporary planetary conditions. As COVID-19 vaccine testing has vividly shown, the lab and the world have overlapped in practice, with vaccines quickly tested in labs, but ultimately tested in real-world populations in real time. The emergence of 'kill switches' – self-destroying DNA – have been proposed for GMO crops and species that escapes their assigned confines, with the aim of both killing the organism and deleting its proprietary genetic code. Fusing with environmental arguments against pesticides, gene editing is increasingly pitched as a way to achieve ecologically desirable ends. Rats in the lab have been a standby for early trials of this, but human trials of CRISPR gene editing have recently begun to treat inherited blindness, and have potential applications to treating COVID-19. The rats on the remote islands are both lab animals, as test cases, and ecological reality, creating the conditions for a more biological politics in which biology, far from being the mechanical counterpoint to mutable human culture, itself is becoming the more mutable element.

⁶⁴Edmund Ramsden and Jon Adams, 'Escaping the laboratory: The rodent experiments of John B. Calhoun and their cultural influence', *Journal of Social History*, 42:3 (2009), pp. 761–92.

does not clearly decide who and what thrives. Instead, the article has outlined modes of interspecies security, differentiation, and violent exclusion that have emerged, and shows how they draw boundaries through species as much as between them, with a focus on ways that actual rats and human ideas about rats intersect. As such, the article showed illustratively how three such cross-cutting contexts have operated (exterminative, ecological, experimental); the kinds of rats and humanrats they have generated, and some of their political logics; and some of the intended and unintended consequences of this politico-ecological history.

The implications of this larger argument are threefold. First, it suggests the need for a contextual politics, and political analysis, which does not assume species as its key boundary marker. Second and related, it points to the ways that the disposability of certain kinds of life can be a disposition that crosses from our work with non-human communities into human ones. The questions over whose life is valuable and disposable, while rendered vividly during the COVID-19 pandemic across lines of race, class, and global standing, nonetheless precede it, as some of the connections between rats and humans explored above point to. Third, the issues raised here might be taken further by considering the potentials of other contexts in addition to the politically and ecologically violent ones considered in this article, such as rats as venerated or sacred animals; rats as domesticated pets; or approaches to multispecies living in non-Western contexts – contexts that I have not addressed here due to space constraints, though they might provide useful grounds for thinking about alternative futures. The symbolic elements of these interspecies assemblages have their own difficulties, particularly the politics of sacredness, and the dewilding of the world and increasingly imperatives for conversion into safer forms of life.⁶⁵ Yet additional contexts will also raise more clearly the possibility for newer forms of coexistence, however imperfect or flawed, and suggest different potentials for new or more imaginative approaches to the political and ecological issues raised here.

As such, these all suggest that the ‘relations’ of International Relations take place not just between human communities, nor across them, but between forms of interspecies assemblage. This is not an entirely new insight – more than three decades ago, Alfred Crosby’s *Ecological Imperialism* (1986) pointed us to the multispecies pathways of imperial expansion, as has much work since. But the pathways of interspecies relations are not simply grafted onto human projects, either amplifying their effects (in the expansion of Euro-American settler-colonial societies) or diminishing their efforts. It means that political differentiation and multiplicity is interspecific, all the way through, in ways that requires careful analysis. While we can see such operations at work in historical examples, the questions it raises for the present are deeply significant: at a moment when political humanism is itself under question, where the triumph of the power of biological humanism in the Anthropocene is frequently assumed, what kinds of planetary futures *will* be generated when we start with interspecies assemblages as the units of analysis, and what kinds *can* be generated if we take on both the humility and forms of affiliation that are required for collective flourishing?

Acknowledgements. Many of the ideas here were developed in conversation and collaboration with my colleague Radhika Subramaniam. I am deeply grateful to her for the discussions, teaching, and collective reading that informed the writing of this text. I would also like to thank the anonymous reviewers for their especially thoughtful and sustained engagements; Matthew Leep for his work organising this Special Issue and engagement with the article; and Iver Johnson and Davin Bernard for comments and research assistance.

Rafi Youatt is Associate Professor of Politics, New School for Social Research, New York, United States. He writes and teaches on critical International Relations, environmental political theory, and mobilities. His work asks how intersections

⁶⁵These are themes I have taken up in more detail elsewhere. On the problematic anti-politics of sacredness and multi-natural alternatives, see Rafi Youatt, ‘Ecologies of globalization: Mountain governance and multinatural planetary politics’, in Pereira and Saramago (eds), *Nonhuman Nature and World Politics: Theory and Practice*, pp. 73–90; on the dewilding politics and rewilding people and nature, see Rafi Youatt, *Counting Species: Biodiversity in Global Environmental Politics* (Minneapolis, MN: University of Minnesota Press, 2015), pp. 117–26, 133–7.

between international politics and ecological practices help us think differently about issues of governance, power, and sovereign territoriality. He is the author of two books, *Interspecies Politics: Nature, States, Borders* (University of Michigan Press, 2020) and *Counting Species: Biodiversity in Global Environmental Politics* (2015), and numerous articles and chapters, which have appeared in *Millennium*; *International Political Sociology*; *Environmental Values*; and *Political Research Quarterly*, among others.