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A Feminist Menagerie

Eva Giraud

Greg Hollin

Tracey Potts

Isla Forsyth

Abstract: This paper appraises the role of critical-feminist figurations within the environmental humanities, focusing on the capacity of figures to produce situated environmental knowledges and pose site-specific ethical obligations. We turn to four specific environments, the home, the skies, the seas, and the microscopic, to examine the particular work that various figures do in these contexts. We elucidate how diverse figures – ranging from companion animals to birds, undersea creatures and bugs – reflect productive traffic between longstanding concerns in feminist theory and the environmental humanities, and generate new insights related to situated knowledges, feminist care-ethics and the politics of everyday sensory encounters. We also argue, however, that certain figures have tested the limits of theoretical approaches that have emerged as the product of dialogue between feminist theory and the environmental research. In particular, we explore how certain figures have complicated ethical questions of how to intervene in broad environmental threats borne of anthropogenic activities and of who or what to include in relational ethical frameworks.

Work within the environmental humanities has long insisted that environments are more-than-human; rather than the setting or context for human activity, environments are instead seen to be dynamically composed: by a multitude of lively actors, from plants and microbes, to animals and technologies. Multispecies conceptions of environments, moreover, invoke both ontological claims about the composition of the world and epistemological claims about how environments should be perceived, which cut across nature/culture distinctions. Such claims are crystallised in Donna Haraway's assertion that: 'neither biology nor philosophy any longer supports the notion of independent organisms in environments' (2016: 33).

In situating the human as thoroughly entangled with, and hence contingent upon, the more-than-human, these conceptions of environments also – crucially – carry significant ethical implications. Thom van Dooren, for instance, argues:

> Inside rich histories of entangled becoming – without the aid of simplistic ideals like 'wilderness', 'the natural' or 'ecosystemic balance' – it is ultimately

> impossible to reach simple, black-and-white prescriptions about how ecologies 'should be'. And so we are required to take a stand for some possible worlds and not others; we are required to begin to take responsibility for the ways in which we help to tie and retie our knotted multispecies worlds…(van Dooren, 2014: 60-61)

The decentring of the human, or more importantly a humanism bound up with liberal individualism, has proven valuable for feminist projects that have sought to de-naturalise categories often used to other, marginalise and subjugate certain communities (Haraway, 1997a; Hayles, 1999; Braidotti, 2012). Due, in part, to the environmental humanities' close-knit relationship with work within feminist science studies (with theorists such as Karen Barad, Isabelle Stengers and, increasingly, Maria Puig de la Bellacasa proving influential, as well as Donna Haraway herself), multispecies environmental thinking has taken inspiration from these anti-essentialist feminist projects to support its broader shift away from anthropocentrism.

This article synthesises and elaborates work that has engaged with a specific approach – the use of figurations – that has proven valuable in fostering connections between critical-feminist concerns and more-than-human approaches to environments. Though this concept has slightly different resonances in different disciplinary contexts,[1] our focus is on the sort of figurations that act as 'material-semiotic nodes or knots in which diverse bodies and meanings co-shape one another' (Haraway, 2008: 4) and that are used to 'intervene into habitual ways of both living in and understanding the world in order to denaturalize the commonsense feel of conventions and open them up so that things may work differently' (Bastian, 2012: 37). Such figures have proven potent tools for feminist theory due to their capacity to:

> …powerfully incite an imaginative political space, while at the same time refusing to be cast as mere metaphor. Each is fraught with tensions and dangers, and rooted in the sweaty work of real life, which serves to resist the overdetermination of the figuration as a utopian ideal (Neimanis, 2013: 26)

The titular Oncomouse™ of Haraway's *Modest Witness*, for instance, is a particular evocative figure in ethical terms. Oncomice were genetically modified in order to be especially susceptible to cancer, thus optimising their usefulness as research-subjects. As Haraway describes:

> OncoMouse™ is a transgenic animal whose scene of evolution is the laboratory. Inhabiting the nature of no nature, OncoMouse™'s natural habitat is the fully artifactual space of technoscience. Symbolically and materially, OncoMouse™ is where the categories of nature and culture implode for members of technoscientific cultures. (Haraway 1997: 273)

These animals, therefore, embodied a material-semiotic collapse between the human and the more-than-human, the natural and the manufactured, which was reflected not just in their trademarked name but physical body. A close focus on Oncomouse™ thus offers a means of denaturalising particular relations and ways of seeing, opening space to ask ethical questions that have long been pivotal to feminist science studies, such as who benefits from these particular configurations and whether the particular world brought into being by them could be 'otherwise' (e.g. Star, 1991; Mol, 1999, 2002).

Though figures were originally commonly associated with emerging technologies, as with Oncomouse™ or – most famously – Haraway's cyborg, more recently a host of new figures have emerged and served to draw insights from feminist science studies into dialogue with environmental studies. Such figures, we argue here, are increasingly assuming a paradigmatic role in the environmental humanities. The purpose of this article is to gather together some particularly lively figures who have emerged from this dialogue, and proven valuable for challenging humanist values whilst confronting pressing ecological issues. In bringing these figures together we aim to both delineate patterns in terms of how they are being engaged with and – crucially – to draw out the ethico-political significance of these engagements. Figurations are, however, resistant to generalisations due to their situatedness (indeed, they are explicitly designed to avoid the totalising, bird's eye appearance of neutrality in theory-building that is so closely linked to humanist positivism). Rather than attempting a blanket overview of what figures do in general, therefore, we focus here on some especially evocative settings where figurations have been mobilised, exploring the exact work particular figures are doing in four specific sites: Under the roof, under the sky, under the sea and under the microscope.

As Steve Hinchliffe suggests, *where* species meet is as important as when and how; a spatial focus can open questions 'as mundane as where things happen and as complex as how spaces are made as species meet, and as tricky as trying to think about more than one meeting and more than one companion species' (2010: 34). Animal and more-than-human geographers

have argued, moreover, that the spaces which are bound up with particular encounters carry critical-ethical implications (e.g. Philo and Wilbert, 2000). Work focused on the histories of cattle-markets (Philo, 1995), meat-processing (Shukin, 2009) or animal laboratories (Birke, 2012), for instance, elucidates how shifting spatial arrangements can foreground certain obligations between species and foreclose others. On a fundamental level, then, a spatial emphasis draws attention to 'how different human material and semiotic constructions and orderings of space/place create differential conditions for moral behaviour and social/ethical practice with respect to non-humans' (Buller, 2015: 424). Yet beyond these explicit connections between ethics and space, an increasing body of work has pursued a more explicit ethical agenda oriented around questions of intervention (e.g. Gillespie and Collard, 2015; Bastian et al, 2017). A focus on particular spaces, from this perspective, is important in critical-ethical terms, by posing questions about 'the ways in which we can intervene at various locations to make for better meetings' (Hinchliffe, 2010: 35).

Placing figures, therefore, is essential in grasping the sort of ethical obligations that they pose. Whilst it is important to acknowledge that no environment is truly discreet and disentangled from other spaces, it is nonetheless vital to situate figures within the particular entanglements that compose particular sites. Our close focus on the work of figures in four diverse settings illustrates the importance that figures have had for enriching connections between critical-feminist work and multispecies environments. In drawing together the specific ethical questions posed by particular environments, however, we also push for work that engages with environmental figures to move beyond the narration of entangled relations to instead ask more sustained questions about the kinds of obligations that particular figures pose and how interventions can be conceived of or enacted. The figures we corral here, for instance, work to produce situated knowledges about environmental concerns; give rise to new understandings of care-ethics; and draw attention to the politics of the everyday (in particular the under-emphasised role of sensory encounters). Yet figures also test the limits of theoretical approaches that have arisen within dialogues between feminist approaches and the environmental humanities, particularly when it comes to questions of how to intervene in broad environmental threats borne of anthropogenic activities and of who or what to include in relational ethical frameworks.

In developing these arguments we begin by turning to Haraway, as the most prominent and influential theorist who has engaged with figures, by understanding the significance of her focus on everyday domestic relations. In addition to attending to some of the specific means

through which a domestic emphasis has expanded the environmental currency of figures, we also begin to complicate the relational modes of ethics that grew to prominence in theories of companion species. We then look to the skies to explore how particular figures, birds, have offered a means of connecting psycho-social experiences to environmental concerns. What is distinct about human-bird encounters, we suggest, is their aural dimension, which offers a means of challenging anthropocentrism by fostering attentiveness to different sensory environments. This capacity of figures to denaturalise humanist conceit is continued in the subsequent discussion of marine life, where we examine how sea creatures have been used as markers of the consequences of human activities on multispecies ecologies. Sea life also, however, poses more complex questions about capacity of relational ethics to grapple with the less 'innocent' side of trans-species relations, a theme we take up in more depth in our final discussion of how bugs – from cockroaches to snails – have offered provocations and challenges to conceptual approaches that have been borne from dialogues between critical-feminist work and the environmental humanities.

Under the roof

For all the potency of figures such as Oncomouse™, it was in the turn to the domestic that the critical-feminist concerns of figurations gathered trans-disciplinary momentum, especially across animal studies (e.g. DeKoven and Lundblad, 2011), more-than-human geographies (Lorimer and Davies, 2010; Wilson et al, 2011) and the environmental humanities (van Dooren, Kirksey and Münster, 2016). Despite being designed to undermine narratives of human exceptionalism, Haraway's cyborg ultimately proved possible to 'domesticate' by a transhumanist agenda, which valorised the use of technology to extend human capacities.[2] In contrast with the cyborg, Haraway was able to offer what she describes as a more 'rambunctious' site for troubling human exceptionalism through turning to the intimate relations of the home (2008: 16).

In focusing on companion species Haraway was able to characterise the boundaries between human and nonhuman as being decidedly porous. This porousness, however, was not situated as the product of recent technoscientific advances, or conceptual shifts towards posthumanism, but was characterised as a material, everyday phenomenon. Relations with companion species underpin Haraway's often-cited ontological claim that 'to be one is always to become with many' (2008: 4), and she uses these figures to queer boundaries between human and more-than-human in the most everyday of contexts. Through deliberately

provocative accounts of saliva exchange with one of her dogs, for instance, she describes how Cayenne's 'red merle Australian Shepherd's quick and lithe tongue has swabbed the tissues of my tonsils' and given rise to all manner of microbial exchange (2008: 16). Human relations with dogs are thus depicted not just as the product of long histories of patterned human-wolf interaction that have profoundly shaped each partner, but as illustrative of on-going co-shaping relations the most everyday domestic encounters.

The politico-ethical stakes of this focus on the domestic are made explicit in Haraway's wariness of Deleuze and Guattari. As she notes, talk of 'becoming-animal' within *A Thousand Plateaus* is marked by its 'scorn' for domesticity:

> All worthy animals are a pack; all the rest are either pets of the bourgeoisie or state animals symbolising some kind of divine myth. The pack, or pure-affect animals, are intensive, not extensive, molecular and exceptional, not petty and molar – sublime wolf-packs, in short. I don't think it needs comment that we will learn nothing about actual wolves in all of this. (2008: 29)

Rather than dismiss domestic animals as the object of human sentimentality, Haraway instead asks what forms of everyday world-making can be found within the trans-species relations of the home. Indeed she argues that domestic encounters can be just as 'troubling' to human exceptionalism as wolf packs, if not more so, as in the home trans-species boundary dissolution is not the exception but the norm.

Companion species also tie together the different ecological scales described in Guattari's *Three Ecologies* (and taken up in turn by Stengers): everyday domestic relations are only rendered possible by the commodity chains and institutional arrangements of the contemporary pet industry, and the broader environmental rhythms that have historically thrown humans and animals together in unexpected ways. However, Haraway ultimately resists using individual animals as a springboard for philosophical speculation about how to intervene in these ecologies;[3] instead her focus is on the production of a specific form of situated knowledge, which emphasises the role of the body. Acts such as dog agility training, for instance, are not seen as the trainer imposing their will on an easily malleable animal; rather, to put things in Vinciane Despret's terms (2004, 2016), the ability to perform certain tasks is the product of animals 'rendering-capable' their human partners and can only arise after a long process of bodily attunement and mutual learning (e.g. McDonald, 2014). Attending to the specificities of somatic engagements with animals, moreover, is seen not just

to produce situated knowledge but situated forms of care, which go beyond the limitations of pre-defined cultural, moral or even legislative norms about how animals should be treated to instead foster on-going, felt obligations between species (Haraway, 2008: 69-94; see also Despret, 2004, 2013; Greenhough and Roe, 2011; Latimer and Miele, 2013).

This mode of situated, relational ethics has become paradigmatic for animal studies and the environmental humanities (van Dooren, 2014b; Lorimer, 2015), but has not gone without criticism. Cases such as exotic pets pose especially difficult questions by illustrating how domestic encounters can be intimately entangled with acts of violence. As Rosemary Collard argues: 'An essential part of forming animals' commodity lives in global live wildlife trade is that their wild lives are "taken apart" in that they are disentangled from their previous behaviors and ecological, familial, and social networks' (2014: 153). Echoing the core tenets of companion species, Collard suggests that appealing to essentialist categories such as 'wildness' are of limited help in contesting processes of commodification. In addition to legitimising a number of 'misanthropic' rehabilitation practices, which 're-wild' animals through generating 'fear and distrust, even hatred, of humans' (160), such categories reinforce human exceptionalism by perpetuating nature/culture binaries and bolstering humans' status as privileged saviours. Yet, as Collard goes on to argue, while essentialism might not be helpful, uncritically valorising all forms of 'becoming-with' could pose a still greater threat, due to the violence inherent in making certain creatures 'encounter-able'.

Though the transnational wildlife trade might seem an extreme case, work focused on puppy mills (Cudworth, 2016) or the complex issues raised by animal hoarding (Holmberg, 2015) have offered a reminder that coercive or violent practices are not at the margins of but integral to the contemporary pet industry. Critical narratives of domestication thus foreground the danger that certain encounters, figures, or entanglements can ultimately celebrate domination, and reiterate a need to attend to the longer histories and contexts that frame these relations (see also Collard, 2012; Giraud and Hollin, 2016; Nelson, 2017). Indeed Collard emphasises the importance of one of the core refrains of feminist science studies for apprehending multispecies environments: Susan Leigh Star's (1991) question of who benefits from particular relations, and is not alone in emphasising the importance of this point (e.g. Kirksey and Helmreich, 2010: 545-546). Indeed questions of who benefits have become increasingly urgent; feminist theorists stemming from critical animal studies, for instance, have argued that while the relational ethics of companion species have been important in unsettling anthropocentric norms, in doing so they undermine frameworks that have

conventionally offered a defence against the sort of violent practices described by Collard and others (Adams, 2006; Weisberg, 2009; Pedersen, 2011).

The discomfiting side of domestication thus poses some difficult questions about relational ethics; at present, though there is recognition that no form of relation is 'innocent', this rarely goes beyond an acknowledgement of this fact and further work is needed to flesh out the more violent (van Dooren, 2014) and instrumental (Giraud and Hollin, 2016) dimensions of companion species in order to fully meet the demands of Star's question. These questions of ethics are still more troubling, when moving from the home to the skies.

Under the sky

It is safe to say that birds are in the air right now. From the 'soaring triumph' of Helen MacDonald's (2015) prize winning *H is For Hawk* to the wider publishing phenomenon that has been termed the 'new nature writing' (Moran, 2014), not to mention the latest news of their superior brains (Hance, 2016), birds have stories to tell (Lutwack, 1994). The content of these stories, however, is diverse: as reflected by theoretical engagements with pigeons, which have figured them as everything from symbols of extinction to archetypal "trash animals" (Nagy and Johnson, 2013).

The story of Martha, the last Passenger Pigeon, for instance, stands as a cautionary tale: of how to shut down any more expansive conversation that might be had about environmental impact by focusing on individualised, *zoologically* focused creatures. Martha's celebrity status whilst she was alive, her preservation as an anatomical sample, and recent digitisation as a 3D virtual specimen, have elevated her to iconic status and 'treasured possession' of the Smithsonian. Martha's life (and afterlife), however, bears little resemblance to a time when passenger pigeons moved 'through the sky in flocks of hundreds of millions of birds that blocked out the sun' (2014: 11). Her latest treatment bodes still less well: Martha and her species have been selected as likely candidates for de-extinction (Long Now Foundation, n.d.), along with a number of other 'flagship' animals heralded as beacons of hope and antidotes to 'the harm that humans have caused in the past' in order to support rewilding, habitat protection and the establishment of ecological corridors and wildways (Brand, 2013). The politics surrounding de-extinction, however, are fraught (Friese and Marris, 2014) and run the risk of placing hope in what Haraway describes as a 'comic faith in technofixes',

betraying an imaginary that 'technology will somehow come to the rescue of its naughty but very clever children' (2016: 3).

Haraway's own engagements with pigeons have a decidedly more everyday focus. Her urban pigeons lie in marked contrast to the treatment of these birds within de-extinction (or indeed techno-Darwinian) narratives; as her initial companions in *Staying with the Trouble* she notes the ways that pigeons 'nurture the kind of trouble important to [her]'. From being abjected as 'rats with wings' to working as spies delivering messages in times of war to serving as pie ingredients and experimental subjects in psychologists' labs, the 'worlding' of pigeons is 'expansive' (2016: 16). Flying with pigeons promises, then, promises an opportunity to trace bird-human relations across 'class, gender, race, nation, colony, postcolony, and – just maybe – recuperating terra-yet-to-come' (2016: 15).

Birds have been central to recent work that has argued for the ethics of storytelling (van Dooren, 2014). Refusing to shy away from what appears statistically as 'Earth's sixth mass extinction event' (2014: 5), van Dooren, for instance, sets his exploration against 'the shadow of this incredible loss' (6) and tells five distinct stories involving albatrosses, vultures, penguins, crows, and whooping cranes. Two methodological moves are central here: establishing the importance of narrative and deploying anthropological thick description. 'Good stories make us care' (2014: 10), as does the provision of detail and nuance. Events on the 'dull edge of extinction' such as the snagging of albatrosses in plastic waste and penguins in the protracted drama of coastal erosion take seriously Haraway's call to 'situated knowledge', with each case evidencing the claim that there is 'no single extinction phenomenon' (2014: 7). Bird extinction stories, therefore, move beyond positivist 'black and white portrayals', which construe species as *specimens* and reduces debate to bland considerations of biodiversity.

Yet what distinguishes bird stories both from broader extinction narratives and from accounts of more homely or everyday trans-species encounters, we suggest, is their capacity to make environments, and environmental change, *audible*. Birds are especially valuable figures for moving beyond liberal-humanist valorisations of the unmarked, god-like gaze (Haraway, 1991, 1997; Harding, 2004), through their song fostering what Despret (2014) terms 'partial connections' with alternative sensory worlds; connections that draw attention to particular ethical obligations and entanglements.

These themes have been popularised in the new nature writing where, reversing the bird watcher's fixation on the rare and exotic, authors have trained their attentions on ordinary birds and mundane landscapes (Moran, 2014). Kathleen Jamie's observations typify these concerns:

> Between the laundry and the fetching the kids from school, that's how birds enter my life…. I listen. During a lull in the traffic, oyster catchers; in the school playground, sparrows. (Jamie, 2005, cited in Moran, 2014: 56)

Common bird futures, together with seemingly nondescript landscapes, are, nevertheless, yoked to human fates. McDonald's 'sulky, fractious' (2015: 23) goshawk is companion to her grief over the loss of her father. For Amy Liptrot (2016) corncrakes appear, likewise, as a kind of avian nature-cure (echoing Jamie Lorimer's account of their distinct 'nonhuman charisma'; 2007, 2015). These concerns feed back into central preoccupations of the environmental humanities; Eduardo Kohn, for instance, overcomes his personal anxiety and disconnection from the environment by 'reground[ing] his thoughts' through birdwatching (2013: 57).

Far from being a matter of individual psychodrama, narratives of individual engagements with birds and their song inform what Andrew Whitehouse terms 'the *anxious semiotics* of the anthropocene' (2015: 53). By exploring the relationship between bird song and ecological change Whitehouse hopes to discern the extent to which 'humans have influenced the mix of sounds'. If the Anthropocene can be detected through geological markers and stratigraphic signals, then, it stands a chance that anthropogenic activity registers an acoustic trace. Following Bernie Krause's thesis about the sonic ecology of species in *The Great Animal Orchestra* (2013), Whitehouse argues that humans 'are drowning out the sounds of other species' (2015: 57). Where once birds found and made their place sonically, territorialising through making sounds, anthrophony (the sonic epoch of humans) fuzzes things up, eroding and flattening place in the process. These narratives belie a long fascination with birdsong (e.g. White, 1977 [1789]), wherein birds have announced the dawn, heralded the changing of the seasons, sounded warnings and marked territory. In recent years, it is their silence, conversely, that warns of environmental damage: typified, more often than not, as the portentous hush captured in Rachel Carson's *Silent Spring* (2000 [1962]).

The aural engagements that distinguish human-bird encounters offer especially fertile grounds for generating the sort of interest that, in Despret's terms, can support an 'embodied empathy' that refuses anthropomorphism to instead 'recreate the peculiar world in which [a particular] animal lives and suffers' (2014: 70). As Lorimer describes in his ethnography of corncrake counting, for instance, the birds' charisma is closely bound up with the call that both inspired their name (*Crex crex*) and has been generative of the affective engagement, and even love, for the birds that runs through the work of conservationists. In their capacity to fill the air with noise, fluttering wings and birdsong, birds can foster attunements between unlike (but nonetheless shared) worlds. The aural dimension of human-bird encounters, moreover, sharpens the focus on the sort of productive *conceptual* encounters that can occur with the traffic between feminist concerns with situated knowledge, and situated care ethics, and the modes of 'attentiveness' that have been called for in the environmental humanities (Hinchliffe, 2010; van Dooren, Kirksey and Münster, 2016). These sorts of context-specific ethical obligations are also evident in other sites, as becomes apparent when shifting the focus from the skies to the waters; seas, however, reveal a slightly different set of difficulties regarding how to actually respond to these obligations.

Under the sea

Oceans, in their unpredictability and sheer scale, offer an especially troubling space for species to 'meet and mingle' (Greenhough, 2012). First, the humble scallop became famed for its capacity to manifest agency in ways that transformed vast fishery assemblages (Callon, 1984). Since then, other alien species that lend themselves to critical-feminist attempts to unsettle the anthropocentric gaze – from brittlestars to cup corals – have emerged from the depths to offer new ways of touching and seeing (Barad, 2007; Hayward, 2012). Vast currents cut across time-zones and national boundaries, carrying ancient turtles that challenge anthropocentric temporalities (Bastian, 2012), while washing other – less charismatic – or even "invasive" species ashore (Clark, 2015). This section, therefore, focuses on some of the more profound ethico-political challenges offered by sea creatures, in their capacity to trouble anthropocentric spatial and temporal frames.

Academic concern with what travels through or lies beneath the seas reflects these creatures' dual capacity to mask and reveal. The sea offers a dumping ground for waste that can be removed from human sight, even as it profoundly changes the ways of living that are possible

for other creatures. Nixon's concept of (2011) 'slow violence', for instance, is especially applicable to the invisible threats posed by the ingestion of seaborne microplastics, or when oceans are used as a sink for nuclear waste. At the same time, the seas offer clear markers of human impact on more-than-human worlds, such as the melting ice floes and dying coral that signify anthropogenic climate change. As Haraway argues:

> Warming and acidification are known stressors that bleach and kill coral reefs, killing the photosynthesising zooanthellae and so ultimately their cnidarian symbionts and all of the other critters belonging to the myriad taxa whose worlding depends on intact reef systems. (Haraway, 2016: 56)

Given the seas' ambivalent qualities it is perhaps unsurprising that in *Staying with the Trouble* Haraway turns to the depths, offering 'Chthulucene' as an alternative label to the Anthropocene. The Chthulucene is inhabited by creatures who are the inverse of H.P. Lovecraft's Chthlhu[4] 'who lived ages before there were any men, and who came to the young world out of the sky' (2009 [1928]); though similarly tentacular, the 'octopuses, squids and cuttlefish' Haraway draws upon come from the waters rather than the skies and offer a decidedly un-godlike perspective (57). Like corals, these creatures' distinct ecologies betray the effects of environmental toxicity but at the same time they offer alternative temporalities and work across scales that unsettle anthropocentric perspectives.

Haraway's focus on sea creatures accords with earlier work that has elucidated how figures such as whales (Blok, 2011), lionfish (Moore, 2012) or even algae (Helmreich, 2005) confound normative ethico-political responses through their capacities to travel across vast distances, traverse national boundaries, and operate along time-scales that make little sense from an anthropocentric perspective. Michelle Bastian, for instance, foregrounds the different temporal horizons that come into view when focusing on the life-cycle of leatherback turtles, from climate change being rendered-visible in its disruption of slow turtle rhythms to the 'frustratingly slow time of human efforts to respond to recognized environmental threats' (2012: 44). The immediate needs of fishing communities – and resultant slow pace of change – for instance, might clash with conservationists' demands for swift intervention, with consequences that can be measured through the way that leatherback migration patterns (which themselves stretch over millennia) are disrupted. Fostering 'attentiveness' to both turtles themselves and turtle-human relations, Bastian argues, reveals how different species operate along entirely different – perhaps incommensurable – timescales and 'foregrounds

the inherent difficulties of coordination in a complex multi-species world, rather than hiding such work under the cover of a "universal" time' (45). It is, however, not enough to simply recognise temporal contradictions; attentiveness to turtles also foregrounds the necessity of undertaking the difficult task of coordinating responses across different time-scales in order to conserve fragile ecologies.

Ocean currents thus create environments that demand material responses and decisions about which ways of living and dying are enabled to flourish, as with Jonathan L. Clark's (2015) account of how certain species can become labelled 'invasive' and thus 'killable' without ethical reflection as they are washed ashore at the 'wrong' place. His exploration of how conservationists dealt with species who had been washed onto the Oregon coast from Japan after the 2011 tsunami, for instance, raises some especially thorny problems not just for conservation but for more-than-human ethics. The storm had carried a number of species – from seaweeds and mussels to crabs and seastars – onto the shore, leading to questions about how to manage these 'out-of-place' creatures. Conversations about appropriate responses to these 'uncharismatic invasives', however, were not characterised by straight-forward biopolitical management regimes, wherein native and non-native species or benign and 'harmful' creatures were separated and dealt with accordingly; instead it was the recognition of species entanglement that ultimately shaped conservation practice:

> Given how tangled together the organisms were, and given the small size of many of them, separating them by species would have been challenging […] For purposes of management, they lumped all of the organisms together as an undifferentiated ecological threat, and they set out to kill them all. (Clark, 2015: 33)

Though, in the case of companion species and even birds, the recognition of multispecies entanglement has been seen as opening particular ethical obligations, here it worked to foreclose these obligations.

Elizabeth Johnson (2015) provides still further ethical complication in turning to lobsters, but this time not in their ocean habitat (where they engage in deadly games of 'lock-claw') but in the laboratory environment. Crustaceans are frequent experimental partners due to their exclusion from legislation (linked perhaps with a lack of 'charisma' shared by the sea creatures described by Clark) and Johnson draws on one particular lobster to both elucidate the value of relational ethics and foreground its limitations for wholly overcoming

anthropocentism. This lobster is an especially lively actor who disrupts an experiment, and Johnson suggests that close attention to and recognition of lobster agency (in the manner called for by theories of companion species) holds potential to 'foster sensitivity to lively research subjects and experimental apparatuses'. In this particular experiment, however, lobster agency was only momentary as ultimately the 'usual tropes of anthropogenesis dominated the narrative of the experiment' (2015:10). In this instance, therefore, the recognition of more-than-human agency offered a momentary move beyond anthropocentric knowledge-politics, but this move was not sustained and did not fundamentally trouble the routine practices that render lobsters 'killable'.

In their murky depths and capacity to render all manner of things invisible oceans thus offer distinct sites of trouble, but also the possibilities of 'more modest possibilities of partial recuperation and getting on together' that Haraway has called for most recently (2016: 10), due to the inspiration that figures such as brittlestars, turtles and cephalopods offer for decentring the human. Like birds, sea creatures offer valuable figures for situated knowledge – which refuses to impose abstract ethical frameworks – by foregrounding specific entanglements between human and more-than-human worlds, and the stark consequences for particular encounters to entirely undo certain forms of life. In their murkiness and potential to yield surprises, however, oceans also trouble situated, relational ethics, especially when it comes to intervening in relations that pose broad threats to vulnerable bodies and ecologies. Indeed oceans even test the boundaries of what 'counts' as a situation, the terrestrial turtle for instance is emplaced more easily than those who travel on ocean currents; yet though sea creatures might be troubling, the still more slippery creatures that we turn to next stretch conceptual boundaries to their limits.

Under the microscope

They are sticky or slimy or armoured and have too many, or too few, legs. If they are big enough to be seen at all we see them only out of the corner of our eyes, scuttling into dark and damp recesses and taking delight in decay. The motley crew of creatures assembled in this section – a clumsy gathering of insects, spiders, microbes, and slugs which we'll refer to as 'bugs'[5] - are strange in ways unparalleled by the critters inhabiting the rest of this paper. The title of Stefan Helmreich's book *Alien Ocean* is telling in this regard – the microbes at the centre of his fieldwork are used by scientists as models for life on other planets (Helmreich 2003; Helmreich 2009; Paxson & Helmreich 2013).

Though not all bugs are quite as alien as those described by Helmreich, the profound otherness of these 'awkward creatures' (Ginn et al. 2014) nonetheless means that they are, more often than not, neglected during both conservation work (Lorimer 2006) and scholarly endeavour (O'Malley & Dupré 2007) and, as Gregor Samsa found to his peril, on the occasions when bugs do possess some form of nonhuman charisma (e.g. Lorimer 2015: 167) disgust and fear tend to be the dominant form of affective response. Nonetheless, this otherness means that, when dwelt upon, bugs offer up a number of profound opportunities and challenges for the more-than-human and feminist technoscientific projects considered in this article. It is the goal of this section to outline some of the 'perils and promises' (Paxson & Helmreich 2013) of thinking with bugs.

In a sense, both the promise and the peril of bugs is captured by Ginn et al. when they note that these creatures 'tend not to fit off-the-shelf ethics' (2014: 113). Given that more-than-human researchers have long expressed a dislike for ethical principles emerging from abstract philosophical enquiry (Haraway, 2008, 2016; Stengers, 2010, 2011), bugs which resist totalizing endeavours – or challenge predetermined assumptions – make particularly useful figurations. It may well be 'easier' (Greenhough & Roe 2011: 62) to take an approach which involves thinking with nonhumans that are 'big like us' (Hird 2009: 21) but by focusing on charismatic megafauna there is an obvious risk that we see humans staring back at us (Kenney & Müller 2016) and develop an anthropocentric non-anthropocentric theory. The capacity of the otherness of bugs to unsettle assumptions is demonstrated by Astrid Schrader who recounts a seminar in which she gave students images from Hugh Raffles' book *Insectopedia* (2011). These images featured deformed leaf bugs around Chernobyl and Schrader found that many of her students were simply unable to care about these deformities:

> Who cares about bugs? Especially in the face of the human tragedy unfolding in the aftermath of the Chernobyl disaster and the horrific health effects (e.g. thyroid cancer) that long-term radiation exposure has on humans? (Schrader 2015: 667)

Drawing attention to deformed insects in the wake of a nuclear accident unsettles conversations about inclusivity and care and encourages Schrader to rearticulate the feminist ethics (Martin et al. 2015; Puig de la Bellacasa 2011) within which she situates her work.

As a second side to this same coin, however, is that thinking with bugs sometimes challenges orthodox more-than-human thinking in profound ways. The concluding part of this section will

focus upon two such challenges – the first to the role of relations, the second to the role of the body.

First, the role of relations. It is well recognised (e.g. Giraud, forthcoming) that a central feature of the feminist technoscience and more-than-human literature is the embrace and valorisation of relationality (e.g. Barad 2007). Bugs, of course, are also in-relation and have not escaped such as analyses (Haraway 2004: 146-148; Haraway 2008: 3-4; Latour 1988) but, as Franklin Ginn has noted, the:

> ...vitalist emphasis on gathering together and relationality leaves little "room for the radical otherness of the other," or anything that might question the desirability of being attached (Ginn 2014: 540).

And few animals lead us to question the desirability of being attached as often as bugs: these relations are often 'less cosy' (Beisel 2010: 46) and end in more-or-less systemic slaughter of one or more parties. Fish-killing microorganisms which (allegedly) flourish in the 'untreated hog waste' flushed into North Carolina's estuaries (Schrader 2010), mosquitoes carrying malaria causing parasites (Beisel 2010), microbes in food which cause ill health (Paxson 2008), and slugs which munch the their way through prize gardens (Ginn 2014) all, in profoundly different ways, encourage us to question relationality and its inherent virtue. While similar points have, of course, been made when non-bugs have been considered (van Dooren 2016: 43; Collard, 2012) these encounters repeatedly make us think about the often chronically undervalued importance of distance and detachment in more-than-human ethics.

Second, the role of the body. More-than-human scholars have consistently emphasised that it is during the encounter between bodies that 'partial affinities' are fostered and the ethical and epistemic possibilities inherent in their approach are realised (Despret 2004; Despret 2013; Greenhough & Roe 2011; Lorimer 2007). We could phrase this differently and say that, for more-than-human scholars, there appears to be a latent revolutionary potential in the fleshy, anatamo-politics of individual bodies which is missing from the remote, statistically oriented, biopolitics of the population (Foucault 1997: 242-243). If bodily interactions are indeed insisted upon as a starting point for radical forms of epistemics and ethics, then it is quite difficult to see where bugs fit in. A good number of bugs are entirely inaccessible to our senses but, for those that do draw attention, our engagements are often fundamentally shaped by bugs' multitudinous nature. They are abundant (Paxson & Helmreich 2013), a swarm (Helmreich 2010), and it is bugs' partial affinities with *societies*, not individuals, which has been most

readily apparent to scholars (Rodgers 2012; Sleigh 2007). To atomize these bugs, to deprive them of their fundamentally social nature, seems somehow misguided. Our inter/intra actions with bugs are 'often not a one-to-one but a one-to-many encounter' (Beisel 2010: 47) and we are forced to engage with what Paxson (2008) has quite aptly referred to as a 'microbiopolitics'. To truly think with the otherness of bugs, thinking with the many will need to be a foundational step.

Conclusion

> 'Human' requires an extraordinary congeries of partners. Humans, wherever you track them, are products of situated relationalities with organisms, tools, much else. We are quite a crowd, at all of our temporalities and materialities (which don't appear as containers for each other but as co-constituting verbs), including that of earth history and evolution. How many species are in the genus Homo now? Lots. (Haraway, 2006: 146)

Haraway's assertions that to be human is to 'become with' a whole host of other organisms – from domestic animals to intestinal microbes – has become a key tenet of work that has emphasised the more-than-human nature of environments. The figures whom we have herded together here, from the home, skies, waters and under the microscope, into a feminist menagerie, can be seen to do significant work in figuring not only particular entanglements between worlds but between longstanding feminist concerns and environmental politics, especially when it comes to the project of radically decentring the human to instead produce grounded, situated environmental knowledges.

More than a collection of zoological curiosities or specimens, our selection of figures fray and knot the boundaries between human/animal, nature/culture, organism/environment (crucially, moving decisively away from what Gregory Bateson (1972) would criticise as organism *plus* environment). Figures are, however, specific in the entanglements they trace; different figures thus have very different ethico-political implications. Branching out from creatures in the home and the domestic environment, to those connecting mental and ecological spheres, to alien critters who unsettle anthropocentric conceptions of space, time, and – of course – ethics, the figurations gathered here help to elaborate and articulate the particular interdependencies of ecological communities, biomes and species. Though here we have focused on animal figures, this is not to suggest that environmental figurations are limited to this domain, as evidenced by

the recent conceptual emphasis on plants, such as Anna Tsing's (2016) focus on *matsutake* mushrooms as an instance of how life can flourish amidst industrial ruins.

Indeed, figures' capacities to reveal the varied implications of different configurations of 'becoming with' is precisely where their conceptual power lies; as Jamie Lorimer notes, it is now commonplace to debunk essentialist narratives by pointing to the hybrid composition of naturecultures. Such a move, he continues, is important in challenging the authority of essentialist modes of humanist thought and action, and yet: 'Diagnoses of hybridity swiftly become banal' (2015: 25). It is important, we suggest, that narratives of entanglement do not fall into a similar trap;; there is a danger, in other words, if anti-essentialist politics begins and ends with the recognition of entanglement, rather than thinking through the ethical obligations that particular entanglements pose and – crucially – how to begin meeting these obligations. Maintaining critical-feminist commitments to care politics and situated-responsibility is, we suggest, vital in order to resist simply describing the way environments are more-than-human or acknowledging the ruins wrought by anthropogenic activities. Keeping these politico-ethical concerns to the fore, in other words, is essential in remaining open to the obligations posed by particular environments when anthropocentric modes of thought and action threaten to fundamentally and irrevocably 'untie' particular more-than-human worlds.

In turning our attention to figures in four distinct contexts we have aimed, therefore, not just to foreground engaging accounts of particular entanglements, but to highlight the specific ethical questions that are generated by these environments. Yet, though heavily indebted to feminist thought, such an expansive menagerie also poses problems for some of the most prominent ways that more-than-human and critical-feminist approaches have come together, particularly the dominant theoretical approaches that have emerged through these conceptual encounters. If off-the-peg ethical frameworks are found wanting, figures in all of their glorious, strange specificity, also demand an altogether more fleshly consideration than references to non-innocence and 'staying with the trouble'. Just as it is important to move beyond the recognition of entanglement to ask what obligations particular entanglements pose, it is also vital to flesh out the dangers associated with particular figurations. We *are* certainly quite a crowd, but the ways in which we meet as particular species, and how these entanglements mesh with non-anthropocentric thought, deserve still further figuration.

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[1] For uses of figurations for other purposes, see Couldry and Hepp (2016)
[2] The reference to the 'domestication' of Haraway's cyborg was made by Moore (2016).
[3] An accusation Haraway levels at Derrida, arguing that he 'failed a simple obligation of companion species; he did not become curious about what the cat might actually be doing, feeling, thinking, or perhaps making available to him in looking back at him that morning' (2008: 20).
[4] Haraway explicitly notes the difference in spelling between her Chthulu and Lovecraft's.
[5] The term 'bug' is used here for two reasons. Firstly 'bug' formally denotes an insect of the order *Hemiptera* ('true bugs') it is also 'applied loosely to... any insect or small animal' (*The Chambers Dictionary, 9th ed.)*. Secondly, the 'small animals' covered by the 'bug' umbrella go beyond insects to include microbes, nematodes and so forth – think of the phrase 'I've got a stomach bug'. It is the informal, inclusive, sense of the term which is used here.