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Feral Atlas and the More-than-Human Anthropocene

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***Feral Atlas* and the More-than-Human Anthropocene**

Anna L. Tsing, Jennifer Deger,
Alder Keleman Saxena and Feifei Zhou



Acceleration, artwork by Feifei Zhou

An atlas is more than a collection of maps. It is a compendium of vantage points, an iterative instruction manual that teaches us how to look at landscapes. Map by map by map. *Feral Atlas* curates a series of 79 field reports from the Anthropocene with just such an aim in mind. Taken together, the reports within *Feral Atlas* present a distinctive reorientation towards seeing, knowing—and, we hope, further attending to—the proliferating environmental challenges of our times. Offering a variety of intimate and expansive glimpses of the material processes through which environments are being profoundly and often irrevocably transformed, *Feral Atlas* demonstrates the impossibility, indeed the plain wrong-headedness, of presuming to impose a singular, systematizing perspective on Anthropocene environments. In doing so, *Feral Atlas* stretches the genre of atlas and, indeed, what counts as a map. What follows is a series of signposts towards key ideas that inform *Feral Atlas* and its curatorial ethos, intended to help users to recognize this diverse collection as an atlas—and, more particularly, as an Anthropocene atlas.

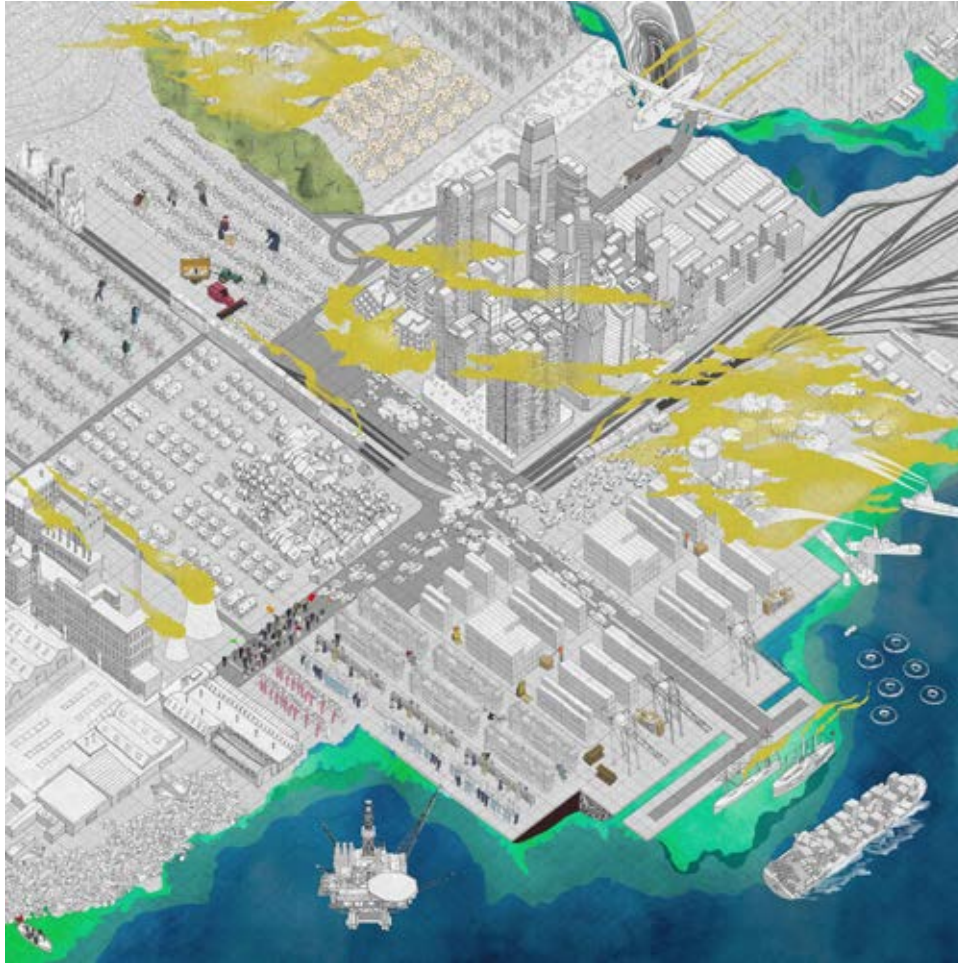
Feral Atlas mobilizes an intellectual commons, that is, a set of approaches to the Anthropocene in which heterogeneity and open-endedness are essential characteristics. This commons is neither bounded nor exclusive; differences—across continents and regions, across disciplines, across ontologies, and across forms of access and privilege—are key. And yet, taken together, the reports and stories in *Feral Atlas* urge a collective shift in how we make sense of the world. Through juxtaposing varied genres and perspectives, the Atlas encourages users to themselves participate in thinking together about the urgent problems of our times.

For scholars and public thinkers, *Feral Atlas* develops a distinctive approach for transdisciplinary study of the Anthropocene that sticks closely to evidence while also addressing wide-ranging social issues. The following is a list of elements of this approach. Our list also clarifies the atlas's key features, bringing together material introduced elsewhere on this site and raising additional issues. The editors hope this approach will inspire continuing research, discussion, and action regarding the more-than-human Anthropocene

Treat the Anthropocene as patchy

Feral Atlas argues that study of the Anthropocene should offer spatial as well as temporal analysis. Rather than an undifferentiated earth-wide effect, the Anthropocene is made in nonhuman responses to imperial and industrial infrastructure, which is distributed unevenly across the earth. Even carbon dioxide, distributed across the atmosphere, has a patchy distribution, created from the concentration of fossil fuel-burning factories and combustion engines, on the one hand, and carbon dioxide-reducing plant life, on the other. Such differentiation matters. If we want to ameliorate Anthropocene conditions or perhaps even put a stop to the Anthropocene, as we know it, we need to look at the specificity of the landscape structures and infrastructures that produce Anthropocene effects.¹

To study the Anthropocene as patchy requires transdisciplinary collaboration, because the landscape histories that create patches are simultaneously human and nonhuman. Questions of colonialism, violence, class, race, and gender, for example, are not just add-ons to landscape analysis; they constitute patches that matter. The violent depopulation of the Americas after European conquest is a case in point; arguably, this was the beginning of the Anthropocene.² The history of slavery, and resistance against it, was key to creating the plantation form that continues to generate the Anthropocene.³ Something as parochial-sounding as the particularities of race and gender in the postwar United States had a major impact in shaping the global Great Acceleration, led by US policy.⁴ At the same time, none of these histories can show us the Anthropocene without detailed attention to nonhuman activities and their historical changes. The discussion requires biology, physical geography, environmental studies, and geology.

Watch the infrastructure

Capital, artwork by Feifei Zhou

Feral Atlas follows the material effects of land-, water-, and atmosphere-transforming projects. Two features of the argument are worth repeating. First, long-distance projects of conquest, governance, and investment for the accumulation of wealth have had an outsized role in transforming local-to-planetary ecologies. This results, in part, from the fact that project managers do not have to live with the results of their programs. Second, both brand-new and broken-down infrastructures have a role in making the Anthropocene; indeed, it is difficult to separate them because they are often created together, as, for example, when the renovation of a city is accomplished by displacing its workers to slums outside the city.⁵ Infrastructures do not have to be broken to have feral effects, but sometimes broken infrastructures do have the most terrible effects. Indeed, the discriminatory nonmanagement of infrastructure contributes to the world-ripping state change created by toxic wastes, an Anthropocene phenomenon discussed in *Feral Atlas* as DUMP. (See Tippers; also DUMP.)

Consider how infrastructures emerge within those historical conjunctures that give rise to novel infrastructure-building programs.

Four sets of historical conjunctures are key in conjuring the environmental dangers called Anthropocene. *Feral Atlas* calls them Anthropocene Detonators: Invasion,

Empire, Capital, and Acceleration. In some ways they correspond to the Anthropocene start dates proposed by various scholars (see Anthropocene Detonators and What Is the Anthropocene?): Invasion moves from the 15th-century European colonization of the Americas; Empire from the 16th-century spread of European imperial schemes to Asia; Capital from new forms of accumulation in the 19th century; and Acceleration from 20th-century decolonization under the Cold War and American hegemony. Yet *Feral Atlas* detonators do not represent a chronology, but rather a set of syndromes historically initiated but stretching into the present. The historical conjunctures of each Detonator bring into the world a set of infrastructure-making projects that change the conditions of relations between humans and nonhumans. (See “Luminary Essays” in Reading Room and editors’ texts on Invasion, Empire, Capital, and Acceleration.)

Infrastructures show us landscape structure

Certain kinds of infrastructures have created radical shifts in how ecologies function. The ecological simplification associated with industrial agriculture, for example, nurtures pests and diseases. (See GRID.) The speed, range, and lack of regulation of global trade moves so many living “hitchhikers” that at least some will prove to be detrimental to local ecologies. (See TAKE.) The burning of fossil fuels has changed the composition of the atmosphere, causing shifts in weather and climate. (See BURN.) In each of these cases, the forms of relationality that link organisms and their environment are forced to change. Such skeins of relations are a form of “structure,” and anyone who cares about life on earth needs to pay attention to the radical shifts to which all of us are subject. (See also essays on CROWD, PIPE, SMOOTH/SPEED, DUMP.)



GRID, video by Armin Linke

The appropriate scale depends on the feral process

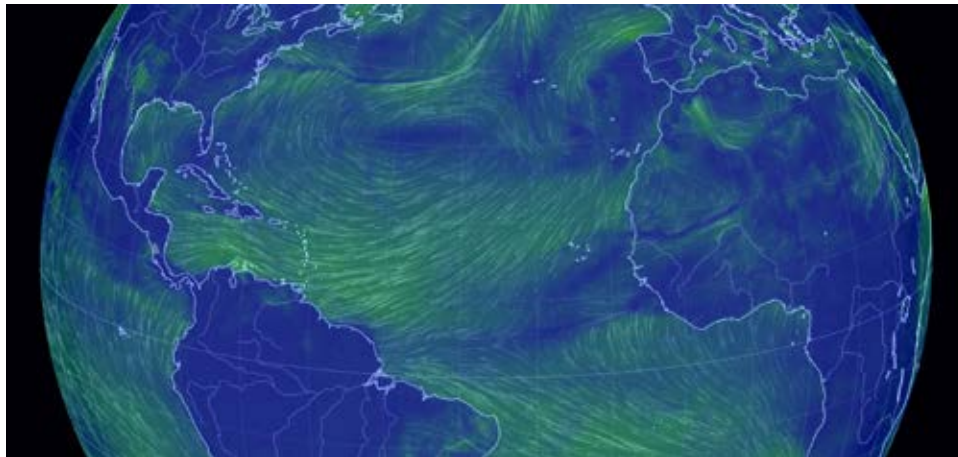
The scale for understanding the Anthropocene should not be determined in the forced march of a preestablished framework; instead, scales of attention are properly shaped by the problem at hand. When learning about a disease, for example, an epidemiologist ideally follows where it goes rather than drawing an arbitrary boundary; only in following the disease can one know whether it is limited to a single town or spreading across continents. But this means that varied Anthropocene problems address each other across incompatible scales. *Feral Atlas* argues that scalar incompatibility is

important to understanding the Anthropocene; indeed, the Anthropocene is a set of incompatibly scaled effects.

The open-endedness of determinations of scale relates to the *Feral Atlas* editors' use of the term patchy. The term is drawn from landscape ecology, where a patch is a unit of relative homogeneity compared to its surroundings. A great forest, a stand of trees, a leaf, a spot of insect dung; each of these is a patch. Since landscapes are defined by their heterogeneity at every scale, determining which bit of comparative homogeneity matters depends on the problem at hand. Patches can range from microscopic to continental.

Specialized Anthropocene patches include factories, feedlots, and mines. They include traveling, mutating viral clouds, and the ranges of underwater machine noise. They include chemicals seeping from industrial tanks and uneven deposits of radiocesium after a nuclear plant accident. We need to know a lot about these patch ecologies—and their spreading effects on surrounding landscapes. Such ecologies fall firmly into the all too rarely explored zone joining natural and social sciences; they are incitements to collaborate.

Feral Atlas stretches the term patch to allow “patchy Anthropocene” to refer to links as well as spaces. Some links are ecological corridors, that is, bridges for the movement of plants and animals. Others involve relations of power and inequality, as when supply chains designed to funnel resources to rich countries create “shadow ecologies” of devastation in their wake.⁶ Others still are out-of-control spin-offs, as when pathogens that have evolved among the amassed bodies in industrial chicken farms jump to new hosts, including humans.⁷



Wind streamlines over the Atlantic Ocean. Scientists speculate that coffee spores were carried to the Americas by the wind. Image from Earth visualization software at 2018-06-23 at 3:36:45 PM.

Many authors in *Feral Atlas* offer reflections on the need to be alert to shifting scales as patches and links reform themselves. Feral dynamics jump over walls: Ivette Perfecto describes how coffee rust fungus, encouraged by the full-sun conditions of monocrop coffee plantations, spreads from those plantations into shady smallholder farms that had once been able to avoid the rust. Once there, it is almost impossible to stuff the rabbit back into the hat; the rust will not be contained within the zone that led to its success. Indeed, industrial infrastructures have done a good job of spreading feral processes that might have stayed in one place. Kate Brown's report on blueberry

picking in the radioactive forests of northern Ukraine tells of the systematic transfer of radioactivity via the global trade in “organic wild blueberries.” Corridors follow trade routes and shipping patterns. Yet sometimes traveling feral entities sediment, becoming dangerous precisely because of their accumulation in a place. Nathalia Brichet writes of the effects of the anti-fouling paints used to keep marine life off of ships’ hulls as it collects in Caribbean harbors. In harbor concentrations, hormone-disrupting toxins in the paint stop marine snails from reproducing, decimating the population and changing the ecology of the harbor.... Start with the feral process, these authors suggest. It will show you the scale.

Co-temporalities matter

This merely means that many processes are happening at the same time, at different tempos. The only reason this is not obvious is that the ideology of progress has trained people to think that only one trajectory could be headed toward the future. Everything else was either irrelevant or a patch of not-yet-dissolved backwardness. This narrowing of attention shaped understandings of both humans and nonhumans. “Primitive people” were imagined as if they lived in a timeless past removed from the time of ethnographic fieldwork encounters.⁸ Other living beings were also imagined as static machines of reproduction: once they attained their evolutionary status as a species, perhaps millions of years ago, they never changed again but only remade themselves over and over.

In recent years, more historically dynamic approaches have entered both biology and anthropology, and these allow scholars to appreciate the sometimes rapid historical shifts that have shaped our times. Anthropologists have turned to the interactions of people around the globe—those very people imagined outside history—to explain the world-making shifts of the last 500 years, such as the making of capitalism, empires, and commodity chains.⁹ Biologists have shown the importance of rapid and relentless evolution, as organisms respond to other species and to their nonliving environment.¹⁰ Far from being static since their millions-year-old origins, many organisms change at the same tempo as human histories. This is because human projects have become a major source of change for other organisms.¹¹ Human and nonhuman histories twine together in creating the Anthropocene, and scholars need to learn to notice more of the threads in these knots.^{12,13}

New possibilities for rapid and inexpensive DNA sequencing have made the histories of nonhuman populations more accessible to researchers, sparking a revitalization of the field of phylogeography, the study of biological distributions. This is an important new resource for social scientists and natural scientists working together. Paulla Ebron’s *Feral Atlas* report, for example, shows how the diseases that so many commentators have thought were merely carried from Africa to the New World in some cases came into being in the Middle Passage, that is, the forcible transport of enslaved people. The *Aedes aegypti* mosquito, which carries the yellow fever virus, formed a new population on the slave ships that adopted habits of “domestication,” the desire to hang around people, in contrast to these mosquitoes’ African cousins, which preferred forests. Whereas earlier scholars imagined that Africans did not suffer from “African diseases,” this new research—based on phylogeography combined with social history—explains why so many enslaved workers died from the same diseases that were killing Europeans and Native Americans. These were new disease conditions. Scholarly appreciation of the suffering of slavery needs this kind of more-than-human research.

Other contributors to *Feral Atlas* also weave social histories and phylogeographies. Matteo Garbelotto's research on Sudden Oak Death in California used this approach to track the disease from commercial nursery shipments. Thomas Bassett and Carol Spindel show how Phragmites, the common reed, changed from a native plant into an aggressive exotic. Through such histories, the many timelines that create the Anthropocene come into view.

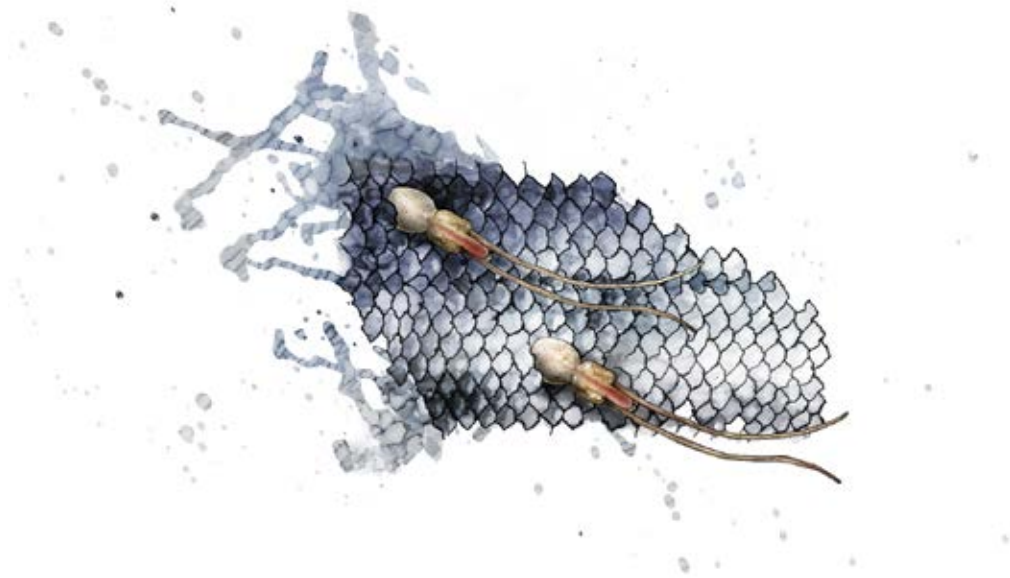
Radical difference forms both sharp edges and historically productive friction. To build a field to study the Anthropocene, scholars must create bridges across lines of mutual unintelligibility. *Feral Atlas* works back and forth across some of these lines, aiming to create a novel audience of scholars, students, and general readers who might find in *Feral Atlas* a taste for kinds of research they had not found before. Yet building such bridges is full of hazards, and remembering those hazards is useful to appreciate the task. For example, the atlas asked natural science contributors to be true to their scientific standards, even as the digital architecture allows users to read these reports in a social science frame. It seems likely that natural scientists will find the frame inadequately scientific; yet humanists and social scientists will criticize it for taking science too seriously. These are some of the differences that *Feral Atlas* must navigate. If there is to be a serious Anthropocene scholarship, it must involve dialogue and translation across these lines.

In this spirit, too, *Feral Atlas* includes Indigenous spokespeople writing across epistemological and ontological gaps. Aboriginal artist Russell Ngadiyali Ashley tells of invasive cane toads in northern Australia based on his perspective through Yolngu kinship and law. Ashley's entry centers on a "map": a painting of his people's relationship with goanna lizards, on the one hand, and cane toads, on the other. Ashley's map illuminates one of the major goals of *Feral Atlas*. Each entry presents firsthand evidence of how nonhuman feral action constitutes the Anthropocene. But the entries are not alike, in many ways, including authors' relationships to their materials. The entries reach out to each other across relations of difference, and they sometimes refuse each other's logics. To bring them together without any expectation that they would form a single common map is *Feral Atlas's* goal.



Yätoj Garkman [Evil Frog], Russell Ngadiyali Ashley, 2017

Yet the atlas does not leave the problem as worlds that never meet; it does not proceed as if East is East and West is West.¹⁴ Indeed, through his depiction of a fatal meeting of worlds, Ashley is already contributing to the emergence of a transcultural Anthropocene history. He shares images and stories for an audience beyond his people, and he mixes several different languages in the telling. In *Feral Atlas*, we adopt and extend Ashley's stance, drawing too from the "ontological anarchy" advocated by Eduardo Viveiros de Castro.¹⁵ Through the digital architecture, we constantly try out overlaps, comparisons, lines of connection, and points of refusal. Together these entries show us processes of structuring landscape—neither one single process, nor disconnected separate worlds, but rather active world-making with many players. This is the Anthropocene: both patchy and planetary. If the ways contributors imagine and make worlds differ, so much the better. *Feral Atlas* places entries side by side and comes up with a playful, performative apparatus for comparison and reflection. We do not ask contributors to synchronize their apparatuses for knowing the material. We hope users will find this difference, at the heart of *Feral Atlas*, and use it to think about how a planetary phenomenon can be a system of partial coordinations. At the same time, we hope that the atlas will foster a cumulative appreciation of the larger, underlying arguments above. Map by map by map.

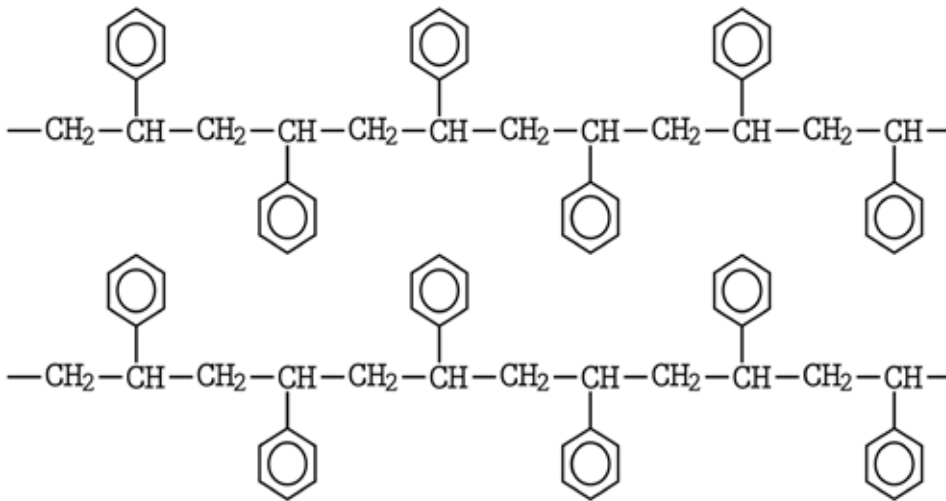


Salmon lice map by Victoria Baskin Coffey

Feral flows and blockages require mapping at different scales and angles

Feral Atlas is an atlas, but a strange one. From the first, we refused the common mapping genre that appears on digital sites: a GIS map that locates cases in global space. Such maps appear to hold answers when they do not. National boundaries often take on a strange truth, disguising complete lack of knowledge about most places. Big issues and small ones look exactly the same. The global map covers up too much that a viewer of *Feral Atlas* needs to know. A more faithful and generous mapping practice requires different spatial scales, angles, and modes of representation. The side of a salmon is a terrain for a salmon louse; it does not scale up into a global map. A map of stratosphere winds is a useful way to consider the travels of a coffee rust spore; but it's quite irrelevant to the travels of a cane toad.

Feral Atlas varies scales and modes of representation to show how ferality develops in each of the entries we include. We begin each entry with a flow map, that is, a spatial representation of the kinds of flows or blockages that might inform the feral activities described in the entry. For insects living in wooden shipping pallets, the movements of global shipping are key to their spread to new continents. For Mnemiopsis comb jellies, introduced into the Black Sea in 1989, it is the containment of the sea that allows their success. In each case, we ask what might matter in a map? How might this digital form enhance our capacity to identify feral dynamics at multiple and overlapping registers? Such questions have led us beyond the conventional boundaries of cartography. For instance, the illustration of the invasive American bullfrog uses a frog's leap to depict the failure of industrial breeding pens to contain these entities. Introducing fire, a photograph shows cars fleeing the flames at Fort McMurray, Canada, in an image that underlines the role of carbon economies in fueling wildfires. Each map, in its own way, extends the sensorial and imaginative reach of the atlas, while remaining faithful to the research underpinning the field report. In underwater noise, the sound of a seismic airgun, detectable thousands of miles from its source, allows human ears to recognize yet another industrial impact on the livability of the oceans. Scaling down to the molecular, the map for Styrofoam depicts the repeating polymer chains of polystyrene, the structural underpinning of the toxic longevity of this synthetic foam.



Polymer chains of polystyrene, diagram by *Feral Atlas*

Viewed from the perspective of this multiplicity, the global map users would normally expect looks strange, faulty, and shockingly incomplete.

Curation can itself be a generative, world-making project

As *Feral Atlas* embraces this wide variety of representational styles and disciplinary perspectives, it explicitly refuses the presumptions of mastery and certainty so often embedded in dominant, taken-for-granted points of view expressed in modernist cartographies¹⁶ (see essays by Lili Carr, Victoria Baskin Coffey, and Jennifer Deger on the expanded art of mapmaking within *Feral Atlas*). Through the work of collage, juxtaposition, and poetry of many kinds, the site situates its reports and thematic essays within an aesthetic field of relational potentiality.¹⁷ Form and content announce in unison, “There are links to be found here!” as *Feral Atlas* drags the connective

capacities of the digital towards artful exploration rather than big data analysis. Indeed, the atlas argues that digital architectures are worth exploring in the humanities to the extent that comparative frameworks resemble a performance or a game, rather than an authoritative structure for keeping categories in their place. Our categories are self-consciously playful, tentative, and incomplete. “How does this comparison work out?” the curators urge users to consider. Some comparisons within the atlas are more obvious, and more closely curated, than others. For example, the paired field reports on Dutch elm disease explicitly bring two different empiricisms into dialogue—forest pathology (Clive Brasier) and memoir (Sue Wright). The contrasts in genres, perspectives, and scale work together, expanding understanding without flattening difference. Other, seemingly less likely conjunctions between field reports will appear and accrue for users as they self-navigate through the site—what connects radioactive blueberries with antifouling paint?—allowing curiosity and the digital pleasure of the sideways link to determine their own path through the atlas. Indeed, one of the key reasons for *Feral Atlas* “going digital” is precisely so users can participate for themselves in this work of conjunction, comparison, and new recognitions, as the underlying themes and arguments of the site come into view. Map by map by map. In this way, *Feral Atlas* adds up to something that is at once thematically cohesive and open-ended.

Care has been taken to not overwhelm the site—and so our users—with digital bells and whistles. Similarly, we have attempted not to overwhelm those navigating the site with the sheer weight of evidence that the atlas presents. Indeed, from the outset the curators and designer knew we faced a battle for our users’ attention. How to repurpose a medium so often blamed for corroding our collective attention spans for new forms of academic work and public outreach? How to establish a research framework that should inspire scholarship for the next 20 years on an ephemeral platform? A related set of questions arose with respect to the challenges of delivering these potentially horrifying stories to audiences already inundated by environmental bad news. What kind of storytelling is most appropriate for the Anthropocene? In a time of extinction and oncoming ecological collapses on so many fronts, some thinkers have raised concerns about telling apocalyptic stories. Too many such stories may paralyze readers, they argue.¹⁸ Yet it makes no sense to offer happy endings just to buoy up readers’ spirits. *Feral Atlas* has picked out a distinctive path through this maze. First, we want readers to pay attention to the details. We have tried to forge an aesthetic that asks readers to linger over the gathered materials. We have avoided fright for fright’s sake. At the same time, we don’t step back from telling terrifying stories. Our second aim, indeed, has been to see if we could tell those stories so evocatively that the colleagues who warned us against paralysis and despair might instead stop to pay attention to what is going on. The key, we thought, was to present materials with such absorbing detail, passion, and care that readers might become curious to know more, rather than turning away.



Alabama Fields, Helene Schmitz, Kudzu Project, 2013

The curatorial team designed the site with attention to the pace and quality of each user's progression through the site; we wanted users to find their way to the field reports and essays in a mood to read and reflect, ready to pause and think for a spell. In creating watercolor images of the feral entities, Anthropocene Detonator landscapes, Tipper audio and video poems, field report flow maps, and the poetry and commentary of *Feral Qualities*, we worked hard to hold open worlds of intertwined beauty and terror. Through combining fantasy and realism, we aimed to show feral worlds in motion: worlds that reward careful, situated, and sustained attention; and worlds capable of inspiring, in turn, deeply engaged arts of noticing and response. (See Jennifer Deger's essay, *You Are Here*, Victoria Baskin Coffey's essay *Mapping the Anthropocene*, and Feifei Zhou's essay *Historical and Fantastical Landscapes*.)

As users take up the Atlas to accrue their own orientations and understandings, the curatorial concern shifts from our steady focus on material processes to embrace a sense of how ways of seeing—in the broadest, multisensory, and imagistic sense of the phrase—determine the possibilities for future action. Through this iterative process of learning to look at landscapes (and seascapes and aircapes), the atlas encourages users towards the profound shifts of perspective that the very notion of Anthropocene demands. For if *Feral Atlas* is to succeed in its task of reorientating its users, the best result would be for the site to deliver its users a kind of light bulb moment, a sudden jolt of perspective whereby all the various scales and perspectives and stakes expressed in the field reports and essay coalesce, and the more-than-human Anthropocene comes resolutely and irrevocably into view—both within and beyond the atlas itself.

Hold onto the differences, follow the connections

This ethos, informed by the anthropological training of three members of the curatorial team, provides the cornerstone of the performative, world-making potential of this atlas. In that sense, *Feral Atlas*'s curators would put our digital project in the company of improvisational music and dance. In such genres, there are well-known gestures and themes, and these are tried out in different combinations. Sometimes dancers or musicians exchange motifs, asking for comparison from another team.¹⁹ Alex Chávez describes the all-night musical duels that characterize Huapango Arribeño music of the US-Mexican border. One team plays a theme; the other elaborates in reply.²⁰ This performative practice takes legacy melodies and brings them to new life through innovative juxtapositions. As in a score for such music, *Feral Atlas* curates a series of reports and concepts, but with instructions to read them as improvisational performance rather than a timeless and authoritative sorting. The editors hope that *Feral Atlas* might, like the music, conjure wonder and attention—and, in the process, incite a new sense of the possibilities for collective care and response for these times we call Anthropocene.

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Notes

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Anna Lowenhaupt Tsing teaches anthropology at the University of California, Santa Cruz, and sometimes also at Aarhus University. One of her recent books is *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Between 2013 and 2018, she was Niels Bohr Professor at Aarhus University, where she co-directed Aarhus University Research on the Anthropocene (AURA) with Nils Bubandt.

Jennifer Deger is Professor of Digital Humanities and Co-Director of the Centre for Creative Futures at Charles Darwin University. She works at the intersection of art, anthropology and environmental studies. She is also a founding member of the intercultural arts collective Miyarrka Media and the intergenerational curatorium collective.

Alder Keleman Saxena teaches and researches in environmental anthropology and sustainable food systems at Northern Arizona University in Flagstaff, AZ. Previously, she held a position at the Christian Michelsen Institute in Bergen, Norway. Her research examines how agrobiodiversity articulates, materially and culturally, with larger food systems, particularly Bolivia and Mexico.

Feifei Zhou is a spatial and visual designer. Her work explores spatial, cultural, and ecological impacts of the industrialized built and natural environment, through multidisciplinary approaches and narrative forming. She currently teaches MA and BA Architecture at Central Saint Martins, University of the Arts London.