

ARTICLE

The Multispecies Metropolis: Anthropological Ruminations on Bestial Urbanism

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Abstract

Human-animal co-habitation is a fact of urban existence, yet animals are illegible in the contemporary American city. As climate change, development, and other planetary forces disturb the more-than-human dynamics of cities, often gravely, anthropological pedagogy must go beyond rehearsing urbanicity as a strictly human quality. This article ruminates on an interdisciplinary experiment in teaching the animal city through a local project in design anthropology that coupled ethnographic fieldwork and speculative design. By empirically studying how the built environment unevenly mediates human and animal livelihoods and relations, students uncovered the possibilities of alternative architectures for nonhumans and curated them in a public design exhibition. Through research-based action, this course cultivated a body of dispositions in students that did not just expose the city's animals but oriented them to the pursuit of multispecies justice—an ethico-aesthetic praxis that I style as "bestial urbanism."

Keywords: *More-than-human cities; design anthropology; human-animal studies; the anthropology of architecture; environmental education; multispecies justice*

Dwelling with Animals

It is the cage that constructs the nonhuman,
and the human outside the cage.
—Terike Haapoja (2023)

For as long as humans have congregated in cities, animals have lingered nearby, enticed by the promise of food, shelter, and kin.¹ Despite the fact that human-animal co-habitation is an anthropological universal, Western imaginaries of "the city" often disregard its animal moiety (Braun 2005). In the geography of modernity, animals always

¹ We know from Darwin and his ilk that humans are also animals, but "human animal" and "nonhuman animal" are ungainly phrases. Here, I use "human" and "animal" while recognizing that their boundaries are permeable.

lie elsewhere, outside the metropolis (Hinchliffe et al. 2003). Supposedly ousted by urbanization, the wildlife that *has* weathered through its tempest of ecological disturbances—surviving, even thriving, in our artificial landscapes—registers as no more than a curious anomaly. That is, if it registers at all.

Over the past three decades, scholars in “animal geographies” (Buller 2014, 2015, 2016) and interlocutors in adjacent fields have disputed this human-centered “image of the city” (Lynch 1960). In dialogue with urban ecologists, they have put forward an alternative model of urbanism that admits the city’s animal inhabitants. Wolch (1996), in an early paper, called this “renaturalized, reenchanting city *zoöpolis*” (29). Yet, as Hinchliffe and Whatmore (2006) later explicated in their idea of “living cities,” animals “don’t just exist in cities, precariously clinging to the towers and edifices of modernity”; on the contrary, they “potentially shape and are shaped by urban relations” (127). Thus Barua (2023) has more recently glossed the city as a “meshwork, where urbanicity is taken to be that which unfolds through entangled lines of life, movement, and growth” (2). Within this expanded urban ontology, animals are “denizens rather than mere occupants of cities” (276). By their presence within, and actions upon, the built environment, animals transform the city, materially and politically (de Bondt et al. 2023).

A nexus between species, architecture mediates non/human relations; it can also solidify the city’s structural inequalities. Against the intents of its designers, a falcon may repurpose a skyscraper’s ledge, or a sparrow, the eaves of a home, but notwithstanding these modest appropriations, the built environment is predominantly constructed by humans, for humans to inhabit. Molded to our physical constitution and its capacities, many of these spaces are not just unaccommodating to animals; they are hostile, even deadly. To take one example: In the United States alone, almost one billion birds will collide into glass windows every year (Loss et al. 2014). Incapable of discerning their mirrored surfaces from open sky, they crash into the urban world we take for granted. Most of them will perish. The “snare” that is left behind (Kroll 2018)—the residual blood, feathers, and entrails—is a visceral trace of the banality of injustice, of the vast asymmetries of power between humans and animals that harden in the structures, and infrastructures, of urban design. Rarely acknowledged by planners (for one exception, see Houston et al. 2018), the magnitude of these bird-window collisions speaks to the glass-eyed indifference of the architects of the city to the systematic extermination of its other-than-human denizens.

The scope and scale of this environmental crisis—an erasure that is at once physiological and ontological—demands new forms of teaching the city that can expose the architectural conditions of nonhuman life and death. This topic is of vital importance: cities in the United States now harbor more populations of animals than in any other period over the past two centuries (Alagona 2022). As climate change and economic development drive animals out of their native habitats and into metropolitan areas, these already-staggering numbers will only continue to soar higher. Preoccupied with human sociality, modes of instruction within urban anthropology still have yet to catch up to this flighty

reality, confirming Fischer's (1999) observation that "life is outrunning the pedagogies in which we have been trained" (455). To confront this situation, two questions beg consideration. First, how can we as instructors make animals legible in our cities, their agencies as much as their "vulnerabilities" (Ginn et al. 2014)? While the negation of the anthropocentric theory of urbanism may be the starting point for a pedagogy of nonhuman legibility, it cannot be the telos of a movement towards the animal-inclusive city. Bolender et al. (2022) have expressed this so: "If justice ultimately aims to care for and to cultivate what a given collective loves, then intimacy, creativity, and play are as vital to the work as antagonism, defiance, and rejection" (235). Accordingly, the second question is this: How can we encourage students of anthropology to imagine—and even to create, however tentatively—new compositions of urban co-habitation that center "multispecies justice" (Haraway 2008; see also Chao et al. 2022; Tschakert et al. 2021)?

Space/Power/Species, the course that I taught at the University of Pennsylvania in Spring 2022, sought to address these questions by blending pedagogies from anthropology and design in tandem. Cross-listed between the School of Arts and Sciences and the Weitzman School of Design, this disciplinary mongrel probed the "more-than-human sociality" (Tsing 2013) of an American city with a "design anthropology" project (Clarke 2020). For the first seven weeks, students conducted fieldwork around Philadelphia to ferret out the animals that scale its buildings and roam its streets, documenting how the urban built environment shapes their livelihoods and structures their relations with humans, their "hybrid sociability" (Lestel et al. 2006). In particular, they queried how architecture, as a socio-technical system, undergirds the domination of animals. The "bestly tales" (Mathur 2021) of design injustice that students gathered through "multispecies ethnography" (Kirksey and Helmreich 2010) inspired more equitable forms of "interspecies design" (Roudavski 2021) in the second half of the semester. Answering Wolch's (1996) call to "consider strategies for urban praxis from the standpoints of animals" (26; see also Barua and Sinha 2017), students drew on methods of "speculative design" (Dunne and Raby 2013) to remake architectural spaces that do not simply tolerate animals but rather invite them to dwell with humans. At the end of the term, students exhibited their design projects at *The Multispecies Metropolis*: a one-night, pop-up showcase.

In the text that follows, I chew the pedagogical cud of our interdisciplinary experiment.² Like a cow, the prototypic ruminant, I ruminate on the significance of design anthropology as a methodology for teaching "transspecies urban theory" (Wolch et al. 1995). Design, as I will argue, can function as more than just an ethnographic object for untangling the skein of relations, human and animal, that loop through a city's architectures (see Murphy 2016); it can also furnish the means for imaginative re-worlding. By yoking critical inquiry together

² This course was a collaborative but nevertheless hierarchical endeavor. While I designed the overall structure of the course and the assignments, students were able to pick reading topics for a few units, determine their fieldsites and the questions they would ask, construct whatever design proposals they wanted, and select the exhibition layout. Throughout this article, I will use the personal pronoun "I" to designate pedagogical decisions that I made myself and "we," actions students and I took collectively.

with material poetics and exhibitionary curation, *Space/Power/Species* nurtured embodied dispositions in students that were as intellectual, ethical, as they were aesthetic, pragmatic: an orientation to a utopian ideal, a future of just multispecies co-habitation that I style as *bestial urbanism*.

To make this argument, I begin by detailing the fieldwork component at the heart of this assignment. Building off research on “interspecies learning” (Taylor and Pacini-Ketchabaw 2015), I demonstrate how students cultivated an “art of noticing” (Tsing 2015) the everyday ways in which animals live and die in the built environment through participant observation (Storey and Day 2022). I then turn to the design and curation phases, which stipulated that students envision, justify, and model solutions to architectural problems identified during their empirical research. I show how the creative act of deconstructing and reconstructing urban architecture cultivated an “attentiveness” to animals (van Dooren et al. 2016), a willingness and readiness to respond to the plight of other species. I claim that design anthropology, by coupling theory and practice, promotes what Haraway (2016) has termed “response-ability”: a “collective knowing and doing” (34) that grazes for “patches of justice amidst uneven conditions of livability” (Kirksey and Chao 2022, 10). In the third section, I reflect on the challenges of interdisciplinarity and recommend future directions. I conclude with a summary of this study’s contributions to the pedagogy of design anthropology (Hale 2016; Wasson and Metcalf 2013), the environmental humanities (O’Gorman et al. 2019), and their overlap.

Making Contact

On our first day, I walked into a full classroom, with over twice the number of students that I had set for the enrollment cap. Admittedly, this exuberant turnout was due, in part, to the registration system Penn had just adopted. As a cross-listed course open to undergraduate and graduate students, *Space/Power/Species* appeared online as six entities, each with a separately enforced maximum. Once we continued with a round of icebreakers about their topical interests, however, it became very apparent that this assembly was more than some clerical accident. Their excitement was palpable, and almost every student shared that they had encountered animals in the urban environments of their hometowns of Atlanta, Miami, and New York City, to name three. Yet in not one of these ephemeral experiences had any students amended their received view of cities as fundamentally human spaces. The posters I had posted around the school before the start of term, with their paradoxical juxtaposition of various animals against the architectural plans of a building (specifically, Willey Reveley’s blueprints for Jeremy Bentham’s panopticon), had thus felt familiar, but strange (Figure 1).

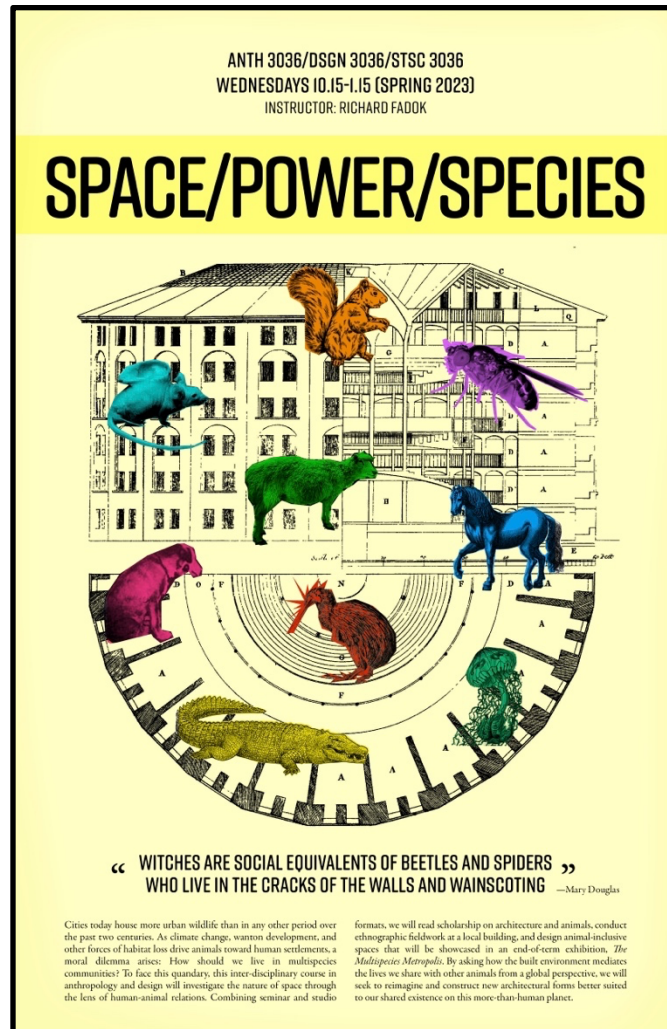


Figure 1. Course Poster

(Image credit: Sara Varney)

To teach students how to understand, and respond to, these moments of human-animal contact in the city with both intellectual rigor and ethical sensitivity, I organized our weekly, three-hour meetings around a design anthropology project. “Design anthropology,” in the words of Otto and Smith (2013), is a “style of doing anthropology” (10) that privileges what they describe as “interventionist forms of fieldwork and design that work through iterative cycles of reflection and action” (11). Beginning in the 1980s, anthropologists and designers have explored the multiple “configurations” (Murphy and Wilf 2022) of the two disciplines, their “frictions and affinities” in methods, theory, and politics (3). Informed by this broader conversation, I drew in particular on the long tradition of “design ethnography” in business (Salvador et al. 1999). Ethnographically studying animals—the “users” of urban design—in their immediate surroundings, the city of Philadelphia, and situating them in their cultural and historical contexts, students would not only make a habit of noticing them; they would also acquire the practical capabilities

and moral dispositions to design meaningful changes to the materialities that enfold all urban dwellers. This was my hypothesis.

Befitting our interdisciplinary endeavor, the format of our classes was a hybrid of seminar and studio instruction. For the first hour-and-a-half, we read and analyzed texts written by anthropologists and design theorists, along with geographers, historians, and philosophers (Appendix A). Although our emphasis was on the United States, our readings spanned from Neolithic Abu Hureya (Wilson 2007) to Anthropocene Berlin (Stoetzer 2022) to emplace Philadelphia within global processes of domestication, urbanization, and industrialization. Because students joined from numerous disciplines in the social sciences, humanities, and design,³ we lacked a shared habitus. To address this, I included an hour-and-a-half of studio time that allowed students to progress their project through a series of hands-on exercises, skill workshops, and guest critiques (Appendix B). Outside class, students received guides I wrote with tips for reading academic literature, writing anthropologically, doing fieldwork (including issues of participant observation, qualitative interviews, and ethics, consent, and access), and delivering design criticism. Interdisciplinary, perhaps even “post-disciplinary,” this fusion of pedagogical genres resembled what Cardoso Llach and Ozkar (2019) fostered in their “research studios,” which animated design practice with approaches in science and technology studies.

One focal question guided our meetings over the term: how does our city’s architectural topography affect urban human-animal encounters? To make this question more concrete, I began our first class with an object, or ab-ject, lesson in “unpleasant design” (Savić 2013). Overlaid across the Second Empire façade of Philadelphia’s City Hall, polyethylene netting deters pigeons from gaining a foot-, or claw-, hold on its relief sculptures, dormer windows, and twinned columns, anywhere this “problem animal” can roost and defecate (Jerolmack 2008). Bird nets, bird spikes, and bird decoys: whatever their outward form, these so-called “deterrence systems” are human artifacts that architecturally “separate” animal interlopers from spaces with economic value (Kelly and Lezaun 2014; cf. Candea 2010). I commenced the course with this example to stress that the built environment does not always pave the “becoming with” of human and animal, their material and discursive intertwining (Haraway 2008); it can also cement their “becoming without” (Reis Castro 2021). The city may be a “meshwork” of living beings (Barua 2023), but not every mesh entangles. While the built environment ordinarily abounds with “spaces and places which, without intentional design, accommodate animals” (Dobraszczyk 2023), it hosts a myriad of other, more inhospitable apparatuses as well, a matrix of material injustices which students would survey and assay through field research.

³ After “shopping period” ended, eighteen students remained in the class and stayed through the semester. Ten were undergraduates—majors in anthropology, biology, design, economics, and science and technology studies. The other eight were graduate students pursuing their MArch (5), MLA (1), MFA (1), and PhD (music) degrees. An MD/PhD (in anthropology) student occasionally audited the course.

With a swarm of ethnographic studies, we covered the design landscape of Philadelphia and its neighboring regions. After my opening lecture, students had a week to analogize from bird nets to other examples of unpleasant design for their first assignment (Appendix B). During our second class, students drew on these parallel cases to identify other “contact zones” where species meet in cities (Haraway 2008). The spatial typologies they pinpointed included dog (and other public) parks, botanical gardens, sidewalks, vacant lots, and gated communities. To ensure that students could succeed at both the fieldwork and design parts of the project, I first grouped the undergraduates into three teams of three to four persons, each with at least one concentrator in social science and one in design.⁴ While data collection and analysis were done individually, I encouraged students to discuss their results with one another during studio and after class (for related examples of ethnographic collectives, see Matsutake Worlds Research Group 2009 and Ortega et al. 2024). On the contrary, I allowed graduate students to work alone or together, for a total of two teams and three individuals. At the end of this “sorting” procedure, eight “research groups” coalesced, and during studio, they decided which of the contact zones would become their fieldsites. As a whole, their projects merged into a mosaic of the city’s human-animal relations, which an MLA student in the class visualized (Figure 2). As this map indicates, most projects clustered around the downtown, or “Center City,” region—an artifact, likely, of students’ access to transportation and the geographical stratification of green space by socioeconomic status.



Figure 2. A Student’s Fieldsite Map⁵

⁴ Due to one student dropping out after projects were selected, we ended up with two teams of four and one team of two.

⁵ I have anonymously reproduced student work (e.g., quotations, sketches, maps, and renderings) with their express, signed consent. Photographs and other images are the author’s, or else I have obtained permission to attribute and print them.

Before students visited their fieldsites, I ran an ethnography workshop at the Spruce Hill Bird Sanctuary, where they practiced participant observation, material culture analysis, and fieldnote writing. Nestled in a block of West Philadelphia rowhomes, this “urban forest”—a hodgepodge of community-maintained birdhouses and feeders (Figure 3)—offered us a testing ground in the “affordances” of architecture, i.e., the “functions and constraints that an object provides for, and places upon, structural situated subjects” (Davis and Chouinard 2016, 241; see also Gibson 1979; Norman 1988; van Dijk 2021). After I chronicled a history of neighborhood efforts to offer up a refuge for migratory and resident birds, students split off to ponder how the design of this once-vacant lot encourages or discourages behavior, human and animal alike. They wrote, and they drew; they jotted; they doodled, recording how seeds attracted birds, how grates on the feeders barred squirrels, and how benches invited a contemplative relation between birders and birds. When we later reconvened as a group, we talked about how to read the space as an “implosion” (Dumit 2014) of cultural dynamics, from greening and gentrification to conservation and extinction. By abstracting from this site to other, overlapping frames, we rehearsed the analytic relationship between design affordances and their contexts that students would later tease out in their projects. During studio the subsequent week, students also had an opportunity to discuss their style of taking notes at the sanctuary.



Figure 3. Spruce Hill Bird Sanctuary

Over the next month, students undertook weekly field trips to research how architecture shapes interspecies contact. In line with traditional humanist fieldwork, they observed how people inhabit the site and interact with animals, noting any regularity in their movements, gestures, expressions, and utterances. With their informed consent, they

also interviewed at least one designer, worker, resident, or other user; searched digital media; and collected whatever material culture they could find at their site, like signage, flyers, menus, and art. Yet, at the same time, students participated in an “anthropology of life” (Kohn 2013) that moved beyond the human. Joining ethnography to natural history, some mixed their own ethnological findings with published biological research about the animal species co-habiting these more-than-human environments—their ethological tendencies, social psychologies, and ecological patterns. Over time, they uncovered worlds obscured by the modern distinction between nature and society (Latour 1993), city and ecology: aggressive turkeys, unwanted ants, and dogs at play.

Throughout the ethnographic phase of the project, students completed three reflections and two essays. Scaffolded to advance their study progressively, these written assignments prompted them to reflect on their findings and to practice conventions of anthropological prose, like fieldwork vignettes and the use of block quotations for fieldnotes and interviews (Appendix B). Every week, I gave personalized feedback on their submissions. During brief, presentations in studio about the status of their research, students also received feedback from two invited critics who joined us via Zoom: one was a multispecies ethnographer; the other, an urban architectural historian. These “ethnographic critiques,” as I began to think of them, heeded Rabinow and Marcus’s (2008) plea to model fieldwork pedagogies on the design studio and its model of iterative, collaborative growth (see also Murphy and Marcus 2013). By requiring students to listen and respond to criticism from experts and their peers, this course eschewed the figure of the isolated, virtuosic fieldworker and banded the class together in support of each other and our shared objective: discovering how animals dwell in Philadelphia. Many of the comments they heard became part of their analysis in the first essay about the socio-ecological context(s) of human-animal interactions—for example, in one student’s decision to write about park ownership. The second essay asked students to think about how design reflects these contexts and reinforces the interactions. Before their deadline, I ran another workshop on material culture at the Penn Museum. Looking at pens, leashes, traps, and other “architectures of domestication” (Anderson et al. 2017), we talked about how their materiality intentionally afforded some nonhuman actions, to the exclusion of others (Figure 3). Through this exercise, students were able to write in their papers about how design alternately enchains and extricates humans and animals.



Figure 4. Penn Museum⁶

Across their fieldsites, students happened on a truth that scholarship on “animal history” (Ritvo 2022) has long recognized. In the “modern city,” animals are everywhere confined to private spaces (Philo 1995; Robichaud 2019). Pets, they came to realize, reside in homes and veterinary hospitals; livestock in barns (and later slaughterhouses); and others in zoos, labs, and other scientific institutions. The humans they observed and spoke with tolerated the public “animobility” (Michael 2004) of their “companion species” (Haraway 2003), such as dogs, cats, and the rare hedgehog, if they stuck to designated areas designed to restrict their movement. Outside of such circumscribed space, they became “matter out of place,” to quote Mary Douglas (1966), violations of an “imaginative geography” (Philo and Wilbert 2000) founded on purity and powered by disgust. A binary between domesticated and un-domesticated, and thereby uncontrolled, animals thus underlay both the organization and the choreography of Philadelphia. Dear companions, once untrammelled, quickly turned to strays, subsumed in the city’s “feral ecologies” (Barua 2021). Wildlife—pigeons, sparrows, turkeys, ants, and possums—were always already pests, “vermin beings” (Mavhunga 2011) to be removed, sometimes violently. From the onset of settler colonialism to the spread of capital, students traced the logic, norms, and affects of “human exceptionalism” (Anderson and Perrin 2018) to a “political economy of speciation” (Blanchette 2015) that defined “the human” in contradistinction to “the

⁶ I have written consent from all identifiable students.

animal,” an ontology that intersected with matrices of race, class, and ability (Jackson 2020; Ritvo 1997; Taylor 2017).

Space speciates: this was the lesson students came to appreciate through ethnographic immersion in the city of Philadelphia. By delimiting the affordances of “architectural forms” (Buchli 2013) to foster human habitation at the expense of animal dwelling, urban planners and other designers materially fortified the power of (some) humans. These artifacts, in the words of Winner (1980), had politics. At times, this was explicit: nets that exclude, or fences that include, forcibly. More often than not, as one student recognized in their essays, it was far more subtle, detectable only in the absence of available food. This observation was not a naïve reprisal of architectural determinism. Indeed, students were quick to point out how animals subverted “expert designs and blueprints” (Hinchliffe and Whatmore 2006, 135)—how, to take one example, sparrows had snuck into a trashcan meant to deter animals from eating refuse. Instead, it was an astute understanding that architecture unevenly configures the agencies of its human and nonhuman occupants (Coppin 2008; see also Bjørkdahl and Druglitrø 2016). Without denying that cities are co-fabricated, “improvised” (Simone 2004) by their multispecies inhabitants (Barua 2023), students perceived its structural inequalities and constitutive vulnerabilities. To overstate animal agency would have elided the ways in which architectural design functions as a tool of “domination” (Tuan 1984). Both physically and metaphysically, the city partitions; like the cage on a grander scale (Haapoja 2023), its dividers wall off “the animal” from “the human” (Derrida 2008), spatializing the boundaries between species.

At the end of this part of the project, students were more attuned to the city as a more-than-human environment. On end-of-term evaluations, several referred to the course’s key takeaway as a change in “perspective.” One student in particular remarked that participant observation pushed them to “realize that there are other forms of life inhabiting our world” while a second reflected on their newfound “attention” to animals in the “urban space” of Philadelphia. Most validating perhaps, one more framed this outcome as a “way of thinking outside the bounds of what I have been traditionally raised to think within.” Whether it was verbalized as a “perspective,” mode of “attention,” or “way of thinking,” students agreed that the methodical nature of anthropological fieldwork instilled an awareness of the animal bodies and associations that weasel (and, on occasion, ram) into human social worlds—an “art of noticing,” in Tsing’s (2015) vocabulary. Echoing Storey and Day (2022), ethnography facilitated an experiential education in relational thinking, specifically about human-nature relatedness.

Yet the “ecology of seeing” that emerged, to borrow their term, was more-than-natural; it was artificial, and its ontology enfolded the *built* environment, too. Against architecture’s regnant anthropocentrism (Dobraszczyk 2023), students from across the “two” (Snow 1959) or rather “three” (Cross 1982) academic cultures learned “how space impacts how humans and animals interact,” as one student recollected. Urban design was no simple medium for their rendezvous, but rather an active participant in the

entanglement and disentanglement of species—constitutive, one might say. Moreover, the way of knowing that this course had imbued in students exceeded perception. It was cognitive, epistemic. As another comment revealed, careful, attentive fieldwork, coupled with theoretical readings, imparted a critical and contextual regard for “how spaces have been built to exclude animals”—how “deeply engrained into human history having control over animals is.” To state it slightly differently, students left this course with both a sensibility (an ability to notice animals) and a sensitivity to the power dynamics that architecture erects between them and their human cohabitants, both physically and symbolically. Interestingly, this sensitivity was refracted through extant concerns that students brought to the course (e.g., one student repeatedly framed notions of urban animality through questions of accessibility).

For some, consciousness evolved into conscientiousness. In a published interview about her experience as a student in this course (Ahlborn 2023), Maggie eloquently voiced a change in her self-understanding: “In our current society, we tend to hold a very anthropocentric view of the world and our place in it.” She then goes on to add: “[This] just shows how valuable it is to take a step back from that to see ourselves also as beings in the environment and how the changing landscape has affected both us and others in it.” For Maggie, the transformation wrought by design anthropology was not just perceptual, or intellectual, but political, and deeply ethical, as much about looking outward, at animals, as it was about looking inward, at her selfhood. Others concurred: Their cognizance of animal agency prompted a stronger commitment to “respect animals and the space we share.” For one student, this bordered on “love.” Through “interspecies learning,” students accrued a “nascent, incomplete, and somehow embodied appreciation of the ways in which more-than-human life forms [...] co-shape our common worlds” (Taylor and Pacini-Ketchabaw 2015, 512). One student’s words sum the holistic impact of multispecies ethnography best: “We are living together.”

Badgering Space

“The beetles and spiders who live in the cracks of the walls and wainscotting,” to reverse Douglas’s (1966) brief but penetrating scuttle into arthropodology, “are social equivalents” of witches (106). Just as the bearers of danger whom Douglas analyzed were said to occupy a kind of non-structure outside the hegemonic social order, so too do beetles, spiders, and urban animals in general inhabit liminal, in-between locations—“alter spaces,” in Miéville’s (2009) terminology. Physically near yet phenomenally far, a “subaltern animal town” (Wolch 1996) teems betwixt the architecture of the city, an omnipresent absence illegible to most of its denizens. Through fieldwork, students in *Space/Power/Species* began to take notice of this city-in-a-city, its populations and their dynamics. Simply knowing its injustices was not by itself enough, however. How could I cultivate a way of knowing *and* doing that was both cognitive-ethical and practical-aesthetic, that is, a pragmatics of multispecies justice?

To answer this question, I crossbred the anthropologist's educational toolkit with design pedagogies of planning and prototyping. Up until this point in the course, design had only entered the classroom as an ethnographic object akin to "art" (Gell 1997) or "technology" (Pfaffenberger 1992). This part of the project aligned with what Suchman (2008) has termed "a critical anthropology of design" (see also Murphy 2016). Across Philadelphia, students conducted "ethnographic projects that articulate the cultural imaginaries and micropolitics that delineate design's promises and practices" (3). What distinguishes design anthropology from this descriptive approach, however, is its push to mobilize anthropological knowledge as a catalyst for intervention (Gunn et al. 2013). In the second half of the semester, students adopted design methodologies as a means to generate ideas, plans, and models for a city that would intentionally shelter animals. Using findings from their sites, students worked in research groups to re-design their fieldsites and, in so doing, envision more just modes of co-habitation—a union of anthropological critique and the creative potentialities of design praxis that Cardoso Llach and Ozkar (2019) refer to as "critical imagination."

Our design process began by revisiting the stories of multispecies injustice that students had gathered ethnographically. Instead of concocting fanciful designs divorced from place, we "stayed with the trouble" (Haraway 2016), traversing colonialist fantasies of terra nullius by grappling with quandaries specific to the Philadelphia region. Justice, I wanted to show, "emerges within fields of power where who is in the world, and whose world counts, is at stake" (Kirksey and Chao 2022, 6). If the power of anthropocentrism pivots on the exclusion of animal perspectives of the city, then, I surmised, one path to justice should route through deliberate consideration of nonhuman phenomenologies. In collaboration with a zoologist who formerly worked at the San Diego Zoo, I coordinated a hands-on workshop on animal modes of sensing. Led by this specialist in animal behavior, students assembled "empathy wearables" to simulate how the diverse embodiment of animals—an elephant's trunk or a cup coral's "fingeryeyes" (Hayward 2010)—grounds their "perception of the environment" (Ingold 2000). By "looking both ways" (Tsing 2022) at how various beings multiply sense a space of mutual habitation, human and animal, students committed to "pluriversal design" (Escobar 2018).

Building cities sensitive to the perceptual worlds of animals demanded that students first identify design principles that were ethologically and ethnologically sound. To support this "etho-ethnological" end (Lestel et al. 2006), I co-organized a workshop on design methods with an architectural practitioner. During this two-part guided exercise, students started by sketching the main human-animal interaction they had witnessed during fieldwork and the architecture(s) that mediated their dis/entanglement. Drawing by hand, they mapped their sites and diagrammed design's relational role—in essence, what paper two had prompted them to analyze. Through visualization, students translated their ethnographic data into an abstracted design problem that they could then attempt to solve (Figure 5). Crucially, this activity entailed the annotation of nonhuman "umwelt" (Von Uexküll 2010): how the sites might appear to their animal inhabitants. Reasoned

approximations rather than anthropomorphic ventriloquisms, their forays into the lifeworlds of other lifeforms drew upon a philosophical precedent of imagining other-than-human subjectivity through abductive biology (Flusser and Bec 2012). By rendering the field and its multispecies ecology into a multi-perspectival dwelling space, this workshop helped students to articulate the non-identical points of view that their design interventions should accommodate. Empirical analysis became the basis of speculative interspecies synthesis.

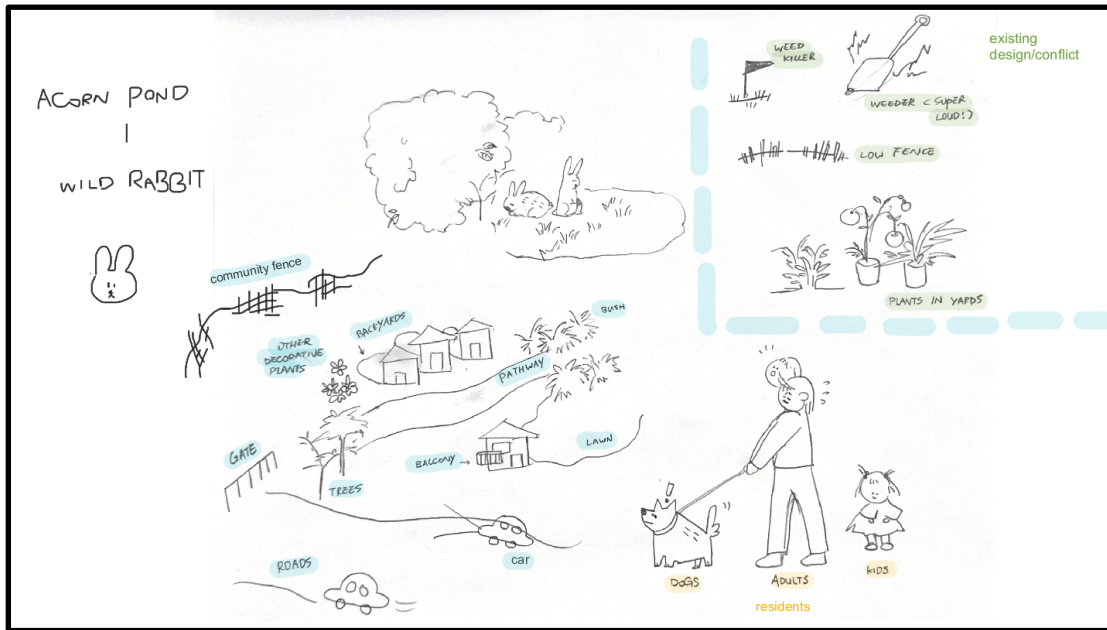


Figure 5. A Student's Site Sketch

For five weeks, students beavered away, re-designing their fieldsites to make them more animal-inclusive. In preparation for this, students drafted "extra-human design proposals" (Dodington 2012) that derived a speculative intervention from fieldwork observations that they made around Philadelphia. This document, which students composed with their group members, analyzed their fieldsite, clarified their design problem, expressed a principle that would remedy it, and proposed an intervention. Exactly what was meant by "intervention" (e.g., a building, an installation, or a performance) and what form this "intervention" would assume in the classroom (e.g., a pencil drawing, a wooden model, or a virtual reality) were two questions that I purposefully left vague to encourage students to mobilize their existing abilities to complete the assignment. It was more important that they learn to connect their ethnographic analysis to their design proposal—bridging disciplines—than acquire specific craft skills. Beyond describing and justifying their interventions, students also had to divvy up project tasks;

set a calendar of deliverables, including mock-ups; and calculate a budget of the supplies they would need.⁷ I explicitly required that they should balance creativity with feasibility.

Our procedure was iterative. Twice students presented their design concepts over Zoom to an architect and a landscape architect. During these “design critiques,” we commented on the functionality, aesthetics, and ethics of their proposals, comparing them to historical and present-day exemplars, like habitat walls (Hwang 2017), wildlife corridors (White 2023), and mosques adorned with dovecotes (Gruber 2021). Students also had an opportunity to engage with their peers’ projects. Afterwards, they mulled over the feedback they received and revised their proposals. Some amendments were technical: the location of their design or its appearance. This is not to say that these were incidental matters; indeed, one student opted to use a paint that would be more visible to birds. Other changes contemplated the ramifications of intervention. “Cross-species sensations,” Hayward (2010) reminds us, “are always mediated by power, power that leaves impressions, which leaves bodies imprinted and furrowed with consequences” (592). Therefore, I asked students to anticipate how their proposals might re-mediate human-animal relations, their agencies and their vulnerabilities as urban co-habitants. Rather than prescribe a singular definition of the “good,” I goaded them to reflect on Star’s (1990) question: *Cui bono*? In the revised proposals, students had to face the moral dilemma of acting in an unjust world when no response is ever “innocent” (Haraway 2008). Several pointed out their politics of species exceptionalism, in which they sheltered “charismatic” animals but abandoned others (Lorimer 2007). One research group in particular acknowledged that their decision to protect stray cats came at the risk of zoonotic disease for humans. To dwell with animals, they saw, was to tarry with the ineluctable realities of life and death, health and harm (Rose 2011). By anticipating and assessing what may come to be, students practiced not just the empirical but also the ethical justification of acting upon irreducibly “wicked” design problems (Rittel and Webber 1973).

While students finished assembling their projects, we devoted the last three sessions of our in-class time to planning an exhibition. In the design studio pedagogy, courses typically conclude with a showcase of student work to a jury of experts who offer commentaries and criticisms meant—at least in theory—to improve the work. Inspired by this approach, I had students conceptualize and run a showcase of their own. Following Kirksey (2014), I named it *The Multispecies Metropolis*, and I scheduled the event for one night during finals period after classes had ended.

The functions of the final component of this project were four-fold. First, by curating an exhibition, students had to summarize and synthesize what they had learned throughout the semester—an exercise in reflexivity. Second, they aspired to an ethic of accountability and access. Rather than sharing their knowledge with peers in a presentation, students had to communicate their proposals to a general audience that included stakeholders from the sites they had observed, among others. In effect, this audience was their jury, opening up

⁷ I purchased all supplies with a mixture of institutional and personal funds.

the classroom to a more diverse set of critics. Conversely, displaying their projects allowed students to directly challenge the dominant philosophy of human-centered design through public dialogue. As our announcement flyer suggested (Figure 6), this exhibition intended to badger architecture's dogmatic speciesism by inserting animals into the picture (namely, into the modernist Le Corbusier's iconic imagery of an anthropometric scale for architectural design, the "Modulor"). Our messaging was all the more heightened by the location of the gallery in the design school. This then was the third function. While the students' proposals were speculative, the show itself staged an intervention. It was, in the words of Zevi (1965), "architectural criticism in architectural form." By shaping how audience members perceive the city, students activated the exhibition space to "enact" just human-animal relationships (Desmond 2016). Finally, I suspected that conversations that unfolded during the exhibition could enrich students' understanding of typical attitudes toward urban animals, operating, in Marcus's (2021) phrasing, as a "para-site" to their fieldsites.



Figure 6. Exhibition Flyer
(Image Credit: Sara Varney)

The procedure I used for designing the exhibition was also iterative. I first paired groups together to find commonalities between their projects. After three rounds of this, each with different partners, we listed shared themes on the board and ordered them into a coherent narrative about the course, anchoring the story with the interventions that best exemplified a particular thematic. We then pitched this preliminary layout to the director of a non-profit, multi-use gallery space just off-campus, who pushed students to conceive

of the exhibition as a vehicle for community-building, not merely a cabinet of fetishized artifacts.

We returned to the drawing board. Students unanimously voted to foreground dialogue at the exhibition. Initially, I had expected them to create object labels, but students worried that lengthy descriptions would deter attendees from engaging with them about their work at the event. To prioritize interaction, we changed direction. In our second exhibition layout session, students deliberated over what details to include on a more minimal label, landing on their names, their fieldsites, the titles of their designs, and the media they used to build them. Additionally, I prompted them to reflect on the most memorable exhibition they had ever attended. Following a conversation about the feelings these exhibitions had inspired, the lessons they had imparted, and the ways they had achieved this, we started to reverse engineer the layout. We clarified the messages students wanted to send and the emotions they wanted to incur; we identified our audiences; and we picked the best language to use to speak to them. Using Google Jamboard, we plotted the sequence of projects that would promote the central idea as visitors circulated through the space, supplementing them with an introductory text, a map (Figure 1), and key quotations from course texts. With a second draft of our layout in hand, we Zoomed with a museum studies expert, who recommended that students conceive of some means to reconnect the exhibition with the space it depicts around Philadelphia.

During the last class, we finalized the layout of their exhibition. I first shared a draft of an introductory text that I wrote based on the students' summary of the course's takeaways, and I solicited their feedback. To satisfy the additional project requirements that graduates had to complete, the MFA student in my course placed this text on a poster that they made for the gallery entrance (Figure 7). Every student then sketched an elevation drawing of the wall and floor space they would occupy. Knowing how they wanted to display their projects assisted with allocating footage, ordering equipment (e.g., barriers, pedestals, and audio-visual technology), and placing seats for guests. Finally, we drafted an acknowledgements list and programmed QR codes that link to the syllabus, a mailing list, and a feedback form. These features, students hoped, would spur attendees to take further action after the event and conform to our invited guest's suggestion to tie gallery to city. As students put finishing touches on their projects, I sent their specifications to the printer and hired a photographer to capture the exhibition. I also emailed deans, faculty, and other colleagues while students invited family, friends, professors, and, in several cases, interlocutors from their fieldwork. Meanwhile, a select group of students and I traveled to Brooklyn to preview their proposals at Pratt Institute's *Speculating the Environment* symposium.



Figure 7. Gallery Entrance
(Image Credit: Gayoung Lee)

At last, the day arrived. Three hours before opening, we congregated in the gallery and reviewed our agenda. I assigned tasks to students, first with setting up their group's display and then assisting with shared responsibilities, like hanging a second map near the exit for guests to mark with future locations for urban multispecies ethnographies. A graduate MFA student lined the floor with tape to direct circulation and draw connections between the individual projects. With a few minutes to spare, we celebrated with pizza and cake—vegan, for many of the students. Then people started to arrive. A trickle became a flood, and within an hour, the gallery filled with the sound of chatter as approximately one hundred visitors interacted with students and their proposals: viewing drawings, digital renders, and video projections; donning VR headsets; playing board games; and leaving traces of their own on index cards and Post Its (Figure 8). In the background, ambient "nature sounds," as students described them, emanated from two speakers, enriching the experience.



Figure 8. Gallery Entrance
(Image Credit: Gayoung Lee)

Through this assemblage of things, texts, and talk, students put forth an alternate vision of Philadelphia, one that sought to foster human-animal co-habitation, through design and by design. In some form or another, each proposal aligned with what Roudavski (2021) has characterized as “interspecies design,” a “form of design that seeks to involve and benefit both human and non-human lifeforms” (157). Under this broad umbrella, students adopted multiple stances toward what it means to “design with” animals (Wakkary 2021), from what species they selected and what role animals played in the design process (see Hwang 2022) to the relationships they had tried to precipitate: proximal intimacy, respectful distance, or something-in-between.

Within the realm of discrete technological artifacts, two groups proposed architecturally minor adjustments to extant structures. They modified the landscape of the dog parks they studied by lowering fences, collapsing small- and large-dog areas, and adding enrichment for canines. Three other groups fabricated entirely new architectures that could affix to, or stand on top of, pre-existing buildings. These included a façade-based cubby for stray cats that came with IKEA-esque assembly instructions (Figure 9); four species-tailored domiciles for possums, sparrows, squirrels, and ants; and a modular system of objects for the flexible assembly of bird baths, hedgehog havens, and other situational devices. These “analogous habitats,” as Harrison (2020) has described them, aimed to “support native biodiversity, in part due to their material, structural, or functional resemblance to natural ecosystems” (46).

The remaining four proposals employed education, performance, and play to design for multispecies co-existence, ranging from high- to low-tech interventions. On the higher end of the spectrum, one student envisioned a cell phone app that would simulate how turkeys perceive space; coupled with “interaction stations,” this student sought to foster

empathy via intersubjectivity (see Despret 2022). Another student designed a zine that would teach homeowners about how to garden around rabbits without injuring them. A third channeled Oliveros (1996) to stage a critical meditation on discourses of weediness within an allegedly “overgrown” community park that accommodated nonhuman species. The fourth proposal was a tabletop board game in the style of Dungeons and Dragons, in which players had to evaluate selected environments as animal characters. Envisioned as a tool for architectural designers, this game mobilized playfulness to promote nonhuman perspectives.



Figure 9. A Student's Rendering of "Catscapes"

What recurred across the nine design projects on display at *The Multispecies Metropolis* was a tentative but hopeful vision of urban nature in Philadelphia. Building off concepts of “zoöpolis” (Wolch 1996), “living cities” (Hinchliffe and Whatmore 2006), and “lively cities” (Barua 2023), I am theorizing their architectural imaginary of interspecies relations as *bestial urbanism* to highlight its explicit depiction of the city's animal inhabitants.⁸ It is in this sense that bestial urbanism is an ontology. Like Barua's (2023) notion of cities as meshworks, the term refers to a social theory of urbanicity in which “the human” is decentered as the sole occupant of the built environment. At the same time, the concept also denotes an aesthetic principle, an ethical ideal, in which humanity is decentered again, not just as the occupant of the city, but also as its arbiter and its designer. Whether it was disclosed in architecture, interaction design, or performance,

⁸ Ingraham's (1998) use of “bestial urbanism” mirrors my own in name alone. For the architectural theorist, the phrase redeploys Le Corbusier's (1929) dichotomy of Man's orthogonality and the donkey's haphazard movements to uphold a praxis of urban planning that resists the modernist fixation on linearity and the line. In her formulation, the donkey—and animals in general—is a metaphor, an abstraction. In contrast, I suggest an urbanism that treats animals, donkeys or otherwise, as living subjects. Animals, here, are not abstractions, but rather fleshy beings in common worlds and entangled relations.

bestial urbanism names ways of building and dwelling that intentionally afford the city's animal denizens a place, a home, within traditionally anthropocentric territories. It is both ontological and ethico-aesthetic, a way of knowing and, crucially, of doing.

Forward-looking in their focus, these proposals imagined better arrangements of human and animal co-habitants. Less blueprints than "lures" (Whitehead 1979), they invited guests to unsettle and revise their assumptions about cities through glances of future architectural artifacts, practices, and socialities. Driving their speculations was a "politics of conviviality," an "accommodation of difference better attuned to the comings and goings of the multiple more-than-human inhabitants" of the city (Hinchliffe and Whatmore 2006, 126). This is not to say all students agreed on how to conduct the "messy business of *living together*" (134). Ideologically plural, each of them projected varying interpretations of what it should mean for animals to belong and flourish.

This prevailing orientation to multispecies justice, I want to argue, is an outcome of using design anthropology for urban pedagogy. Through a tripartite project structure that joined ethnography, design, and exhibition together, *Space/Power/Species* cultivated in students a relational disposition to animals that was simultaneously epistemic and pragmatic, ethical and aesthetic. While students acquired the habit of perceiving and analyzing multispecies relations during their fieldwork, it was, in fact, the trials and tribulations of designing for an animal and its specific needs—conjecturally, carefully—that knowledge became something else, something more: a tendency, an inclination, a disposition. From critique to "research-creation" (Loveless 2019), they activated ethnography, moving beyond the awareness that our livelihoods intertwine with those of animals, that to be urban is to be more-than-human, towards a feeling that, as denizens of cities, they should, and *can*, act. To state it in another way, students did not simply learn *that* animals are "good to live with," in Haraway's (2008) words; by breaking ground on alternative cities, they explored, as one student put it, "*how to live together with animals* [author's emphasis]." This realization was empowering. As the end-of-term evaluation from another student relayed, their design project opened up "new ways to interact with animals."

As this course attests, the interdisciplinarity of design anthropology can foster ecological attunements to the city that, albeit modest, exceed the classroom. Uniting representations of social worlds with prudent interventions *into* them, this pedagogical approach can instill, in Ahmed's (2006) interpretation of the term, "orientations" to the architecture of animality that lean into action, not through particular practical skills but rather via pragmatic states of readiness and responsiveness. Such orientations recall what Haraway (2016) has elsewhere conceptualized as "response-ability." In their "reflective" (Schön 1983) concern for design as poetry, for the worldly implications of their socio-technical decisions, students grappled with the weighty ordinariness of dwelling with animals—that is, with what it would mean to respond, seriously, to multispecies injustice. This conjunction of knowledge and action thus suggests that, by "learning to live together,

and across, difference” (Tschakert et al. 2021), students honed their arts of noticing *and* “attentiveness” (van Dooren et al. 2016), an ethics of “ongoing questioning” that seeks to “(re)craft modes of living and dying on richly varied yet fundamentally shared worlds” (15). While speculative in their form of presentation, the designs for alternate cities that students imagined were no less interventionary, for as Van Dooren et al. remind us, “Multispecies stories are active technologies of worlding” (16). By bringing new audiences into conversation with their visions, they created openings for new worlds, glimpses into future possibilities.

Generating Fiction

Teaching this interdisciplinary project in design anthropology presented its fair share of pedagogical challenges, foremost among them being the degree of time it took to support a shared habitus while also nurturing personal creativity. At the outset of the course, I made guides about anthropological and design practice, and throughout the term, I coordinated method workshops; scaffolded the project into weekly assignments; and invited experts in design to complement my expertise in anthropology. This alone was incredibly demanding as a postdoctoral fellow without the help of teaching assistants. Coupled with the work of commenting on eighteen papers, mentoring eight research groups, and coordinating their exhibition—to say nothing of preparing lectures and discussion questions—this consumed all of my time. Quantitatively and qualitatively, the course was a resounding success among student learners,⁹ but I cannot recommend this exact format without noting this intensive demand upon my time. Skill development across disciplines came at a high cost, especially when students could determine the project topics themselves, yet without student buy-in, instructors might sacrifice engagement.

A related consequence of combining disciplines was the accelerated pace of the course, which inhibited in-depth reflection on any one stage of the project. Between ethnography, design, and exhibition, we had a tight schedule, with virtually no room for revisiting topics over the semester—a problem further heightened by the choice I made to permit collective decision-making on the syllabus, the fieldsites, and the exhibition. This had three effects in total. First, it limited the number of examples we could analyze in each class to understand concepts; although I discussed news articles and cultural production when possible—as an example, we watched the documentary *Nuisance Bear*, discussed dog beds and other pet architectures, and learned about roadkill art—it was difficult.

⁹ Over the semester, there was significant student investment in the course, from those volunteering to attend the elective symposium at Pratt to others creating extra components for the exhibit. Afterwards, four students told me in person that *Space/Power/Species* was the “best” or “favorite” course they had taken at Penn; another emailed to say it “challenged [them] to think about architecture differently”; and others have followed up asking for further readings, writing feedback, and career advice. On official course evaluations, I received the highest score on a measure of course quality from all but one respondent—the outlier being, I suspect, a disgruntled student who plagiarized. All but this one student “strongly agreed” that “this course challenged me to consider new ideas, concepts, or ways of thinking.”

Second, students had a short timespan to conduct fieldwork and construct their designs. This not only placed limitations on their understandings of the field (and, as a corollary, their understandings of the animals living there) but also the extent to which their ideas could be realized. Two students noted on their end-of-term evaluations that they wanted more time for their projects. Third, there was no time to think reflexively about the project as a whole—the affinities and frictions of anthropology and design. I prioritized discussion about the urban gestalt that the projects revealed at the expense of interdisciplinary reflexivity. This was particularly pronounced at the exhibition when, after we broke down the gallery, no time remained for any concluding thoughts!

Beyond these issues of too much work and not enough time, interdisciplinarity posed a problem of communication, particularly when opposed to the expectations of the students from design. For the most part, the collaborative basis of this course was conducive to the learning process, even generative at times. Early on in the classroom, we adopted a shared conceptual lexicon through course readings, spanning both disciplines and levels of study (*viz.* undergraduate and graduate). As Maggie confirmed, “The master’s students shared their skills like doing models and schematics and intellectually we’re able to have very good conversations” (Ahlborn 2023). Likewise, a student remarked that this “mix of students at different stages in their education with different backgrounds [...] made it rewarding” as a learning experience. During critiques, students would chime in on their peers’ projects and offer feedback, and outside studios, they brought their individual strengths to bear on both fieldwork, illuminating different aspects of their sites, and the project, sharpening the look of their proposals through a plurality of perspectives. A structure of care emerged between students that contrasted with the anthropologist’s historically solitary approach.

That said, design students entered with a set of expectations about course requirements within this field. The least problematic was a diverging sense of a standard reading volume. After initially assigning 100 pages per week, I dropped that to 50, sometimes 25, pages a week in response to their concerns. What was more challenging, however, was a demand for discrete “deliverables,” as one student said it. Although I tried to make it clear that our goal was to leverage speculative design as a thought exercise to disrupt the architecture of animality in Philadelphia, they reflected in their end-of-term evaluations that they wished I had assigned defined deliverables like floor plans or axonometric drawings. On one level, this could be interpreted as a criticism of open-ended, self-directed projects (compare Hale 2016). But another student’s final request for experts in “aesthetics,” “manufacturing,” and “marketability” suggests that these desires for discrete technical artifacts are reflections of design’s ideological alignment with a cultural logic of innovation (see Cardoso Llach and Ozkar 2019 for a similar observation). To overcome their learned assumption that fieldwork should merely furnish “implications for design” (Dourish 2006), future offerings in this inter-discipline should dedicate more in-class discussion to unpacking this presumption. (Apart from these pedagogical issues,

institutional challenges also arose as students often had to meet with advisors and instructors from the design school during our scheduled class time.)

Future renditions of this course might select a single fieldsite for all students to observe during the semester. I had hoped that this unrestricted design anthropology project would stimulate creativity and promote autonomy, particularly among graduate students wanting to expand their portfolios and/or dissertations. I had also hoped it would survey the city of Philadelphia through distributed ethnographic analyses. Both may be true, but having one site for every student would eliminate the laborious responsibility of managing projects on multiple topics. In addition, it would enable the instructor to select for the species of animal to be studied, perhaps ensuring a focused inquiry of a single organism, an even distribution of biological strata (we did not consider aquatic animals¹⁰), and, most importantly, a deeper consideration of the ethical quandaries that arise from dealing with pests and other animals that might thrive under conditions of social injustice. How, one might ask, do people strive for the “just possible” (Lee 2022) when human and nonhuman interests conflict? Another solution to such challenges would entail dividing the course into two semesters, one about fieldwork and another about design, to prevent the ethnographic component from being subsumed by designers’ expectations of their architectures. Educators at other academic institutions without design schools might try employing design fiction or produce an online exhibition of student work rather than an in-person showcase. Finally, instructors elsewhere might extend our study of Philadelphia to other cities and/or prioritize global circulation of animals (see Barua 2021).

Facing Cities

As I worked to write this article, the *New York Times* and other news media publications started to report on an unusual scientific finding: Eurasian magpies and carrion crows had plucked out anti-bird spikes and built nests with them, positioning the sharp points inward for support or outward for defense (Anthes 2023). My inbox swelled as colleagues sent me annotations of these articles, underlining passages in which biologists lauded the birds for “fighting back” against “unpleasant design,” for making a “comeback.” Without denying the ingenuity of the corvids, an animal order admired for its craftiness, I wondered whether such triumphant narratives of animal agency—or “adaptation,” as one commentator online construed it—downplayed the intensity, and extensity, of the city’s injustices toward other-than-human lives. Consider this: at the time of writing in September of 2023, the Penn Bird Strikes Project has documented thirty fatal bird-window collisions on-campus since the start of the year. Whether in Philadelphia or elsewhere, the built environment disproportionately centers human dwelling, a deadly detriment to their animal co-habitants who inhabit space in altogether nonhuman ways. Consequently, “celebrating nature’s resilience,” as Stoetzer (2020) has cautioned, “runs the risk of absolving humans from collaborating with each other and other living beings to rebuild urban worlds” (361).

¹⁰ I thank Kate Moore for pointing this out (personal correspondence).

In this spirit of co-design, I created *Space/Power/Species*. A pedagogical experiment in teaching the city, this seminar-studio hybrid looked to forge moral accountabilities to urban animals through an innovative design anthropology project. With an anthropologist's eyes for contextual analysis and the designer's world-building hands, students tacked back and forth between theory and practice, grasping how the built environment structures human-animal relations, ethnographically, in order to transform them through a speculative design proposal and exhibition. "All animals," human and nonhuman, "are, at root, both at home in, and displaced from, the world" (Dobraszczyk 2023, 214). By studying how architecture mediates the differential vulnerabilities of the multispecies metropolis (Ginn et al. 2014), a disposition gradually emerged among students, an ontological awareness of, and ethico-aesthetic orientation to, the city's animals, its marginalized subjects. Coupling research and architectural fabulation and fabrication, this mixed-methods assignment cultivated ways of "looking at animals" (Berger 1980), their ecologies and socialities, that went from noticing them to an attentiveness to their needs, that is, to working out new kinds of response, new response-abilities. This, I proffer, is the potential of interdisciplinarity. Students did not just deconstruct urban theory by populating their imaginary of cities with animals, "profan[ing] the sacred figure of the human" (Wakefield and Braun 2019, 213). They took another step further, deconstructing the cage that divides human and animal by devising arrangements of species that afforded all beings a home. They reconstructed the city—a new, more just city that pullulated with the possibilities of becoming-with others.

This humble attempt to navigate the everyday straits of dwelling alongside animals joins a fleet of scholar-teachers striving to inspire their students to take their education into the world around them and enact desired changes. First among them are design anthropology theorists and practitioners. Despite a wave of literature on the topic across the past decade (Clarke 2020; Gunn et al. 2013; Smith et al. 2016), there are few reflections on teaching the subject within a university setting (Hale 2016; Wasson and Metcalf 2013). This article offers a much-needed addition to this growing field. To anthropologists, it demonstrates a means to bring design into the classroom as a potential instrument for creative expression and for political change, not simply as an infrastructure of social domination or ecological ruination; to designers, it presents a template for including ethnographic strategies of understanding how architecture, and design more generally, entangles the nonhuman—a long-neglected domain of inquiry with recent visibility (Thoren 2018). Second are scholars of human-animal studies (HAS), a field that has twice "exploded," first in the 1980s (Balcombe 1999) and again in the 2000s (Shapiro and DeMello 2010). With over 300 courses available as of the last survey in 2010, scholarship on "post-anthropocentric pedagogy" (Pedersen 2023) has elaborated how to teach students about animals in the natural sciences, social sciences, and the humanities (DeMello 2011; Lloro-Bidart and Banschbach 2019). To my knowledge, however, this is the first essay on teaching animals in the design disciplines that strives to center urban animals. More broadly, this article resonates with the broader anthropological impulse to imagine

futures “otherwise” (Povinelli 2011; see also DiSalvo 2022), from early theorizations of ethnography as “cultural critique” (Marcus and Fischer 1985) to the current interest in anthropology as a “method of hope” (Pandian 2019). By envisioning their world anew, students “fictionalize[d] anthropology” (McLean 2017), conjuring alternative modes of becoming human through speculation. As students of *Space/Power/Species* listened to the city’s animals and their stories, they sounded for murmurs of a better tomorrow in the chirps and chatter of the here-and-now.

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Appendix A: Assignments¹¹

Site Selection I (due Week Two)

Brainstorm 2-3 examples of “unpleasant design” that were not discussed by Savić (i.e., not bird spikes, wires, or poison). What animal(s) do they affect? Why might they have been built or installed? How do they affect the animal(s) in question? You may draw examples from media you have read or from your everyday experiences.

Site Selection II (due Week Three)

For this assignment, please submit a response paper that sketches out your fieldsite and the question you wish to investigate. Your paper should touch on the following components: (1) the site itself, or “contact zone,” and its key material and spatial characteristics; (2) the “figures” or agents that populate your site (e.g., “companion species,” “vermin being,” etc.); (3) what questions you would like to pose regarding the space and the relations, feelings, and interactions it facilitates; (4) the significance of these questions; and (5) the methods and evidence you plan to use, along with issues you might face. This paper should be short, roughly 250-words. This does not have to be perfect or definitive. The purpose of this exercise is to get you to think about your project—a beginning rather than an end.

Reflection: Analyzing Fieldnotes (due Week Four)

In 250 words, share a sample of your fieldnotes and reflect on its significance for the guiding questions that drive your ethnographic research. You should identify the time and location of your observations and your actors; include a quotation of your notes; and summarize its contents. Then you should analyze the observations by drawing on an idea or concept for in-class discussion of the week’s readings on “imaginative geographies,” “feral ecologies,” “becoming-with,” etc. What does it reveal about your site? What remains unanswered? What do you need to observe on your next visit?

Reflection: Writing Vignettes (due Week Five)

Write a short response paper (250-words) that weaves ethnographic description and analysis to tell a story about human-animal relationships at your fieldsite. You might narrate a pattern of interaction or a specific encounter that you recorded, which might be representative or exceptional. You should situate your narrative in some broader social, political, cultural, and/or ecological context that illuminates this interaction. You might reflect on whether your findings adhere to these larger structures or deviate from them.

¹¹ I have shortened these prompts for the sake of brevity, excluding original mention of grading assessment, extended examples, writing tips, and contextualizing remarks about the relationships between assignments.

Paper One: Contextualizing Data (due Week Six)

In a 4- to 6-page essay, analyze a human-animal interaction that you observed in your fieldwork. Drawing on your fieldnotes, contextualize that interaction using at least two course readings. Your paper should blend narrative and analysis and use at least one vignette. Make sure to describe your site, its actors, their relationships with one another, and the significance of those relationships. You might also bring in outside sources to extrapolate the context, but you are not required to do so.

Reflection: Theorizing Interviews (due Week Seven)

Write a short, 250-word paper that identifies the central design principle of your site and analyzes how it drives the human-animal interaction that you observed in your previous written assignments. How do the broader structures you previously identified materialize in your site? How do they condition how human and animal actors encounter one another? Your reflection should mention an interview with at least one person.

Paper Two: Understanding Material Culture (due Week Eight)

In a 4- to 6-page essay, expand on the last reflection by articulating how and why the context(s) that you detailed in Paper One manifest in the spatial arrangements and material technologies of the site you selected. How, in turn, do these features shape the social form(s) between species? How are human and nonhuman agency structured? Are there limits to these configurations—moments of disobedience or failure? You should combine participant observation data with interviews, plus two or more readings that you did not use in the first paper.

(Optional) Paper Revision (due a week after receiving comments)

You may choose to write Paper One or Two. Your revised essay should demonstrate significant improvement in the categories of evaluation I listed in my written comments, including analysis, evidence, clarity, style, and/or creativity.

Design Proposal (due Week Ten)

Submit a proposal for a speculative design intervention you would like to make into your fieldsite. Your proposal should have the following elements: (1) the title and your names; (2) a site analysis (i.e., your ethnographic analysis), including an overview of your site, its history, and broader context(s); (3) that design problem(s) that emerged during your fieldwork, with an analysis of *how* the space shapes the human-animal interactions you observed and *why* it is necessary to intervene; (4) your intervention and a textual and/or visual description of its key element(s) and effect(s) (make sure it is clear how your design responds to the problem); (5) your medium of choice (e.g., drawings, models, renderings, stories, film, sound art, or website, to name a few); (6) a

budget for materials, if applicable; and (7) a weekly schedule of deliverables that shows a progressive development of the project and its iterations, along with a division of labor.

Revised Proposal (due Week Eleven)

Address the comments that our guest critics provided in a revised proposal that considers the ethics of your intervention. You might discuss your positionality as a researcher-designer or the framing and consequences of your new design.

Project Iterations (due Weeks Twelve, Thirteen, and Fourteen)

Turn in an iteration of your project that you identified as a deliverable in your design proposal. This might be digital (a sketch, rendering, video) or material.

Guest Critiques (due Weeks Six, Seven, Ten, and Eleven)

Upload one slide to the communal deck. Your slide should identify your name(s) and fieldsite(s). It should include one non-textual form of media, whether visual (a photograph, sketch, map, artifact, etc.) or auditory. You will have 2 minutes to talk about the state of your project. Specify the human-animal interaction that you are studying and its spatial dimensions. You might also point to questions you have. You will be expected to listen and respond to feedback from the guest critic, me, and your classmates.

Appendix B: Readings

Unit Zero: An Abject Lesson in Human-Centered Design

Week One: Bird Spikes, Sorting the Sordid

Gordan Savicic and Selena Savic (2012), "Unpleasant for Pigeons"

STUDIO: Introduction to Design Anthropology

Unit One: Theoretical Foundations

Week Two: Humans and/as Animals

Donna Haraway (2007), *When Species Meet* (selections)

Eben Kirksey and Stefan Helmreich (2010), "The Emergence of Multispecies Ethnography"

Clapperton Chakanetsa Mavhunga (2011), "Vermin Being"

Anna Tsing (2013), "More-than-Human Sociality"

STUDIO: Fieldsites as Contact Zones

Week Three: Bestial Spaces

Jennifer Wolch et al. (1995), "Transspecies Urban Theory"

Maan Barua (2021), "Feral Ecologies"

STUDIO: Ethnography Workshop (Spruce Hill Bird Sanctuary)

Unit Two: Ethnographic Cases

Week Four: The City

Bettina Stoetzer (2020), "Urban Vulnerabilities"

Peter Alagona (2022), *The Accidental Ecosystem* (selections)

STUDIO: Writing Fieldnotes

Week Five: The Home

Yi-Fu Tuan (1984), "Cruelty and Affection"

Harriet Ritvo (2004), "Animal Planet"

David G. Anderson et al. (2017), "Architectures of Domestication"

STUDIO: Material Culture Workshop (Penn Museum)

Week Six: The Farm

Dawn Coppin (2008), "Crate and Mangle"

Alex Blanchette (2015), "Herding Species"

STUDIO: Ethnographic Critique I (with guest)

Week Seven: The In-“fur”-structure

HNTB + Van Valkenburg (2013), “ARC Wildlife Crossing Competition”

Gary Kroll (2018), “Snarge”

Thomas White (2023), “Road Ecology”

Kate Orff (2014), “Oyster-tecture”

Stephanie Wakefield and Bruce Braun (2019), “Oyster-tecture”

STUDIO: Ethnographic Critique II (with guest)

Unit Three: Design Possibilities

Week Eight: Nonhuman Phenomenologies

Jakob von Uexküll (1934), *A Foray into the Worlds of Animals and Humans*
(selections)

Eva Hayward (2010), “Fingeryeyes”

STUDIO: Animal Sensing Workshop (with guest)

Week Nine: Posthuman Design

Edward Dodington (2012), “Mess-Mate Co-Designers”

Joyce Hwang (2017), “Toward an Architecture for Urban Wildlife Advocacy”

Ariane Lourie Harrison (2022), “The Sixth Mass Extinction”

STUDIO: Designing for Animals Workshop (with guest)

Week Ten: Modes of Speculation

Yen-Ling Tsai et al. (2016), “Golden Snail Opera”

STUDIO: Design Critique I (with guest)

Week Eleven: More-than-Human Flourishing

Jia Hui Lee (2022), “Rodent Trapping and the Just Possible”

STUDIO: Design Critique II (with guest)

Week Twelve: Politics of Exhibition

John Berger (1980), “Why Look at Animals?”

STUDIO: Curation Workshop (with guest)

Week Thirteen: Exhibitionary Critique

Terike Haapoja (2023), “Museum of Nonhumanity”

STUDIO: Exhibition Consultation (with guest)

Week Fourteen: Wrap Up

STUDIO: Finalizing the Show

Week Fifteen: The Multispecies Exhibition