

The Ecology of the Bait Station

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Introduction

In this essay, I tell a story of the anticipation of the future by focusing on a very mundane object: a black box known as a rodent bait station. There are two forms of anticipation emerging from this box: the anticipation of rats as such (horror), and the anticipation of ecological collapse (regret). The former has become a conduit of the latter in this story.

The anticipation of rats becomes a problem of catastrophic threat only when we start to anticipate rats systematically and at a large scale. Once we have started to do that, at least two forms of ecological collapse come into view: the threat posed to other animals and the ecology by the use of poison to manage rats (part of the sixth mass extinction); and the threat posed by removing that maintenance and ushering in the ecological invasion of rats and their damage and disease (the rat apocalypse).

I also want to tell a story here about domestication. Rats are not domesticated animals in the colloquial sense that we associate with pets or food animals—but they are very much us—which accounts, I think, for the horror they sometimes evoke. The context of domestication I want to draw attention to here is a modern one: the establishment of communities of homes, condos, or apartments managed in common by a private firm and associated services, such as pest control. In particular in LA, the large, uniform housing developments—the sprawl we are justly famous for—and in particular the Home Owner’s Associations that govern them (HOAs).

The power of domestication is not the power of human ingenuity; despite the benefits it brought in the neolithic period, it was not an intentional directed change, but a salutary (for humans and some animals and plants) evolutionary process. My goal here is to focus on one contemporary place that that process is still occurring, very much in the same mundane ways which we ought to try to understand better if we think we have any chance of controlling it, a proposition I am not fully willing to defend Swanson, Lien, and Ween, 2018.



This box is a rodent bait station. It may be the most common thing you have never noticed. I encourage you to go outside after reading this and take a walk and look for one, because now that you have seen it, you will notice it everywhere you go. They are behind restaurants, in alleyways, around apartment complexes tucked beneath patios, or bushes, always along a wall because rats tend to run close to walls to keep at least one side safe at all times, just like humans do in horror movies. Sometimes the boxes are attached to walls or fences where rats might run, but usually they sit on the ground, often secured with a stake and locked to avoid tampering. Occasionally you might see a metal, silver station, which is a sign that some other animal, like a family dog or a raccoon, or a child, has been successfully opening the plastic black ones. Sometimes you might catch a glimpse of one shaped like a small boulder—an effort to “discreetly attract and eliminate rodents from restaurants, malls, amusement parks” and “get the job done without drawing too much attention to your pest control system” which, although it may sound counter-intuitive, is in fact an element valued by the people who place and monitor these stations.

In the last two years, I have spent dozens of grueling days walking through neighborhoods, apartment complexes, 2000-property housing developments, down bucolic gated paths, around man-made ponds and up landscaped hillsides that run straight into “wilderness”, as a pest control tech wearing gloves, and carrying a 5 gallon bucket full of baits repeats the same action for 12 hours: Locate bait station (they almost always remember the exact location of all of them), kneel down, grab the plastic “key” connected

by a cord to the bucket that unlocks the bait station, open, brush out debris, examine the bait; if it is diminished, replace it with a new block, if not, leave it there and close the station and repeat 12 hours a day 5 or 6 days a week.

The box is not a trap: rather, it is designed to allow rats to enter into the box from one side and leave from another, into a safe place, one protected from predators like owls or hawks, and while there to safely consume a block that has been placed inside. This block is a “paraffinized bait block” that is primarily made of some food source, like oats, an attractant of some kind, flavoring, blue, red or green food coloring, and a poison that will kill the rat.

In principle you can put any poison in the bait station, but in practice, one particular kind of poison has proven dramatically more effective than the others: anticoagulant poisons, specifically Second Generation Anticoagulant Poisons or SGARs. SGARs do exactly the same thing that blood thinners do for humans—thin the blood by blocking its normal coagulation process. For people with high blood pressure, this thinning allows the blood to move more quickly through vessels and tissues, decreasing the pressure. Take too much and it will increase the permeability of your vessels, leading to internal bleeding, hemorrhagic shock or anemia, and death. These poisons do not kill the rat immediately but instead over the course of days or weeks.

Given this temporality of the poison, you will almost never find a dead rat inside one of these stations—because the design of the poison allows rats to feed multiple times, and to return to a nest, perhaps carrying with it a chunk of the bait block to share with its children. By designing a poison that is not immediate, the goal is to kill many rats with one trap. A dead rat in a bait box might deter other rats from going in. By contrast the anticoagulant bait block lures the rat in, enters the rat’s body, and leaves with it. Rats can, and probably sometimes do, line up to die this way, one behind the other, like a perverse carnival ride. Pest control officers need only check the box every couple of weeks, add more bait, and move on. While this provides no direct evidence of how many rats are killed, the amount of bait eaten is used as a proxy marker.

Bait stations are never set up inside a house, but always outside the house or building, on the theory that it will catch rats before they go inside a structure. A snap trap inside the house obviously only kills one rat at a time, and a rat that has already taken up residence in a structure.¹ Snap traps, are most often set up in hidden spaces—basements, rafters, attics, along places where there is evidence of rats running—indicated by rub marks and droppings. Bait stations are placed around the edges of structures at distances that represent the foraging range of the rat in question (usually about 25-50 ft for rats). The bait station and the snap trap treat different moments of the rat lifestyle, not different rats.

The bright colors of the bait block serve multiple design purposes: they warn humans that they are “unnatural”—a particularly unlikely tactic in the age of Flamin’ Hot Cheetos²—and they also allow for

¹In California, and many other places, pest control professionals usually have two different practices and two licensing systems to go with it: structural pest control and agricultural. Their are interesting fuzzy lines around, for instance, flood control channels and highway medians, but for the most part, pests are treated differently if a (human-constructed) structure is involved.

²From the Department of You Can’t Make This Shit Up: at the 2019 PestWorld conference in San Diego, attendees were treated to an inspirational speech by Richard Montañez, head of multicultural sales and marketing across Pepsi’s North American divisions, who is also the inventor of Flamin Hot Cheetos. Flamin Hot There was no indication, beyond that of inspiration, whether there was a connection between pest control and Flamin Hot Cheetos.

tracking consumption by the location of bright blue, green, or pink rat droppings nearby.³ In addition, and in an attempt to deter human children and pet dogs and cats from eating the baits, a bitterant called denatonium benzoate (trade name Bitrex) is added—the “most bitter substance known to man”— which makes the blocks unpalatable to Man, but apparently not to Rat.

The fact that the poison is inside a bait station is a result of decades of general concern. Prior to 2008, it was common, and in some places still is common, to simply “broadcast” poison by throwing it into a landscape where rats are known to reside, such as a subway tunnel, around the edges of a barn, into a sewer, or perhaps a large patch of overgrown ivy. Consumer uses were lightly regulated until 2008, at which point new restrictions on the most deadly poisons made it more difficult, though not impossible, for consumers to obtain and use various rodenticides. Prior to 2008, labels “required” the use of a tamper-resistant box to keep children and animals safe; but it was clear from the number of poisoning incidents in the US, that consumers were not following such instructions, and the EPA began a process of exploring ways to limit such events.

It was in 2008 that the US EPA decided to require the use of a “tamper-proof” bait stations for 10 different rodenticides that could have, as we say, “off-target effects” on children, pets or other wildlife.⁴ Such bait stations can qualify in one of three tiers depending on whether they are weather resistant, whether they have been tested against children, or whether they have been tested against dogs. The EPA’s 2008 decision includes elaborate protocols for how to test a proposed rat bait station. As of 2008, all rodenticides are now expected to be inside a bait station, unless they are used underground, or on an island—a different use case that sometimes surprises people, but relates to the eradication of rats from ecologically sensitive islands (a current controversy is raging around precisely this use on the Farrallon Islands off the coast of San Francisco)⁵

Each US state as well as other nations regulate SGARs differently. Rodenticides are outright banned in some small municipalities, highly restricted in others. California’s Department of Pesticide Regulations requires users of it to be licensed professionals: pest control professionals, agricultural extension workers, some building or property managers are so licensed. But sale of these poisons and boxes is supposed to be restricted to general consumers, and growing calls for regulation, as we will see, have created a changing regulatory context. Some municipalities—particularly wealthy white, environmentally aware communities, have banned the use of SGARs outright, though there is no evidence of either the violation or the enforcement of such bans.

It is important that the EPA’s strategy for managing the potential harmful effects of this poison is to focus on the architectural container or membrane. The focus on the box is connected to the choice of

³In 1998, the EPA recommended indicator dyes for bait not so much to warn children as to provide evidence of whether they had consumed the poison by “leaving a stain on the child’s mouth or hands.” (3, 2008 Ten Rodenticides). But a stakeholder group met and decided against either the dye (“lack of suitable dye”) and the bitterant “due to its potential adverse effect on the efficacy of rodenticide baits” (3-4). A 2004 court case, however, *West Harlem and NRDC vs. EPA*, determined that indicator dyes were not required, but bitterants should be considered. The 2008 Document is the final say, and bait stations were the solution.

⁴“To minimize children’s exposure to rodenticide products used in homes, EPA is requiring that all rodenticide bait products marketed to general and residential consumers be sold only with bait stations, with loose bait (e.g. pellets and meal) as a prohibited bait form.” and “To reduce wildlife exposures and ecological risks... bait stations will be required for all outdoor, above-ground uses of these second generation anticoagulants.” pgs 1-2 Risk Mitigation for Ten Rodenticides, May 28, 2008

⁵News story

available poisons: those with secondary effects, and those which are not target specific (i.e. are toxic to all mammals, not just rodents). This focus implies both a set of assumptions about harm—that children, pets, or wildlife will directly consume the poison, and must be protected by making it more difficult to access the poison.

By requiring a bait station, the regulation amplifies a particular set of functions embodied in the bait station: efficiency, simplicity, low-labor maintenance, safety, tamper-resistance. Yet it is also precisely this ingenious design of the trap which also creates its biggest threat to the world we try to stabilize by virtue of using them.

The design of the bait station makes the poison mobile: it allows the poison-filled rat to return to the nest. A rat can live for weeks with the poison in its body, and a rat's body is food for other animals, which in Los Angeles includes bobcats, mountain lions, coyotes, hawks, owls, dogs, foxes, cats, raccoons, opossums, and a few other birds and mammals. Even more, though the poisons are designed to be effective in a single feeding, because they do not kill the rats immediately, a rat can potentially consume much more poison than is needed to kill the rat, and leave plenty for anything that consumes the rat.⁶ Although the scientific evidence of how the poison gets from bait stations to rats and then to other animals is not well developed, it has become obvious that it SGARs are now in nearly every carnivorous bird, mammal, and possibly reptiles in the state of California.

The secondary effects of SGARs have slowly become more and more alarming to wildlife biologists around the world. National Park Service employees have established that trace amounts of the poison are present throughout the foodchain in California, from the rats all the way up to mountain lions in the most remote parts of the state (RILEY et al., 2007; Elliott et al., 2016). This is not just because the rats are food, but because the predators that eat the rats, such as raccoons or coyotes, are also food, and so on—like an obscene version of the old lady who swallowed the fly. I guess they'll die. A kind of universally thinned blood is one imaginable outcome, but it is not the only effect. The direct action of SGARS is attenuated with each animal that consumes another animal, but it might also be disturbing other biological functions as well.

In a Sisyphean effort to understand the harm it causes to bobcats, conservation biologist Laurel Serieys and collaborators have worked to establish that bobcats exposed to these poisons are also experiencing effects on their immune system, which may account for why more of them are dying from (rather than just suffering from) diseases like mange (Benson, Mahoney, et al., 2016; S. P. Riley et al., 2014; S. P. Riley et al., 2014; Fraser et al., 2018). The effort is Sisyphean because the main experimental challenge is finding a control group of animals that has not been exposed to rodenticide.

With the increasing scientific and public awareness, the question of how to stop the spread of this poison into the food chain has led to a variety of responses, but most loudly a call to ban the poison outright. Bans exist in some small localities, usually wealthy small cities nestled in the hills like Calabasas or Ojai. At the state level, use of rodenticides was restricted in 2016—it cannot be used in state parks, wildlife refuges, or conservancies. And in the last 4 years, Assemblymember Richard Bloom (D-Malibu-

⁶So-called "super-lethal" doses. In 2004, after a prolonged study, EPA release a report documenting the secondary poisonin effects of nine rodenticides. This document from the environmental fate and effects division documents the threats.

Santa Monica) has repeatedly introduced bills to ban SGARS outright, starting 2016 with AB2596, then a year later with AB1687, then AB2422, and in 2019, AB1788. With each introduction the bill has gone farther through the legislative process, as support has grown.

Perhaps predictably, bills to ban SGARs outright pits wildlife advocates against pest control operators, and often seems to force these parties into positions on the left and the right, even if there are liberal pest control operators or conservative wildlife defenders in the mix. The industry trade group—Pest Control Operators of California—lobbys on behalf of most pest control companies. On the day in May 2019 when AB1788 was introduced, I happened to be on a ride-along with a pest control tech, who received an email both from his boss, and from an industry mailing list, detailing the bill and its threats. This led to an ongoing conversation with the various techs about the wisdom of banning the poison completely, and the possible outcomes.

The logic behind AB1788 and its precursors tends to be that we should start by restricting SGARs in places where wildlife are known to live, and then extend that ban piecemeal to other areas. The concern about the control of rats generally implicates not just residents, but agricultural facilities (especially where barns and greenhouses, or animal husbandry is involved) that depend on rodent control among other forms of pest control. In addition, it implicates vector control districts and public health agencies charged with monitoring disease outbreaks. As such, the legislation has been regularly amended to include carve-outs for agricultural production and for public health emergencies.

In California at least, and probably most other US cities these days, the line between urban and rural is considerably confused: agricultural uses run alongside suburban and exurban settlements, the hinterlands of many cities are increasingly sites for multiple uses, from agriculture and energy, to manufacturing or research parks. And given how far the poison can travel once it starts to go into a food chain—a rat can travel 50 yards, but the owl that eats that rat travels several miles in every direction. As the bills to ban rodenticide have wended through the legislature, exceptions for agricultural use inevitably get added, but the idea that one can protect sensitive ecological areas by simply not placing poison in those places is as unlikely given the mixed uses of land throughout the state. We may love our mountain lions and their “wilderness habitat” but it is largely a fiction that it is wild.

Perhaps more daunting is the fact that bait stations are literally everywhere now—because rats are everywhere. They are used ubiquitously in cities, and on farms (which in the US covers over half of the existing territory of the country). Any barn-owner, CAFO-slumlord, city resident, high-rise manager, or home owner’s association tasked with controlling rats is likely to contract with a pest control company, and unless they are willing to pay extra for a different solution like snap traps, it is the anti-coagulant poison which will be used.

The range of different places I have visited and seen bait stations refilled is bewildering: apartment and condo complexes, large gated housing developments, single family homes, hotels, palatial mansions in the hills, parking garages, Six Flags Magic Mountain, a Japanese garden, LA Sanitation water treatment plants, Sarah Michelle Gellar’s house, a hilltop California Highway Patrol transmission tower at the end of a 15 mile dirt road, tiny public parks and “paseos” that connect them, an oil field, University campuses, sound stages, warehouses, ranches, malls and on and on. Indeed, I play a game when I have time, of driving

around the city to any random spot, parking, and looking for a bait station. Almost without fail it takes less than 5 minutes. It's a very satisfying—though that is not the correct word—kind of scavenger hunt. Techs I have ridden with estimate that somewhere between 10% and 30% of properties in the city have bait stations in them.

As such, the bait station is as common a part of the urban ecology as any living species—like palm trees or feral cats—and as common a feature of the urban landscape and likely more common in LA, as any ecological feature like permeable soil or vernal pools. It's likely that this food source is at least as abundant and available to rats in some parts of the city (those with more concrete, say) than other obviously abundant things such as food waste, fruit trees or compost bins. This ubiquity means that they transform the ecology, not only of rats, and of their predators, but of many other species as well.

The bait box, you see, is not only an element within an ecology, reordering relationships amongst humans, rats, mountain lions, and the city, but it also contains, russian doll style, another hidden ecosystem—or perhaps just a novel habitat—inside it. By making the poison delivery device into a tiny architectural space, it invites new ecological relations to take hold. Although these relations are unknown to science, it is clear to any pest-control tech who spends his or her days re-filling these stations. Open one up—especially one in a moist or lush garden spot—and you will encounter a horrorshow worthy of Hollywood's grimmest imagination: lizards, black widow spiders, snails and slugs, pill bugs, crickets, snakes (poisonous and not), webs, leaves, slime, death and so so much shit, rat shit, mouse shit, lizard shit, and remarkably, a ridiculously large amount of snail shit. I did not even know that snails shat. I had to look it up. But when I first looked at one of the boxes—which the techs look at all day long—I had to ask: snail shit, WTF?

Snails, of course, don't have a circulatory system, or at least not one dependent on the same kind of red vital fluid targeted by the bait blocks. It's impossible to say what the bait blocks do to the snails and slugs, because as far as I can tell no one has studied it, and even those who have noticed—pest control scientists—are only concerned about changes to the efficiency of the poison, i.e. whether the snails and slugs are preferable food than bait blocks to the rats. If they are, then the snails are not just a nuisance but they decrease the efficacy of the poison. But even if they are not a preferable food source, they themselves also make the poison mobile—which is evident in the trails of blue shit often leading out of a bait box, up a wall, or across a nearby rose bushes' leaves, making the poison mobile and accessible to a whole different set of predators—like the birds and reptiles that prey on slugs and snails (Van den Brink et al., 2018 p. 241).⁷

Although I have seen lizards and snakes slither and squirm out of these boxes when opened, I have not confirmed whether they too are eating the poison—or only other creatures that have eaten the poison. Their preference for the box is more likely just a feature of their cold blood—as black boxes they retain more heat than the surrounding landscape, and thus make ideal homes for certain creatures. Who knows what ecological or social relations obtain amongst the spiders and crickets and garden snakes therein, but with the exception of other kinds of ubiquitous urban boxes—such as irrigation boxes, which are incidentally also used as bait stations for larger rodents like squirrels, and are frequently home to bee hives (cue a different paper)—the bait station is a novel habitat provided by humans, available to any animal willing to

⁷Should you feel any empathy for the slug, do not worry, because a different poison awaits them at the hands of the rose-lover: a neurotoxin that poisons them as they slime over your roses or your fruit, and vampire-like, causes them to fry to death in the hot sun because they cannot move. The horrors of human ingenuity clearly know no limits.

do a 10 minute scavenger hunt, anywhere in the city.

The *ecology* of the bait station is thus one way of re-thinking the way cities reshape nature, from the relatively short term physiological aspects of such things as urban heat to the longer term dynamics of evolutionary and ecological change. It is clear from contemporary research that cities create novel evolutionary pressures on animals and plants. Maria Alberti, for instance, has reviewed the wealth of research on this topic to document everything from changing wing length in birds as a result of flying in cities to the body shape of fish in dammed rivers, to the body size and immune changes, to, importantly, the tolerance to toxicity (see Alberti, 2015, table 1). Such studies often consider built environments as a kind of novel ecological container that descends, *deus ex machina* from the otherwise unqueried activities of humans. The rodent bait station, however, should lead us to pay closer attention to these activities and the ways they spread.

The rodent bait station is not just a tool, but also a centrifugal distributor of anticoagulant poison throughout that same transformed urban ecology, and it is the mechanisms of distribution that will help explain, or at least hypothesize, how we are re-making the world. Stare hard enough at this box, and you might reach the conclusion that everything is anthropogenic; that every aspect of what we think of as wild nature, of undomesticated nature, of the planet's biodiversity, is in fact already the result of human action, if not of human design, and inside this box.

The Economy of the Bait Station

Rats are emblems of both human sedentarism and human mobility, of both the origins of complex human settlement and a sign of colonial proliferation. Domesticated animals—dogs and horses most dramatically—are also signs of human history, colonial expansion, and the yoking together of human values and biological transformation (domestication) of other animals. Rats, however, are not domesticated in this conventional sense of being a service animal for humans; but they are nonetheless domesticated, and perhaps uniquely a sign of the *domus* (Larson and Fuller, 2014). For it is when humans stop moving and create settlements and food storage that wild rodents become commensal (Hulme-Beaman et al., 2016; Jones et al., 2013; Weissbrod et al., 2017).⁸ But the movement of humans is also the movement of rats. Rats are known to have accompanied prehistoric peoples in the colonization of the Polynesian islands, during which humans and the rats that travelled with them extirpated 2/3rds of the island birds (Boivin et al., 2016). The likely ancestral origin of brown rats (*rattus norvegicus*) is in Mongolia, and their global spread has occurred only in the last 1K years, with relatively clear invasions happening in Europe in the 1200s and to the new world between 1500 and 1800. (Puckett and Munshi-South, 2019; Puckett, Park, et al., 2016). More recently, introductions and reintroductions of rats to islands have occurred in places like New Zealand or the Farrallon islands of the West Coast of the US, where rats threaten tens, hundreds or thousands of native species. The longer rats have accompanied us on our conquests, the more adapted they have become to travelling with us, to the point where there is no place left on earth where one cannot find a black rat or a Norway

⁸“A New Look at “on Mice and Men”: Should Commensal Species be Used as a Universal Indicator of Early Sedentism?” Miriam Belmaker and Ashley B. Brown IN *Bones and Identity Zooarchaeological Approaches to Reconstructing Social and Cultural Landscapes in Southwest Asia*. 2016 Oxbow Books

rat. Except, if you choose to believe it, the province of Alberta in Canada.⁹

Unlike dogs or horses, rats are not welcome companions; and unlike cattle or pigs, they are not sources of wealth or nutrition.¹⁰ Commensal species are usually defined as “+/0”—species that benefit from living alongside one another but do not compete for resources. But rats clearly have a distinct impact on human resources by consuming them, causing property damage and spoilage, and in their capacity to transmit diseases. The fact that they are also now despised for their impact on threatened or endangered species also means that they cause a kind of existential or aesthetic damage to humans. As such our most common relationship to rats is to be their murderer. Killing rats has been our job since as long as we have been domesticating them. “Commensalism” is there for not such an accurate label, since they may benefit from living with us food-wise, but they also suffer massive loss from our bloodlust. Meanwhile they may not exactly compete with humans for food so much as cause trouble in the steady maintenance of our own resources, including both our food and our health. Hulme-Beaman, for instance, propose “anthrodependent” as one way of characterizing taxa that are commensal but can have negative impacts; but even in that case rats are as capable of surviving in natural (non-anthrodependent) settings as humans are (Hulme-Beaman et al., 2016).

Rats are us. It might be better to think of rats less as a competitor or companion species, and more like an extension of humans that needs to be managed, not unlike our microbiome, but with fewer obvious beneficial effects. Rats are thus a “maintenance” problem not just of modernity, but of the long span of human societies. Rats constitute a constant and direct, if minor and annoying, threat to existing vital systems and infrastructures, a vector of diseases, and a repository of fear and loathing; but they are also, as a species or a population, themselves an object of regular maintenance and control. Although we routinely engage in the maintenance and repair of things *damaged by* rats—wiring, holes in walls and doors, disease outbreaks—we also engage in regular forms of the maintenance of *rats as a population*.

For a species that has become so closely identified with humans and their activities, the surprising thing about rat maintenance—different from the maintenance of, say, a storm drain flood control system—is the near total lack of knowledge that is involved. This lack takes two forms—the lesser of which is a general lack of rigorous behavioral understanding of rats and their ways of being in our world. We know a ton about laboratory rats, as proxies for humans, but the number of scientists who study rats in the wild—which is to say, in cities—can be counted on one or two tiny paws.

The greater lack of knowledge however is the inability to monitor or observe any particular population of rats undergoing maintenance. Evidence of rat infestations is limited and generally folkloric or anecdotal; evidence of rat population increase or decrease is gathered, as far as I can tell, solely by sensationalistic local news footage of rats scampering around at night. It’s as if the ubiquity of rats makes them somehow more cryptic, not less.

To be fair, it is better to say that there is an imbalance between our knowledge of City Rat and Country Rat. The community of people who monitor rats and their behavior has traditionally been part of the network or agricultural stations, nationally and internationally, whose main goal is to reduce damage or

⁹The story of Alberta is reported every few months it seems.

¹⁰although certain species of South-East Asian rats are eaten, cf. Morgan Spurlock’s film *Rats*; also Sullivan, 2004

disease threats that rats cause in fields, barns, slaughterhouses, or warehouses. It has largely been a science of insulating the food supply so that more of it goes to humans and less of it to rats and other creatures.

What we do know about rats as pests comes largely from scientists who work in agricultural settings. They are often government employees—the USDA, Agricultural departments, the International Rice Institute, etc. In the US, wild rat knowledge is created by people in the network of land grant universities, agricultural and cooperative extension units, federal wildlife damage management professionals, departments of fish and game, or the occasional university biologist or ecologist drawn into such networks. Such scientists usually have a mission confined to non-urban spaces: their goal is to keep the agricultural separate from the wilderness, not the city separate from the country, or the urban from the rural. Often the monitoring of such spaces is easier to conduct because it is large and uniform. The gradient between the agricultural setting and the wilderness surrounding it is easier to identify, to study, and to manage, than the heterogenous mess that constitutes a city. As such, country rat is a reasonably well-studied adversary.

It is not an accident therefore that the discovery of Warfarin—the first anticoagulant—not only took place on a farm where cows were dying from consuming sweet clover with anticoagulant properties, but that the scientist who made the connection recognized that it would be a good rat poison—not just a blood thinner for humans.¹¹

But when it comes to City Rat, and especially in science, this professional knowledge falters or disappears completely. Urban environments are far too heterogeneous to monitor rat populations, and rats far too cryptic to be monitored in the same ways one might track them in a field, a barn or a warehouse. In cities, concern shades into questions of zoonotic disease threats and a generalized disgust and fear of night-dwelling creatures whose affinity for trash and alleyways makes them instantly suspect. When oversight shifts from the county or the state level—agricultural districts, fish and game departments—to cities, the municipal entities concerned with rats also change—to sanitation departments, animal services, or public health departments, few of which consider rats to be their responsibility.

Indeed, in the state of California, there are very few citywide rodent control programs. The City of Los Angeles, the largest single entity in Southern California, has no rodent control program. The LA County Department of Public Health fills in when outbreaks occur, but the real work falls entirely to private pest control companies, who are thus single-handedly responsible for the state of rodent monitoring and maintenance in the city.

Anticipation of Rats

It's Veteran's Day and L is working a normal, routine 12-hour day. In fact he's overly concerned that I will see nothing interesting all day long as I tag along with him. We meet at 7am at the top of a housing development that backs up against the hills in Canyon Country. He's filling bait stations so he has on his gloves and a 5 gallon white bucket with the poison blocks, brush, a spike, and the key. We walk round the edge of one house, between the house and the hills. He walks fast, talking nonstop, and along the edge of the house outside the property. About every

¹¹Link KP (1959) The discovery of dicumarol and its sequels. *Circulation* 19:97–107

40 feet or so there is a bait station hidden along the fence-line. The HOA is backed up against what looks like a very undeveloped landscape: beautiful brown hills, rock outcroppings, cactus and chapparal. We walk past house after house, along a narrow path, often above some pretty serious inclines, stopping at each station, checking whether it needs more poison. Insert key, open station, look for black widows (smash with head of metal stake if you find one), brush out leaves, snail shells, snail poop or other detritus, assess poison, add some to the metal rod that hangs (fits three poison), or put one on an upright plastic post, keep a mental note of how much poison you add, close lid, thump it to lock, pick up bucket, move on. Very little of note happens, only a couple of dogs and residents are out and about. At one point I am disoriented by where we are and how he knows to find the stations, but he explains that he is out here regularly. I struggle to keep up and to converse as he tells me about his passion (golf) and his thoughts about being a pest-control officer: that it's a good job, but he just doesn't feel much ambition about it. After we have visited maybe 50 stations, I ask about interacting with the residents. He explains that he doesn't have to on this job because it is an HOA and they communicate with his boss; in fact he prefers not to interact with them because inevitably one of them will confront him, accuse him of being a killer, verbally abuse him, or in the worst cases, vandalize his truck or physically threaten him. (Field notes, November 12, 2018).

There is a proud tradition of rat-catching stretching back at least to the 1700s. The private pest control industry of today is a descendant of this tradition. Pest control handbooks and rat-catching guides all offer the same repeated, often vague instructions: look for the places that rats get in, look for the brown or black marks (sebum) that are signs of entrance, look for rat droppings. Traces and tracks of this sort descend not from scientific or systematic knowledge, but from a version of hunting knowledge. And indeed, Pest control officers are often avid sport hunters, or share certain characteristics with hunters even if they are not. The ability to spot the signs of an animal, track the animal, think like the animal—these are all the characteristics of the best pest control techs. Like Kohn's Runa or Willerslev's Yukaghirs, Pest Control officers are in tune with a world that most people never give a thought to, and could not control without their help. Their enthusiasm for "excluding" a house or a property, and for employing the tracking skills of a clever hunter, is infectious and endearing.

But hunting and catching rats is not anticipatory, it is reactive. Rats appear to humans somehow, by causing damage, by taking up residence, or by otherwise being a cause necessitating an effect. The rat catcher can retroactively identify how rats got in to a structure or landscape—food sources, holes, trees touching roofs, etc—and alter the building or landscape to prevent the same from happening in the future. The rat catcher can anticipate rat behavior and predict where to catch and kill them, or as they say, "where to place management devices"—but they do not anticipate the presense of rats in any larger sense. These forms of anticipation are classical. They represent the small-scale, embodied forms of anticipation through which an adversary—the rat—is tracked and outsmarted by humans. It makes good copy, but not a lot of money.

The bait station, by contrast, allows for and even encourages a different kind of anticipation, one that happens at a different scale and implicates no less than contemporary democracy in America. It is of course

convenient (for STS Scholars) that the bait station is a black box, though it's blackness is of use chiefly for hiding it in the environment, and for benefitting the cold-blooded non-murine inhabitants of the box. As a black box, it also harbors the anxieties and fears of the people who command their appearance on the landscape. Not those who actually put them there—pest control officers—but those who determine the need for them, subsequent to which they are emplaced and maintained by the pest control techs.

To be sure, individual homeowners frequently demand the placement of bait stations. But the vastly more common use of bait stations is in the context of larger collective properties such as gated communities, apartment complexes, condominium developments, or especially in Southern California, Florida or Texas, the sprawling developed communities whose governance is attended to first by a Home Owners Association (HOA) and only secondly a surrounding city or county. Homeowner's associations constitute a significant form of "private government" in states like California and Florida: "Homeowners associations are automatic, mandatory membership organizations that began as instruments of real estate law to ensure that common areas, which range from amenities such as swimming pools to infrastructure like streets, are maintained permanently" (McCabe, 2011, p535).

The anticipation of rats in this instance is like the anticipation that grass will grow, and need therefore to be cut. In HOAs, homeowners or residents consent to be governed by Covenants, Conditions, and Restrictions (CCRs), which usually set out rules about the shared obligations residents have to manage common vs. private areas of the development or complex. In many cases pest control, like the maintenance of lawns on medians or common spaces, or cleaning of the community pool, is handled by the HOA, which is likely in turn to contract with a Community Management firm that deals with several such communities, and who will assign a community manager to deal with the day to day affairs of the HOA. The community managers in turn are most often the people who deal with the anticipation of rats.

This fact was driven home to me when I asked the head of one Pest Control firm whether he had contacts with residents I could talk to, and he offered me a one gallon plastic bag overflowing with the business cards of community managers, HOA management companies, and HOA board members. There are hundreds if not thousands of firms in the Southland whose job is to act as the equivalent of a city manager for an HOA. There are approximately 55,000 HOAs in California, and nationwide 80% of new homes and 20% of existing homes are in HOAs (Clarke and Freedman, 2019, p. 14). They range in size from a few tenants in an apartment building to thousands of houses in an area large enough to be its own city; and sometimes they are, like Celebration, Florida near Disneyworld (Population: 7,427) (McCabe, 2011).

This subsidiary anticipation of rats—a delegation of the responsibility to keep fear and loathing at bay—is of immense economic benefit to the Pest Control firms: they get to sign big contracts with HOA managers, and they do routine maintenance of bait stations rather than storybook detective work trapping a few wily rats that venture into a house (the kind of work they would usually prefer to do, and are still trained to do). What used to be a practice of investigation and rat-hunting has become a "device deployment industry—you've got a rat problem, we've got a rat-box", as one professional said to me, "Unfortunately, that's what the industry has become, and it's soul-stealing work." (Notes, WRA Nov 2019).

As a result, the bait station privileges a generalized form of rat anticipation over targeted, reactive treatment. A contract with an HOA can be ongoing—it treats rats as a chronic rather than an acute prob-

lem. A contract with an HOA means that decisions about placement, treatment, timing, access and other practicalities can go through a single source. A contract with an HOA that has a thousand houses may be, in absolute terms, worth less than 1000 contracts with the residents of an HOA, but the latter would be impossible to manage for a small firm, and unlikely with a massive marketing campaign.

In HOA-wide rodent control contracts, the evidence of rats or rat infestations also changes. Whereas individual customers report rat activity, which determines whether or not to increase or decrease the amount of rodent management, when the same residents are serviced by an HOA contract, they are probably not even aware of it. If they see rats, it might translate into a revised contract for more bait stations, or additional trapping, but they are unlikely to be actively discussing the absence of rats with their HOA or their neighbors, unless they become aware of the dangers to wildlife.

Objective measures of rat population are also lacking. PCOs have had no reliable way to judge the presence of rats in such settings other than by the amount of bait consumed from one visit to the next. And given that most techs need to move fast, this evidence is not documented in any way but more or less becomes a kind of intuitive or embodied sense of more or less rats. Only the amount of poison used by a tech can be accounted for, and in general even this is not recorded. In my experience, a nearly subconscious assessment seems to guide the techs as they examine the bait and decide whether to leave it there, or place the remnants back in the bucket with the whole baits. Sometimes a half eaten bait is used in another station, especially when supplies get low in a bucket and the walk back to the truck would be prohibitive of getting the job done.

On the one hand the advent of the bait station allows the pest control industry to treat some urban environments more like agricultural land than urban land—to apply the knowledge of pest control to a neighborhood of homes as if it were a field in which Americans were grown, not a market of unique customers each of which may or may not have a rat problem. But on the other hand, it produces a monotonous form of work—“soul-stealing work” which produces “bait-station monkeys” as one pest professional described the techs—which is not responsive in any precise way to the actual presence of rodents, nor does it effectively limit the amount of poison being added to the environment but probably instead provides an incentive to increase it.

A predictable evolution of the bait station over the last couple of years has been the addition of new forms of technology. Bait station manufacturers have started to design bait stations that monitor usage in different ways, by registering movement in the station, entrances and exits, or the setting off of a trap. But such stations and data collection are unlikely to become common until these high-tech bait stations cost the same as a plastic box, and even then, the maintenance costs of using a hundred of them in an HOA is probably going to prohibit such forms of monitoring—to say nothing of the data collection overhead, the risks of data breaches, and the issues of privacy that so far, the pest control industry has managed to avoid.

As such, the combination of the bait station and the HOA contract means that PCOs have an incentive to place as much poison as feasible in the landscape, and to do so indefinitely. Individual trapping service, by contrast, entails the regular checking of the traps, which also implies scheduling and entering a home, a one time fee, and higher transaction costs. Just as monocropping in agriculture, or CAFOs in food production reward actors economically and decimate small-scale higher quality food production, so too

does the bait station and the HOA allow the distribution of poison in the environment to increase in scale.

Thus anticipation of rats disappears for the vast majority of people, into a kind of background or managed problem, much like other forms of infrastructure maintenance we depend on. It is impossible to know whether an HOA continues to poison rats because of active oversight, or because of response to resident complaints, or simply in order to maintain plausible deniability. In some cases, though I have not seen explicit evidence or this, anticipation of rats could be written into the CCRs that govern an HOA. Given that CCRs are famous for their fascistic tendencies to regulate everything from housepaint colors to the weight limits on dogs, it is certainly not inconceivable that the killing of rats might actually be *required* of residents who live in an HOA. In my experience, the necessary bloodlust is not lacking, but it is just as likely that some residents will object to the poisoning whether out of concern for the rats, or for the wildlife that eat them.

R lives in an gated “senior-living” community in the San Fernando Valley. She lives in a recently built duplex with her husband—it is a single story divided in half so that the two units share one wall, and have their own patios and grassy area on either side. It boasts careful landscaping and grass, various statuettes by the front door and a big sign that says “These Plants are Personal Property. Enjoy the View Please do not touch and keep pets away.” There is a little sign of a dog with a cross through it. “Thank you,” it says below that. The house abuts a small hillside covered in ivy and is across the street from one of the golf holes. Filigree iron work hangs on the side of the houses. Ring doorbells, cameras and security lights are common.

R had contracted to install six bait stations around her property. Though the tech tried his best to convince her that this was excessive, she insisted (“I know but you don’t live here and see the activity”) and he demured, complaining to me as many techs do: if you know so much about pest control why the fuck did you call me?

Curiously though, she asks that they only be placed around her side of the duplex, and not around the whole structure. I ask: “why not put them on all sides of the building, especially near that hill of ivy that the rats probably nest in? She says: ”yes, but everyone is responsible for their own property, meaning that her nextdoor neighbor must pay for his own bait stations. I suggest that the rats might not know where the property line is and she says “Yeah, but i’m not gonna pay for theirs [her neighbor’s pest control].”

Ruby’s HOA had set rules for the residents about who would be responsible for pest control and where; Ruby is exquisitely aware of the distinction between private and public life in the HOA: “I just try to take care of my stuff and stay out of their [her neighbors] business and I want them to stay out of mine. . . . cause some people their whole goal in life is to be gossipy and nosy.”

The role that HOAs play in the ecology and economy of rats is not restricted only to the scalability of pest control however. As the anecdote above suggests, an HOA can delegate responsibility for killing

rats to its residents. In Ruby's case, she is in an adversarial relation with the HOA, a relation that is very common. As (Clarke and Freedman, 2019) concur: "Popular and academic opinions are divided over whether homeowners actually like to live in HOAs. Some contend that HOAs represent a sensible market solution to local public goods problems ... while others see HOAs as a sort of unregulated hostage crisis with unwitting homeowners harassed by busybody neighbors."

HOA life then exacerbates a sense of private vs. public obligation that can create odd and totally heterogeneous incentives—it is possible that Ruby's neighbor is a wildlife lover who would prefer to ban rodenticides completely, but is powerless to stop Ruby's excessive use of them. HOAs are a form of sub-municipal government which, by virtue of their distribution, control more of the local decision-making power about certain things than cities, counties or states do. This poses a problem for the state and local regulation of such activities, in the first instance, since it means that the only effective solutions have to supercede the governing powers of the HOA in some way (e.g. by banning poison outright rather than trying to restrict its use).

But HOAs might also facilitate the power of the state as well by centralizing this decision making power. In my experience servicing HOAs with techs, we often enter no one's yards or property, but still manage to fill bait stations all around the development, as if maintaining guard turrets on a walled city. In this case, no single resident had commanded the placement of these stations, but the HOA or HOA manager had, and thus the capacity to remove all the bait stations at once from a relatively large area would, presumably, be easier to achieve if a city, county, or state official had a compelling reason to do so (which to be clear, they currently do not in California). Any such attempt to work through the HOA would necessarily activate the attenuated and anemic forms of democracy that govern HOAs—processes and systems that often bear little resemblance to classical forms of government. On the flip side, the Pest Control industry (along with other vendors) become an unusual form of stakeholder in the governance of HOAs, working to upsell them on services, or bargain for extending large contracts.

The general point is that in the absence of state or municipal management, HOAs fill the gap with a heterogeneous, but large-scale, response to the management of rodents. The assumption that cities are made up only of residents, who at an individual level need to be policed or incentivized, is a neoliberal fantasy that does not bear out on the ground. It both perpetuates the repeated distribution of poison into the landscape, and insulates that process from anything other than the HOA's crypto-authoritarian forms of democracy.

Anticipation of Collapse

A very different kind of anticipation also envelops the bait station, and instead of finding the anthropocene as an effect of the bait box, sees it as just one among many threats to the planet. The "sixth mass extinction" is a generalized version of concern about endangered species, and more generally endangered ecologies (Kohler). It forms a hazy but often not well understood background of concern around the issue of rat poison. By contrast, a particular, and particularly charismatic species in Los Angeles serves as the face of endangerment: the mountain lion. And not just mountain lions in general, but a specific one, chronicled

in the New Yorker, and famously photographed in front of the Hollywood Sign: P-22.

P-22 is, as his National Park Service Web Page says, “an ambassador for urban wildlife.” More than just charisma is at stake, he stands in for the very interests and agendas of wildlife threatened by humans. Indeed, the National Park Service web site has chronicled each of 75 mountain lions in the Santa Monica Mountains National Recreation Area, each on its own page, detailing their movements, health, breeding patterns (which is to say, disturbing in-breeding patterns), life and death. This park is essentially sandwiched inside of Los Angeles, though it has connectivity to the west, and a planned landbridge that will provide connectivity to the north (at 87 million dollars, it is a significant undertaking, largely financed by donations and private money). It also happens to be nestled into the most expensive real-estate in the country, areas including Bel Air, Hollywood Hills, Calabasas, Malibu, Pacific Palisades, and Santa Monica.

According to the NPS, the third most common reason for cougar deaths in LA, after intraspecific strife and cars, is rodenticide. The second most famous picture of P-22 is a picture of him suffering from Mange, which it is presumed was exacerbated by the rodenticide. It is not entirely clear how cause of death from rodenticides is established by NPS, though it is clear that it runs all the way up the food chain, that the poison is found in the Mountain Lions bodies, and that a potential immunological effect has been established in Bobcats (Fraser et al., 2018).¹²

Given this confluence of factors then, it is not surprising that the California Assemblyman representing citizens in and around the Santa Monica Mountains, Richard Bloom, has repeatedly introduced legislation to restrict or outright ban these poisons. The most recent of these was AB1788, introduced in Spring of 2019. It went further than any of the previous attempts, and created enough attention to provoke responses from the Pest Control Operators of California, who fear such a blanket ban, and from at least one ambitious conservative politician, Carl DeMaio. Demaio organized a report, under the banner of Reform California, a conservative think tank, that countered the environmental concern of leftists in the Santa Monica Mountains, with fear of a rat plague caused by the removal of rodenticide poison.

AB1788 is the latest version of a bill designed to ban the use of SGARs everywhere in the state. It is a necessarily blunt tool driven by the anxiety of anticipating the sixth mass extinction, and by the affect of concern that the mountain lions and bobcats of the Santa Monica mountains produce in most people. Bloom’s bills have been driven by activism from groups such Citizens for Los Angeles Wildlife¹³, Mountain Lion Foundation¹⁴, and the Center for Biological diversity¹⁵ who have all endorsed the passing of AB 1788 online, and created dedicated webpages to spreading information and awareness on how to support the bill. Raptors are the Solution did not explicitly state on their website their support for AB 1788, but have

¹²Research on the topic is done almost entirely by a local team of NPS and environmental researchers, spearheaded by the work of Seth Riley, wildlife biologist and NPS officer. Riley boasts an impressive list of publications on the biology of Santa Monica Mountain Lions, and is a vocal advocate for restricting rodenticide use (S. P. Riley et al., 2014; Benson, Sikich, and S. P. D. Riley, 2016; Benson, Mahoney, et al., 2016). Far fewer studies of the use of SGARs in the Santa Monica mountains exist, the only significant one being a survey of single-family use conducted by Travis Longcore and collaborators (Bartos et al., 2011)

¹³“Join CLAW in Supporting AB 1788.” (n.d.). Retrieved June 23, 2019, from Citizens for Los Angeles Wildlife website: <http://www.clawonline.org/banratpoison>

¹⁴Support California Assembly Bill 1788. (n.d.). Retrieved June 23, 2019, from Mountain Lion Foundation website: <http://mountainlion.org/actionalerts/042919CAAB1788/042919CAAB1788.asp>

¹⁵70 Percent of California Wildlife Test Positive for These Poisons. (n.d.). Retrieved June 23, 2019, from https://act.biologicaldiversity.org/onlineactions/0BL7X1nKB06H-SKqrF6CEw2?sourceid=1005295&fbclid=IwAR3tkaZzCZfuo_DuKmePHJlppUiqlS17rC6yTuAT14HgIuoC18cibuwKcRc

actively partaken at hearings held at the Assembly Appropriations Committee.¹⁶

In response to this activism, the National Pest Management Association, the Pest Control Operators of California, and a variety of individual PCO companies and Agricultural extension workers have been in vocal opposition, because the legislation would remove a very effective tool. Following a fairly conventional strategy of opposition they initially pointed out the economic harm that such a ban would visit on an whole industry. But as the bill advanced through the Assembly, a different strategy emerged with the help of various vocal entities and some predictable sensationalist TV coverage, which painted the public health crisis and a rat apocalypse around the corner.

The opposition to the bill was helped in part by the sudden emergence in 2018 and 2019 of typhus outbreaks in Los Angeles, including one in downtown LA's city hall. The term used to describe these outbreaks by news outlets and politicians like DeMaio is "medieval"—which captures the anxiety that people have about the end of progress or modernity, or the collapse of civilization. In an even more ironic turn of events, the opposition to the bill was aided by an infestation at the CalEPA headquarters in Sacramento, who tried, unsuccessfully, to treat the problem with "green" methods, but were forced to employ SGARs even while they advocated for their ban. DeMaio's report went beyond simple opposition to AB1788 to demand that the State declare a public health emergency, require remediation plans be formulated throughout the state, and launch public education campaigns about the threat of rats. Doubling down on the protection of the pest control industry, the report not only opposes itself to the environmental concern for wildlife extinction, but pits one existential, and saddening, threat (the sixth mass extinction) against another fearful one (the rat apocalypse).

In the end we will not get to choose our apocalypse, we will get the apocalypse we deserve. But the less histrionic approach would be to recognize that the actions of everyone involved are part of a process of domestication that are the results of human action, if not of human intention. One conclusion to draw from this story is that an anthropogenic planet—from climate change to the sixth mass extinction—is not one in which humans destroy nature, but an ecology filled with the results of our large-scale forms of action: a world with cats and dogs, cattle, rats, grass, and palm trees, and not one with mountain lions, burrowing owls or Joshua trees, despite all our best efforts. Although, perhaps there is a way to imagine a different domestication—one filled with diversity instead of homogeneity.

Fragment on Pest Control professionals

The political landscape of contemporary America is painted in miniature in this struggle. Even in California—supposedly the hold-out sea of blue rationality against the Trump-loving flyover states of the Trump base—one can sense rather poignantly amongst the pest control officers a struggle over a changing America. Polarization and politicization work their way into the most mundane, everyday speech and actions.

"Build a better mouse trap and the world will be a path to your door." Emerson supposedly said this, though it remains somewhat apocryphal; the mouse trap remains the very emblem of American ingenu-

¹⁶Legislation to Ban the Use of Destructive "Rat Poisons" Moves Forward. (2019, April 9). Retrieved June 23, 2019, from Official Website - Assemblymember Richard Bloom Representing the 50th California Assembly District website: <https://a50.asmdc.org/press-releases/20190409-legislation-ban-use-destructive-rat-poisons-moves-forward>

ity and masculinity: hunter and inventor combined. Many pest control officials, agricultural extension employees, and government employees who deal with “wildlife damage management” see themselves squarely in this lineage. Animals are respected, but they are to be outsmarted and killed if necessary. Indeed, Pest Control is the only industry where a product can be unproblematically labeled “SureKill” or a county employee can say cheerfully “My name is Nora, I’m an entomologist, and I love killing things.”

Most private pest control employees are male between 20 and 50; they come from working class backgrounds, and for the most part have only high school educations; those with more education are likely to have college degrees in biology, perhaps public health. At a recent continuing education event in Southern California, the classes were all run by high-achieving women—scientists, engineers, trade industry reps, salespeople—to a room that was 95% men and maybe 60% white. The personality of the men distinguished them: a bit of outsider street cred for some—tattoos and goatees—and more of a hunter/biker vibe on others. But most were curious, thoughtful, eager to share their experience and to learn from others, hopeful that they might learn answers to the most common cases they encounter, grateful for a catered lunch, annoyed that the University policy on smoking required them to hike to the edge of the property.

Most of the folks I’ve gotten to know live not in the heart of LA—who can afford to anymore—but in the endless flat parts (cities like Lakewood, Downey, Cerritos) or the edges of the city (Chatsworth and Sun Valley, or farther out Santa Clarita, or farthest of all Lancaster and Palmdale—places with no good reputation and a variety of only partially justified bad ones). For these places, the everyday lives of people are perhaps more like the suburban and exurban experiences of people across the US, and less the urban coastal elite that is supposed to inhabit cities like LA, SF, or NY. Pest control professionals thus take pleasure in despising downtown LA for its homeless populations and most of all, it’s out of control rat problems. A certain form of aspiration overwrites these lives, but the pest control industry is also a dead-end job. Although techs make fairly good money (as much as 90K per year in the best cases), there is not much in the way of an advancement ladder, nor any necessary growth in the industry. Pests are pests, and they are, infestations notwithstanding, only periodic emergencies.

But PCOs are not, by any stretch of the imagination, simply left or right, simply pro or con, none of the supposed polarization that apparently afflicts our country is at work amongst them. Quite the contrary: they are troubled by the problems they face and the complexity of the issues involved. They are eager to find the best solution for everyone, and to seek out ways to enrich themselves without poisoning the world. They are frustrated by extremisms on all sides, both the customers who demand that they kill more animals when it isn’t necessary, and the animal lovers that abuse and berate them regardless of what they are doing. As a job, it does not reward ideological commitments, nor does it suffer fools; and as far as opportunities for unscrupulous enrichment, they are few, far between, and generally not all that enriching.

As the world comes to grips with anthropogenic change, so too does the industry. The awareness of secondary effects of SGARS on wildlife is neither ignored nor resisted, but approached with serious concern, and a frustration with the lack of knowledge and the limited alternatives. The threat posed by AB1788—a total statewide ban on SGARS—is experienced not so much as a threat to the livelihood of PCOs as it is a ridiculously simplistic solution to a complex problem—and more to the point, a problem they want to help solve, to be asked to help solve, not one they want to be blamed for.

Coda: the best laid plans in a grain of sand

“To See a World in a Grain of Sand.”

This line immediately popped into my mind as a way of making sense of the small, ubiquitous bait station that is the subject of this paper: a foot-long box, conveniently black, in which temporal and spatial scales implode, braiding threads of science, activism, health, wildlife, fear, disgust, chemical poisoning, city politics, climate change, blood, taste, attraction and much much more. An unassuming box, frequently hidden from plain view, containing the whole of our world.

I did not remember, however, that Blake’s “Auguries of Innocence”, of which this is the first line, is a poem about animals, among other things. Line after line figures an evil done to animals by humans as an augury of human suffering and pain. Wild flower, robin, dove, pigeon, dog, horse, hare, skylark, wolf, lion, deer, lamb, bat, owl, wren, ox, fly, spider, chafer (beetle), caterpillar, moth, butterfly, horse, polar bear, cat, gnat, snake, newt, honey bee, toadstools, cricket, emmet (ant).

The rat, standard-bearer of the animal fable in Aesop and La Fontaine, is absent. Other predicatable animals are also absent, but the rat’s absence seems important here. Among the animals that humans have domesticated, none is more successful or more ubiquitous than the rat. If any animal augurs innocence or experience, it is definitely the rat.

In another famous poem from the same era, Robert Burns’ “To a Mouse,” the poet imagines a conversation with a mouse— I like to think it was actually a black rat, which is a much more likely animal to find under your plough in the field— and he empathizes with the suffering of this little fellow rat. But in a bid at sanctifying the suffering of humans, he suggests that the rat has experience of only the present; it cannot anticipate the future, or remember the past. Something about this sanctification disappears today: our most companion species, and also our most despised, might not remember or anticipate in just the same way as we do, but she is nonetheless always by our side. Indeed, Burns was quite wrong about the inability of rodents to remember. At the very heart of the rodent bait station and the anticoagulant poisons is a problem of rat memory—“neophobia” in scientific terms—which is that rats are notoriously skeptical creatures, whose experiences of danger are excellent aids to their survival. It is something we share with them in our ability to anticipate the future, but not control it. Some are born to sweet delight; some are born to endless night.

The baits have a distinctive smell, and though the techs wear gloves, the blocks are not otherwise packaged or contained in anyway that would prevent them from getting on their hands, arms, clothes, the inside of the truck. There are some 20K pest control firms in the US ¹⁷ As far as I know there are no existing public health studies of pest control professionals who work with multiple poisons. Almost all of the public health focus is on farm workers, who, to be fair, exist in far larger numbers, and encounter far more of the pesticides and herbicides that are used on farms.

What form of maintenance (or repair) does the bait station represent or require. the maintenace work of PCOs the maintenace work of animal predators the absense of the maintenance by cities/counties—

¹⁷The professional pest control industry generated an estimated \$8.597 billion in total service revenue in 2017, a 5.2 percent increase from the \$8.175 billion measured in 2016, according to the latest report A Strategic Analysis of the U.S. Structural Pest Control Industry from Specialty Consultants.

delegation to private industry

What temporalities are contained in the bait station? implied temporality of population increase/decrease if we did not kill them, they would over run us. temporalities of periodic outbreak typhus as weather event/earthquake temporalities of preparedness.

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Slides

Typical Bait Station

Brentwood Country Mart

Department of Water and Power

The Getty, with rat anthropologist

Pantages Theatre

Pain Quotidian, Hollywood

The Caaitol Records Building

The Beverly Hills Hotel

Brentwood

Chateau Marmont

L at the top of a Mountain

CHP Tower, Top of the mountain

Brentwood

Rodeo Drive

UCLA Life Sciences Building

The Mormon Temple

a tyoical HOA

Snail Shit

Beverly Hills Hotel

The Mormon Temple

Inside the bait station, horror

Beverly Hills Hotel

Brentwood Country Mart

The Viper Room, Sunset Strip

Inside the Bait Station, horror