Semih Çelik

University of Exeter
s.celik@exeter.ac.uk

Humans in *Animalscapes:* Reconstructing Vermin-Human Interactions in Rural Anatolia and Mesopotamia (ca. 1600–1850)

Abstract

One of the most frequent cases in which vermin appear in Ottoman official correspondence is when they "attack" or "invade" human settlements, consuming or destroying food produced specifically for human consumption. Until effective ways and tools to manage them emerged in the late nineteenth century, communities withstood flies, locusts, and rats. Indeed, specific categories of animals subsumed within the category of vermin/*haşarat* seem to have become among the biggest troublemakers in rural Anatolia and Mesopotamia. These vermin caused not only short-term scarcity of food, especially concerning during famines, but also writ-large settlement abandonment, resulting in the temporary and even long-term problems of rural/regional economic systems. Yet very few Ottoman historians have reconstructed these stories within a critical animal history perspective.

While it is true that these attacks and invasions of vermin created great burdens on human (and other animal) communities throughout history globally, the ways we historians have handled such cases tend to be anthropocentric. Here I argue for an ontological turn towards spatial aspects of vermin lives within human settlements and thus position my line of thinking about interaction from the ground-up, both literally and figuratively. From early-modern Ottoman discourses about vermin and the strategies used to cope with them from dictionaries/lexicons, literary and scientific texts, legal codices, and archival material, I develop a new analytical tool to understand interaction between humans and vermin as competition over perceived and actual space. I argue that we approach vermin behavior from the perspective of a spatial consciousness that constructed extended liminal configurations of space, which I call *animalscapes*. Human communities in Anatolia and Mesopotamia on the other hand, acknowledged the vermin perception of *animalscapes* and negotiated their place within, until the invention of chemical weapons against vermin at the end of the nineteenth century.

Keywords: Early Modern Ottoman Empire, Animal History, Vermin, Animal Agency, *Animalscapes*

1. Introduction

In the slightly longer than a decade of working on animals in the Middle East, historians have dealt with a range of animal-human relationships in shared spaces. Domesticated horses, stray cats and dogs, pets, livestock and farm animals have all received considerable attention from historians of the Ottoman Empire.[1] The fact that many

1 Faroqhi 2010; Mikhail 2013a; Gündoğdu 2018; Çelik 2019; İnal 2020.

of these animals held exchange and use value,[2] symbolic/religious significance, or had intimate/friendly/charitable relationships with human beings occupies the core of most of these studies.[3] Moreover, the types of interactions between humans and animals that these studies reconstruct took place in hybrid spaces where animals and humans "shared" their interactions. In these spaces, both humans and animals learned from and taught each other behavioral patterns, usually dictated by the human-centered structured interaction. Here we might argue that these interactions become culturally (re)constructed. Despite their invaluable contribution to a developing field, and inspired by the dominant trends in European history, these studies focus predominantly on the mega-fauna and often implicitly locate their histories in spaces of human domination and thus reproduce anthropocentric perspectives.

As Lucinda Cole explains in her pioneering work on vermin in early-modern Europe, the study of early-modern 'charismatic mega-fauna' reproduces the Cartesian duality between creatures which were ethically worthy of consideration and aesthetically acceptable, and those that have been despised as 'zoological outcasts'.[4] Contrary to historians' comparative lack of interest in vermin and insects, early twentieth century social theorists scrutinized the ethological and ecological world of insects and vermin. The lives of insects, vermin and other simple forms of life inspired and informed a wide range of ideas from leftist politics, to posthumanism and feminism, and even media studies in the second half of the twentieth century.[5] Jacob von Uexküll, whose studies on the 'zoological outcasts' in the 1920s have influenced social theorists, suggests that humans and animals do not share the same perception of space and time. Therefore, the world is composed of an infinite variety of independent perceptual worlds.[6] Studying the lives of micro-fauna therefore offers new and critical perspectives on human-animal interaction from different spatial and temporal scales. Furthermore, the liminality of those perceptual worlds often results with their collision through the actual and perceived modification of space in the process of feeding, habitation, copulation, excretion, birth, and death.[7] What is referred to as "agency" in human-animal studies may in fact be defined based on the process of collision of spatial configurations and ensuing reconfigurations.[8] One result of these reconfigurations is human domination, which as Zygmunt Baumann explains, takes place following the 'violation' of the liminal border between a human and an animal world.[9] Alternatively, as Anna Tsing suggests humans and animals 'sometimes live to-

2 Mikhail 2010; Mikhail 2013b.
3 Such as Schimmel 2003; Benkheira et. al. 2005; Arbel 2010, 64–74.
4 Cole 2016, 7.
5 Parikka, 2010, xii.
6 Uexküll 2010.
7 For liminality of animal lives see Howell 2018. For the spatial dimension of survival activities see Cole 2016, 56–7; Candelaria 2009, 307; Tsing 2012, 22.
8 Jones 2000, 267.
9 Baumann 1990, 57.

gether without either harmony or conquest'.[10] Whereas the first case is based on violence – symbolic or physical – the second case requires a negotiation process – symbolic or physical.

In this article I offer by example a conceptual tool to Tsing's framework. I focus on how and where humans confronted and negotiated the agency of vermin in the early modern Ottoman world. I demonstrate that in perceiving and constructing spatial configurations specific to vermin, I offer an alternative to historical anthropocentric reconstructions of human-animal interactions. I show that the early-modern perception of vermin among Ottoman intellectuals, travelers, physicians, and lexicographers was shaped by their strategies to arrest vermin competing with humans for not only food but importantly space. This contested relationship defined the urban human-vermin relations in the early modern period throughout the Mediterranean spheres, and more so in rural Anatolia, Mesopotamia.[11] Historians tended to follow standard official Ottoman discourse that placed such contestation as "invasions" or "attacks" on par with contemporary military discourse,[12] events relevant in shaping competition and negotiation over space. Taken as a whole, then, we find three main consequences of human-vermin interaction in early-modern Ottoman Anatolia and Mesopotamia: the abandonment of villages and small towns; the delimitation of human settlements so that the vermin remained outside of the perceived human space; or the reconfiguration of human space – in perception and reality – to negotiate the terms of their survival within the spatial configurations, or the habitus, of vermin. Significantly each of these strategies implicitly based on an acknowledgment of a perceived vermin space, rather than the bodily encounter with individual vermin.

Here, I use the concept of *animalscape*[13] to identify such perceived animal spaces and to overcome the limitations of focusing on the corporeal existences of animals. This allows us to refer to their extended liminal spatial configurations. Just as humans perceive and shape the space beyond the territory they occupy, early modern Ottomans projected these concepts onto animal lives. Animals – in this case vermin – were

10 Tsing 2012, 5. As it is demonstrated elsewhere domination was only one form of human-animal relationship. Megafauna such as lions, crocodiles, tigers, and humans have lived in spaces without any hegemonic party in various historical contexts. See Rangarajan 2013; Van der Ploeg et al. 2011; Seeley et. al. 2015.

11 Varlık 2015; White 2011, 79–81.

12 Vermin as a category has yet to be the subject of robust historical inquiry, save the study of locusts. Here we have relative detailed scholarship by historians of early-modern Ottoman Empire. For locusts in Mosul during the 1670s and 1680s see Khoury 1997, 35. For Cyprus see Jennings 1993, 175–82.

13 The concept has already been used by Victoria Lykke Syse to refer to spaces constructed as 'the result of human-animal relations. It is created and constructed through animals' cultural involvement, and through both humans' and animals' feelings and emotions' (Syse 2014, 25). A different definition of *animalscape* which constructs a perspective of cultural representation of animals, has been made by Birgit Krawietz as follows: 'a policy-based management and media-enhanced presentation of certain heritage animals' (see Krawietz 2014, 131). My conceptualization differs from both.

to be seen to have had an informed spatial consciousness that allowed them to perceive and to transform their immediate surroundings. In this way vermin were assigned agency in generating and transforming their space.[14] Consequently, the negotiation of a human's place in or vis-a-vis *animalscapes* produced relationships that defied anthropocentric discourses of exclusion and inclusion, as well as those of domination, domestication, and subordination. In turn it generated spatial reconfigurations where humans and vermin lived without harmony or conquest.

Vermin appear as historical agents in the early modern rural Anatolia and Mesopotamia usually when they have destroyed crops or whole villages. During the seventeenth and eighteenth centuries this happened with greater and greater frequency, with notable reference to snakes, rats, worms and locusts. The intensity of these "invasions" in rural communities points to the agency given to vermin in shaping natural and peopled spaces. Indeed, there is an abundance of evidence to demonstrate that insects and rats "destroyed" dozens of villages in western Anatolia and Mesopotamia.[15] Despite their agency for being seen as catalysts for landscape change that resulted in demographic and economic loss, it is only after the mid-nineteenth century that we find more solid evidence of measures taken to "exterminate" these animals. These directives appeared on the agenda of local and central authorities of the Ottoman Empire. In the early modern period, there was little interest in vermin by central government offices; even so, areas of rural Anatolia and Mesopotamia were hotbeds for competition and collision between both perceived and actual human-vermin spaces.

2. Categorizing Vermin/*Haşarat*

In contrast to the Ottoman world, the role and agency of vermin in European history have been studied in detail.[16] The European concept of vermin is often translated into Turkish as *haşarat*, yet there is an important nuance that further corroborates my argument of human-centered worlds. In Europe, vermin have historically been defined as 'animal which is of a noxious or objectionable kind, creatures which prey on livestock or crops, a creeping or wingless insect of a loathsome nature, or even a human who embodies these traits'.[17] In the Middle Eastern context, the term *haşarat* has generally referred to animals (and humans) with almost the same characteristics. *Miratü'l-Luga'*, a sixteenth century Arabic-Turkish dictionary compiled in 1540 by Abdul-

14 Royle 2018, 44–5.

15 Although it is tempting to correlate vermin infestations (mostly locusts, rats, and snakes) in early-modern Anatolia and Mesopotamia with climatic anomalies, the sources used in this article do not suffice to develop such a correlation. For how the climate of the Little Ice Age have affected perception of vermin in early modern Europe see Cole 2016.

16 Fissell 1999; Secmezsoy-Urquhart 2017; Cole 2016; Leeson 2013. For a general discussion on agency of animals see Fudge 2002. For a conceptual discussion around the historical agency of vermin see Howell 2019, 204–9.

17 Oxford English Dictionary, 'Vermin, N. (and Adj.)'. For the historical background of the scientific definition of vermin, see Cole 2016, 2–4.

lah bin Yusuf el-Kesteli (d. 1541), defines vermin as '[animals] like worms, birds, centipedes, and scorpions'.[18] In an eighteenth-century Greek-Turkish-Persian-Arabic dictionary a section on 'wild animals' (*hayvanati'l vuhuşiyyeti*) is linked generally to a catch-all category of vermin,[19] similar to European definitions. Besides the similar taxonomic measures, an important difference between the European definitions of vermin and Ottoman *haşarat* is that the Arabic root of the latter refers to concepts of collectivity or unity. The late nineteenth century Ottoman Turkish dictionary *Kamus-i Türki* defines *haşarat* as small animals and insects. Additionally, Şemseddin Sami, the author, notes that in general these vermin appear in multiplicity in a given population; that is, the descriptor reflects the notion of collectivity.[20] In this sense *haşarat* has been used as a catch-all category for a collectivity of animals which were considered useless, parasitic, and harmful. Indeed, vermin referred to animals which did not hold value (to people) individually, yet they become important agents once they were subsumed within collectivity.

Lacking rigorous definitions for vermin in dictionaries, I turn to contemporary narrative sources and legal texts from the period. These shed light on how (if) Ottoman elites perceived vermin. One such source, the travel accounts of Evliya Çelebi (1611–1682?), presents an overview of Anatolian and Mesopotamian landscapes rife with vermin. This begins at the outset in the first book on Istanbul and its surroundings. Here Evliya tells his reader that Istanbul was protected from the poisonous animals by a statue of a three-headed dragon.[21] Allegedly the snakes of Istanbul appeared when Selim II (r. 1566–1574) accidentally hit and broke one of the heads of the dragon with his mace.[22] Although there is no explicit definition nor list, Evliya's 'poisonous animals' category takes in snakes, rats, lizards, and other poisonous vermin (*yılan ve çıyan ve akreb haşeratları misilli zehir-nak hayvanat*). In Book 4 he explains that these animals were created after a serpent had guided Noah away from the deluge. In exchange for his services, the serpent asked Noah to fill its stomach with human flesh. Desperate, Noah was helped by Archangel Gabriel, who burned the serpent and spread its ashes. As the story goes, the ashes from each part of serpent's body turned into a different type of vermin; and once upon land would suck the blood/flesh of humans.[23]

Whereas he uses vermin to refer to a large category of these types of animals, Evliya employs other concepts that can be understood as sub-categories of vermin. His account hints at a rather advanced popular taxonomy of such animals assigned by resi-

18 For the transliteration of the entry in *Miratü'l-Luga'* see Hassan 2017.

19 Topuz 2019, 86–7.

20 '*Haşr*' meaning a gathering. Şemseddin Sami 1317 [1899]. Lugat-i Remzi, published in 1888 uses almost the same definition. See Halim 2019, 527.

21 For the Byzantine origins of the myth, see Varlık 2015, 216.

22 Evliya Çelebi 2000, vol. 1, 24.

23 Evliya Çelebi 2000, vol. 4, 45. For alternative mythological explanations such as locusts appearing because of a big sea fish sneeze, or vermin being created from the clay from which Adam had been created, see Dağyeli 2020. For mythologies of creation of vermin, also in relation to Noah's ark see Cole 2016, 3, 7, 16 and other places.

dence, their proximity and relationship(s) to humans as well as their appearance. For example, there is special call-out to inedible vermin in the sea (*derya haşaratları* or *haşarat-ı bahr*). We also learn of venomous animals (*mesmum hayvanlar*) and non-venomous monstrous vermin (*gayr-ı mesmum canavar haşaratları*).[24] However, in general, he uses vermin as a large category to refer to animals with certain characteristics. Those characteristics are revealed in Evliya's Book 6:[25] 'noxious animals with poisonous spirit' (*hayvanat-ı muzır ve zehr-nak zi-ruh*). Hinting at a similar perspective, one of the sources of Evliya Çelebi, Aşık Mehmed (1555/56-1613), a sixteenth century geographer and lexicographer defined vermin as 'useless creatures'. In his entry on the owl as a member of the category of vermin, Aşık Mehmed borrows the definition of owl and other vermin from Hattabi, a tenth century scholar and lexicographer: 'an animal like snakes, scorpions, and other poisonous small insects'.[26] Despite the similarities to Evliya's definition, Aşık Mehmed's category of vermin includes animals from lions to various types of birds, bats, wasps, and even lice.

An early modern undated treatise (ca. 1650) further complicates the early modern perspective of vermin as a category of useless and poisonous animals. Here the reader is introduced to ways 'to make use of vermin'. Presented as remedies for diseases, or antidotes against other vermin, we find directives of managing specific vermin. The author uses the term vermin (*haşarat*) extensively, referring to animals like asses, hawks, goats, certain type of fish, crocodiles, and other animals. More interestingly the hitherto unknown author uses *canavar* (lit. monster) and *haşarat* interchangeably.[27] Despite this ambiguity, Evliya's usage of 'monstrous vermin' (*canavar haşaratları*) and the concept of "monster" in *Hikmet-i Haşerat* implies that animals defined as vermin were likely further attributed to beastly characteristics. Using *canavar* interchangeably with *haşarat* was not uncommon among rural communities either. An example from a farmers' manual (*Felāḥatnāme*) included bees and birds among *canavar.* Similarly, a lexicon from the sixteenth century defines spiders, crocodiles, weasels, badgers, lynx in the category of *canavar*, while also talking about a category of 'tiny monsters' (*canavarcıklar*).[28] Importantly, both categories (*canavar* and *haşarat*) were referred to as collectivities in the mentioned texts.

Neither dictionaries, nor narrative sources give any explicit reference to their way of categorizing these animals – except maybe for the mythological reference by Evliya summarized above. Contemporary legal texts further open a window into the relationship between vermin, human beings and other animals. Islamic court rulings and fetwas often deal with issues regarding animals as property; specific reference to wild

24 Evliya Çelebi 2000, vol. 3, 108.
25 Evliya Çelebi 2000, vol. 6, 22.
26 Aşık Mehmed 2007, 566.
27 *Risāle-i Ḥikmet-i Ḥaşarāt* [no date].
28 For the examples in *Felāḥatnāme* in question see, Uzunkaya 2013, 214–5, 236, 252. For the examples in the sixteenth-century lexicon see Hassan 2017, 7b–4, 9b–4, 56b–3, 92b–1, 103b–5, 113a–1, 174b–4, 202b–4. For vermin defined with monstrous characteristics in Europe see Cole 2016, 29–33.

animals and vermin appear occasionally, especially during periods and in places with escalating competition over food and water resources between humans and vermin. An entry in a seventeenth-century compilation of fetwas sheds light on the early-modern understanding and categorization of vermin in a larger world of animals. This author reports on the taxation of locust-hit harvests. According to him, locusts had traditionally been considered as animals that were invincible (*def'i mümkün olmaması*), hence no agricultural tax should be paid.[29] In his opinion animals assigned to this category included worms, rats, ants, and monkeys.[30] He furthermore points at a striking contrast between vermin and the wild beasts: Despite their wildness, humans wielded power against these beasts, able to fight against and defend themselves and their property.[31] Vermin invincibility (in comparison to wild beasts) very likely stemmed from the collective aspect of the vermin.[32] Another fetwa collection from the late-nineteenth century verifies that collectivity and omnipresence was a defining characteristic of animals in the category of vermin. Imam Leknevi (1848–1886) pondered whether rat or bat urine may contaminate water in wells or in other containers. His answer emphasized the spatial agency of vermin: given that 'such animals are omnipresent', the argument goes, it is impossible to avoid them, and therefore, such water should be considered pure.[33]

3. Categorizing Space – Humans in *Animalscapes*

These few examples suggest that, in the minds of contemporary scholars, vermin were invincible, omnipresent, monster-like, poisonous animals that existed collectively. Additionally, as *Gunyetü'l-Muhassilin*, an eighteenth-century treatise on poisons and antidotes suggests one should abstain from touching unidentified animals however small and seemingly harmless they were against the possibility that they could be vermin.[34] Furthermore, not only the bodies of vermin were to be avoided, but also that one should not sleep near nor eat the food or drink the beverages that were found in an area *where vermin would possibly exist* (*haşerat olmak ihtimali olan mevazı'da*).[35] Just like cases elsewhere, the existence (or even the possibility of existence) of vermin in one place defied the entire space.[36] Local lore indicated that vermin devoured food reserved for

29 Therefore, those whose harvests were hit by locusts should be exempt from the required taxes. His reference is a fifteenth century scholar, Bezzazi (d. 1424).
30 He notes later that contemporary scholars disagree with him on monkey being in that category.
31 The related entry of the fetwa compilation is transliterated in Çelik 2018, 248. For earlier categorization of animals by Arab scholars that follow a strict distinction between wild animals and vermin see Ducène 2016.
32 Littmann 1925 passim., Riede 2002, 67.
33 Kiyak-Oral 2014, 84.
34 The manuscript is transliterated in Tuğ 2000, 93–4.
35 Tuğ 2000, 94. Emphasis added.
36 Candelaria 2009, 304.

human consumption, and, even more importantly, they tainted both human food and the associated space. Following this line of argument, places associated with vermin – just like the animals that occupied them – were linked to spaces of trash, dirt, poison, and/or general uselessness. For example, *Gunyetü'l- Muhassilin* identifies ruins as potential spaces occupied by vermin. Similarly, Aşık Mehmed explains that owls "choose" to occupy ruins as they considered such places as the 'heritage of God': 'ruins are the heritage of god, and I reside in the ruins' says the owl (*harab mirasullahdur ve ben mirasullahda sakin oluram*).[37] In these cases, vermin were attributed a self-perception of space, a consciousness to define it, and the potential agency to "contaminate" or demarcate it.

Evliya's narration of creation of the vermin too, comes with a "territorial" definition of such animals – my proposed *animalscape*. Animals fell near the town of Sincar (nearby Mosul, Iraq) only after the Archangel had thrown the ashes of Noah's serpent (see above), and because the mountainous landscape of Sincar was full of vermin when Evliya visited the town, this association rung true to him. Lice, rats, and scorpions were seen in such abundance that they defined the landscape and the habitus. Evliya explains that the Kurdish population living in the area were covered with fleas and lice – literally nesting in the beards and bodily hair of humans.[38] Importantly, humans were not harmed by them. They lived in a vermin habitus where they did not challenge the behavior of the animals. This point give agency without hegemony to vermin, especially when under "normal" conditions such an infestation would be considered detrimental to human life. This was not limited to Mesopotamia. In northern Anatolia too, villagers worked fields covered with venomous vermin and treated them as if they were part of the family.[39] Definitions of these agency-infused *animalscapes* were then adopted by others, at least according to Evliya – and perhaps to embolden his own stories. For example, Evliya references the poet Baba Abdi Horasani, whose poem of fleas in Balıkesir in northwestern Anatolia suggests that the spatial concentration of fleas would purportedly displace the devil:[40]

> O'what a flea! Each one is an injecting attack-demon
> O'what a flea! Has no mercy, shows no mercy, takes life.
> Fleas attacked people with such majesty that
> Demon would flee this place even tied down.

An even more telling story of human-animal encounter and negotiation taking place in *animalscapes* is told by Evliya, based on a story from a town in Kashan (modern day Iran). According to Evliya, for centuries the poison of scorpions was infamous, until a mystic visited the town and found a talisman against the scorpions: those who

37 Aşık Mehmed, 659.

38 For a history of the association of different ethno-religious groups with vermin, see Özbilge 2020; Dolbee 2017.

39 Although from mid-nineteenth century, Henry John Van Lennep's account of farmers' children in Samsun depicts a similar scene to Evliya's villagers in Kurdistan. Van Lennep 1870, 287.

40 Evliya Çelebi 2000, vol. 4, 214–5. English translation taken from Varlık 2015, 17, fn. 1.

passed by the town, and even those who resided there were to say '*müsafirem*'/'I am a guest/passer-by' three times. If done, they would not be touched by the scorpions.[41] This important detail illustrates that both perceived and actual vermin *animalspaces* had been acknowledged at least by the early-modern Ottomans. Humans, including residents of a settlement, accepted that they were part of a habitus where scorpions were natural members of the community. In fact, rather than "pests", such vermin were considered as hosts. In sum, this human-vermin living relationship created an active and recognized *animalscape*.

A spatial consciousness of vermin was further recognized in assigning them responsibility for the consequences of their collective behavior. Ecclesiastical trials in early modern Europe gave legal personality to animals. However small they were, vermin were among the animals taken to court frequently.[42] Although Islamic courts did not attribute animals any agency and responsibility in line with Islamic law, in a few cases courts found them culpable, literally recognizing their spatial awareness in habitation areas and seeing agency in their collective decisions to "invade" zones occupied by humans.[43] Evidence of active attempts to communicate messages that would resonate with vermin stems from locals requesting that the local qadi issue a letter to swarms of locusts. There is at least one example of a legal case where the court explicitly recognized conscious agency in vermin:[44]

> Oh, you vampires [*obur*] called locusts! You are doing harm by consuming the harvests of the Muslims. This letter of advice is issued upon the complaint of them. Upon receiving it come to your senses and stop causing such harm and leave; otherwise, you will be responsible in front of God.

Although the originality of this source may be doubted, there are many reasons to believe it is genuine based on the above discussion on the invincibility and recognized agency of vermin in the minds of the Ottoman elite, intellectuals, and common people. This short letter gives us insight into at least some fundamental belief that the invincibility of vermin endowed them with a collective consciousness. There was then hope placed on this type of constructed reality that locusts may respond to human requests and negotiation attempts.

When negotiation such as above was not possible a variety of other measures were used to prevent vermin from colliding with human spaces. In various sources we may piece together definitions of vermin and measures to manage them in relation to their *animalscapes*. While accepting of a shared spatial reality, humans seem to have pursued ways to cleanse their spaces of vermin, even if not explicitly hostile. In con-

41 Evliya Çelebi 2000, vol. 4, 224.

42 Timofeeva 2018, 39–40; Dinzelbacher 2002; Leeson 2013.

43 One should add prayers and talismans as signs of the acknowledgment of such awareness by humans.

44 The letter is quoted by Alpaslan Demir, who claims that a copy of the letter that was originally located in a local library collection was sent to him. See Demir 2014, 35. Emphases added. English translation is mine.

trast to the approach in Europe, communities in the early modern Ottoman period seemed to have realized specific limitations. They could only be active in delimiting their own perceived territory against the vermin *animalscapes*, implicitly understanding that they could not interfere with nor attempt to modify the established vermin spatial consciousness.[45] *Gunyetü'l- Muhassilin* suggests mitigating measures to keep vermin at bay. This included a plan to encircle the desired "clean" human area with a rope dipped in tar.[46] Such measures targeted reallocating space, rather than direct attack on vermin, and this approach to shared spatial consciousness continued until at least mid-nineteenth century in the Ottoman world. For example, a book titled *Hezār Esrār* (A Thousand Secrets) on miscellanea drafted during the 1830s and published later in the 1860s suggests that getting rid of flocks of vermin required one to delimit spatial boundaries.[47]

Other measures included "contaminating" space and air against vermin. *Ḥikmet-i Ḥaşarāt* suggests burning the hair of a lion or a wild goat to get rid of different types of 'poisonous monsters' and burying the claw of a black goose at the door sill to prevent rats from entering.[48] Suggestions to keep vermin away from the gardens included spreading fig tree ashes in the gardens or using incense.[49] Besides such measures, the reconfiguration of the human space within an *animalscape* allowed humans some relief from the negative effects of living in collided spaces. According to Charles MacFarlane, a British traveler who visited various parts of Anatolia in 1845, not being covered with vermin during a night's sleep around Anatolian villages was an event to be celebrated. His travel companion in rural Bursa, a certain Halil hinted at the fact that the underground lodge they had stayed in and shared with five men and a donkey was built that way to protect the lodgers from vermin, especially fleas.[50] Similarly, Fred Arthur Neale, who visited Tarsus (near Mersin) during the 1840s, was amused by how the wealthy inhabitants of the town built their houses in a way so that the flea colonies would not reach the rooms the owners used.

Even so, a good deal of interior space was surrendered to the fleas.[51] This necessitated acceptance of an *animalscape*; and the result was that villagers and town dwellers incorporated vermin into their perception of space and in so doing this line of thinking altered the organization of human space. Nevertheless, when one encountered swarms of vermin, early modern rural communities did not have too many options to negotiate their position. Migration of whole settlements due to the swarms of vermin in early modern Anatolia and Mesopotamia indicates the severity of the situation. In-

45 Cragoe and McDonagh 2013, 27-50; Cole 2016, 44–5; Sprenger 2015.
46 Tuğ 2000, 107.
47 Mustafa Behçet Efendi et. al. 1869, for instance entry no 165.
48 *Ḥikmet-i Ḥaşarāt* [no date]. [no page number].
49 Uzunkaya 2013, 237.
50 MacFarlane 1856. 260. In Mosul ants, lizards, snakes, and bats were also found abundant during the 1830s. Ainsworth 1842, 204–5.
51 Neale 1851, 268-269.

stead of proactively fighting back, human communities merely fled to other places.[52] In sum, despite the "invasion" of vermin being temporary and often short-term, vermin infest stations were catalysts for radical changes in the human perception of space and settlement patterns throughout the seventeenth and eighteenth centuries.

Vermin also proved resilient to climatic anomalies through the early modern period, arguably more so than humans. In the sixteenth century, vermin were admired for their resilience to hunger and thirst. One result was that the pressing ecologic conditions of the early modern climate forced Ottomans to reconsider their position vis-à-vis vermin. According to Ahmed bin Bali, a sixteenth century physician, 'these animals often survive without eating or drinking; maybe a result of their skin being thick'.[53] Resilience of vermin against extreme climatic conditions gave vermin a competitive edge throughout the nineteenth century crises. One indication of this is that human settlements dispersed during droughts and famine in the 1830s and 1840s. Indeed 'lizards, rats, screech-owls, bats, [took the] place of human beings' according to Macfarlane.[54] The recognition of their adaptability and resilience, then, endowed vermin with agency to alter human space. An expert in entomology and a professor in the Halkalı College of Agriculture in Istanbul, Mehmed Süreyya wrote one of the first Turkish books on entomology. His words make clear the power of vermin even during the late Ottoman Empire. In one example he describes that some parts of Anatolia had been under locust "invasion" for almost 30 years – thru at least the 1910s. The problem was so great that peasants had 'become used to the invasion of vermin and consequent damage' (*bu istīlā ve ziyāna ādeta alışmış olduḳları*).[55] According to Mehmed Süreyya locusts created their own boundary niches in the villages of the Aydın province in western Anatolia.[56] During this process, humans adapted to the new socio-ecology of the *animalscape* by cultivating vermin-prone products.[57]

That these animals were allowed spatial agency by Ottoman intellectuals and common people is demonstrated in the late-nineteenth century methods to deal with the vermin, especially locusts. From the middle of the nineteenth century villagers around the empire were asked to indicate and draw maps of the area where they claim to have seen vermin that were detrimental to agriculture. Therefore, visually marking *animalscapes* was a first step towards proactively negotiating mitigation measures.

52 For examples of archival accounts from the late seventeenth century and early nineteenth century respectively see BOA, Bab-ı Defteri, Başmuhasebe Defterleri, D.BŞM.d 803 and BOA. Hatt-ı Hümayun, HAT. 548-27100. For other examples from the late sixteenth century Anatolia see White 2011, 79–81.

53 For the definition by Ahmed bin Bali, see Sunar 2014, 198. Note the similarity between Ahmed bin Bali's comment and the tick experiment mentioned by Uexküll, in which a tick lived without proper nourishment for eighteen years in the laboratory of Zoological Institute in Rostock. See Uexküll 2010, 52.

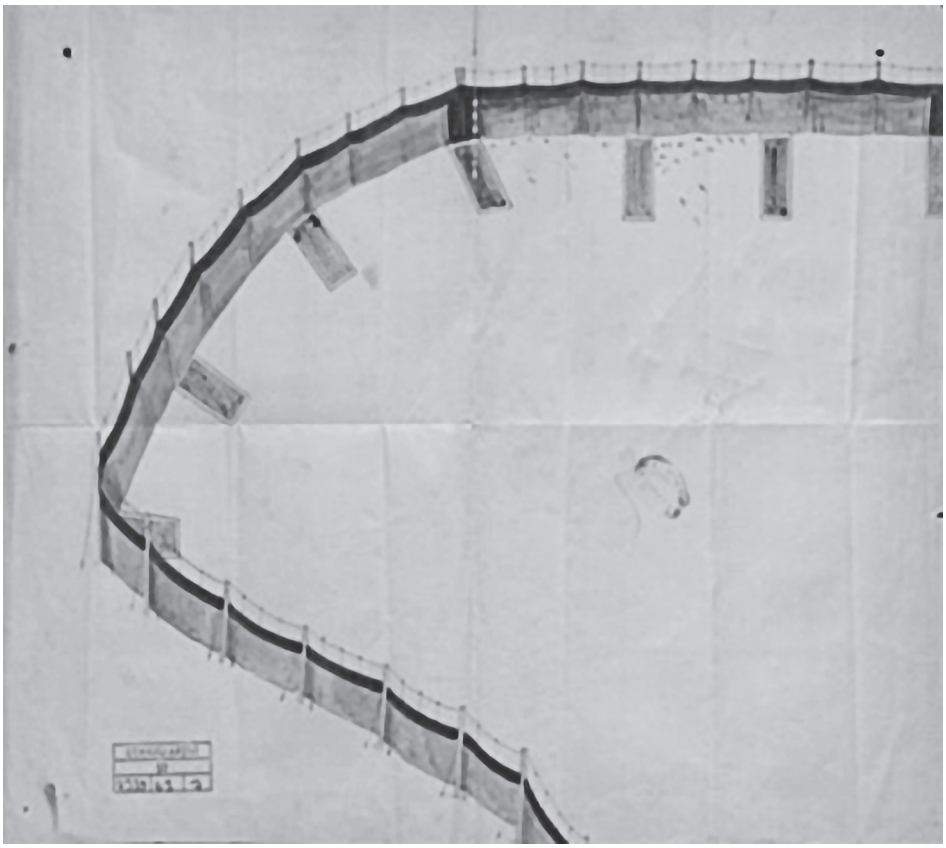
54 MacFarlane 1856, 129.

55 Mehmed Süreyya 1332 [1916], 216–8.

56 Mehmed Süreyya 1329 [1913], 190. For the cyclic movements of locusts in the twentieth century Anatolia and Mesopotamia see Çıplak 2021.

57 Mehmed Süreyya 1332 [1916], 216–8.

Figure 1. Illustration of the 'Cyprus method' in 1869.



More practical and proactive methods to control the locusts and other vermin were also invented. Especially in Cyprus, a place that suffered a great deal during the early modern period from locusts, inspiring measures of treatment emerged in the early nineteenth century and then were adapted by other regions by the second half of the century. Central government chose to call these measures 'the Cyprus method/*Kıbrıs usulü*'.[58] To control locusts, communities were told to create a boundary around the desired habitus zone with a cloth with holes in it measuring 50 meters in length by 80 centimeters; at the base of cloth pools of water were to be placed. This process aimed to target locusts into specific spatial zones that would not only move them away from human space, but led to their death – the locusts would move through the holes and fall into the ponds, as shown in Figure 1.[59] Other effective measures included digging

58 BOA. ŞD 542-44 13 May 1909.
59 BOA. ŞD 2339-63 14 November 1869.

boundary ditches to thwart locusts and other vermin; this helped protect both agricultural fields and human settlements.[60] Despite being proactive, such measures aimed to manage and direct vermin away from human settlements and fields, rather than exterminate them.

It was only at the end of the nineteenth century that Ottoman attitudes toward vermin shifted dramatically. Vermin began to be reclassified in more restrictive categories following rules of Linnean taxonomy and principles of entomology. With these new human-centered boundaries Ottoman intellectuals and common people moved vermin from independent actors in their own spaces into clear categories of pests that could be controlled by humans, notably with prepared solutions. Consequently, in contrast to previous measures that aimed to limit the *animalscape* in which the vermin moved relatively freely, human "scientific" agency deployed chemical products. Developed at the end of the century, these chemical solutions were effective at targeting vermin corporeal entities. This holistic focus aimed not to manage but to exterminate.[61]

4. Conclusion

Early modern Ottoman perceptions of the vermin offer a new trait in animal history and furthermore in critical animal studies. Importantly, this line of inquiry opens pathways for exploring animal histories in nuanced ways at intimate spatial levels. This line of focus is applicable for deconstructing human-animal relationships not only in the Middle East, but also globally. The category of vermin in the minds of early-modern Ottoman elite can be summarized as one of not only perception but also scholarly imagination; this purview was flexible. While Europeans fixed on categorizing animals, including explicit vermin communities and species, Ottoman communities appear to have been in favor of a fluid categorization. They identified animals that they think behaved in a certain way (such as being obnoxious and acting in collectivity, or defying categorization) as vermin. Especially the legal perception of vermin suggest that the category attributed a form of invincibility to these animals. More importantly, combined with narrative sources it can be claimed that that invincibility came from a recognized spatial consciousness of vermin, as it was almost impossible to drive them away from their *animalscapes*.

Here I've shown a pattern whereby in early-modern Anatolia and Mesopotamia vermin were understood not only as animals with individual or collective corporeal ex-

60 Mehmed Süreyya 1332 [1916], 219–20.

61 Studies on early-twentieth century methods to deal with locusts and vermin are abundant. See Yıldırım 2014; Özer 2016; Çavuş 2017. Especially diluted hydrocyanic acid (*hamızi kiyanos-ma gazı*), which was a highly poisonous chemical for humans, have been widely applied for the fumigation of orchards and gardens in the early twentieth century Ottoman Empire. See, Mehmed Süreyya 1332 [1916], 85–6. Hydrocyanic acid has been used during the First World War as a chemical weapon by the French army, though with little "success". During the Second World War, Nazis used a modified version (Zyklon B) of the same chemical weapon in the gas chambers. See, Weindling 1994, 291–3.

istence, or at times with conscious behavior which determined or affected the behavior of human beings and communities, but also as animals who occupied, constructed, transformed, and perceived a territory of their own. Seen in this way, I offer a new lens through which we may view "invasions" or "infestations" as reported by the state, and thus how vermin were encoded by historians. Such official discourses, I argue negated narratives from the hinterlands and households, both rural and urban. I show that the human-vermin relationships centered around spatial negotiation and the consequences of competition. Even if vermin targeted food sources to ensure their security, as Candelaria suggests, their collective, intensive behaviors and adaptations transformed spatial considerations of human communities.[62] In this way, both humans and vermin altered earth, water, and air to establish their respective ecological living spaces.[63] Through this unending process, I argue for early modern *animalscapes* in Anatolia and Mesopotamia. Here human communities acknowledged that the vermin occupied, constructed, and perceived their spaces. The absence of measures to eradicate vermin, and rather human attempts to negotiate co-habitus arrangements, was based on the acknowledged spatial agency of vermin. Overtime we see how humans attempted to delimit their own territory and protect it through talismans, prayers, or other "antidotes" from the intrusions of vermin; such measures by the last quarter of the nineteenth century included physical barriers, and in so doing, human settlements were reorganized in relation to these *animalscapes*. These efforts, however, did not fully thwart vermin and thus I've argued that the construction of *animalscapes* was in competition with human communities, especially in rural landscapes. As a final resort, when vermin literally took over, humans fled to other places.

Late nineteenth century Ottoman approach towards vermin were more proactive, scientific and institutional. However, it was only with the invention of "chemical weapons" that we see a human advantage in this competitive approach over space.[64] Desiccation of wetlands and applying pesticides to crops and soil were among the efforts to place further controls over vermin. As these efforts intensified the goal became extermination. This extreme measure was integrated into policy approaches throughout the Ottoman world, and mirrored similar approaches deployed globally. Such investments in chemical use saw an uptick in the last decade of the nineteenth century. As a result of extermination policies, which intensified throughout the twentieth century, today over 40 percent of all insect populations are threatened with extinction, and a third are among endangered species.[65] Seeing vermin, as well as other animals, as perceptive creatures capable of constructing their own, viable *animalscapes* may be a productive beginning to reconfigure our relationship with them in the face of ecological crisis and pandemics of the Anthropocene.

62 Candelaria 2009, 307–8.
63 Tsing 2012, 22; Royle 2018.
64 Mitchell 2002, Chapter 1.
65 Sanchez-Bayo and Wyckhuys 2019.

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