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Sovereignty Beyond the Human: ASF in the German-Polish Borderland

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Abstract

In this paper, we explore sovereignty over territory and animal population health (intersecting borderlines) via spatial logics of disease control measures addressing African swine fever (ASF), a hemorrhagic fever caused by a virus (African swine fever virus; ASFV) that is deadly for wild boars and pigs. Biosecurity understandings rooted in epidemiology and situated at the farm and lab are challenged by the expansive geography of ASF. Wild boars' cross-border mobility, along with human factors, further contribute to the spread of ASF across the landscape. Under orders from veterinary authorities, enrolled actors on both sides of the territorial border between Germany and Poland seek to limit ASF's spread. Ethnographic research methods combined with an analysis of narratives in official statements/media sources reveal the countries' incongruences in applying spatial confinement measures and enrolled actors' relational understandings of ASF risk that differ in placing blame over these borderlines. As a result of a perceived knowledge gap, fences are not erected on the Polish side, along with other measures deemed necessary by the German authorities to control the disease spread among wild boars. In attempting to resolve this gap in the biosecurity apparatus over controlling the intraspecies boundary, territorial borders are reinstated, and a spatial gap is enlarged between it and that of pigs and wild boars. However, the insurance of sovereignty aimed at controlling one's territory and over animal health populations in doing so remains influenced by economic and social differences in relation to domestic pig economies and wild boar populations that create rifts in possible cross-border and cross-group cooperation.

Keywords intraspecies boundary, African swine fever, sovereignty beyond the human, German-Polish borderland, biosecurity

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1. Introduction

Biosecurity, in a traditional epidemiological sense, refers to the combination of management and physical measures designed to reduce the risk of introduction, establishment, and spread of infectious agents to, from, and within a population of animals, mainly as an "implementation of practices that create barriers" (Fearnley, 2020, p. 71). In human geography, more concretely, biosecurity is understood in relation to enabling flows (of meat and live capital, i.e., domestic animals) while limiting the flows of others (pathogens and viral vectors). Both interpretations of this concept refer to a veterinary epistemology that serves private industry and capital interests from which the respective countries or federal states also benefit. Therefore, when combined, the implementation of stringent laws on producers and their employees' and citizens' mobilities in and around factory farm and slaughterhouse operations during epizootic breakouts and epidemics aims to continue the flow of goods in national and international markets.

While officially recognized as a transboundary animal disease, African swine fever (ASF) is bordering on a panzootic (Penrith & Kivaria, 2022), which is the equivalent of a human pandemic (having been [reported] in 61 countries up until 2020; World Organisation for Animal Health [WOAH], 2020). This variation of ASF has been described by epidemiologists as having a "triangular" character, meaning that ASF is (1) highly lethal, with up to 95% death in measured statistics (considered the most dangerous infectious animal disease to porcine [pig and boar familiy] recorded in modern history [Normile, 2019]), has a (2) high tendency: The ASF virus lives for a prolonged period in a carcass (up to 10 days) and beyond the carcass (up to 190 days on wood, up to 205 days in blood-stained soil), making it highly difficult to contain outside of the host, and (3) low contagiousness. ASF exists mostly between the "wild-boar habitat cycle" (Jori et al., 2021a; Chenais, et al., 2018). This is the new sylvatic cycle of the virus in Europe—meaning that the virus is self-sustaining in wildlife populations beyond anthropogenic influence. This cycle was found to be the most significant after its entrance to Georgia in 2007, which implicated wild boars (Sus scrofa), pig- and wild boar-derived products, carcasses, and the habitat. The domestic, or anthropogenic cycle, in contrast to the sylvatic cycle, involves domestic pigs and pig-derived products (pork, blood, fat, lard, bones, bone marrow, hides), which has been observed in cases such as in Africa or China (Cwynar et al., 2019) where there is a limited presence of the wild counterpart to the domestic Eurasian pig. Its ability to survive for long periods in meat and on surfaces and its high lethality make ASF a major global disruptor to meat and livestock trade (pork and pigs), which comes with "significant sanitary and socioeconomic consequences" to meat cultures and food security (Penrith & Kivaria, 2022). In cases such as ASF, foot-and-mouth disease, and other comparable epizootic (animal) diseases, biosecurity efforts expand beyond the farm to address the threat of ASF in wild animal populations due to the sylvatic cycle. Removing infection in wild animals or compartmentalizing the infection to less-industrialized regions help a country fully meet the requirements of its trading partners who determine the level of risk they are willing to take, and thus influence sovereignty beyond the human.

2. Biosecurity Beyond the Farm

The ever-moving geographies of humans and animals, along with the associated viruses in globalized livestock and feed production (Haggett, 1994), clearly delineate a "matter of geography" (Enticott, 2008). The presence of ASF in wild boars limits the possibility for trade if the infection spreads further to more densely populated pig production regions within Germany. As Figui et al. (2015) point out, "Security does not any more focus on the control of city walls but in the capacity to separate good and bad circulation" (p. 165). In this case, biosecurity, outside the farm, involves observing the removal of viral flows and wild boar flows in favor of the flow of domestic pigs and pork (Oelke et al., 2022).

Supporting an emerging field of veterinary anthropology (Broz et al., 2023), the scholarship on biosecurity beyond the farm (Hinchliffe, 2001; Hinchliffe et al., 2013; Figuie et al., 2015; Miescher, 2012; Enticott, 2008) places focus on the domestic-wild interface, with ASF occurring at the intraspecies boundary between domestic pigs and wild boars (both being of the Sus scrofa genus). Practices of disease control (biosecurity) outside the farm define their extension towards or beyond the territorial border (Law, 2006, as cited in Enticott, 2008; Skotnes-Brown, 2020).

The phenomenon of separating domestic and wild counterparts through policies to achieve more space between them can be analyzed through Hinchliffe's

(et al., 2013) concept of *borderlines*, reflected in the literature among the likes of Figuie, et al. (2015) and Miescher (2012). Borderlining plays out in borderlands that are constructed of territorial lines with fences, but in the case of epidemics also concern animal population governance through hunting and carcass collection.

In the case of ASF in the German-Polish borderland, which includes two federal German states, Brandenburg and Saxony, with our focus on the southern and northeastern parts respectively, and Poland's *Voivodeship* of Lubusz (*Lubuskie)*, human-imposed (territorial) borders are reinforced with fences that are tied to both the material threats and the discursive influence of the bio-threats' immanence. Therefore, this makes up what Fleischmann refers to as "more-than-human bordertextures" (forthcoming). Fleischmann (2020) contributes important research to the more-than-human borders literature on the dialectical processes of her (more-than-human) research subjects, being wild boars and ASFV, which shape the European border regime in times of ASF. While ASF has been in the borderland since 2019 (Lubusz), with its entry into Germany in fall 2020, the virus was, however, already present in Eastern Poland since 2014.

In our case, which uniquely concentrates on questions related to animal health and territorial sovereignty as they intersect in the ASF crises, we want to know: How are sacrifices made to animal lives and human livelihoods in the ASF crisis negotiated across space and knowledge regimes? And what role does sovereignty play in the spatial dynamics of biosecurity measures across territorial and species lines? We argue that two main results can be put forward to answer these inquiries:

1. The assertion of sovereignty by Germany and Poland over overlapping borderlines is complicated by their varying economic positions in the pig and pork trade market. The perception from the German side reveals a sizable knowledge gap in the biosecurity apparatus of the borderland. The German authorities' application of biosecurity methods outside the farm to close the perceived gap of disease control literacy ignores the relationship of hunters as stewards of wild boars across the territorial border.

2. Right up to the border with Poland, biosecurity is being implemented, and dominant narratives about the spread of ASF are being asserted. For their part, the expert voice of veterinary officers in Germany and their legal rights over the respective Federal States and districts affected by ASF devalue and displace other forms of implicit knowledge applied across the overlapping borderlines. Actors involved in ASF in Poland and hunters in Germany, along with the actions of wild boars, challenge the respective capitalist and anthropocentric interests of the respective federal states (in Germany), veterinary officers, and the private corporations that profit from the pig and pork industry.

Beurskens and Miggelbrink (2017) conceive of territorial sovereignty as a dynamic social process of establishing borderlines across a variety of actors at crucial stages to limit threats to security, whereas animal health sovereignty, in anthropocentric terms as well, requires control over the bodies of animals to inform a country's animal disease status. Negotiating sovereignty beyond the human in the context of ASF at the interface between territory and animal health, therefore, involves bio-surveillance at territorial borders (biodefense), as well as at the domestic-wild interface (biosecurity; Jori et al., 2021b). The distribution of resources across these overlapping "borderlines" (Hinchliffe et al., 2013) is conducted by each country in various ways to determine control over animal health, such as withholding vaccines (Yuen & Kan, 2021) or ensuring the sufficient flow of meat and livestock (Law, 2006, as cited in Enticott, 2008; Hinchliffe, 2008, as cited in Enticott, 2008) within a domestic market, an international market, or both. A "more-than-human sovereignty" considers not only the impact animals and viruses play on border processes as agents (Fleischmann, 2020), but also how managing animal health is negotiated across territories and across the intraspecies barrier. An overlooked component of sovereignty in the biosecurity literature has been the inclusion of the agency of animals and the consideration of human livelihoods that intersect with such animals' lives, which this paper addresses.

A more-than-human sovereignty has roots in indigenous cosmology and expands beyond borders enforced by colonial authorities and the modern nation-state through unwritten treaties that do not view soil (Hutchings, as cited in Murray, 2021) or animals as commodities (Ambers & Corntassel, 2025, p. 15) but as relational beings that require respect. The moral code of hunters, which requires providing the "least painful" and "swift" death, along with the ethical considerations of sparing younglings and mothers, predates

the transboundary animal disease policies in Europe and the cooperation between states overseen by veterinary authorities to eliminate such diseases. While not necessarily challenging authority itself, these actors hold hopes for collaboration and show the possibility of collectively defining what more-than-human sovereignty over territory and animal health can look like in the borderland.

3. Methodology

Ethnographic research in human geography has become an accepted and valued methodology to collect intricate and nuanced data that is telling of the deep meaning interviewees attach to the topics of research interest (Herbert, 2000). The border region between Germany and Poland was the site of patchwork ethnography, which involved 10 visits over a period of two years. Patchwork ethnography recognizes through feminist scholarship that long-term stays for ethnographic research are limited by the requirement for reproductive labor and emotional support of loved ones (Günel & Watanabe, 2024). Following Eilenburg and Harrisson's (2023) research on the ASF control efforts at the Danish-German border, we applied a "mixed methodology" in analyzing biosecurity outside the farm. This consists of analyzing discursive narratives of the "threat" of ASF to territorial and animal health sovereignty, given that the size and urgency of the threat is debatable across the various stakeholders we will introduce through the ethnographic research. Media sources, official press releases, and information briefs lend themselves to media discourse analysis (Hoor et al., 2018). We draw on the qualitative research we conducted in presenting the constructed discourses that estrange human and animal territorial neighbors in relation to the epistemology of biosecurity measures and the epidemiological concern of wild boar mobility.

The regional focus on the German and Polish borderland of this study was an outcome of the overlapping research interests and respective national affinities. It was crucial that we gathered understanding from both (territorial and animal health) sides of the issue in reaching the core reasoning for acting against stakeholders, human and animal, implicated in the ASF crisis. We spoke with both expert voices in the fight against ASF and those who are enrolled as the "hammer" to do so (such as hunters) in private meetings and go-alongs (the hammer or mallet is the tool of judgment and decision-making from above which they should enact, Interviewee 6). Seventeen semi-structured interviews were conducted in total in Germany's border region with Poland among hunters (Interviewees 2, 3, 4, 5, 6, 11, and 12), along with participant observation of potential wild boar crossing areas in October 2022. Interviews and participant observation are crucial components of qualitative and ethnographic research that allows the researcher to gather "deep" knowledge, beyond what is presented in literature and media sources, on a topic through participating in the activities; in this case, it involved go-alongs during meetings between important actors in the fight against ASF and participation at congresses (specifics are made anonymous to prevent recognition of potential participants due to the topic's sensitivity) where veterinarians presented their reports on ASF between October 2022 and September 2023. Three separate interviews were conducted with a veterinary officer from Poland (Interviewee 1), an ASF coordinator from Brandenburg (Interviewee 10), a professor of veterinary medicine from Western Germany, and a hunter/farmer from Poland (Interviewee 9). The role of hunting and fences in ASF was prevalent at these conferences, along with Poland's role in the ASF situation in Germany, which were major topics. Informal conversations (Farmer 7) also took place, which offered affirmative and nuanced statements to the interviews we have chosen to include in the article, but since they are not "interview material" (Happ et al., 2018), we have not included any quotations from them.

4. Results

4.1 Drawing the Line for Wild Boars' and Hunters' Sovereignty in a Veterinary World

"Proper biosecurity" measures, deemed so by veterinarians, are applied outside the farm and involve overly excessive sanitation of areas where carcasses are recovered, and on the bodies of humans and dogs partaking in the searches, extending towards the border with Poland. In doing so, German authorities materialize the sovereign power afforded to them by Federal States (Saxony and Brandenburg) over the territories of hunters, properties of farmers, and habitats of wild boars. Veterinarians spatialize the domestic-wild gap between pigs and wild boars through the measures of fencing and hunting across the landscape. A perceived epistemic gap exists, meaning knowledge about

biosecurity in the region, that is, the region's biosecurity apparatus, is unequally distributed in managing the control of ASF in wild boar populations due to a power imbalance across the territorial and intraspecies (domestic pig-wild boar) boundaries, where the "borderline" is drawn (Hinchliffe et al., 2013). To close this overlapping spatial and epistemic gap, veterinary authorities affirm their right, given to them by the state's power, to limit the mobility of wild boars and make decisions on the death of regional wild boar populations, which also have direct impacts on the livelihoods of hunters.

Since its emergence in the region in 2019 (Poland) and 2020 (Germany), signs warning of ASF on roadside posts or educational materials to prevent the further spread of the virus (see "Arme Schwein [Poor Pig]" campaign by the Free State of Saxony) point to the disease's presence. In addition, the "ASF border fence," not being just one fence, stretches along the 467-kilometer border made up of the Oder and Neiße rivers, dividing Germany and Poland since World War II (Guenther-Swart, 1941). While attempting to remove wild boars in the border region with Poland, the perceived flow of infected wild boars crossing the border needed to be addressed. In line with Kozorog's (2019) research, wild boars' habitats stretch over the border, with dense forests on both sides, but even denser on the Polish side, providing habitat and shelter from hunters, while German fields offer abundant foodstuffs. Wild boars and the ASFV they are assumed to carry are borderless—having no regard for human territorial lines and often traversing them (Fleischmann, forthcoming). During walking excursions in October 2022, the first author traced mobilities of wild boars in meadow grasses and underbrush that suggested a high prevalence on the Polish side from the wilding forests to the river's floodplain and back. While little of such evidence was found on the German side because of more intensified culling efforts, a higher number and density of hunting seats, and the ASF fence, wild boars were spotted and known to have crossed the river previously (Interviewee 1, 9).

Attempts to stop wild boar flows at Germany's border with Poland utilize various types of electric, mobile, and stationary fences, which make up the ASF border fence. The first fences were erected by Germany in 2019 following the pressure of ASF in Western Poland in 2019, and the next group in 2020 as a result of the virus' spread further inland. The fences stand 1 m 20 cm high in the gaps between already in-place property fences. In comparison, along the Danish and German border, a 1 m 50 cm fence stretching 70 km was built by the Danish authorities (Eilenburg & Harrisson, 2023). According to the hunter from Brandenburg (Interviewee 5) who was involved in the early crisis team overseeing the fence construction, "the fence works ideally, disrupting the wild boars' mobilities, and has shown to work in most cases."

ASF fences in Denmark and Germany are the material manifestations of the respective pig/pork industry and the government's hopes to ensure not only the sovereignty of a country's territory but also the body of domestic pigs as property of private multinational corporations—supposedly "communicating" to wild boars as an ecosemiotics of "no entry" (von Essen et al., 2023). While Denmark has yet to record a case, Eilenburg and Harrisson (2023) point out that their ASF border fences also intentionally communicate to stakeholders that their interests are served and to possible trading partners the security of the domestic herd's health, reflective of Fleischmann's (forthcoming) "bordertextures."

4.2 (Non)Cooperation in the Fight Against ASF in the German-Polish Borderland

Biosecurity is directly related to sovereignty, as bordering practices of territorial insulation and the separation of wild-domestic counterparts are conducted to ensure the sovereignty of a country's ability to determine its own production outputs of meat and associated infection measures. We argue that hunters in both Germany and Poland, as well as the Polish authorities, are positioned to be outside the governing power of veterinary authority associated with the European Union. Hunters' rights in Germany to hunt on their territory, where they have a hunting pact with the owner of the forest plot, and to determine their relationship to wildlife are overruled by biosecurity measures extending beyond the farm, as emphasized by Broz et al. (2021; 2023).

As researchers have revealed (Rogoll et al., 2023; Stončiūtė et al., 2022), hunters are concerned with the cooperation as a unidirectional and top-down form of knowledge dissemination. Hunter 6, who helps organize hunters in the fight against ASF in Saxony, pointed out: "We were invited in August, well, the director from the Rural Hunting Association of Saxony was to speak with the ministers. But until now, we have

not been working together effectively." In conjunction with this statement, a veterinary officer from Saxony pointed to the information letter distributed among all interested and involved parties in the fight against ASF to quell conflict and misunderstanding: "The hunters felt left out and poorly informed concerning the ASF control measures. We tried to improve this with the information letter, but it didn't improve relations much" (veterinary officer from Saxony during Epidays 2023 presentation on 08 November 2023).

Despite their efforts, veterinary officers and hunting associations that are receptive to this mutated form of hunting as biosecurity, such as the "Ecological Hunting Association of Berlin-Brandenburg" (2021), point to rural hunters as being non-complacent towards the ASF hunting directives, given their enjoyment in hunting wild boars. As one veterinary officer during an online presentation at the Epi Days at the Friedrich-Loeffler-Institut (FLI; 2023) put it bluntly, "Some hunters are not interested (in combating ASF), and in these cases, we will unfortunately come in and legally take over the hunting grounds." This can, however, lead to distrust and dissent, such as has already occurred in Saxony (Roitsch, 2022). Veterinary officers can pressure and threaten hunters in Germany, which was the case according to hunters (Interviewees 5, 11, and 12), when others do not cooperate by taking over their hunting territories and inviting other hunters willing to be "shooters," which is associated with hunting for the thrill but not the presence of mind and moral responsibility.

> Some hunters even gave up hunting as a result because they do not want to just partake in disease control … Despite hunting livelihoods significantly reducing, the authorities want all hunters to run into the forest and shoot all wild game. (DE, Hunter 5)

Therefore, it makes sense that many hunters would be uncomfortable with what Hunter 5 calls the "outright removal of animal rights laws and *Jagdschutz* (the rights of hunters)" in the case of ASF hunting biosecurity (Jori et al., 2021a), which seeks to remove each and every wild boar in infection zones without any consideration for these agreements.

Hunters view themselves and are often viewed within society as the stewards of wild animal populations, having extensive knowledge about wild animals' patterns that can lead to the simultaneous advocacy of wildlife and a healthy ecosystem (Shephard et al., 2024)—a societal position and relation to wildlife that is now being disturbed by societal demands (Broz et al., 2021). Law and Mol (2010) argue in their work on foot-and-mouth disease that, in fact, the various stakeholders approaching the same virus view it differently based on the different ontologies or realities they inhabit. Given this context, it is perhaps not unexpected that, similar to the limited cooperation between Germany and Poland, cooperation between veterinarians and hunters is often difficult.

Hunters interviewed see hunting differently from (sharp) shooting, as it involves veterinary officers managing hunting areas within disease control zones, where local veterinarians oversee animal disease laws. This example reflects what Broz et al. (2021) describe as the "veterinization of society." By extending biosecurity practices already present at industrial farms in Germany, such as culling infected herds and any other herds that may have been in contact with the virus through animal, feed, and human personnel, veterinary officers ask hunters to adopt veterinary knowledge systems into their hunting practices. There is, however, much distaste from hunters when they do cooperate. Two hunters (DE, Interviewees 11 and 12) located at the border with Poland in the "white zone" were particularly frustrated given the takeover of their territory for a period when they could not practice normal hunting activities for a whole year. The white zone is 1–3 km, where the *Tilgung* (state-ordered cull) took place—wild boars were to be reduced to 0.2 wild boars for every 100 ha.

This removes hunters' ability to decide how to hunt, making them so-called shooters under veterinary authority. This view comes from an ASF biosecurity coordinator in Brandenburg, who is being sympathetic to hunters and is one himself (Interviewee 10). He, along with Hunters 5, 11 and 12, despite their connections to the respective Federal States, see the hunt and the right of hunters to self-determination, *Weidgerechtigkeit* (moral and ethical hunting code), as being denied, and the overrule of animal disease over animal protection laws. Part of the complaint is that they witness and partake in the awful wasting of wild boar meat (mentioned by Hunters 5 and 6), as carcasses are thrown out and burned in the hundreds, if not thousands. Additionally, according to Hunter 6, many hunters do not just want to shoot wild boars, but also deer and other wildlife. They are also highly critical of the fence, given its protection of the industrial pig

industry. Even though they give priority to the conservation of ecosystems, they believe wild boars, in particular, regulate themselves: "We don't really care about the population (wild boars). They will always come back. But we are against the fence" (Interviewee 5).

Regarding cross-border cooperation between Germany and Poland, according to an environmental officer and hunter from Brandenburg (Hunter 6), there has been (up until 2023 when the interview was conducted) "absolutely none with Poland" in dealing with the ASF epidemic. Adding to this, one coordinator of hunting in Brandenburg (Interviewee 10) stated,

> Poland is ready to protect their pig population but not ready to support the neighboring country. It wasn't a wish from them (collaboration). We are trying to establish more contact but are surprised when there are new cases because of the lack of communication. It's (likely) a problem of financial capacity.

The economic competition between the two countries' pork and pig markets is less of a concern for Germany—although Germany undercutting the Polish pork sector was a position taken up by a farmer we spoke with in Poland (Farmer 7)—than the threat of ASFV crossing the border via wild boars' mobilities. Meanwhile, Poland has decreased direct expenditure from >70 million euros in 2021 during its peak (Najwyższa Izba Kontroli [NIK; Supreme Audit Office of PolandNajwyższa Izba Kontroli], 2022), since its appearance in Western Poland in 2019 changed the economic situation radically (Jarynowski et al., 2024), to only ~20 million planned for 2024.

There is a viewpoint that the Polish neighbors, specifically, "do not take the theme of *Druckjagd* (driven hunt) seriously" (regarding how the pressure hunts cause ASF to spread in infection areas due to high population disposal rates). Organized driven hunts, while apparently a popular and enjoyable method for hunting large numbers of wild boars, as conveyed by our interviewees, during the ASF epidemic can do more harm than good, frightening wild boars and causing them to travel great distances (>20 km) when the ASF fences are not yet fully set up around the infection zone (Jori et al., 2021a). The hunter (Interviewee 5) understands that wild boars can carry ASF to distances of between 200 and 600 km. While veterinary officers can threaten and pressure hunters on the German side, the officers had little influence on Polish authorities and thus built the ASF fence out of frustration.

To understand the disposition of German authorities towards Poland, we must consider what Interviewee 10 pointed out: that disease control measures outside the farm, such as fencing and carcass search and removal, require millions of euros in financial investments that the Polish authorities do not necessarily have the same access to or find it useful to invest in (104 million euros from Brandenburg alone, as of 08 November 2023, and 30 million from Saxony, as of 05 December 2023). As a result of the lack of deep pockets, the "crucial" combination of all three methods in the first two weeks of the infection outbreak in Poland was not present and likely led to the larger distribution of ASF cases in wild boar.

Germany's biosecurity measures against ASF extend beyond territorial borders, and the adoption of certain novel measures, including biosecurity hunting, is due to cooperation with neighboring countries, which reflects a scalability of biosecurity efforts being dependent on their orientation towards export markets (Hinchliffe et al., 2013; Figuie et al., 2015). The continuity between Germany and its cooperating partners in the Baltic countries, the Czech Republic, and Belgium is not so much the focus on securing territorial borders, but rather the "borderlining," a term borrowed from Hinchliffe et al. (2013), of the wild-domestic interface or intraspecies boundary by focusing the majority of their resources on the wild boar. From these partners, Germany adopted the epidemiologically guided approaches of hunting biosecurity and zoning (Hinchliffe et al., 2013; Jori et al., 2021b). "Hunting biosecurity is the operationalization of a veterinary epistemology in hunting that is in line with the European Union's policies on Transboundary Animal Diseases" (Transboundary Animal Disease Act).

Given that Germany is mostly concerned with its export trade in the EU and globally, it is not surprising that one veterinarian and hunter from Upper Lusatia (Saxony; Interviewee DE, 4), the mother of Interviewee 3, supports the logic of biosecurity hunting and the removal of wild boar in the buffer zone between German and Poland. "The rules are European-wide and work in many countries. There is no other way." This sentiment shows the effect that being a veterinarian may have on reaching a point of understanding rather than complacency.

The ASF disease control efforts outside the farm in Poland, on the other hand, are not based on EU standards, according to Hunter 5 (DE), as they trend towards a national market and withdrawal from EU standardization. In the affected regions such as Lubusz Voivodeship, they have made efforts to learn from the experiences of ASF eradication from "successful" countries, which, in the opinion of farmers or governmental administration, are preferred role models, such as Spain. This is particularly so given that the cases of Belgium and the Czech Republic are not comparable to those of Germany or Poland with their shared situation of ASF in dense and numerous wild boar populations (Sauter-Louis et al., 2022).

Proper biosecurity measures, such as hunting biosecurity and fencing as they expand beyond the farm (see Figure 1), often aim to protect European Union trade interests and date back to the 19th century, with some of the first policies to conduct cross-border trade of meat and livestock being set in place following the tuberculosis epidemic in Europe (Sunseri, 2015). While the veterinization of society or hunting may ring true for Germany (Broz et al., 2021), Poland has not totally adopted the same draconian measures towards the culling of wild boars in their border region with Germany, although it seemed to be trending that way (ter Beek, 2020). Poland has not, in fact, "given up," but approaches eradicating the disease "as best to their ability," according to a veterinary officer from the Lubusz Voivodeship (Interviewee 1). The method that they follow is called "sanitary hunting": applying biosecurity practices at the farm while, now, cleaning the environment of wild boars and carcasses assumed to be-infected simultaneously, but without the intensive hunting of wild boars (pl. odstrzał sanitarny, art 8.8 Polish Hunting Law, carried out under an order issued on the basis of health protection regulation). Thereby, in Lubusz, Polish veterinary officers are less focused on the interests of major industry players, and more on the livelihoods of smallholders, whom they seek to protect from the economic and emotional damage of livestock losses.

Figure 1 Proper Biosecurity Measures

Note. A sign reads "Disinfection against African swine fever" at Eurotier 2022 at the Hannover Fairgrounds. Photo by Jordan Oelke, 17 November 2022.

The position German authorities take on Poland's efforts against ASF through biosecurity at the farm and beyond adds to a lack of understanding of the neighbor, largely guided by stereotypes constructed through images and videos shared through social and traditional media (Lutostanksa & Rzym, 2017). Two hunters (Interviewee 11 and 12), whose territory is in the white zone where the Tilgung took place, wished that the German authorities would just "do the minimum," as they perceive Poland to be doing, and focus less on trying to protect the industrial pig farms, which they say is the only reason for the fences and the highly intensive measures. However, their conclusions also reveal limited knowledge about "eastern" countries'—many of which, such as Poland and the Czech Republic are in fact central European—biosecurity approach at and beyond the farm. This leads to narratives surrounding a lack of knowledge about wild boars being the major threat and regarding a failure to comply with proper biosecurity among actors such as farmers and hunters in Poland, which are seen in news reports and heard in public discourse.

In a 2018 Der Spiegel report (SPIEGEL TV, 2018), some farmers on the border with Germany in Poland were shown to have lost their herds to ASF despite saying that they followed all necessary sanitary measures. This suggests to the German public that Polish farmers, many of whom farm on a small scale for their livelihood, were devastated by ASF and lacked practical knowledge to prevent the virus from getting into the pig-holding facility. Footage from the report also displayed citizens feeding wild boars bread rolls and sausages on the side of the road, which further fed the misinformation and perception that their Polish counterparts did not take public animal health awareness seriously.

4.3 Challenging the Anthropocentric Approach to Spatio-Temporal Logic

Possibly because of a knowledge or epistemic gap of inadequate biosecurity outside the farm in Poland, which places blame on Polish actors and is extended to rural hunters, a dominant narrative among authorities and experts in Germany of an East-to-West wild boar flow has emerged under this perception. Such a narrative supports an anthropocentric approach to ensuring sovereignty over borderlines (animal health and territory) in seeking to secure an export market for pork and pigs. For instance, this belief supports the erection of the ASF fence and the culling of wild boar in the borderland. Hunters in Germany and their Polish counterparts are also implicated in the blame for the spreading of the diseases.

In standing outside of the veterinary-private industry of swine production, wild boars became the main focus of disease control measures outside the farm, and small-scale pig producers and hunters on both sides of the border are concerned about the extent of the biosecurity apparatus, particularly due to the ability of wild boars to carry the virus over long distances. Similar case studies can be found in the estrangement of wild ungulates in the context of tuberculosis (Sunseri, 2015) and badgers in England's foot-and-mouth disease outbreak (Enticott, 2008), where Lynteris (2017) claims these and other cases of animal as well as zoonotic diseases threatening the realm of human and animal health security led to wildlife being framed as "epidemiological villains."

Nevertheless, there is an equal or greater likelihood of ASFV being transmitted via material surfaces and between meat products due to the virus's ability to persist in the environment for extended periods because of its "triangular" characteristic of high environmental persistence, low contagiousness (through blood, excrement, consumption, saliva, mucus, etc.), and high lethality (above 95%; Food and Agriculture Organization of the United Nations [FAO] & WOAH, 2021). This veterinary logic, carried through information leaflets, training modules, workshops, etc., is geared towards hunters and is transferable to an extent. As one hunter, Interviewee 5, stated:

> ASF ended up in Hessen, and we didn't know 100% if wild boars carried it or if it was caused by people (through materials/domestic pig and pork movement by workers). … The problem is, we don't know how the virus is carried (and how it gets into the place of infection).

Here we can see the limitation of epidemiology and the frustration that bottles up.

> That is a little bit unclear how the virus entered Belgium. But one way was probably that hunters hunting in Eastern Europe brought one of their trophies, you know, with them home, which is strictly forbidden. We have no border controls. Then it came to Belgium but that was also successfully engulfed, then closed off. (Interviewee DE, professor of veterinary science, 9).

This quote reveals the trust and certainty that leaders, such as the Interviewee, in the former German biosecurity apparatus have toward certain Western European countries and the negative perception of how biosecurity is handled beyond the farm through veterinary authority in Poland. The Europeanization of territorial borders, being more open and free-flowing, is also pointed to negatively, with humans being the likely cause for the entry of ASF in this case.

These inconsistencies in the treatment of border mobilities of animals and humans are also reflected in expectations of ASF eventually reaching Germany due to wild boars traveling at times over 100 km and acting as the major hosts (Jori et al., 2021a), with a veterinary officer from Lower Saxony stating that ASF is expected to reach Lower Saxony in a "matter of time" beyond the few isolated incidents (Interviewee DE, 8). Nevertheless, the Vice-President of the Friedrich-Loeffler-Institute, Franz J. Conraths, admitted in an interview with Der Spiegel that it is largely the prob-

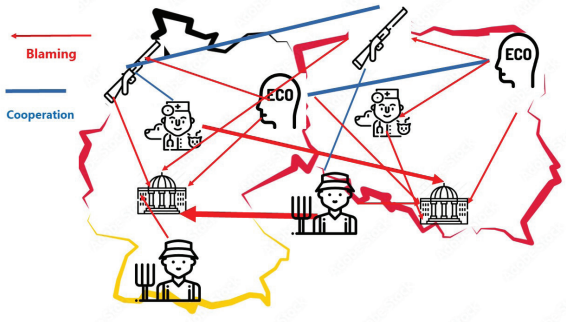
lem of humans, and not wild boars, in the continuous spread of ASF, given that ASF fences do not address this leak in the biosecurity apparatus (Der Spiegel, 2018). As he makes clear, more so than the mobility of wild boars, the large "spatial jumps," or "satellite" events—jumps are used in veterinary jargon derived sociolinguistically from the phenomenon of animalization (Ungar, 1998)—are largely the result of human-driven spread (Ito et al., 2022).

One hunter wanted to draw attention to this inconsistency in the focus of German authorities towards wild boars as the major host and threat of ASF spread:

> The major demand from Saxony that is expected of us (as hunters) is to increase the amount of kills in order to reduce the wild boar population. … and … that is of course… it is doable … what we are doing now isn't wrong, because it is asked of us, but the question of whether it is "sensible" can be argued with, even at the highest efficiency and level of hunting in Saxony in order to remove or reduce the wild boar populations (at minimum), the virus won't stop spreading to the rest of Germany because there are multiple other factors to take into consideration. For instance, it happens without a reason that the ASF virus shows up in Belgium or another country sporadically, 100 km further than the next infected animal. (Young hunter near Bautzen [Saxony], Interviewee 3)

Evidence that the spread of ASF (Der Spiegel, 2018) from Eastern Poland to the Lubusz district was mostly measured via large "spatio-temporal" jumps, rather than wild boar migration solely (Jarynowski et al., 2024), supports this young hunter's claim. Although German veterinary experts on animal diseases have their knowledge focused on the farm and must now operate beyond the farm, their focused scientific attention on considering what human-driven environmental factors, in turn, shape the spread of the disease among wild boar is all but limited (ENETWILD-consortium, 2022; FAO & WOAH, 2021). Hunters can also draw from common sense and refer to epidemiologists who provide a sensibility that aligns with what they are experiencing, in contrast to the pressures they feel from veterinary officers (see Figure 2).

Figure 2 Mapping of Actors' Relations Between Germany and Poland



Note. Mapping of actors' relations between Germany (left, with the country's colors of black, red, gold) and Poland (right, red and white), specifically veterinarians, hunters, farmers, and urban-dwelling ecologically concerned citizens.

Legend: Blue = cooperation (unmediated) and red = blaming (the arrow points from the blaming actor to the accused). The thickness of the lines represents the intensity of blaming.

Created by the second author based on the interviews conducted and the analysis of hundreds of traditional and social media reports surrounding the ASF crisis on the border using Brand24 software.

The roles undertaken by individuals such as Interviewee 6 and 10 (DE), who organize hunters to combat ASF, aim to address these challenges and make the veterinary logic behind the culling measures more acceptable. However, they themselves do not fully endorse these measures, given their deep-rooted and longstanding connections to hunting and wild game. "We are totally against this approach of the intensive reduction of the wild boar population," stated Hunter 6 (DE), also citing the lack of reasoning behind the "buffer (white) zone" for the Tilgung in Saxony being 4–14 km wide, in comparison with the 1 km wide buffer zone in Brandenburg. Adding to this point, Hunters 11 and 12, operating within the white zone, argue that the ASF fence along the border with Poland, (which also runs along their hunting territory) "is unnecessary," given that "there is no observable pressure on the fence or dead wild boars to be seen" since they were prevented from hunting on their territory over a year ago. Given hunters' strong reliance on the formation of their belief in observation, there is a general view among the hunters interviewed that veterinary officers are ill-equipped to decide the best approach to eradicating wild boars in concentrated areas.

Actors in Poland challenge the sensibility of an East-West narrative of ASF spread by re-presenting the timeline of ASF disease spread and thus push back against Germany's dissent and argue in favor of their own sovereignty to decide what to do with their border and animal populations. One veterinary officer from the Lubusz district stated,

> We didn't see cases of ASF near the German border (only >30 km away, interviewer's note), but Germany already had ASF (already in Frankfurt/Oder in 2020). And suddenly, ASF appeared on the Polish side of the Oder near Cybinka in March 2021. (Interviewee PL, vet, 1)

This was despite the intensive carcass search and removal efforts happening over several weekly intervals (Frant et al., 2022). Even in the first case of wild boars coming over to Poland from Germany (a reversal of the dominant German narrative), a hunter from the same region presented his statement in a more speculative understanding of the way the virus got to Poland: "The wild boars killed by ASF or the hunting to eradicate it in Germany, flow down the Oder River and settle on the Polish shore from where they are taken up by our wild boars and so ASF spreads" (PL, Interviewee 9).

Hunters, in advocating for their position, also point to the agency of wild boar, given their relation to them, which is often overlooked in the hunting biosecurity measures. Interviewee 5 (DE) claims that such a high hunting quota is meant to establish sovereignty over the wild boar population through hunting biosecurity. Wild boars' health status is disregarded by simply removing the populations, thus not only letting them die, as a form of more-than-human necropolitics (von Essen & Redmalm, 2023), but ensuring they die is part of a more-than-human biopolitical governance (Broz et al., 2021). This may be compared to selective killings among "problem wolves" (Poerting, 2023), and other animals as abject life forms (Fleischmann & Everts, 2023). The highest form of authority, being the state, bypassing the property and territorial rights of individuals is combined with the right to life and mobility of animals. Here, the sovereignty of the state-corporation apparatus is applied via legal protection of the right of private corporations to the bodies of domestic pigs and trade via the biosecurity measures targeting wild boars in their environment, which also includes and affects human domains.

Hunting biosecurity and the ASF fences deny wild boars a chance of survival from the disease and disrupt the sovereign right of wild boar sounders to access and have full reign of their territory, which is shared between the two nation-states, respectively. Interviewee 3 (veterinarian and hunter, DE) stated that "although we found that 20–30% of wild boars had antibodies for ASF, it doesn't make sense to just let the virus work its way through the population," in other words, to establish "genetic inheritance" among the wild boar herds. Here we can observe that there is a possibility for wild boars to survive across generations, which Poland is essentially experimenting with, but Germany would like to protect their pigs and profits. Nevertheless, ensuring access to export markets for the healthy domestic pig herd is, in the opinion of Hunter 5 (DE), "an unachievable feat" because of his observance of wild boars remaining in the region in and around an infection zone after the culling.

Additionally, Polish actors also provide an unlikely alliance, along with German hunters, for the wild boar to be "de-villainized" in the context of its epidemiological threat (Lynteris, 2019), standing outside the domestic realm of veterinary expertise but suffering under its hegemony, given the expansion into the wild. The negotiation of sovereignty in the ASF crisis is, thereby, more-than-human, as the power to live and let die of biopolitics is both experienced and contested by actors across the human-animal and intraspecies divide. Despite the attempted control measures to ensure territorial and animal health sovereignty against the perceived threatening oncoming wild boars, wild boars enact their own sovereign right to mobility across natural divides such as the Neiße river in crossing anthropomorphic borderlines. According to Amir (2020) and explored further by von Essen et al. (2023), the need for fences and the additional surveillance measures to control wild boars' mobilities speaks to the "monstrous agency" of animals: their "world forming power" (2020, p. 35). "The battle against ASF is entirely unbeknownst to wild boars, and the damage they inflict to fences is irrelevant to them," stated Hunter 5. Wild boars look for gaps, holes, withered or damaged sections of the fence to break through or enter urban areas where the fence has been removed, which was documented by the first author during the ASF crisis.

5. Conclusion

Despite some of the similarities in their approach internally, there is no attempt by either Poland or Germany to see the basis for each other's variations in addressing ASF based on their own sovereign interests in line with trade liberalization (Germany) or protecting a national market (Poland). Each country has thus taken control over its legal right to manage the territorial border (on its side) and allocate biosecurity measures between domestic pigs and wild boar due to its own economic interests but also according to social factors such as empathy towards small-scale owners, interrelated with the economic ones (see Figure 2). The affected actors on both sides of the border challenge the spatio-temporal logic of ASF disease spread behind these framings that place blame on them and wild boars.

Since there is no effective vaccine or pharmacotherapy for ASF, and due to the multitude of transmission routes and vectors, eradication will most likely not be possible anytime soon. Nevertheless, companies supported by the European Food Safety Authority (EFSA) such as VACDIVA (as made known during the most recent publicly available meeting) intend to make the vaccine available and effective for testing and application in wild boar populations—thus continuing the trend of veterinary expertise seeking to control both sides of the intraspecies boundary for the sake of the domestic herd, and for ensuring the flow of pigs and pork across territorial borders. The affected actors on both sides of the border revealed that human factors needed to be brought more into the major discourses being discussed across public and media discourse, thus focusing on the constant flow of meat, pigs, and humans in the international marketplace (Wallace et al., 2014). In accounting for the unequal power dynamic behind a perceived knowledge gap in the borderland biosecurity apparatus, the inclusion of the more tacit forms of knowledge is an underexplored (albeit promoted) form of disease management (Rogoll et al., 2023), which should be a major focus in a more-than-human sovereignty. Such biosecurity measures, however, neglect the status of wild boars as relational beings embedded in local ecologies and social practices, reducing them to mere vectors of disease rather than actors with agency who desire to live and not have their movement restricted.

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