



## Full Length Article

## Caviar matter(s): The material politics of the European caviar grey market

Hannah Dickinson

Department of Geography, Lower Mountjoy, South Road, Durham University, DH1 3LE, United Kingdom



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## ABSTRACT

The last quarter of a century saw the international political community make concerted efforts to regulate global caviar trade and prevent illegal harvesting of critically endangered sturgeon. Ironically, the regulations have enabled the emergence of novel forms of illicit trade which intertwine legal and illegal streams of caviar on the international marketplace. This paper foregrounds these licit-illicit interfaces and argues that the international caviar trade constitutes a 'grey market' characterized by a host of laundering practices that entangle legal and illegal caviar flows. Drawing on geographical scholarship on political animals and fleshy geopolitics, the paper theorises how the fleshy material properties of caviar, namely its chemical-isotope profile and composite form, directly shape the European caviar grey market. By highlighting how the materiality of caviar creates grey interfaces between legal and illegal caviar economies, the paper unsettles dominant dichotomized representations of illegal caviar trade which tend to foster overwhelmingly securitized policy-enforcement approaches in Europe. In pointing to the hidden 'fleshy geopolitics' surrounding EU enforcement strategies, the paper calls for a reshaping of policy and enforcement which better attends to the grey dimensions of the caviar market and provides increased protection for wild sturgeon populations and marginalised communities located at the Eastern borders of Europe.

## 1. Introduction

American president Barack Obama made his first diplomatic trip to Russia in July 2009, meeting Russian president Vladimir Putin for a traditional brunch at Putin's holiday residence outside Moscow. Immediately following the meeting, eagle-eyed political commentators raised questions about the provenance of the Beluga caviar and sturgeon meat served during the breakfast. The domestic harvest and sale of Beluga caviar was prohibited in Russia due to the overexploitation of critically endangered sturgeon in the Caspian Sea (Felgenhauer, 2009). So, if the caviar was of Russian provenance, it was almost certainly contraband. Alternatively, the caviar may have been legally imported from Iran, which in turn posed geopolitical ramifications for Obama given US sanctions against the country.

Notably, it proves impossible to conclusively determine the geographical origin and legality of caviar using human sensory registers alone. During the brunch the material provenance of the caviar proved indeterminable for Obama, his team, and onlooking global audiences. The caviar was rendered 'grey': simultaneously Iranian and Russian, both legal and illegal, and materially illegible for the American contingent. Writing at the time, Russian military analyst Pavel Felgenhauer remarked: "it is not clear what is more damaging for a US

president: to publicly eat Iranian caviar or Russian contraband" (Felgenhauer, 2009). Clearly, Putin's orchestration of the brunch meeting could not have better exploited caviar's illegible material provenance to open a geopolitical can of worms.

The above incident exemplifies Maan Barua's (2014) assertion that the micropolitical material properties of objects can have macropolitical implications. It also highlights that "traces of the geopolitical" are found in "unexpected places" (Smith, 2018, p. 80), and even "in the inner workings" (Squire, 2020, p. 6) of nonhuman subjects and their disembodied derivatives: in this case sturgeon, their meat, and caviar. This paper further examines the inner workings of sturgeon flesh, to theorise a material geopolitics of the European caviar economy. Taking inspiration from Barua (2014), I analyse the micropolitical material properties of caviar and argue that caviar exhibits a material mutability which has macropolitical implications. Specifically, I highlight how caviar's chemical-isotopic mutability and composite configuration have created the conditions for the international caviar economy to become a "grey market" (Mackenzie & Yates, 2017) characterized by the intertwining of licit and illicit streams of caviar on the marketplace.

By arguing that caviar's material properties directly shape the overlooked licit-illicit interfaces of the European caviar economy, I make both theoretical and empirical contributions that have broader

E-mail address: [Hannah.dickinson2@durham.ac.uk](mailto:Hannah.dickinson2@durham.ac.uk).

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implications for understandings of geopolitics. Theoretically, the paper pushes Mackenzie and Yates' (2017) grey market framework in a novel more-than-human direction that is attuned to the "live, active, agentic and powerful" (Tolia-Kelly, 2013, p. 154) materiality of caviar. In doing so, I advance ongoing discussions in political geography around 'fleshy geopolitics' (Dixon, 2014, 2015; Sharp, 2020) and geopolitical animals. Centring caviar's material qualities expands current debates on the 'fleshy affordances' (Squire, 2020) of nonhuman animals, by moving analyses beyond the geopolitical agencies of living animals towards an engagement with disembodied – yet equally vibrant and vital – animal matter. Drawing on Deborah Dixon's attention to 'corporeally disassociated' bodily tissues (2014, 2015), I argue that caviar as disembodied sturgeon matter, possesses material properties and affordances that tangibly disrupt and "reshape understandings of geopolitics" (Squire, 2020, p. 6). In this case, I mobilise caviar to reconfigure and 'flesh out' conceptual understandings regarding which nonhuman actants, entities and derivatives can be analysed via a political-animal approach to 'fleshy geopolitics'.

This line of argument reshapes and challenges prevailing geopolitical discourses and securitized enforcement strategies which frame European caviar trade as a starkly black (illegal) and white (legal) issue. Existing EU policy-enforcement approaches overwhelmingly overlook the grey dimensions of the European caviar economy, instead positioning illegal caviar trade as a criminal issue confined to the Eastern borders of the European Union. This understanding of illicit caviar trade legitimises heightened securitization and surveillance practices which disproportionately target marginalised sturgeon fishing communities located at the Black Sea borders of Europe, rather than identifying criminal actors operating across the European caviar commodity network. I therefore argue that the EU's framing and response to illicit caviar trade reveals a narrow and sometimes violent mode of 'fleshy geopolitics', which contributes to a broader geopolitical preoccupation with the ongoing fortification and policing of EU territorial borders (Pallister-Wilkins, 2022).

My analysis problematizes the EU's dominant policy-enforcement approach to illicit caviar trade by demonstrating that the material mutability of caviar enables the movement of illicit caviar into ostensibly legal economic spaces in Western Europe. The existence of this 'grey market' effectively renders false the EU's dichotomy between distinct geographical zones of legal and illegal caviar trade. Ultimately, I question the efficacy of the EU's framing and approach to illicit caviar trade, and instead call for amended policy-enforcement trajectories which explicitly tackle the licit-illicit interfaces of the caviar grey market. In sum, theorising caviar's fleshy material properties reveals the deep socio-economic interconnections that are forged between 'upper-world' and 'underworld' actors on the basis of this materiality; and thus, provokes pertinent political questions about the nature of European policy-enforcement efforts to tackle illegal caviar trade.

In what follows I first outline my methods, before contextualizing caviar trade in Europe (section three). Section four reviews literature on grey markets, making the case for enlivening Mackenzie and Yates' (2017) grey market framework by placing it in dialogue with more-than-human approaches from political animal geography, which I outline in section five. Section six draws upon primary qualitative data to empirically demonstrate how the mutable, fleshy properties of caviar have shaped the European caviar grey market. Section seven discusses the geopolitical implications of existing policy-enforcement strategies which overlook the grey materiality of illicit caviar trade in Europe. Finally, I conclude with calls for a radical reconfiguration of existing policy-enforcement approaches to tackling illicit caviar trade in Europe.

## 2. Methods

This work draws on four months of research in Belgium, Austria, UK, Netherlands, Romania and Poland during 2018–2019. Taking inspiration from 'follow the thing' (Christophers, 2011; Cook, 2004; Hulme,

2017) and 'follow the policy' methodologies (Peck & Theodore, 2012, 2015; Wood, 2016), I used mixed qualitative methods to follow the creation, translation and implementation of caviar trade regulations across EU Member States. I analysed how policies travelled and transformed, and with what geopolitical-ecological consequences.

The research focused on the EU as the largest global market for imported legal (Harris & Shiraishi, 2018) and contraband caviar (Knapp et al., 2006). EU states are also sources of legal and illegal caviar, which is consumed domestically and exported internationally. As a Party to the UN Convention on International Trade in Endangered Species (CITES) the EU enacts CITES restrictions on trade in sturgeon and caviar via the EU Wildlife Trade Regulations. It is these policy mechanisms that I followed.

I traced the movements of caviar trade regulations across key policy, enforcement, and commercial nodes. Studying outwards from Brussels, I used a multi-directional, multi-sited approach that connected "places of policy invention not only with spaces of circulation and translation, but also with the prosaic netherworlds of policy implementation" (Peck & Theodore, 2012 p.24). The geography of my study was determined by access and fieldwork constraints and is therefore a partial reflection of the EU caviar landscape.

I conducted 40 semi-structured interviews with 51 interlocutors spanning caviar industry (n = 9), enforcement (n = 9), policy (n = 11), judiciary (n = 3), NGO (n = 10), and research (n = 9). Individuals categorised as 'enforcement' include both police and customs officials working on wildlife crime. NGO actors represented WWF, the World Sturgeon Conservation Society, and the Danube Sturgeon Task Force. Interviewees were identified online, at conferences, and via snowball sampling. Access to caviar industry representatives was achieved by building longer-term relationships and reiterating that interviews would focus on the impact of regulations on their operations rather than uncovering criminality. I did not interview caviar traffickers or poachers. However, given the licit-illicit interfaces of the caviar 'grey market', interviewees sometimes made criminal allegations related to specific individuals and companies. I therefore decided to anonymize all research participants, and to include only limited contextualizing information.

My methodology also included 'following meetings' (Wood, 2016). I conducted participant observation at two international sturgeon conferences and the 2018 Seafood Expo Global. Further participant observation included two sturgeon farms/caviar production facilities in Romania and Britain. Finally, I 'followed materials' (Wood, 2016) to triangulate and consolidate my primary data, conducting discourse analysis of 25 publicly available documents published between 1997 (a year prior to CITES listing of sturgeon) and 2021. These included CITES, EU, and national legislation; European reports and press releases; NGO reports; sturgeon conservation action plans; conference proceedings; EU and national seizure data; and newspaper reports.

## 3. Caviar trade in Europe

Caviar is unfertilised, salt-cured sturgeon roe. There are 27 species of sturgeon, and these anadromous fish live mainly at sea but reproduce in Northern Hemisphere rivers. Sturgeon can live beyond 100 years, with female sturgeon first producing eggs between 7 and 20 years old. They only spawn once every several years and yield up to 2million eggs each spawning event. There exists broad variation in egg colour and size between species, ranging from black to gold, and pea-sized to tiny grains. Sturgeon eggs are a delicacy for humans. The roe is extracted from the fish before natural ovulation and this typically entails killing the sturgeon before removing the roe sacs, then processing, sieving, salting and packing the eggs in a centuries old method (Fletcher, 2010). Modern advances in no-kill caviar technologies enable eggs to be removed from live fish using caesarean or 'milking' methods, although such techniques are not widely used as they are said to negatively affect caviar's quality and flavour.

Humans have consumed caviar since ancient times when processing facilities were first established near the Caspian Sea, Black Sea, and Lower Danube River (Fletcher, 2010). Following the dissolution of the Soviet Union, harvesting of sturgeon for caviar became highly unsustainable as commercial fisheries in the Volga-Caspian basin rapidly expanded, and poaching and caviar trafficking surged (van Uhm & Siegel, 2016; Zabyelina, 2014). Since then, overfishing and poaching has decimated wild sturgeon populations in the Lower Danube Basin, Black Sea, and Caspian Sea – where 90% of the world's sturgeon stocks were historically located.<sup>1</sup> The IUCN has classified sturgeon as the most critically endangered group of species, however, a lack of monitoring means overall population decline is difficult to quantify. Nevertheless, estimates place Danube River sturgeon populations at less than 1% of historical levels (Luca et al., 2020). The situation is thought to be similarly bleak elsewhere.

CITES began regulating international trade in sturgeon and derivatives in 1998. Since then, a raft of multi-level regulatory mechanisms – including catch quotas – have been introduced and extended. These aim to sustainably manage trade in sturgeon and caviar. Nonetheless, sturgeon populations have continued to decline despite consistently reduced quotas for exporting wild sturgeon and caviar from sturgeon range states. Since 2010, CITES export quotas have been set at zero thereby prohibiting the harvest and international trade in any wild sturgeon products – with a few strictly limited exceptions.

Overall, the last quarter of a century witnessed a wholesale transformation of the caviar industry with a consolidation of economic profits in the hands of private enterprises. Throughout the 2000s sturgeon aquaculture blossomed in response to reduced export quotas and wild sturgeon scarcity. By 2016, almost 2000 sturgeon aquaculture facilities operated across 48 countries, and exports of farmed caviar comprised 95% of global caviar trade by weight (Harris & Shiraishi, 2018). EU member states consumed 121–126 tonnes of caviar in 2018, showing an increase in production and consumption of 30% and 20% respectively on 2016 data (EUMOFA, 2021). Other growing caviar markets are USA, Japan, Russia, and China. Since the early 2000s a dramatic decline in seizures of contraband caviar has occurred. EU enforcement authorities seized 10t of illegal caviar between 2001 and 2010 (van Uhm & Siegel, 2016, p. 77), yet seizures dropped to 787 kg in the following six years (Harris & Shiraishi, 2018).

On the surface, the shift to caviar aquaculture and dramatic declines in seizures of contraband product suggest that EU caviar trade regulations are working effectively. However, a report from UNEP, WWF and Eurac maintains that sturgeon poaching and caviar trafficking continues at 'alarming' rates in Europe (Schlingeman et al., 2017). Zero export quotas and fishing moratoriums contributed to rising unemployment and unrest in fishing communities across Russia, Romania, Bulgaria, Serbia and Ukraine, causing some individuals to pursue poaching and caviar trafficking in lieu of alternative income (Daea, 2019; Ermolin & Svolkinas, 2016; Hruby, 2020; Wordley, 2020). Moreover, in Western Europe caviar retails between 2000 and 6000 euros a kilo and upwards of 25,000 euros a kilo for extremely rare varieties (van Uhm & Siegel, 2016). Exorbitant prices and ongoing demand for wild caviar (Hruby, 2020; Zabyelina, 2014) makes caviar trafficking attractive to criminal networks.

Indeed, between 2015 and 2019 Romanian border police filed 49 lawsuits against perpetrators of sturgeon crimes (Daea, 2019), and confiscated 23.6 kg of illegal caviar worth 50,000 euros in a single incident in August 2020. Market surveys and forensic analyses also confirm that fraudulently labelled wild caviar is available on the marketplace in sturgeon range states and in Western Europe (Jahrl, 2013; Jahrl et al., 2021). This corroborates suspicions that some legally

registered aquaculture and repackaging facilities launder wild caviar by presenting it as farmed (Musing et al., 2019; van Uhm & Siegel, 2016; Zabyelina, 2014). Thus, the regulatory systems unintentionally provide loopholes for criminality, resulting in the intertwining of legal and illegal caviar streams in an international 'grey market'.

#### 4. Grey markets and grey materiality

A 'grey market' describes a phenomenon whereby contraband commodities are disguised as legal goods on the marketplace. The intertwining of licit and illicit commodity streams is typically achieved by exploiting oversights and loopholes in regulatory systems, and via arrangements between criminal 'underworld' and corrupt 'upperworld' actors including diplomats, government officials, customs officers, police, judiciary, and businessmen (Hübschle, 2017; Massé et al., 2020; Siegel et al., 2020; van Uhm, 2018; van Uhm & Moreto, 2018; Wyatt et al., 2020). The corrupt nature of underworld-upperworld arrangements makes the interweaving of legal and illegal commodities difficult to identify and disentangle.

The global antiquities trade is presented as the pre-eminent international grey market (Bowman, 2008; Bowman Balestrieri, 2019; Mackenzie & Yates, 2017). However, licit-illicit commodity interfaces are similarly visible in wildlife trades including: timber (Iordăchescu & Vasile, forthcoming), lion bone (Williams & t' Sas-Rolfes, 2019), reptiles (Nijman & Shepherd, 2009), abalone (de Greef & Haysom, 2022) and fur (South & Wyatt, 2011). CITES place prohibitions or extreme limits on international trade in wildlife species deemed at greatest extinction risk. Nonetheless, trade in these species may be permitted if the plants or animals are captive-bred. This legal technicality creates loopholes for wildlife laundering. For example, illegally harvested wildlife is sometimes fraudulently marketed as captive-bred by legitimate businesses engaging in what green-criminologists call 'green-collar crimes' (van Uhm, 2016, 2018). 'Green-collar crimes' constitute just one form of caviar laundering; and I therefore deploy a grey market framework to account for the multiple licit-illicit interfaces in international caviar trade which extend beyond a narrower focus on the intentional involvement of legal enterprises in laundering.

High profile political actors including the UN,<sup>2</sup> OECD<sup>3</sup> and UK government<sup>4</sup> increasingly refer to grey wildlife markets. However, grey market concepts have had lesser uptake in critical social science studies of illicit wildlife trade (for examples in zoology see Jabin et al., 2019; Basu et al., 2020). An exception, is Annette Hübschle's (2017) ethnographic work tracing 'grey flows' of rhino horns moving 'legally' from South Africa to Vietnam, via pseudo-trophy hunts which exploit legislative-enforcement loopholes and operate via underworld-upperworld connections. Hübschle argues that "illegal, grey and legal flows of rhino horn cannot be studied in isolation because they merge, converge and diverge", across constantly shifting, fluid interfaces (2017, p.201). The caviar grey market is similarly configured through merging, converging, and diverging flows of legal and illegal caviar. Thinking with and revealing these 'fluid interfaces' of caviar trade, problematizes dominant dichotomized policy-enforcement approaches to caviar trafficking in Europe.

Grey wildlife markets have direct implications for political geography as they provoke questions around border politics, law enforcement, statecraft, geopolitics and securitization. Dominant European policy-enforcement approaches to wildlife crime largely overlook the 'fluid interfaces' and 'grey zones' in wildlife economies, instead favouring

<sup>2</sup> See: <https://www.un.org/en/chronicle/article/will-china-say-no-wildlife-trade> [accessed: 03.08.22].

<sup>3</sup> See: [https://www.oecd-ilibrary.org/governance/illicit-trade\\_26175835](https://www.oecd-ilibrary.org/governance/illicit-trade_26175835) [accessed: 03.08.22].

<sup>4</sup> See: <https://www.gov.uk/government/news/keeping-wildlife-out-of-illegal-trade> [accessed: 03.08.22].

<sup>1</sup> Wild sturgeon populations exist in other European river basins including the Rioni (Georgia) and the Gironde-Garonne-Dordogne (France), however these populations are not seen as 'viable' due to limited reproduction.

securitized strategies which erect fixed categories of legality versus illegality. This approach criminalizes particular ‘illegal’ landscapes and ‘illegal’ actors often located at the margins of Europe, whilst the involvement of other actors and geographies remains obscured (Iordăchescu et al., forthcoming). Critiquing securitized law enforcement in Romania’s timber forests, Iordăchescu & Vasile, argue that enforcement officers often overlook ‘grey’ timber transactions, instead targeting “the most vulnerable ‘villains’, while the less vulnerable ones carve their way out often in violent ways” (Iordăchescu & Vasile, forthcoming). Taking inspiration from Hübschle’s attention to fluid ‘grey flows’ and Iordăchescu & Vasile, ’s critique of securitized wildlife crime enforcement, I draw attention to the materialities of the caviar grey market to stimulate debate about the EU’s approach to tackling illegal caviar trade and wildlife crime more broadly.

This paper deploys Mackenzie and Yates’ (2017) grey market framework to understand the illicit European caviar economy. The authors develop a threefold classification of ‘greyness’ to illustrate how the merging of legal and illegal antiquities markets occurs. The practical mixing of licit and illicit supply chains is the primary mechanism. Their second form of ‘greyness’ refers to the ‘moral ambiguity’ that perpetrators construct around their actions, using neutralizing discourses to grey “the binary right/wrong distinction” (2017, p.84) enshrined in international trade laws. Margulies (2022) reveals that cactus poachers deploy similar neutralizing discourses to frame illicit harvest of endangered flora as “acts of care”. The final parameter of greyness is the “changing social/market and legal classification of individual artefacts” (Mackenzie & Yates, 2017, p. 71). As illicit objects pass through multi-nodal trafficking networks, they undergo a ‘cleaning process’ by acquiring official documentation. These objects move towards the licit, “but most likely end up grey: not ethically clean, but legal”, with documentation hiding their illicit origins (ibid, p.82).

Whilst Mackenzie and Yates declare that their final parameter of greyness has “an object focus rather than a market focus” (2017, p.82), the structure of the trafficking network appears more significant. Nevertheless, centralising nonhuman objects is imperative for theorising grey markets. Arguably, “much more attention should be paid to how the products themselves can influence what stages are required and which actors need to be involved” in facilitating illicit trade (van Uhm & Moreto, 2018, p. 866). Accordingly, I expand Mackenzie & Yates’ (2017) grey market framework by eschewing a sole focus on human agency and capturing the “active role of nonhuman materials” (Bennett, 2010, p. 2) and animals in shaping the “formation and operation of the political networks that regulate, protect and exploit them” (Hobson, 2007, p.250). Specifically, I position caviar’s ‘fleshy’ materiality as an integral parameter of greyness in the caviar grey market. My analysis moves beyond the interfaces between “il/legal, il/legitimate and in/appropriate” described by Mackenzie and Yates’ (2017, p.84), to consider how caviar’s mutable material properties prove *illegible* – or grey – and indelibly shape the formation and operation of the caviar grey market. Drawing upon emergent trajectories in political animal geography and fleshy geopolitics, I “embrace the call of matter to think politically and beyond the surface” (Tolia-Kelly, 2013, p. 153) about caviar’s grey materiality. I argue that the mutable material properties of caviar are central in co-producing the grey market; and paying attention to these properties can problematize the dominant logics of securitization driving EU wildlife-crime enforcement strategies.

## 5. Fleshing out the question of the (geo)political ‘animal’

Political geography is witnessing a ‘flourishing of interest’ in nonhuman agency (Theriault, 2017). Recognising that political agency is not exclusively bound to human intentionality (Barad, 2014; Dittmer, 2014), scholars working across the breadth of political geography increasingly approach “non-humans as legitimate subject matters of social inquiry whose actions contribute to the co-production of more-than-human worlds” (Margulies & Bersaglio, 2018, p. 104).

Of particular significance to this paper is ‘political animal geography’: a burgeoning sub-field that challenges human geographers’ tendency to approach “the question of the animal” (Wolfe, 2003) as de-politicised or entirely apolitical (Srinivasan, 2016). In 2007, Kersty Hobson made an emphatic case for expanding political geography to theorise how the ecologies, behaviours and physiological materiality of animals shape “how specific political spaces are constructed” (p.263). Nevertheless, political geography and critical geopolitics has shown “resistance” to engaging with “the question of the animal” (Srinivasan, 2016, p. 77) and other nonhuman life-forms (Squire in Koopman et al. (2021)). In response to Srinivasan’s and Squire’s respective calls to (re) engage with nonhuman-animals as agents in the co-production of geopolitical space, this paper takes up the “question of the animal” (Wolfe, 2003) anew. By reframing what counts as ‘animal’ in political animal geography, I push for a broadening of the analytical purview of this sub-field.

Political animal geography has, perhaps unsurprisingly, tended to examine how living, charismatic (Lorimer, 2007) nonhuman animals are co-constitutive of geopolitical configurations, processes and space alongside – or against – their human counterparts (Forsyth, 2017; Kosek, 2010; Margulies, 2019; Margulies & Karanth, 2018; Ojalampi & Blomley, 2015; Raento, 2016; Squire, 2020; Sundberg, 2011). Typically conceived as “a sovereign subject held neatly within a fleshy container” (Squire, 2020, p. 6), animals shape political space through their capacities as lively, mobile, and reactive subjects. However, political animal geography’s focus on lively, charismatic animals reveals a lacuna in the developing sub-field: the political agencies of dead animals and disembodied animal derivatives or fleshy tissues, have been side-lined.

Outside political animal geography, scholars have considered how capitalist actors and nation-states make animal remains the locus of their (bio)political-economic interventions (Shukin, 2009). Others have theorised how dead animals and their body-parts exhibit “material afterlives” (Bezan & McKay, 2021) by exerting a tangible influence on the unfolding of political-economic processes and the constitution of geographic space (Banoub, 2019; Bersaglio & Margulies, 2020). In social and cultural geography, Bersaglio and Margulies (2020) consider how the ‘liveliness’ of near-extinct northern white rhinos extends posthumously through the disembodied circulation of reproductive cells harvested for de-extinction agendas. They build on Collard and Dempsey’s (2013) notion of ‘lively commodities’, by putting forward “afterlife commodities” as a category to describe the “grey areas ... between living commodity and dead commodity” (Bersaglio & Margulies, 2020, p. 7), where the disembodied derivatives of deceased animals continue to circulate and shape political-economic spaces.

By bringing the “material afterlives of animals” (Bezan & McKay, 2021) and “afterlife commodities” (Bersaglio & Margulies, 2020) into the remit of political geography, I push for a broadening of political ‘animal’ subjectivity beyond a narrow conceptualisation of lively, bounded, sovereign subjects (Squire, 2020). Rather, I look to the material-political afterlives of “corporeally disassociated” (Dixon, 2014, 2015) animal parts, to theorise how disembodied animal flesh, tissues and cells –be it sperm (Bersaglio & Margulies, 2020; Colombino & Giaccaria, 2016), codfish (Banoub, 2019), caviar, or any number of animal derivatives– circulate posthumously in ways that reinforce or disrupt the geopolitical structures governing both human and nonhuman life. In doing so, I intervene into political animal geography scholarship by demonstrating that animal remains – and not just lively animals – are “co-constitutive of political processes” (Banoub, 2019, p. 4). Specifically, I examine the material-geopolitical “properties, potentialities, affects and affordances” (Sundberg, 2011, p. 318) of caviar: a fleshy disembodied remain of sturgeon.

Rachael Squire’s work which sits at the intersections of political animal geography and critical ‘fleshy’ geopolitics (Dixon, 2014, 2015; Sharp, 2020; Smith, 2018), draws “attention to the vitalities of the animal and sub-animal body” as well as “semi-living matter” in reconfiguring the geopolitical realm (Squire, 2020, p. 6). Examining 1960s US



SeaLab projects, Squire illuminates the overlooked agencies of military-animal bodies and describes how the infected flesh of a dolphin named Tuffy disrupted the US Navy's ambitions to co-opt and control dolphins for territorializing purposes. Squire advocates for extending analyses of the "unruly potential of flesh ... beyond human corporealities" and towards nonhuman corporeality (2020, p.6). However, her examination of the 'sub-animal body' and 'semi-living matter' remains tethered to embodied processes working *within* and at the edges of Tuffy the dolphin's 'fleshy container'. As such, I extend enquiry beyond the fleshy containers of nonhuman bodies to consider the 'sub-animal' as disembodied nonhuman flesh, which possesses "the capacity to affect and 'reshape' understandings of geopolitics" (ibid). This intervention realigns scholarship on geopolitical animals with Dixon's (2014, 2015) original provocations on 'fleshy geopolitics', which analyse how corporeally disassociated human flesh – stem cells and bone – are commodified, and through their circulations rework conventional understandings of geopolitical phenomena including borders. Thus, I draw on Dixon (2014, 2015) and Squire's (2020) 'fleshy geopolitics' to rework understandings of the geopolitical-economic conditions of the European caviar market.

Dixon's work analyses human egg cells/oocytes as disembodied tissues worthy of geopolitical analysis. Sturgeon eggs removed to become caviar are also oocytes: single cells with a nucleus that contains DNA and coordinates cell functions including growth, maintenance and reproductive division (Chapman & Eenennaam, 2016). Accordingly, caviar falls under Dixon's articulation of 'flesh', as "living material that has been removed from the body, stored, and modified to serve diverse ... purposes" (2014, p.138). These eggs exist for a time as 'living material' removed from the sturgeon body, before becoming the 'semi-living matter' (Squire, 2020) that caviar constitutes: "at once a 'dead' commodity, and a living, microbial community" (Banoub, 2019, p. 9). Echoing Bersaglio and Margulies' (2020) reflections on the 'grey areas' between lively and dead commodities, caviar as an object of analysis also points to the inherent grey areas in what constitutes 'flesh'.

Specifically, I analyse the fleshy materiality of caviar and consider how caviar's material-chemical affordances transform the European caviar economy into a grey market. Daniel Banoub (2019) illuminates how the material-chemical properties of codfish flesh shaped the 1894 Newfoundland banking crisis as the chemical breakdown of tissues led to spoilage and decay processes which mediated the economic collapse. Drawing on Banoub I advocate for a further rescaling of 'fleshy' geopolitics, to account for the vital chemical affordances located *within* caviar as disembodied sturgeon tissue. This aligns with Andrew Barry's calls to analyse the ways "chemical substances and geopolitical relations come together in unexpected and unruly compounds" located within bodies and animals (2017, p.15). Thus, I argue that the material-chemical composition of caviar is a 'critical site for politics' (Barry, 2017), as the caviar grey market emerges through these material properties and necessarily troubles securitized enforcement approaches to European illegal caviar trade. Ultimately, the paper enlivens accounts of grey markets by theorising their materiality from a more-than-human perspective, and conceptually broadens the remit of political animal geography by engaging with the geopolitical-material affordances of disembodied animal flesh.

## 6. The European caviar grey market: foregrounding caviar's 'grey' materiality

The status of European illegal caviar trade is highly contested. Enforcement officers maintain that illegal caviar trade is "drying up" across the continent, most especially in Western Europe. Accordingly, sturgeon and caviar no longer feature as a wildlife trade priority area for DG-Environment of the European Commission. Nevertheless, a 2021 WWF report provides empirical evidence of sturgeon and caviar trafficking in the Lower Danube region, thereby challenging the "perception in some quarters that the problem has been resolved" by regulatory

measures and farmed caviar production (Jahrl et al., 2021, p. 4).

Illegal wild caviar is domestically available in restaurants and markets in sturgeon range states, such as Piața Obor market in Bucharest, Romania. Evidence confirms that a so-called 'caviar mafia' controls international export of illicit caviar via two hidden channels (van Uhm & Siegel, 2016). The first, is the underground black-market where illegal caviar is sold to wealthy buyers or as barter transactions for stolen goods including expensive cars (ibid). The second channel of international caviar trafficking, and the focus of this paper, is a series of sophisticated laundering mechanisms that intertwine streams of legal and illegal caviar to establish an international grey market. Academic (van Uhm & Siegel, 2016; Zabyelina, 2014) and NGO studies (Jahrl, 2013; Jahrl et al., 2021; Musing et al., 2019) of caviar trafficking describe both 'whitewashing' and 'blackwashing' processes. Whitewashing entails laundering illegally harvested live-sturgeon or caviar into legally registered aquaculture facilities or caviar repackaging facilities. Once laundered, the wild fish or caviar becomes hidden within the facility's licit stocks. Conversely, blackwashing is a "unique corrupt practice" (Musing et al., 2019), whereby captive-bred caviar is sold on the black-market as illegal caviar which commands a premium price. Through these laundering mechanisms legal and illegal caviar economies become deeply intertwined.

Mackenzie and Yates' framework describes interfaces between "il/legal, il/legitimate and in/appropriate" (2017, p.84) in grey markets; all of which are evident in caviar laundering processes. However, paying sustained attention to caviar's 'fleshy' material properties reveals a further grey-interface at work within the European caviar grey market: il/legibility. Specifically, I outline how caviar's chemical-isotopic mutability and composite form can render the origin of the commodity illegible, and thus materially 'grey'. These material properties have been overlooked in existing accounts of illicit caviar laundering yet play a crucial role in enabling the intertwining of legal and illegal caviar streams and the entangling of illicit activities between underworld and upperworld actors. Thus, I foreground these material qualities of caviar to examine caviar laundering activities afresh, and to make the case that the illicit caviar grey market functions through the illegibility that caviar's mutable material properties produce.

### 6.1. The chemical-isotope profile of caviar

As Dixon notes, the flesh of animals and food "on the move" is inherently mutable (2015, p.59). Indeed, prior to removal from the sturgeon body caviar possesses a potential for its chemical-isotope characteristics to transform. I argue that this mutable physical quality can produce situations of material illegibility, whereby illicit caviar is so effectively whitewashed that its wild origins prove indiscernible.

Caviar whitewashing corresponds to Mackenzie and Yates' grey market framework by practically mixing licit and illicit supply chains via the laundering of wild-harvested caviar - or even live sturgeon - into caviar aquaculture facilities. Some Russian and European farms are suspected of caviar whitewashing, with significant inconsistencies uncovered between large annual outputs of caviar and the limited infrastructures these farms possess for housing corresponding sturgeon numbers (van Uhm & Siegel, 2016). Laundered caviar and sturgeon undergo a 'cleaning process' (Mackenzie & Yates, 2017) as the products transit along the supply chain and gain legitimate documentation, either following the initial acquirement of falsified CITES documentation via corrupt local CITES authorities (Siegel et al., 2020), or because the illicit products managed to enter the supply chain unnoticed.

Measuring the material-chemical properties of caviar can uncover instances of whitewashing. The chemical composition of sturgeon bodily tissues and caviar are determined by the elemental composition of the water and proteins sturgeon consume, which differ significantly according to geological factors and breeding and feeding practices. As a result, caviar's chemical-material profile can be analysed to make inferences about geographical origin and whether the caviar is wild or

farmed. The primary method for measuring caviar's chemical-profile is a Stable Isotope Ratio Analysis (SIRA). SIRA disaggregates caviar into its constituent elements of carbon, oxygen, hydrogen, nitrogen and sulphur. Testing laboratories compare the isotopic values of caviar samples with reference caviar databanks and infer the caviar's broad geographical provenance – i.e. country of origin – based upon isotopic similarities and variations (Fig. 1). Accordingly, SIRA results become a proxy for identifying the source (wild vs farmed) and thus legal status of the caviar.

Caviar whitewashing incidents have been prosecuted in Europe using SIRA. In 2013, a trader in Germany was issued a 1-year prison sentence and 150,000 Euro fine after SIRA confirmed they fraudulently sold wild caviar from the Caspian Sea as German-farmed caviar (Camin et al., 2017). Problematically however, caviars' mutable materiality can render its true geographical origin illegible even under SIRA, thus resulting in instances of misidentified caviar whitewashing. An Austrian NGO representative explained how their organisation conducted SIRA which flagged farmed caviar sold by a reputable Ukrainian company as exhibiting a similar chemical-isotope profile to wild caviar from the Black Sea. Fearing the caviar was illegal, NGO investigations ultimately revealed that the company fed their captive-sturgeon with wild-caught fish from the Black Sea. These feeding practices unwittingly altered the material composition of the sturgeons' fleshy tissues and caviar before extraction, making the caviar appear illegal when using stable isotope results as a proxy for il/legality.

This example begins to hint at the micropolitical significance that the chemical-material mutability of sturgeon flesh and caviar has for creating caviar laundering opportunities that are difficult to detect. Laundering live-sturgeon is integral to the international caviar grey market and often achieved under the auspices of scientific research, whereby commercial sturgeon farms and researchers are granted permits to catch and release sturgeon according to specific quotas and conditions. Jahrl (2013) explains how aquaculture facilities in Romania historically exploited catch-permits by retaining sturgeon caught for research; and NGO representatives disclosed that a Romanian research team is undergoing investigation for such misdemeanours. These activities have also occurred in Kazakhstan (van Uhm & Siegel, 2016). Exploitation of scientific permits has also been documented in relation to whaling and the laundering of whale meat (Baker et al., 2000; Solund, 2021). However, the laundering of sturgeon via scientific permits stands out as distinct precisely because the fish are often kept alive, and it is their liveliness that proves integral to the success of whitewashing schemes.

Whitewashing live-sturgeon into aquaculture facilities proves increasingly fool-proof and attractive to criminal actors, primarily due to caviar's mutable chemical-isotope properties. Over time, the flesh of illegally laundered live-sturgeon can develop similar material-chemical characteristics to counterpart sturgeon born in captivity. Accordingly, the isotopic values of the tissue water in the caviar and the isotopic values of the roe protein will undergo a concurrent material-chemical change. This constitutes a physical 'cleaning' (Mackenzie & Yates, 2017) of the caviar as it develops the isotopic credentials of legally produced farmed caviar. Under SIRA, the caviar effectively hides that its true origin is from an illegally poached wild sturgeon. In other words, the material origin becomes illegible and typically goes undetected by law enforcement. Other whitewashed wildlife commodities undergo a post-harvest physical transformation or 'cleaning', such as chipped timber or timber-plywood sheets. Caviar, however, stands out as unique as its physical transformation is biological, corporeal, occurs pre-harvest, and does not change the product's outward appearance. Moreover, this physical transformation produces a situation of illegibility which is not evident with other whitewashed wildlife commodities that are physically manipulated post-harvest.

Thus, the mutable materiality of caviar produces conditions of illegibility that allows illicit caviar to be whitewashed, thereby consolidating a 'grey market'. Drawing attention to these overlooked transformations in the chemical-material properties of sturgeon flesh and caviar further reveals a fundamental disconnect between human attempts to govern caviar trafficking and the vibrant materiality of caviar itself. As described above, the materiality of caviar does not neatly adhere to the classification of certain isotopic values as indicative of farmed/wild or legal/illegal caviar. Rather, the chemical-isotopic mutability of caviar means that it often exceeds attempts to make its source truly legible using SIRA. Scientists have attempted to identify alternative methods of source identification using mRNA and differential scanning calorimetry tests (Rehbein et al., 2008). However, no alternative methods have proven more accurate at source identification than SIRA. Conducting widespread isotope testing of caviar shipments would amass more extensive reference databanks and be a starting point for scientists and enforcement officials to pinpoint the geographical origin of caviar with greater accuracy. However, Western European enforcement authorities expressed a general mistrust of SIRA and explained that manpower and cost prohibit indiscriminate testing of caviar shipments. This creates a vicious cycle of illegibility, whereby a lack of testing prevents improvements to SIRA accuracy and makes caviar laundering even more attractive.

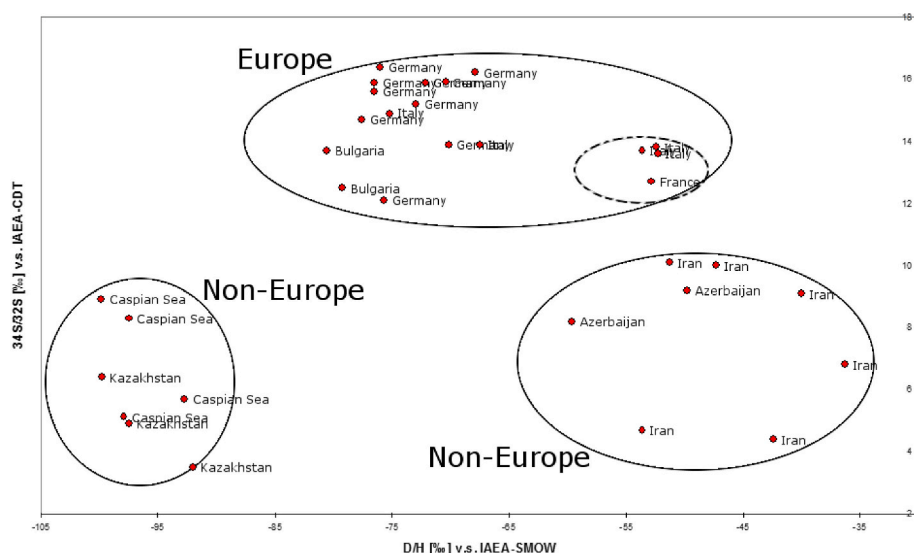


Fig. 1. The isotope ratios of sulphur and hydrogen of caviar samples from different regions/countries (Reproduced with permission from Agroisolab UK).



Currently, “the lack of an applicable technique for source identification complicates the control of black marketing of illegally produced sturgeon product” (Gessner et al., 2008, p.52), whilst creating opportunities for criminal actors to establish a grey market by whitewashing live-wild sturgeon and their caviar. Furthermore, caviar’s mutable chemical identity and the lack of accurate source identification technologies have combined to produce broader structural conditions of illegibility in the caviar marketplace, which have subsequently been exploited by actors engaging in caviar blackwashing. Ongoing demand for wild caviar generates exorbitant black-market prices that entice some caviar producers to profit through ‘reverse-laundering’ schemes (van Uhm & Siegel, 2016). Through these upperworld-underworld laundering activities farmed caviar is illicitly sold as ‘wild’, typically to wealthy Western European customers. Although blackwashing does not alter the physical properties of caviar, it exploits and operates at the interfaces of material il/legibility discussed above. Firstly, customers are unable to materially verify the source of the caviar as they have engaged in an illegal transaction; and if seized and isotope tested, the black-washed caviar generates results that trouble the comprehension of enforcement authorities expecting to uncover that the black-market caviar originates from the wild.

In sum, this analysis demonstrates how caviar’s mutable chemical-isotopic materiality and the lack of accurate source identification methods, have combined to produce a general situation of material illegibility which enables both caviar whitewashing and blackwashing to occur. Through these activities caviar is rendered materially ‘grey’, as it often proves impossible to conclusively categorise caviar as legal or illegal, or it may be falsely verified as it enters the marketplace and consolidates a ‘grey market’. In this regard, the mutable ‘fleshy affordances’ (Squire, 2020) of sturgeon tissues come to the fore as a central force in shaping the characteristics of the caviar grey market. Moreover, Andrew Barry argues that “the chemical geography of isotopes points forward directly to geopolitics” (2017, p.9), and in the case of caviar, its previously overlooked chemical-isotopic mutability proves to have direct implications for practices of securitized enforcement in Europe, as I explore in section seven.

## 6.2. Caviar’s composite form

The composite form is a further fleshy material property of caviar that proves central for shaping the international caviar grey market. Caviar is not materially singular. The commodity is produced from



**Image 1.** A display cabinet of caviar tins ranging from 1.8 kg ‘Mother tins’ to 30 gram tins (Author’s photograph).

sturgeon 'roe', a term which refers to the assembly of individual eggs housed in two sturgeon ovaries, held together in a matrix of connective tissue called the skein (Chapman & Eenennaam, 2016). Sturgeon produce assemblies of hundreds of thousands and sometimes over a million eggs, which slowly grow and ripen in a collective likened to "a bunch of grapes" (Chapman & Eenennaam, 2016). The mass of oocytes which are processed to become 'caviar' are from the outset a composite material. Moreover, the eggs are processed, packaged, transported, sold and consumed as aggregate matter (Image 2). The intrinsically composite material characteristics of caviar stands in contrast to other illicitly trafficked wildlife products such as rhino horn or elephant tusks, which may be traded and transported as a set or collective but are not biologically formed as an interconnected aggregate and aren't typically consumed as such. While other wildlife commodities are consumed as individually bounded commodities, a significant part of caviar's appeal is the gastronomic experience of consuming a mouthful of eggs together.

Importantly, caviar's composite nature means that its material configuration is potentially mutable and can be physically altered to aid trafficking. Accounts of caviar laundering have largely neglected considering how caviar's composite materiality influences trafficking mechanisms. However, the aggregate composition proves instrumental in shaping illicit repackaging practices which produce the 'grey flows' (Hübschle, 2017) characterising the European caviar grey market. The caviar repackaging system allows 1.8 kg and 1 kg 'Mother tins' to be purchased directly from sturgeon farms and repackaged into smaller retail sized containers by middlemen in third and even fourth countries (Image 1). Cross-border repackaging practices, make it "inevitable" that some wild and farmed caviar is illicitly mixed and fraudulently described (Steavenson, 2019). Zabyelina (2014) documents the material intertwining of contraband Russian caviar with legally produced Iranian caviar. In Europe, caviar industry actors described how dealers buy small batches of farmed caviar from European aquaculture enterprises and return half of the caviar to the producer, yet retain their official CITES export permits. They then 'top-up' supplies of farmed caviar with illegally obtained wild caviar and fraudulently use their CITES permits to export the illicitly mixed caviar. Although wild caviar typically attracts higher prices on the black-market, whitewashing is appealing to caviar industry actors as they can incorporate illegal caviar into existing

legal infrastructures with ease and in the knowledge that enforcement controls of aquaculture and repackaging facilities are haphazard at best. Moreover, they can reap a profit without having to identify black-market customers or manage changeable black-market demand dynamics.

These illicit repackaging practices exploit the possibilities for illegibility afforded by caviar's aggregate composition. As wild caviar is spread across and within tins of legal farmed caviar, the contents of the tins become materially 'grey' as they are neither entirely composed of farmed or wild caviar. The structure of the caviar supply chain means that there are multiple opportunities for caviar repackaging, and this makes it possible for a mass of illicit eggs to be 'cleaned' (Mackenzie & Yates, 2017) as the collective is broken down and dispersed into ever-smaller concentrations spread across the millions of tins on the international marketplace, and amongst the thousands of eggs within a tin. Notably, the illicit reconfiguration of the contents of caviar tins makes it harder for law enforcement to identify illegal caviar on the marketplace. The sheer scale of eggs in a tin makes it inconceivable for law enforcement officers to verify the provenance of each individual egg. So, while some eggs may be tested the majority remain materially unverified and thus 'grey'. In contrast, illicit shipments of other high-value wildlife products can more easily be rendered materially legible as they are not traded at the same scale or concentration as caviar, and so each product can be tested to reveal its origin. This has been demonstrated for example, in identifying illicit pet-trades in critically endangered cockatoo (Andersson et al., 2021) and reptiles (van Schingen et al., 2016). As such, caviar's composite materiality is a uniquely mutable property which directly shapes the dynamics of the European caviar grey market, as it operates at the interface of il/legibility and enables wild caviar to be hidden in ways that prove largely indecipherable to wider political-economic networks.

Moreover, the illicit material reconfiguration of the contents of caviar shipments becomes further legitimated and even less likely to be identified through the acquisition of official documentation and legal export certificates as the caviar passes along the supply chain. Thus, in both a material and legal sense the illicit caviar is "slowly cleaned as it passes through different hands; moving towards the white (licit) but most likely ending up grey" (Mackenzie & Yates, 2017, p. 82). Paying attention to caviar's composite form and the possibilities this affords for reconfiguring and recombining licit and illicit caviar streams, ultimately reinforces the importance of theorising the material capacities of caviar to explain how the international caviar grey market operates. Caviar's composite material configuration works alongside its chemical-isotopic mutability to shape two distinct laundering mechanisms which operate at the interfaces of il/legibility and fleshiness.

## 7. Securitized caviar enforcement in Europe: a fleshy geopolitical critique

I reinforce the need to "attend to the nonhuman – as multiple, material and agential" (Jackman et al., 2020, p. 6), to demonstrate how the European caviar grey market is shaped by the illegible 'fleshy affordances' of caviar. Foregrounding how the pervasive licit-illicit interfaces of the European caviar economy are forged through the grey materiality of caviar, also opens space to problematize the prevailing geopolitical policy discourses and securitized enforcement strategies which position illegal caviar trade in Europe as a starkly black and white issue.

The European caviar economy's grey dimensions are typically overlooked by EU policy-enforcement approaches which overwhelmingly characterize the caviar market in dichotomized terms: a 'white' legal economy versus an illegal 'black' marketplace. A senior EU wildlife trade policymaker spoke of two, discrete, bounded markets with impermeable borders, explaining that "there's now a lot of legal trade and it's all coming from aquaculture facilities ... so then the issue of illegal trade [in Western Europe] has been replaced". This dichotomous framing fosters spatialized policy-enforcement approaches which position illegal caviar trade as a criminal issue confined to sturgeon range



**Image 2.** Jars of caviar prior to packaging and labelling for commercial sale (Author's photograph).



states at the borders of the EU; an orientation which feeds into twinned geopolitical preoccupations with framing wildlife crime as a security threat (Duffy, 2022; Massé et al., 2020) and broader concerns with securing and policing the external territorial borders of Europe (Pallister-Wilkins, 2022).

Accordingly, policy-enforcement efforts to tackle European illegal caviar trade have taken a distinctly securitized trajectory, typified by heightened surveillance and policing in fishing communities across Eastern European sturgeon range states. For example, an EU-funded LIFE project headed by WWF donated an IP-surveillance camera to Ukrainian border force. This camera monitors a sturgeon poaching hotspot on the Ukrainian-Romanian border, using the internet network to record, store and share footage between parties. Furthermore, the SCOMAR surveillance system installed with cameras every 5–6 km along the Romanian Black Sea coast, captures sturgeon fishing violations alongside other criminal ‘security threats’ including illegal immigration and drugs trafficking. In 2019 Romanian Border Police announced a 6-million-euro upgrade to SCOMAR to further consolidate this initiative (Luca et al., 2020). Additionally, patrols in sturgeon fishing communities have confiscated illegally harvested sturgeon, caviar, and criminalized fishing equipment, whilst also resulting in what a Romanian NGO representative called “abuses” of communities through unlawful confiscations of boats, fuel, equipment, and even physical assaults by border police. The roll-out and intensification of these initiatives represents an explicit example of ‘conservation surveillance’ (Sandbrook et al., 2018) which problematically homogenizes and vilifies fishing communities in Eastern Europe. These locations are framed as spaces of criminality where intersecting ‘security threats’ converge and require intervention via deepened surveillance and policing strategies that target marginalised communities with potentially disproportionate vigour.

Deborah Dixon argues that “geopolitics as a form of statecraft has been preoccupied with the unruly nature of flesh”, typified by attempts to govern and regulate the movement and activities of “insurgent” and “recalcitrant” bodies and materials (2014, p.136). The above strategies thus reveal a further ‘fleshy’ layer to the geopolitics of caviar trade in Europe, demonstrating how European enforcement operates according to particularly narrow and sometimes violent modes of engagement, whereby particular bodies – both human and nonhuman – are codified as illegal and thus made into targets of securitized, often physically affronting, conservation-enforcement strategies. Notably, there is a distinctly geographical and geopolitical asymmetry to these securitized policy-enforcement approaches. Specific bodies, landscapes, regions, and countries located at the Eastern edges of the EU have been delimited within zones of illegality, standing in stark contrast to the inner sanctum of Western European states framed as a space of legal, unfettered trade in farmed caviar. Ultimately, the European caviar economy’s illicit interfaces are overlooked, and Western European states and actors are absolved of responsibility for sustaining ‘grey flows’ (Hübschle, 2017) of caviar across the continent. A pervasive narrative is reinforced instead: that regulatory changes and the growth of farmed caviar production have virtually eradicated illegal caviar trade in Europe.

Arguably, combatting sturgeon poaching and illegal harvesting of caviar at the source is an essential component of efforts to tackle illegal caviar trade. However, broader criminal networks will not be destabilised by securitized enforcement approaches which focus solely on surveillance and policing of sturgeon fishing communities. In fact, fishermen caught poaching or using illegal equipment are easily replaced within these extensive criminal operations, particularly as increasing poverty levels in the region may tempt more desperate individuals into poaching. Thus, directing enforcement agendas at sturgeon fishing communities subjects already marginalised people to greater degrees of insecurity. Danube Delta fishing communities are routinely vilified as caviar traffickers yet reap little rewards from these pursuits: over 90% live in near poverty, whilst the middlemen profit from selling caviar onwards for 5 to 8 times higher than the purchase

price (Daea, 2019). Existing enforcement strategies thus target and criminalize the “most vulnerable villains” (Iordăchescu & Vasile, forthcoming), while more sophisticated criminal actors who straddle the underworld-underworld nexus slip between the enforcement net.

Indeed, as previous discussions of illicit whitewashing of live-sturgeon and repackaging of wild caviar illustrated, the grey caviar economy operates via a “symbiotic relationship between the underworld and underworld” (Wyatt et al., 2020, p. 363). Grey actors or ‘Janus figures’ (Mackenzie & Davis, 2014) use their position at legal-illegal interfaces to facilitate illicit exchanges of caviar and consolidate the intertwining of legal and illegal caviar flows. However, ‘Janus figures’, including corrupt enforcement officers, have largely been shielded from scrutiny by narrow policy-enforcement trajectories pursued by the EU and EU Member State enforcement agencies. For example, in April 2019 the SCOMAR surveillance system ‘malfunctioned’ around Sfântu Gheorghe, Romania, at a key time and location for sturgeon spawning. Informants accused border police of tampering with cameras to allow unimpeded sturgeon poaching, however no investigations ensued. Moreover, NGO representatives working in Romania and researchers in Western Europe described numerous instances of civil servants, scientists, and enforcement officers colluding with criminal actors to facilitate caviar laundering across Europe. These criminogenic asymmetries point to a fleshy geopolitics at work, in which more powerful actors and countries benefit from the operation of securitized statecraft (Dixon, 2014), at the expense of human and nonhuman bodies that are deemed expendable.

When questioning why EU policy-enforcement strategies overlook the grey dimensions of international caviar trade, the illegible material properties of caviar loom large. As discussed, identifying caviar’s material origin is an enduring problem for enforcement officers and significantly impedes effective understanding and disruption of international illicit caviar trade. However, rather than investing resources into developing technologies that can more accurately render the material origin of caviar legible, there is a tendency to work within the limitations of existing technologies and proffer declining – and unreliable – seizure data as evidence that caviar trafficking has been resolved. Moreover, the international political arena’s fixation with ending high-profile wildlife crimes (Massé et al., 2020) renders the EU’s pursuit of sturgeon poachers a politically expedient move. This strategy also obscures the fact that targetting ‘poachers’ is an easier policy-enforcement approach than attempting to untangle the pervasive licit-illicit interfaces of the European caviar economy. If the true extent of illicit caviar trade became visible, this would draw unwanted attention to regulatory inadequacies, criminogenic asymmetries, corrupt underworld-underworld relationships and undermine the powerful success narratives promulgated by Western European policymakers and enforcement officials. For these policy-enforcement officials, to open a can of caviar is to open a can of worms.

This analysis maintains that simplistic dichotomies entrenched by policy-enforcement discourses must be displaced, as the underworld-underworld nexus effectively troubles the pervasive notion that legal and illegal caviar markets exist distinctly. Effective policy must recognise that legal and illegal caviar trades are often coterminous: materially interconnecting through shared actors and bleeding into each other through the physical intermixing of caviar. In practice, the licit-illicit interfaces of the caviar economy could be targeted and disrupted via a suite of strategies. One Belgian caviar producer advocated for prohibiting the repackaging of caviar, primarily because this system is so widely exploited for underhand means. WWF, the pre-eminent NGO working on illegal caviar trade in Europe, has called for more systematic and extensive systems of caviar testing in Western European end-user markets, using both DNA and stable isotope tests even on shipments with CITES labels (Jahrl, 2013; Jahrl et al., 2021). This could be partnered with efforts to develop technologies that can more accurately identify the origin of caviar.

There are also obvious opportunities to move away from overtly

securitized enforcement strategies that primarily criminalize poachers in Eastern Europe. Efforts instead should focus on using alternative surveillance methods and investigative resources to address corruption, disrupt underworld-upperworld connections, and target “those actors who operate at higher levels and prey on vulnerable people” to commit the high-risk/low-reward crime of sturgeon poaching (Massé et al., 2020, p. 38). This could entail pursuing ‘follow the money’ investigations (Haenlein & Keatinge, 2017) to trace grey financial flows associated with caviar laundering. Efforts that explicitly target the grey dimensions of the European caviar economy would also be complemented by policy frameworks that better focus on poverty alleviation, sustainable development and bottom-up conservation initiatives which empower sturgeon fishing communities to eschew poaching and take ownership of biodiversity protection.

## 8. Conclusion

In arguing that the European caviar economy constitutes a ‘grey market’ (Mackenzie & Yates, 2017), this paper provides novel insights on illicit caviar trade in Europe by highlighting the importance of caviar’s mutable, fleshy materiality in facilitating the intertwining of legal and illegal caviar streams and forging connections between upperworld and underworld actors. Specifically, I focus on two key material attributes of caviar: the changeable chemical-isotope properties and the alterable composite configuration. These mutable material properties prove difficult for human actors to make sense of, and thus produce structural conditions of il/legibility whereby caviar is often rendered materially ‘grey’: either impossible to determine its true origin or wrongly categorised as legal caviar. Importantly, I focus on these licit-illicit materialities of the European caviar economy to “trace connections between body-parts, bodies, states and the global ambitions of geopolitical practices” (Sharp, 2020, p. 999). In other words, I draw connections between the fleshy properties of sturgeon and caviar to unsettle dominant depictions of illegal caviar trade in Europe. I argue that current policy-enforcement strategies are flawed because they are built on a false dichotomy that does not recognise the material interconnections between licit and illicit caviar economies. Moreover, overtly securitized enforcement strategies disproportionately target Eastern European states, citizens, and ecologies, by both drawing upon and further cementing concurrent geopolitical agendas that treat wildlife crime as a security threat and position the territorial borders of the EU as a key site for heightened policing and surveillance. All of this serves to obscure the role of Western European states and citizens in sustaining illegal caviar trafficking and provides further cover for corrupt actors facilitating illicit caviar trade across the upperworld-underworld nexus.

Theoretically, the paper makes a series of contributions. First, I enliven grey market scholarship by pointing to the micropolitical material affordances of nonhumans and their capacity to indelibly shape macropolitical structures and dynamics of laundering in illicit economies. By focusing on the vital materiality of caviar, I bring grey market literature into conversation with more-than-human scholarship in political geography, which allows me to point to material il/legibility as a further grey ‘interface’ (Mackenzie & Yates, 2017) that is useful to theorise when studying grey markets in wildlife and other high-value illicit commodities. In contributing to scholarship in political geography, the paper pushes understandings of ‘political animals’ beyond charismatic, lively, sovereign subjects to engage with non-living or ‘semi-living’ (Squire, 2020) animal derivatives. Examining the (geo) political affordances of ‘corporeally disassociated’ (Dixon, 2014) animal flesh opens new avenues for “an enlarged political geography” (Hobson, 2007, p.264) to consider how *disembodied* animal matter and tissues are constitutive of political space and processes through their vital material qualities. Overall, this account of the material geopolitics of the European grey caviar economy illuminates the ongoing possibilities for advancing a political geography agenda on animals; and for pushing the

sub-field to further consider how nonhuman flesh intersects with, disrupts and reshapes efforts to govern “insurgent” and “recalcitrant” (Dixon, 2014) bodies via trade regulations, securitized enforcement, border policing and other geopolitical mechanisms.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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